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**CASE STUDIES IN DOD ACQUISITION:
FINDING WHAT WORKS**

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRTEENTH CONGRESS

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**CASE STUDIES IN DOD ACQUISITION:
FINDING WHAT WORKS**

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Tuesday, June 24, 2014.

The committee met, pursuant to call, at 10:03 a.m., in room 2118, Rayburn House Office Building, Hon. Howard P. “Buck” McKeon (chairman of the committee) presiding.

**OPENING STATEMENT OF HON. HOWARD P. “BUCK” MCKEON,
A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, COM-
MITTEE ON ARMED SERVICES**

The CHAIRMAN. The committee will come to order. Good morning. As most of you know, I have asked our Vice Chairman Mac Thornberry to lead a long-term effort to streamline management of Department of Defense [DOD] by eliminating unnecessary overhead and reducing the complexity of the regulatory environment.

I have also asked him to take a hard look at how we can make some lasting improvements in the way that DOD sets requirements and acquires things to meet those requirements. We have all heard the quote—“Those who cannot remember the past are condemned to repeat it.” This is something that we have done over and over, but I am confident this time it is going to be perfect.

Perhaps there is no better example of this futility than defense acquisitions where the same efforts, reform efforts, have been tried again and again for more than 70 years. I want to break this cycle of failed acquisition reform by learning from those that traveled down this path before. That is what this hearing is about.

We have asked our witnesses to present some case studies of their choosing not ours, that based on their experience, they feel are good examples of what is working in DOD acquisitions and what is not. I invite all Members to tread outside their committee lanes and ask questions about any of the cases studies, even programs that you are not familiar with. So no question is a bad question.

The great folks we have here before us today have worked on a variety of programs and we appreciate the breadth of their experience. We have with us today the Honorable Brett Lambert who recently left his post as a Deputy Assistant Secretary for Manufacturing and Industrial Base Policy and is now with the National Defense Industrial Association.

We also have Mr. Ron O’Rourke, who most of you here know, from the Congressional Research Service. Additionally, we have Vice Admiral David Venlet, Retired—did I say that correctly—who during his service with the Navy worked on many major acquisi-

tions programs to include the F-18 and the Joint Strike Fighter. Now, I understand that you are just basically short time removed from that but your experience, sir, will be invaluable.

Next, we have the Honorable Beth McGrath who recently served as DOD's Deputy Chief Management Officer where she had responsibility for DOD's business systems.

And last but not least we have Dr. Christopher Lamb who is currently Deputy Director for Institute for National Strategic Studies at the National Defense University. Prior to that post, he served as the Deputy Assistant Secretary of Defense for Resources and Plans where he had oversight of requirements, acquisition, and resource allocation matters for the Under Secretary of Defense for Policy. I welcome all of you and thank you for your service, this is a very good panel for this subject. We really appreciate and value your expertise.

Ms. Sanchez.

[The prepared statement of Mr. McKeon can be found in the Appendix on page 47.]

**STATEMENT OF HON. LORETTA SANCHEZ, A REPRESENTATIVE
FROM CALIFORNIA, COMMITTEE ON ARMED SERVICES**

Ms. SANCHEZ. Thank you, Mr. Chairman.

And once again, thank you to the panel for being with us today. We appreciate it. As you know—first of all, Mr. Chairman, thank you for holding this hearing, I know that there are quite a few number of Members who are very concerned about the acquisition process.

And as you know, we have been trying to work on this gosh, since I got to the Congress, and I am sure since you got to the Congress to try to figure out how we get all of this done. Acquisition is incredibly important especially in a time of limited resources, which you and I know we are facing and continue to face.

So, in order to do our missions more effectively, our men and women have to be trained up but they also have to be equipped well and they need to have those defense systems and they have to have cutting-edge defense systems. We want to have that innovation that we need. And so, the insight that you will provide us on how the acquisition system is working or not working, what we can do to change it, et cetera, I think, is incredibly important.

I think that we can learn from some of the mistakes that have been made. Certainly, sitting here and sitting as the ranking member on Air Tactical, I have had my frustrations with major programs; F-35 for example, two or three programs that we have now completely cut out without having a system available to our men and women who are working very hard out there to keep us safe.

So, I think we need to invest the knowledge that we gained from some of those mistakes and some of those acquisitions that just didn't happen. And at the same time I am also worried about the industrial base, worried about the innovation base because as a Californian I see so much of that, of those engineers and others who get pulled into software development and pixels and gosh, you know little games that people play on their personal devices, et cetera.

So, I think it is incredibly important, you know, what does the acquisition process look like? How do we use the money effectively? How do we really get something for the money that we are spending? How do we improve contractor performance? And I believe that our witnesses have extensive experience in all of this.

So, I am really looking forward to see this and also, as the budget for defense has begun to shrink with respect to future systems in particular, Mr. Chairman, I think that some of the primes try to take more of the work inside. And so, one of the things we see is that our smaller and medium-size businesses are getting less contracts or are really not being asked to compete or they are not being used.

And that is where a lot of the innovation for the future comes from because a small and medium-size business can maneuver so much quicker than a larger staid company. So, you know, I want to see—I want to try to figure out how do we continue to include small business, minority businesses, incredibly important because they really are the place where Americans, most Americans work.

And all of these issues are based around this whole issue of the acquisition process. So, I am very interested in this topic. Thank you for holding it and interested to hear from our witnesses.

Thank you, Mr. Chairman.

[The prepared statement of Ms. Sanchez can be found in the Appendix on page 49.]

The CHAIRMAN. We have five witnesses, so normally in this committee, we don't watch the clock too much until we get to the Members' questions and then we are very strict. But I would really ask if you could keep your opening comments to the 5 minutes, it will give us more time for the Members to be able to ask the questions that they really want to get to. And then that gives you a chance to expound on the things that you have to cover with us, so I would appreciate it if you do that.

Let's start with Mr. Lambert.

**STATEMENT OF HON. BRETT LAMBERT, SENIOR FELLOW,
NATIONAL DEFENSE INDUSTRIAL ASSOCIATION**

Mr. LAMBERT. Thank you very much, Mr. Chairman. In my brief comments before you today, I will focus on discussing the underlying trends that produce acquisition successes and failures on a broad scale. Metaphorically speaking, I believe acquisition reform should focus less on individual silver bullets and more on creating and sustaining silver mines and best practices identified over time and under varying conditions.

The industrial base upon which we rely is comprised of an extremely diverse set of companies that provide both goods and services directly and indirectly to the military. References to "The Industrial Base" that imply some monolithic entity are analytically unuseful.

The defense industrial base incorporates companies of all shapes and sizes, from the world's largest public companies to sole proprietorships to garage start-ups. Some companies deal directly with the Federal Government, but a vast majority act as suppliers, sub-contractors, and service providers in a value chain that leads to

prime contractors and is often based in far off lands or even in “the cloud.”

In the coming years, the Department will increasingly purchase from what I call the “millennial industrial base” which will be more global, more commercial, and more financially complex. This reality is truer today than it was yesterday, and will be truer tomorrow than it is today.

The millennial industrial base will also be marked moving forward more by system disposability and refreshment than 30-year life cycles and we must have an acquisition process that can keep pace. The emerging millennial industrial base is also evolutionary, where Moore’s Law is more important than Milestones, and Metcalfe’s Law is more vital to our national security than MILSPECs [military specifications].

Increasingly, the millennial industrial base will also rely on technologies that were not developed in the United States. Also, like the commercial marketplace, our supply chain, particularly at the lower tiers, will include firms from countries that are not our closest allies. The commercial and global nature of the millennial industrial base is one the Department has begun to recognize in policy more so than in practice.

This change is profound and disruptive. When it comes to acquisition, the Department continues to assume it is the dog, not the tail of any particular market. For some markets that is still correct. For an increasing number, it is not. As I have noted, the Department relies on an Industrial Age policies and procedures that often hinder it from acquiring the best Information Age technologies. In many cases, this results more from culture than from policy.

For example, FAR [Federal Acquisition Regulations] Part 12 already enables the Department to buy advanced commercial systems and services but it is far too often bypassed in favor of the more established and comfortable government-unique source selection policies of FAR Part 15. The only barrier to entry for many innovative firms seeking to offer their best technologies is often the acquisition skill set and confidence of informed government customers.

To a large extent, the millennial industrial base also embraces the Department’s pursuit of Better Buying Power. Nowhere is the Department more likely to find improved productivity, innovation, cost controls, and competition than in the base that leverages global and commercial best practices.

The Better Buying Power initiative seeks to accentuate and leverage all of the best aspects the millennial industrial base has to offer and it should be encouraged to continue at all levels of the Department, most notably in the training and retention of the skilled acquisition workforce.

Another advantage of embracing the millennial industrial base to the Department is burden sharing in research and development. Today’s debate rages over the role of IRAD in defense innovation. But this single acronym too often conflates Independent Research and Development and Internal Research and Development.

Independent R&D [research and development] are funds provided by the taxpayer to defense companies at the rate of over \$4

billion a year. There are many good reasons for these expenditures and I support them all. It is a good program.

Internal R&D, on the other hand, as every non-defense company understands it, is self-directed and unreimbursed with the goal of investing in capabilities that have a clearly articulated return on the research and development investment. As the Department increasingly leverages the commercial marketplace, Internal R&D may likely become a greater source of innovation than Independent R&D.

It may be helpful, moving forward, to simply distinguish the two pools of resources and refer to "Independent R&D" as "Reimbursable R&D," which is in effect is what it is. The Department would then be better able to distinguish, as will shareholders of public companies, the dramatic increases in IR&D driven by the millennial industrial base that are not taxpayer funded yet may yield significant results for the warfighter if private investments are able to develop into goods and services the warfighter requires. That said, access to the shareholder-funded innovation can only effectively be leveraged when careful and fair consideration is given to the ultimate control and use of intellectual property.

In conclusion, there is not, as I have said before, a silver bullet for the real and perceived shortcomings of the Defense Acquisition System. In my opinion, the single greatest asset over time comes back to the people. How talented are they? How well are they trained? How empowered are they to make the necessary call on any one procurement action, and how are they rewarded for thinking and not just acting?

To be successful, that workforce must embrace the millennial industrial base as the future of defense acquisition. How we can enable our people to recognize and leverage this reality is a challenge both this committee and Department must face in the coming years.

As I have said, our daughters and sons should never enter a fair fight and to ensure that, we all must embrace both the opportunities and challenges of this emerging industrial base.

Thank you.

[The prepared statement of Mr. Lambert can be found in the Appendix on page 50.]

The CHAIRMAN. Thank you.

Mr. O'Rourke.

STATEMENT OF RONALD O'ROURKE, SPECIALIST IN NAVAL AFFAIRS, CONGRESSIONAL RESEARCH SERVICE

Mr. O'ROURKE. Chairman McKeon, Ranking Member Sanchez, distinguished members of the committee, thank you for the opportunity to appear before you today to testify on case studies in what works in DOD acquisition. Mr. Chairman, with your permission, I would like to submit my written statement for the record and summarize it here briefly.

The CHAIRMAN. All of your written statements will be included in the record in total, without objection, so ordered.

Mr. O'ROURKE. As requested, my testimony focuses on Navy acquisition, and I selected seven case studies as examples of what works. The first is nuclear propulsion which is under the direction

of Naval Reactors. The Navy's success since the 1950s in procuring and safely operating scores of nuclear-powered ships and in developing a succession of reactor designs using fuel cores with increasingly long lives can be considered a major success story.

Naval Reactors' success can be attributed in part to its administrative setup, which provides Naval Reactors with a clear and focused mission, clear and total responsibility and accountability for implementing that mission, a director with a high rank and a long term of office, centralized control of the program's industrial base and suppliers, and a fairly flat organizational structure with an in-house staff that is fully knowledgeable in the technology that it acquires from its contractors.

Naval Reactors' success can also be attributed to its operational philosophy, which is characterized by, among other things, a focus on technical excellence, rigorous quality control, comprehensive procedures and procedural compliance, careful selection of personnel, and rigorous and continuous training of those personnel.

The second example is the *Virginia*-class submarine program which has reduced cost while increasing capability and is delivering boats ahead of schedule. The program's success can be attributed to, among other things, achieving a higher degree of design completion prior to the start of construction than was true for previous submarine programs, establishing operational requirements that were not overly ambitious, using technologies developed for previous submarine classes, sharing production best practices between the two submarine shipbuilders, and achieving production efficiencies through the use, with congressional approval, of multiyear procurement and block buy contracting.

The third example is the Acoustic Rapid COTS [Commercial-Off-the-Shelf] Insertion program for upgrading the acoustic signal-processing capabilities of existing Navy submarines. This open architecture program permits the Navy to upgrade the capabilities of existing submarines at much less cost than the previous closed architecture approach.

The fourth example is the Aegis Ballistic Missile Defense program, which has achieved the largely successful test flight record against increasingly challenging targets. The program's success can be attributed in part to its use of the Aegis community's long-standing incremental development philosophy known as "Build a little, test a little, learn a lot."

The fifth example is the Mobile Landing Platform or MLP shipbuilding program which modified the design of an existing commercial oil tanker to produce an MLP at a cost that was less than half the estimated cost of the new design concept the Navy had been looking at.

The sixth example is the use of Profit Related to Offers, or PRO Bidding, in the DDG-51 destroyer program which has enabled the Navy to continue using competition between the two DDG-51 shipyards during years of relatively low production rates.

And the seventh example is the Navy's increasing use in recent years of multiyear procurement and block buy contracting which amounts to a significant change, some might say a quiet revolution, in Navy ship and aircraft acquisition and which has enabled Con-

gress and the Navy to procure more ships and aircraft for a given amount of money.

Lessons learned for Navy shipbuilding that have emerged over the years include the following seven points: First, get the operational requirements for the program right up front and manage risk by not trying to do too much in the program.

Second, impose cost discipline up front and use realistic price estimates.

Third, minimize design/construction concurrency.

Fourth, use a contract type that is appropriate for the amount of risk involved, and structure its terms to align incentives with desired outcomes.

Fifth, properly supervise construction work.

Sixth, provide stability for industry in part by using, where possible, multiyear procurement or block buy contracting.

And seventh, maintain a capable government acquisition workforce that understands what it is buying.

Identifying these lessons isn't the hard part. Most if not all of these points have been cited for years. The hard part is living up to them without letting circumstances lead program execution efforts away from these guidelines.

Mr. Chairman, this concludes my statement. Thank you, again, for the opportunity to testify, and I will look forward to the committee's questions.

[The prepared statement of Mr. O'Rourke can be found in the Appendix on page 61.]

STATEMENT OF VADM DAVID J. VENLET, USN (RET.), FORMER PROGRAM EXECUTIVE OFFICER FOR F-35 AND NAVAIR COMMANDER, U.S. NAVY

Admiral VENLET. Chairman McKeon, Ms. Sanchez, and committee, thank you for the invitation to appear with this panel. Mankind has always lived in a world of constrained resources, in our personal, professional, and national lives. Optimization of these constrained resources is what produces outcomes that are useful and enduring.

Specific actions in specific areas are called for to ideally improve the opportunity to achieve better outcomes. It is a long road. Three places need improved outcomes.

The first is making the programs underway perform better. The second is to only start and pursue the right programs. The third is removing waste in the infrastructure and the process.

Things to do for better outcomes are different for each one. I am here today to do what I can to help you based on my exposure to and participation in a large number of programs, of successes, disappointments and undeniably confrontation with failure.

Specific program case studies would yield the non-specific program insights in my written submission. Non-specific here is not meant to avoid specific program criticism but to focus on causes and hopefully effective things to do for better outcomes for every program now and in the future.

I hope to bring focus on ideas to attain the external result, the right capability delivery for effective national defense. We need to focus on people doing acquisition in both government and industry.

The goal is to create an increasing population of people who have demonstrated commitment to the practice of fundamentals, transparency, and realism at all levels of career progression. That will produce better outcomes.

It is a long road and forces abound that suppress workers from embracing these as life habits. This attention to people is the heart of the matter for getting to a state of dependably better performing programs.

I look forward to your questions and our discussion.

[The prepared statement of Admiral Venlet can be found in the Appendix on page 80.]

The CHAIRMAN. Thank you.

Ms. McGrath.

STATEMENT OF HON. ELIZABETH (BETH) MCGRATH, FORMER DEPUTY CHIEF MANAGEMENT OFFICER, U.S. DEPARTMENT OF DEFENSE

Ms. MCGRATH. Good morning, Mr. Chairman, Ms. Sanchez, members of the committee.

The CHAIRMAN. Will you pull the mic right up?

Ms. MCGRATH. Yes. Is this better? Great. Thank you. I was about to say how much I appreciate the opportunity to return and testify this morning and be part of this panel and provide my perspective on achieving meaningful and lasting reform in the Department of Defense acquisition process and how we can operate more effectively and efficiently on behalf of the American taxpayer.

As mentioned, until recently, I served as the Deputy Chief Management Officer for the Department of Defense. In that capacity I assisted the Secretary and the deputy in drafting strategies and implementing plans aimed at streamlining business operations including business information technology programs.

While at the Department, we did manage to make some steps toward a more efficient acquisition model, yet today DOD continues to experience software development projects that fail to meet scheduled deadlines or promised cost estimates.

In today's environment, tolerance for cost overruns and missed deadlines is in short supply. The budgets for IT [information technology] will be tight for the foreseeable future and no agency has the money or time to waste. I believe the tools exist to develop mission critical software projects that meet specifications both functional and aimed to achieve both the costs and schedule.

Project teams need to think creatively and work more collaboratively to achieve these effects. How the government defines clear, measurable results is critical for both the Department of Defense and industry. There are benefits for all parties involved in executing efficient acquisition programs.

In my time today, I will focus on three areas of potential reform and revision that I believe are essential to future IT cost efficiency and operational success. First is the increased use of prototypes. Prototype functionality should be shared with users as soon as possible after they discuss what they want and need from the system that can spark changes in the requirements and priorities and they need to understand what it is they are looking for from an oper-

ational perspective and have a better sense for their requirements and as they see the functionality.

Frequent incremental releases early in the process keep the project fresh and users continually engaged. Each release is a checkpoint to measure progress against expectation of mission stakeholders. And keep in mind the earlier in the development cycle corrections are made the cheaper they are.

Second is the use of strong program managers and information technology professionals. The program manager must keep the project focused on outcomes and he or she must work very closely with the functional leaders throughout the program.

The project manager guides the development and adherence to sound, standards-based practices to avoid risks. Both the program manager and functional lead need to be intimately involved and understand the planned features of the system, again, with a clear focus on what the business outcomes are intended.

Third is the flexibility in the contracting process. Between prototyping and delivering releases, change orders will occur in the contract type. We need to make sure that we have a mechanism in place where the communication between industry and the government and our contracting practices enable these changes to happen because things change throughout the life cycle of a program and the contract structure needs to be able to handle those changes, again, focused on the business outcomes.

The acquisition process is dynamic and complex. Any effective and workable solution must consider a wide number of factors in a diverse group of stakeholders. Building a comprehensive acquisition model relies on valuable input from the Pentagon, the individual services, industries, and certainly the Members of Congress.

That level of engagement is vital. We must continue to search for ways to instill new innovative and efficient techniques in the process. I look forward to working with this committee in the months ahead and being able to report additional gains in the quest for greater efficiency, increased effectiveness, and further agility.

Thank you very much for the opportunity to be here today, and I look forward to our discussion.

[The prepared statement of Ms. McGrath can be found in the Appendix on page 93.]

The CHAIRMAN. Thank you.

Dr. Lamb.

STATEMENT OF DR. CHRISTOPHER J. LAMB, DEPUTY DIRECTOR OF THE INSTITUTE FOR NATIONAL STRATEGIC STUDIES, NATIONAL DEFENSE UNIVERSITY

Dr. LAMB. Mr. Chairman and members of the committee, thank you for the opportunity to be here to share my views on what works and what doesn't in defense acquisition. It is an honor to be here.

In the written testimony, I offer several examples of acquisition successes and failure, but I focus primarily on the mine-resistant, ambush-protected vehicle program, otherwise known as MRAPs.

The fielding of MRAPs is a noteworthy case that features both major performance failures and successes. I believe the MRAP case helps substantiate some insights about Pentagon management of

acquisition that is noteworthy. For example, the flexibility to manage programs differently, depending on circumstances, is critically important. And irregular warfare is a prime example in that regard.

Efficient and effective acquisition is not possible without reform of other associated Department of Defense processes, particularly the requirements process in my estimation. Senior leaders I believe who are frustrated with Pentagon processes are increasingly inclined to jettison disciplined defense analyses in favor of intuitive and impressionistic decisionmaking, which I think would be a mistake.

My testimony was offered from the perspective of a mid-level career official. But I thought in my oral testimony here today it might be useful to look at things or try to look at things from the point of view of the Secretary of Defense.

This kind of thought experiment is actually relatively easy because Secretary Gates has spoken extensively on his experience with the MRAPs. In his memoirs, I think he makes it clear that he decided to intervene decisively to make the MRAPs the Pentagon's number one acquisition priority for moral reasons. He believed America should do everything possible to protect the volunteers it sends to war, especially from the improvised explosive devices [IEDs] that were responsible for the large majority of our casualties.

His bottom-line rejoinder in his memoirs to those who still contend that MRAPs were an unnecessary expense was that they should, quote—"talk to the countless troops who survived because they were riding in an MRAP."

Our research at the National Defense University agrees with Secretary Gates' moral calculus, but also argues that MRAPs made sense for economic, operational, and political reasons as well. Economically, MRAPs cost less than replacing and caring for the casualties from the IEDs. In terms of operational strategy, they were completely consistent with our approach to counterinsurgency in Iraq. And, politically, the MRAPs help shore up public support for the war effort and signal to the enemy that we would do whatever it took to prevail.

Even so, in his candid memoirs, Secretary Gates reports some unusual facts about his experience with the MRAP decisionmaking process. First, it was an accident that he stumbled upon a journalist's report that alerted him to the MRAP issue and inclined him to investigate it.

Second, not a single senior official, civilian or military, supported his proposal for a crash program to buy MRAPs. Third, after he decided to institutionalize the lesson he learned from the MRAP in the form of a better balance between warfighting and irregular warfare capabilities in his national defense strategy, he precipitated, quote—"a rebellion from all the senior uniformed leaders in the Pentagon." Ultimately, he says he had to water down his strategic guidance.

These fascinating facts raise some important questions I believe. For example, do we want a decisionmaking system that requires happenstance to bring to the Secretary's attention a highly effec-

tive, but expensive and controversial option for defeating the enemy's most lethal weapon?

Why was it that not a single senior official could see the merits to the MRAP, but the Secretary, this committee at that time and many Senators, and experts in the Department and outside the Pentagon could see the benefits?

What does it tell us when a leader as competent as Secretary Gates has to water down his own strategic guidance for the benefit of consensus? What are the implications of that?

Answers to these questions are contained in my written testimony. But, to summarize, service organizational cultures disincite the Pentagon to field capabilities for irregular warfare that compete with established warfighting programs. Also, the productivity of the Pentagon acquisition system is inextricably linked to and limited by other Pentagon processes, which tells us something about the scope of needed reform I think. But, most importantly, I believe the MRAP case highlights a fundamental problem or challenge for the Pentagon, which is its inability to make tradeoffs between competing objectives that are essential for mission success, but that come at the expense of some interest group. This is just as true for acquisition programs as it is for defense strategy on the whole.

Let me close by again citing Secretary Gates. He concludes, reviewing the MRAP experience, that we can't assign responsibility for this unfortunate state of affairs because, quote—"in every case, multiple independent organizations were involved and no single one of them had the authority to compel action by the others."

How can we hold anyone responsible when many organizations can put their foot on the brake, stop or delay action, but no one, not even the Secretary, consistently can generate desired outcomes? Secretary Gates went on to suggest we are all responsible for the system we have and its performance. It took a committee effort to build a system that can frustrate the clear choices about relative risk and it will take a team effort to change it.

It is my understanding that that is the committee's intent. And I applaud the House Armed Services Committee efforts to take on this daunting challenge. And I thank you for the opportunity to make a contribution to your deliberations.

Thank you.

[The prepared statement of Dr. Lamb can be found in the Appendix on page 102.]

The CHAIRMAN. Thank you very much.

I think this is going to be a huge, monumental task. I think you each pointed out things that are very, very much a part of the culture. And we are just talking about defense, but this is much, much broader. It is throughout our whole country. We brought in so much bureaucracy, so much red tape, rules, regulations.

When my dad was a young man, he wanted to go into business for himself. He was working for a company where he sold meat off of a truck to stores and restaurants during the day and he saved up money and he bought a used fish truck. He and my mom worked all weekend cleaning to try to get the smell of the fish out of the truck and then, early Monday morning, he was downtown

Los Angeles, went to some places that he knew and had contacts and friends. This was early during the Second World War.

And he was able to buy enough meat to fill up his truck and then he went out and started and tried to sell it. He worked door to door. And his truck was not refrigerated. He had to sell the meat that day or he was out of business. Finally, he got to a place late in the afternoon, a guy took everything he had. And that started him in his business.

There is no way a person could do that today. There are so many rules, regulations, licenses, things that you have to, hoops that you have to jump through before you could get something off the ground. So this is not just defense.

I mean, we just have a law in California, it looks like they are debating about overturning tenure for teachers. We understand, we know what—I was on a school board for 9 years. We had a teacher one night that was caught by the vice squad for indecent exposure, some other things; we couldn't fire him. I mean, this is, over the years, we have put layer upon layer of things that make it much more difficult to get anything done.

I am reading about World War II. We built 80,000 airplanes in 1 year. This year, we will build, hopefully, fixed-wing and helo-manned aircraft, 341. We were, during World War II, building a tank every 3 hours. We built more tanks in 15 months than the Germans built during the whole war. We unleashed a huge, some, now, refer to it as a "military-industrial complex," but because of that and because of our people, we were able to win two major wars at the same time on opposite sides of the world.

Today, we have made things so complicated that for—what have we been working on? An air tanker, for 15 years. We don't have one yet.

I tell the story about the Pentagon that was built in 1 year during World War II. And, right now, we could not build it because I am sure there would be some—it is in a swamp and there would be some species that would stop us. But, say, we got through all of the NEPA [National Environmental Policy Act] and all the court cases and went through all of that and finally started to build it. World War II would be over, Korea would probably be over, and Vietnam would probably be over for a week that we could get a Pentagon built. We cannot live forever under this kind of circumstance.

I was talking to a CEO [chief executive officer] of a company. And he said he had over 200 government workers in just one of his plants watching everything they did. And he had to hire 200 people to answer all of their questions. I said, "You know, if we didn't have the 200 there from the government, you didn't have to have the 200 and you probably couldn't steal enough to pay for what we were paying to make sure you didn't steal."

So, some way, we have to get—I don't know how we are going to do this. But the Marine Expeditionary Vehicle, we spent, what, \$6 billion in 20 years and finally decided it was too expensive. How do we make those decisions earlier? How do we cut through the regulations, the bureaucracy, decisionmaking to where an MRAP could be delivered as soon as we find out all of the problems we have with IEDs?

We put all of our efforts in that and make it happen instead of—I understand we have 10,000 attorneys in the DOD. Now, we have a few up here, too. And I have nothing against the attorneys, but I think they are trained to delay things or to stop things.

You may be attorneys. I don't know. But, somehow, I am hoping with your expertise and with Mac's abilities and this committee in the next few years we can, some way, cut through at least in defense the ability to get things done quicker, more efficiently. Yes, we have to be very good stewards of the taxpayers' money, but, you know, delaying these things or cutting them off—the B-2 was built in my district. It was on full production when I first ran for Congress. It was supposed to be 130 aircraft. We spent \$40 billion on R&D. We finally built 21 planes—crashed 1, we now have 20. So you take the \$40 billion and spread it over the 130 that we were supposed to build or you spread it over the 21 that we actually built, you get a different cost to that plane.

Well, they stopped production, made Northrop cut up the tools to be sure we would never build another one. And, now, we are investigating building another long-range penetrating bomber. We understand we need about 100. You know, this is lunacy.

So I don't have a question. I just had to spout off. But I think that this is the biggest problem facing us because if we find ourselves in another place where we need to build something fast, we have tied our hands.

So I am hoping that we will have the questions that will draw this out. And I am hoping that you will work closely with Mac and the committee over the coming years to lend your expertise just to, first, list the problems and then, systematically through legislation or fiat or whatever, however way we can do it, start eliminating all of the barriers to being more streamlined, more efficient, more cost conscious, and more focused on getting things done.

Thank you.

Ms. Sanchez.

Ms. SANCHEZ. Thank you, Mr. Chairman.

So I have some specific questions to ask the panel. I want to ask you about JROC—for those who don't know, the Joint Requirements Oversight Council—which, of course, the Congress instituted so that we would ensure that the same types of things weren't happening in each of the different services and that we wouldn't have this redundancy going on between the services.

So it appears to me at least that JROC has taken on a life of its own. Sometimes, just to get through the process can take more than a year. And that is adding time to a particular situation. And it also seems to me, under JROC, that they don't want to pick winners and losers and so, you know, things get through and then there is still this—they are still usually saying yes to everything and so we not only have added time to the equation, but we have redundancy going on.

I know that is not what we decided as a Congress. That is not why we put it together, but it seems to be that that is what is going on at least from my standpoint. So I would like to ask each member of the panel: Do you think that the—what do you think of the JROC process? And is it worth the time and the money? And does it effectively mitigate the pitfalls of stove-type acquisition

process? And should we continue with it? If we redid it so that it would go back to its original intent of what it was supposed to do, how would the Congress do that?

Anybody want to take a crack at that?

Ms. MCGRATH. So I am happy to start. My perspective however will be slightly different, given the sort of business, information technology.

A few years ago, the Department knew it needed a place to vet and discuss broad-level enterprise IT business requirements. And JROC was not the place. JROC was particularly focused on the national security mission, really the warfighting aspects of the Department. And so, frankly, from my perspective, we needed a place like the JROC to have the enterprise discussion on business requirements so that we didn't have redundancies of capabilities and so we could create a more integrated environment.

And so, broadly stated, sort of the aspects and benefits of the JROC were lacking in the business space, and so we did establish that to ensure, as I mentioned, not to have duplication across the enterprise. And that is only, say, in the last couple of years, but it has proven very valuable, I believe, as was the intent of the JROC process, to understand the enterprise perspective, how everyone played in a particular engagement. We are mirroring those same, you know, attributes in the business conversations.

So, from that perspective, I can say it is certainly beneficial, although we are mirroring JROC and not specific to the JROC. And I think without it, you will end up with duplication and lack of interoperability across the business.

Ms. SANCHEZ. And when you work through that process from the software and technology standpoint, does it take you a year to get to the endgame of, yes, we need this, no, we don't need this? I mean, what is the timeline on something like that?

Ms. MCGRATH. Well, again, it is, you know—I will say the cultural part of even establishing the conversation was very difficult because people were accustomed to having the flexibility to do their own things and, when we said, no, no, you are part of a larger ecosystem, you need to bring it in and really document why do you need what you need or what business outcomes are you trying to get, you know, to achieve then, I think the more prepared organizations were, the shorter the timeline took.

But I will also say that the cultural change, people weren't prepared to answer the questions. They were very focused on their specific organization and what they were doing and not really looking at the enterprise. And so I think the more you have done your homework and really analyze why, you know, your mission needs, then the faster it will take because you have done your homework and you are prepared and you understand.

Ms. SANCHEZ. Okay.

Admiral.

Admiral VENLET. I found—I make brief reference to the JROC in my written statement. I also used the word “optimization” when I began. You have—the chairman talked about complex systems that we are requiring and reaching for. We write very tall requirements for the things that we need for very good reasons. We want the warfighter to have the best individual value.

And when we write down those requirements, we have this wonderful organization called Operational Test [and Evaluation] that tests what we write down about those requirements. And when the performance for various reasons is, either through unfortunate choices in design or surprises or things that you discover when you reach for high capability, that report may come out and you are short of some of those very tall requirements. We get pretty agitated when we believe we can't abide those.

We need—you need somebody to be what I would call the “chief officer of good enough.” And, please, don't misunderstand me. I am not talking about dumbing down the requirements for our warfighters' needs. But when resources are constrained due to time, due to an operational threat that doesn't appear with regard to any schedule, you have to account for the appearance of a threat, the lack of further resources. And those are very difficult decisions.

I believe the creation of the JROC was meant to do that. I found my appearance before the JROC and my interaction with them to be that—to be a source to do that. I believe the current leadership has a very good view to push back on programs. I found that in my personal experience. So, if not the JROC—I personally believe, I would continue the JROC. But if not, then you need somebody to play that role to serve as secretaries, to serve as chiefs or empowered to make those difficult decisions. But that would be my view.

Ms. SANCHEZ. Anybody else with respect to the JROC? Any different experience on there?

Yes?

Dr. LAMB. Well, I just would add, piggyback a little back on what the admiral said, and make the following observation.

If the JROC was going to be equipped to make decisions between competing requirements and which would best serve the warfighter, you would need an analytic structure in place that would allow you to fairly compare alternatives at all levels, all the way down to making trades in key performance parameters on major platforms, all the way up to operational concepts, what is the best way to do a forced entry overseas, what is our concept for that and what programs and platforms, as such, to best plug into that?

So, if I have to sacrifice speed, endurance, or some other attribute over here, maybe I can compensate for it over here. That is I think what people intended to see happening on the JROC, but which typically does not happen. And you ask, “Well, why does that not happen?” And my answer would be because people would be surprised to know how lacking we are in transparency in the Department about data, about the modeling, about the assumptions.

It is very hard to get a fair comparison between alternatives. So, if you are the Secretary of Defense or you are sitting on the JROC, somebody can come forward with an analysis of the F-22, for example, and say, “Well, we really need far fewer given our needs,” and another person with another study based on other data will come forward and reach exactly the opposite conclusion. And if you are the Secretary of Defense, you must be saying to yourself, “That is not very helpful decisionmaking support.”

And that is why in my written testimony I said, if we really want to empower the Secretary or somebody below the Secretary like the JROC to help make this kind of tradeoffs, we need a much more

robust joint analytics system. People don't understand that the Pentagon has a very small amount of analytic talent and resources dedicated to joint analysis and huge amounts devoted to the services.

That is not necessarily bad if everyone keeps everything transparent. But that is not the way things work today.

Ms. SANCHEZ. So, following up on that Doctor, because I think this is a very—I mean, we sit here and we are trying—we are making tradeoffs. I mean, we are making tradeoffs based on money more or less in this committee and because we are having to given the situation that we have right now. But it would nice to be able to make tradeoffs based on needs.

And what you are saying to me is that each service has a whole bunch of people looking at needs and analyzing that and seeing what they need, but, when we go to the SECDEF [Secretary of Defense] or we go to that office and they are trying to make these tradeoffs, they have very few people who may even have that information from other places or be able to analyze to make those tradeoffs.

What would you say would be the—would you say maybe put, we take some of that analytic and put it and make a broader analytic in the Office of the Secretary and we take it out of those individual services? I mean, how—practically, how would you address what you just said you thought needed to happen?

Dr. LAMB. Well, actually we have written something about that at the National Defense University. And I think a lot of people would say it is not politically feasible. But we made a recommendation for a system that would produce joint data for joint operational concepts with joint modeling that would help make alternatives transparent and make the consequences of one path or another much more readily accessible to senior decisionmakers.

But you would have to redo the way the Pentagon currently does its analysis of requirements today. It is not—we don't have that much analytic talent and we tend to reserve what analytic talent we have in the joint field to operational-level campaign analysis. So there would be a lot that would have to change about the politics and the procedures for making that kind of talent available to people in a position of joint responsibility for example.

Ms. SANCHEZ. Great.

Thank you, Mr. Chairman. I will yield back. I have other questions. I will submit them for the record.

Mr. THORNBERRY [presiding]. I thank the gentlelady.

And then I, again, appreciate all the witnesses being here. I think you could tell from the chairman's remarks the frustration that exists not just in Congress, but in industry and many folks in the Pentagon on this subject. And I think you can tell from the excellent questions of Ms. Sanchez that this is a bipartisan concern and bicameral concern. The Senate is just as interested in trying to make this better as we are.

In Mr. O'Rourke's statement, he listed seven things that basically lessons learned from naval shipbuilding, kind of the things we know—get the requirements straight, you know, impose cost discipline up front, minimize concurrency, et cetera.

My question to, I guess, all of you is, Do you agree that we know what works and, if we know what works, why are we not able to follow it and get those results?

Mr. O'ROURKE. I could start on this since you are keying off my testimony. My answer would be that I think we know some of what works and, for some defense sectors, we may know more of what works than in others. I think in terms of services or, perhaps, in the IT area, they are earlier on the learning curve.

Shipbuilding has had a long time to figure out what its lessons are. And so I think sector by sector, the answer to that question may vary somewhat. So my bottom-line answer is that, at least in shipbuilding, we know a lot of what works. And the challenge isn't identifying the lessons. It is living up to them.

Mr. LAMBERT. I would add to that that on the sector by sector there are very, very different lessons that we learn among each. And, unfortunately, we often try to apply the similar lessons across the board in our procurement. When you buy, you spend a billion, a little over \$1 billion a day, that is very difficult to do particularly as we are acquiring more advanced programs and systems.

Secretary Lynn, Deputy Secretary Lynn, used to use the example that Apple envisioned and then sold an iPad within 18 months, and it takes us 24 to get a budget. So we are never going to be up to that par, but I think that it does come back to people, it comes back to training our people and equipping our people with the skill sets that they need to be better negotiators but also take advantage of the policies that are already in place. So in many cases it is more about culture than it is about regulation.

Ms. MCGRATH. I would just echo the cultural aspect of it, and although the information technology is evolving over time, the process has not kept up with the way the technology evolves. We went from a coding organization to an acquiring commercial-off-the-shelf capability, yet the workforce is not trained to actually, I think, effectively buy the commercial-off-the-shelf capability.

So I think the training and the acquisition workforce, and not just the people who are the program managers but those who have the mission need, if you will, the business requires, they need to understand that they have also skin in the game, and it is not just the acquisition workforce because they are the ones who need to understand what it is they are trying to achieve from a business outcome perspective, married with a really astute program manager, and then a contract acquisition strategy that really serves the Department. And so, really, the contracting officer also has, I believe, a very strong role to play, one that has to make sure that he or she is aligned with the outcomes that the Department is trying to achieve.

And so, it is not just one person, it is at least three, if not more who need both accountability and responsibility in a successful IT program.

Admiral VENLET. Sir, I would add and draw attention to a Center for Naval Analyses report in 2009 on the F-18 Super Hornet development program.

You would find some of the characteristics for aviation that Mr. O'Rourke referred to in shipbuilding, that I don't believe we are in an environment that that could not be repeated. And RAND has

written several reports about programs, good and bad as well. But if I could go back to the analysis point really quick, I wanted to just say that CAPE [Cost Assessment and Program Evaluation] in OSD [Office of the Secretary of Defense] was created by the Weapon Systems Acquisition Reform Act.

I believe that is a respectable analysis body for OSD. Above all, the services, and I found that as a representative of a program they would analyze my program without direct interaction from me. And I believe that had a proper balance of supporting decisionmakers.

But there is a dynamic that the analysis capability that resides in services brings forward reasonable consequence illumination, I am trying to say, you know, for decisionmakers. But there are forces in the cry for speed, do it faster, do it less, that actually suppress some of those sound fundamentals that come forward in those offerings and analysis outcomes.

Mr. THORNBERRY. Okay. That is helpful. I appreciate all your answers and there is a lot more follow-up to do.

Ms. Gabbard.

Ms. GABBARD. Thank you very much, Mr. Chairman.

My question is about the Enterprise Resource Planning systems. In 2012 the DOD IG [Inspector General] examined six systems that it determined would be critical to meeting the Pentagon's legal deadlines surpassing a financial audit. And it found that all six were years behind schedule, with each of them having exceeded their original life-cycle cost estimates.

So to Ms. McGrath, what do you think are the most revealing indicators of future success or failure of an Enterprise Resource Planning system? And in your view is the DOD implementing a management monitoring system that can capture these indicators at an early enough stage?

Ms. MCGRATH. Thank you for the question.

The Department has really, I will say, learned a lot over the last few years with regard to implementation of the Enterprise Resource Planning or ERP systems. I think when we first embarked upon the path we didn't understand the costs and implication of customization of these systems. And so, our folks would make the system sort of either do the things in the way they executed them today, or didn't understand both the cost in schedule implications or change.

And so, we have learned that lesson, I believe, across the Department. And so, customizations aren't happening, I will have to say the way they used to. And I think they are, really the cost of customizing ERPs is well known by many.

I can say, however, that we too are learning how to implement ERPs more effectively. I mentioned in my answer to the last question around understanding the business of defense. Each one of the functional leaders who runs a particular business area, be it a supply chain, human resources, or financials, needs to understand how they do what they do, the business process they execute, and also then how the IT, the ERP in this case enables them to achieve the business outcomes.

Without that understanding it does not matter what IT system you are trying to implement. It won't achieve the business outcome. And so, I really think the discussion needs to take place longer, I

will say upfront in the acquisition program prior to going to a contract award, so that the Department writ large understands the business environment, what it is trying to achieve before we, you know, embark upon an IT system.

And again, most of what DOD does in the business space is commercial-off-the-shelf procurement and I would—and as I mentioned in my last response the workforce really needs to be trained on how do you acquire and configure commercial capabilities as opposed to what we do today in the acquisition process. The training isn't focused, I don't think, enough on how to enable a better implementation.

Ms. GABBARD. A few of you have mentioned, Mr. O'Rourke mentioned the unique nature of the sector-by-sector differences, the different lessons learned, and how they are not uniformly applicable across the board.

And I am wondering specifically with the IT acquisition, if that reform can be done on its own, or if in your view it should be done as a part of the larger overall DOD acquisition reform?

Ms. MCGRATH. From my perspective, I think I probably live the most in this space, but I certainly welcome any comments that my fellow panel members have.

I believe IT—so we implemented a policy a few years ago, very focused on business IT, called the Business Capabilities Lifecycle. And that was aimed at IT is different from major defense acquisition programs. And I think that is true.

Ms. GABBARD. Absolutely.

Ms. MCGRATH. Now DOD 5000, however, is the bible for the Defense Department. And so, having something separate confused people. And so, I think the release of the latest 5000, the interim guidance that was published in November of 2013, embeds the IT in the business discussion in that broader construct, which I think is the right thing.

It does, however, I think need to take one step further and say—and then therefore you do these things differently, and then really train our IT folks, our program managers on IT very specifically. And I do think it is different, I think it should be embedded. Again, it is the bible. The 5000 is the bible. But I do think, also it has the opportunity to move faster than perhaps some of the other aspects of acquisition.

Ms. GABBARD. Thank you.

Mr. O'Rourke.

Mr. O'ROURKE. Just to add to that there is also the related issue of how to pursue hardware acquisition programs that happen to have a very large software component to them. And that increasingly is the case. Part of the answer to that, that DOD is pursuing, that the Navy is pursuing in its programs is to move toward more open architecture approaches to the integration of software into their weapon system platforms.

I mentioned the Acoustic Rapid COTS Insertion program, that is an open architecture approach for improving legacy signal-processing on our attack submarines. Also in the Aegis world, the Aegis program started as a closed proprietary system. The Navy is moving to modularize and make it open architecture.

Ms. Sanchez earlier asked about how do we get small business involved? Open architecture is one approach that can make it easier and lower the barriers for small business to become involved. And in fact in the Acoustic Rapid COTS Insertion program, a number of businesses have been brought into that effort as a result of the open architecture approach including several small businesses.

So in addition to the larger question that Ms. McGrath was talking about, about IT systems on their whole there is also this related issue of how to handle IT in the context of what is essentially or more fundamentally a hardware acquisition effort. And open architecture can be part of that solution.

Ms. GABBARD. Great. Thank you.

Thank you, Mr. Chairman.

Mr. THORNBERRY. Thank you.

Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman. I would like to thank our witnesses for joining us today. I want to begin by looking at the present system and understanding that where we need to go I believe is simplifying it, putting more power in the hands of people, not complicating process, also making sure that we provide additional accountability and authority to improve decisionmaking, and to make sure that the outcome is best value. Now with low-priced technically acceptable I think there are some challenges faced with that.

What can Congress do to achieve those outcomes, simplifying, putting faith back into people and the decisionmaking process, holding them accountable but also giving them authority and providing best value in the decisionmaking process?

Love to get your thoughts on that.

Mr. Lambert, we will start with you.

Mr. LAMBERT. Well, I think you hit it on the head about giving and empowering the acquisition workforce. They also need to be trained.

And to simplifying the barriers, I can tell you a day did not go by while I was in the Pentagon where I did not hear from somebody in the industry trying to offer a product or service to the government. You know, half the time we may have actually needed it. But there were, the barriers to entry were just too great. And has been said here 5000 is the bible, you know, it is the Old Testament.

And it really does, you do need to open the ability, particularly, I think, in the IT sector which is moving so fast, for commercial companies to share their capabilities. That leads you to a series of greater reforms, again, about culture and training, but also about intellectual property rights and the protection of those property rights. At the very same time that the Department is trying to obtain more commercial activity and more commercial technology it is also placing increasing burdens on that commercial capability from an IT perspective. So all of these have to fit hand in glove and work together to reform the system.

Mr. WITTMAN. Thank you.

Mr. O'Rourke.

Mr. O'ROURKE. I guess I would say four things. First, if you want an example of a relatively simple statement that provides clear and focused mission, absolute cradle-to-grave authority and responsi-

bility and accountability, without using too many words you can look at the Executive order that essentially codified the mode of operations for Naval Reactors. And that Executive order has now been placed into the U.S. Code in the form of a note to one of the provisions in the U.S. Code.

So that is a model that can be looked at as an example of how to do something strong and powerful to achieve success in a focused mission area without using a lot of words and a lot of regulations, although of course there are regulations that fall out underneath.

Three other things. First, both industry and DOD at this point appear to agree that streamlining is possible. And in fact Under Secretary Kendall has said, "We do not need more rules, in fact I believe we have too many already." And he has already said he has a team of his own people that apparently is working with congressional staff to put together a streamlining proposal to see what can be done to take out some of these provisions and go to a more simplified structure.

Once you do that I think the challenge is to prevent the re-growth of that system incrementally over time through the addition of new provisions year after year after year. And to do that, one thing we may consider focusing on more is when we have a proposal for a new rule or regulation, right now we tend to focus in assessing the merits of that proposal on the proposal itself. And we don't tend to focus on how that proposal might interact with rules and regulations that already exist, or how it might add to the total burden of rules and regulations.

So when new proposals come forward to what to do in defense acquisition we should consider looking at them not only in isolation by themselves, but how they would impact the total accumulation of rules and regulations. And it seems to me we haven't been looking at it from that broader perspective.

And then one final thing, a lot of the rules and regulations we put into place are in my view attempts to try and get at second-best solutions because we are not able or willing to try and reexamine the more basic going-in conditions, what I refer to as the underlying political economy that characterizes a lot of defense acquisition efforts.

And so, as we go ahead with defense acquisition reform or improvement we should pay attention to whether we are trying to attack the symptoms or whether we are, in fact, trying to focus on the underlying causes because a lot of the time it seems to me we are going after the symptoms and not the underlying causes.

Mr. WITTMAN. Admiral Venlet.

Admiral VENLET. I believe the causes for our discontent with the performance in the acquisition system are not—they do not lie in the laws and regulation. You need to look at what—that is something to do, but it's underlying decisions that are made that try to respond for the years of acquisition reform pressures that cry for speed. Do this faster, do this cheaper. And that pressure on it has an unintended consequence of suppressing the practice of good, sound fundamentals and realism.

When you are going for those complex capabilities you are going to have discovery and rework in your program. But if you don't, if you want to write an aggressive schedule and budget aggressively,

that denies that or is blind to that you are allowing, you know, rework and failure to waltz right into the program.

So when you look at your contemplation of laws to write, please look at them through the lens of what are the unintended consequences this might cause, and please do not suppress the workforce's application of sound fundamentals, transparency, and realism in the schedules they create and the budgets they create.

There is a natural tension there between the constrained resources. But I believe reasoned people who can have those discussions can deal with those. And I will stop there.

Mr. WITTMAN. Very good.

Thank you, Mr. Chairman.

Mr. THORBERRY. Thank you. Since we have five witnesses I am not being too heavy on the gavel to give everybody a chance to get something in.

Mrs. Davis.

Mrs. DAVIS. Thank you, Mr. Chairman. And this really is important. I ran into it all the time in San Diego.

You know, we are looking at what hinders, what helps, obviously the Congress plays a role in that, and I would like to get to that in a second. But in thinking about small business and innovation a few years ago we did—we had really a real strong look, I think—and I think you participated in Mr. Chairman and Mr. Skelton, I know, and Mr. Conaway.

And one of the issues that we raised is this bundling issue between the big contracts and essentially the smaller guys. And what I remember is that we had to really water down that language in order to get it accepted. And I don't know all the ins and outs of that, I wasn't on the committee. But today that continues to be a problem, even though people will say, well, you know, we are dealing with it a little bit better.

And I think you mentioned that certainly among in IT we are perhaps dealing with it a little bit better. But as I understand it, one of the problems is who is the prime? And for some small businesses they would prefer and could be the prime and have greater autonomy, but the system is not set up to do that, so we really don't allow some of the smaller businesses who could do that to come forward.

Could you—is that right, and how do we deal with that? And where do you think some of this problem lies?

Mr. LAMBERT. I can take—and a lot of that is—

Mrs. DAVIS. And I know culture is a part of it—

Mr. LAMBERT. Culture is a part of it. But it is more fundamental than culture. I used to refer to it as this is the Valley of Death in Silicon Valley of getting the technical milestones. But in the Department we have something called—that I started to call the Summit of Death. You have a great idea, you are a small company and you want to sell it to the Department, and the Department has a stated need. But you don't have the processes or procedures in place.

So the first thing you do is hire consultants and then you may hire some retired former military officers or officials. Then you will find a prime or a contract vehicle, you will pay a 10 to 15 percent tribute to that company because they have the procedures in place.

Then you might spend the capital on getting it certified—or an accounting system. And then you can become a prime contractor.

That may take 2 years. There has been absolutely no development probably in your product because you spend all your money trying to become the prime contractor. And yet our system continues, in essence, to reward both how we deal with small businesses in my view, and how we keep small companies from accessing the marketplace. We continue to focus on that process, tweaking it along the edges.

I think that there are some examples in other countries, the U.K. [United Kingdom] in particular has some innovative ways to get small businesses into production development right away. I think it is worth taking a look at some of those practices to see if they might be replicated here.

Mrs. DAVIS. Anybody else want to comment on that? Is it a big problem?

Ms. MCGRATH. I would add to Mr. Lambert. I think it depends on where you sit, if you think it is a big problem, because—

Mrs. DAVIS. If you are a large company I don't think it is a problem.

Ms. MCGRATH. If you are a large company you might not think it is a big problem, you might feel that with the LPTA [lowest price technically acceptable], that the pendulum has actually swung in the other direction. And so, I think that there are anecdotal stories that exist on, you know, throughout the spectrum, and I really think that it would behoove us, and I think I mentioned this in my written statement, to actually get some data behind what is happening in the space.

You know, is it having detrimental impact or not? And I think without data you will continue to have anecdotal stories, you know, rule of the day. And I really believe that having a fact-based discussion around, you know, what is the impact, because I think everyone would agree that there is space in place for big, small—there needs to be—

Mrs. DAVIS. There should be—

Ms. MCGRATH. Yes, you know, better, quicker engagement between inter-governmental—

Mrs. DAVIS. Where do you see that coming from? Where do you see that kind of work coming from? Is that something that the Congress needs to necessarily sneak in a report because I think we have tried to do that.

Ms. MCGRATH. Actually I think that there are multiple organizations that could do the study, from the National Academy of Public Administration to GAO [Government Accountability Office], to some of the industry councils. I think there is interest across the councils to put sort of the data on the table. I think there would be great support for it.

Mrs. DAVIS. If I could bring up—in the last discussion that we had and I think it is a good one in terms of the interactions and whether it is almost like with pharmaceutical products, you know, that you should know the interaction before you move forward. And yet that is not happening. That surprises me a little bit, that people aren't having that discussion. And Congress obviously as a

stakeholder in this plays a role in addition to DOD and the industry.

So what advice can you give us in terms of how we make sure that that process takes place so we are not creating more unintended consequences than we need to?

Mr. LAMBERT. I will just say, again, in my experience, this—the committee in particular, but also on the—we had a very good working relationship with the staffs. And there were many times where there was a lot of back and forth that I thought was very productive and always found it to be very supportive. I think the dialogue is very important—

Mrs. DAVIS. But is that happening today?

Mr. LAMBERT. In my experience from my little window in the Department it was happening on a regular basis with both this committee staff and the relevant Senate committee staffs.

Mrs. DAVIS. Still, okay.

Mr. LAMBERT. Yes.

Mrs. DAVIS. Anybody else?

Dr. LAMB. What I would say in response to your question would be that it would be important for the committee to focus on the distinction between what really amounts to helpful oversight and unhelpful micromanagement. I mean, if you try to get your mind around that, it is a useful exercise.

I was thinking about some of the comments made about World War II and our production system. And we did produce a huge volume of material in short order and the American industry was good at that. It wasn't all of the quality that we wanted.

I was reading the book called "Unbroken" not too long ago, and it was about a naval aviator that went down in the Pacific. And the author was saying that our rafts that accompanied the aircraft at that time disintegrated in pretty short order because the wrong assumption had been that they would be picked up quickly, but in fact you had to float for weeks in the Pacific often to have a chance to be recovered by a submarine or whatnot.

When I think of my father who was in the submarine service and we equipped him and his sailors, fellow sailors, with torpedoes that were as much a danger to them often as they were to the enemy.

So we all want a streamlined process but we don't want to throw the baby out with the bathwater. You know, there are some good oversight procedures currently in the system that ensure that what we actually deliver at the end of the day is pretty good. It comes in late and way over cost typically. So that is what we are trying to combat there, but you don't—you want to be alert, I think, to what is actually helpful oversight.

And my bottom line on that is that the people who are in a position to make the oversight decisions have to have a reasoned basis for their comparison of alternatives. If it is just a personal impression or perspective, maybe even prejudice, that they inject into the system below them, that is unhelpful micromanagement. But if they can see the broader picture and they have a data and an analytic process that lays it out as clearly as possible and the rest is good judgment based on experience, you are more likely to get the products you wanted at the end of the day.

Mrs. DAVIS. Thank you.

Mr. THORNBERRY. I thank the gentlelady.

Ms. Walorski.

Mrs. WALORSKI. Thank you, Mr. Chairman. And thank you to our guests for being here.

It has been said that one significant challenge to acquisition is a lack of relationships and basic trust between industry and the decisionmakers, and the Pentagon, and Congress. I did a little quick survey in my district, knowing in my State, I am from Indiana, so we have large defense contractors, and we have very small defense contractors.

And I was so excited that we were actually going to do this hearing and start looking at this process, so I called some of our smaller—and I have heard consistently for the 18 months that I have been here from every contractor that we have used, the need, the need, the need. But when I talked to them it still comes down to this basic issue of trust.

So I guess my first question is, I got to believe that exists because they don't trust the players at the table. Secondly my question is—so that is my first question. My second one is do you look at things being worse today or better when it comes to the issue of trust because in my world it seems like it is worse. And then what can be done to help build those relationships in trust because it is not all about the technical nuances. It can't be. It has to be about this big breach of trusting who is at the table. So I just kick that out to everyone.

And Mr. Lambert, you alluded to just in your last answer, so I suppose you are tracking with the same thing here?

Mr. LAMBERT. I am and I will say that it—over 10 years of year-to-year budget growth, there was a lot of dialogue that used to go on between the Department and the industry that just stopped because you didn't need to have dialogue.

When you had a program, even if it was hemorrhaging money you just cauterized the wound with more money. So that discussion really started to pick up again as we saw the decline coming because it was needed. And trust had evaporated. And largely that trust evaporated, in my view, because the defense procurement process is the only process in the world that the closer you get to making an acquisition from a company, the less you can talk to them.

Mrs. WALORSKI. That is right.

Mr. LAMBERT. And that causes mistakes on both parties. They make false assumptions, both parties make false assumptions.

So, you know, trying to go back to the days of whether it is The Phantom Works or The Skunk Works where you integrated or embedded government individuals with the companies I think is one step and I know Mr. Kendall is pursuing that idea. But I think the final—the answer to the final question is you just have to have more dialogue.

We will not always agree but we in the Department try to institute very high-level dialogue with both the industries association and individual companies. And we found that to be quite helpful because we learned things, as the testimony of Dr. Lamb about the MRAP, we learned things from companies directly that we would not have learned from our own support personnel.

Mrs. WALORSKI. Anybody else?

Ms. MCGRATH. Yes, I would love to echo Mr. Lambert's comments around the trust-based relationship and the closer we come to actually award the—you know, the less we actually speak to industry.

You know, I think I have mentioned many, many people, I feel like we have forgotten we are on the same team in terms of trying to achieve, you know, an outcome. The government is allowed to contract because they need help to do something, either, you know, build a major defense acquisition program, buy a service, you know, deliver IT for some of the back office work. And I do think that we need to find a way to enable meaningful dialogue between industry and government throughout the process and be flexible enough on the—with the contract to, let's just say to allow for changes to happen. Things happen during an acquisition—

Mrs. WALORSKI. And let me ask you this, when you say we need to allow, does that mean that Congress has to come in and set up even more rules and more bureaucracy, or is there a way—is it actually possible in 2014 to say that we can actually reduce bureaucracy in something as large as the defense industry, is that possible?

Ms. MCGRATH. I personally don't believe that additional legislation is needed to allow greater communication between the government and industry.

Mrs. WALORSKI. Can we shrink the bureaucracy and actually make that happen? Is that possible? Or are we talking the field of dreams here?

Ms. MCGRATH. No, I don't think it is field of dreams and I am absolutely looking through an IT lens, so really the, you know, what happens today and what the government can learn from industry to Mr. Lambert's point about, you know, we have companies doing all kinds of really cool IT capabilities, developing them daily and we want to enable a process by which the government writ large can bring those into government so we are more commercial-like.

Mrs. WALORSKI. Good.

Admiral VENLET. The word "risk averse" gets used a lot, you know, the government program managers are too risk averse and that closes down competition. One of the reasons they're risk averse is the heavy influence for fairness in competition, you know, in advance of an acquisition.

So, I am agreeing with the speakers here it is that tension and that balance between fairness for industry and yet the need to communicate so clearly that industry really knows what you want, because in that balance for competition that suppresses that communication, industry has to guess more, wonder more, and I think it hinders their opportunity to give proposals that are more useful to the Department.

So, if you could—I would maybe point you to Federal acquisition regulations of FAR that speak so heavily to fairness and competition that if there isn't some way to relieve that pressure that allows the government officials to have that broader communication.

Mrs. WALORSKI. I am out of time. I am sorry. I appreciate you all being here. Thank you, Mr. Chairman.

Mr. THORNBERRY. Now, Mr. O'Rourke, I think it is great discussion if you want to.

Mrs. WALORSKI. Okay. Go ahead.

Mr. THORNBERRY. Yes, please go ahead.

Mrs. WALORSKI. Thank you.

Mr. O'ROURKE. I will state it pretty briefly: trust breaks down when problems fall apart and problems fall apart a lot of the time because we didn't get the requirements clear upfront.

And so in terms of the dialogue that was being spoken of earlier, a lot of that is government and industry working together to set realistic requirements and to have clear understanding of who is responsible for what.

That process can be long and involved, sometimes there can be some tension and frustration in it, but if you invest that time upfront to get the requirements right, then you put the program into a condition where it is less likely to fall apart and cause a breakdown in that trust.

So, the investment upfront in discussions, some of which can be a little bit difficult, they are not always happy discussions but it is an investment in the future success of the program that can then if it does succeed build trust rather than eradicate it.

Dr. LAMB. I am sorry, I would like to say just one thing in response to your point of trust. I think it is an excellent point, you know, all high organizational performance is based ultimately on trust, but I think you are right on target there and I think there are two things that have to happen in that regard.

In my written testimony, one of the things I pointed out was I participated in efforts to train and equip a foreign military force, the Bosnian forces. And when we started out we used the typical defense contract vehicle which is 270 pages of very elaborate prose, et cetera.

But when we realized we were going to do this to the private sector everyone quickly got rid of everything that wasn't necessary or clarifying, it was reduced to 30 pages.

That is important, not just from the point of view of efficiency, but in terms of trust, if you labor under those 270 pages with those abstract, difficult to understand clauses that you can be hung on at any point, you are not going to—it makes it very hard for program managers to trust the system will be fair to them.

So, I think in going the direction of the committee seems to be interested in rescinding some of that labyrinth is very helpful, but point two is inside the Pentagon to—for people to think there is going to be a fair competition there has to be the basis for comparison.

If we held a race among the five people at this desk and each of us said, well, I will run my quarter mile on my track and radio in the results, we won't do it on a common track where the comparison is easy, there would be probably some trust issues that would arise. And that is essentially how decisionmaking happens to the Pentagon today.

Mrs. WALORSKI. I appreciate it. Thank you, Mr. Chairman.

Mr. THORNBERRY. Thank you. Dr. Wenstrup.

Dr. WENSTRUP. Thank you, Mr. Chairman. Dr. Lamb, I was particularly taken with some of the comments that you related to us,

shared with us about the struggle with the MRAP and—that Secretary Gates went through.

I served in Iraq and believe me I saw a huge difference between the MRAP and the other vehicles we were using such as Humvees and I was grateful when they came because it became, it was far greater to award someone a Combat Action Badge than an amputation or a TBI [traumatic brain injury] or worse yet a loss of life.

And so, what intrigued with that is I am just curious what the discussions had to be like and what were we prioritizing here, were we working towards a budget, were we working towards a strategy, were we working towards a mission and really what became the priority? Because as someone who was there, you know, you could see the huge value of this, right?

You want to get your troops from point A to point B, you want to get them there alive. And this is what this provided so much more so that there could—if there was even any question it just bothers me or concerns me. And so, if you could elaborate on that, I would appreciate it through that process.

Dr. LAMB. Yes, there is one thing about the MRAP case, is it may be one of the best documented acquisition cases in history. There have been a lot of Inspector General reports, insider exposés, and good analyses have been done on it. So, it is a very rich area and there is a lot to be said about that.

We have a monograph on the issue that I could share with you. But in short, one thing I would say in response to what you said is it was crystal clear to the people in the field that these would be valuable. But in fairness to everyone involved in the Pentagon, there are lots of difficult judgment calls you have to make that at the end of the day are going to affect lives, including what do I—what do I allocate in the way of resources for near-term requirements versus long-term requirements.

So, you know, it is pay me today or pay me later if I don't well equip the force of the future as well. And there are other programs. This program was to me was manifest that it had value and for a lot of people it was manifest, but there are good arguments that could be made.

Actually, Secretary Gates I thought did a nice job of reviewing many of the arguments that were thrown at him as to why ultimately it didn't make sense. But I think if you look at each of the arguments that came from the naysayers that we don't need this, we will be out too soon, we won't be able to deliver them on time, they are not consistent with the way we want to do counterinsurgency. All these arguments break down but they are understandable from the point of view of the person that was making them and where they sit and what their responsibilities were.

So, it took one level up to look at the thing more broadly and say, no, we need these regardless of those near-term costs. And that was hard for the Pentagon to do, in fact, it is stunning that, I think Secretary Gates commented, no single military or civilian official—you ask yourself, now why would that be the case that no one would support it. Well, each one of them had a set of responsibilities that were too narrow. If you look at it that way it took somebody who was really trying to look at it from the warfighter's point of view in the field and care about the entire effort in Iraq.

Why are these things so important for the entire warfighting effort in Iraq and it went—it went way beyond simply saving life and limb although that is critical. If you looked at it from that broader perspective you would have concluded with Secretary Gates not only do we have a moral calculus that says we must get these to our troops as fast as possible, but the system gave us a 2-year delay in making that decision, it lost 2 years.

You would have concluded on just the moral calculus alone that we needed to do that. But beyond that, as Senators and Congressman I think in this very room pointed out, it cost more to replace the people inside the Humvees and care for them and their wounds than it did to field the MRAP. So that for the person that was running the tactical wheeled vehicles program you would think this is going to be a big detriment to my program, it is going to delay what I am supposed to be doing.

So, it got down to a breadth of perspective issue and that is why I think you really have to look at internal Pentagon processes if you ultimately want to fix the problem.

Dr. WENSTRUP. Well, I appreciate you sharing that little bit of history if you will and I appreciate Secretary Gates having that broader vision because it is true, you know, everyone has got their lane and they are staying within that lane and someone has got to bring this big picture together and he did that.

So, what did we take away from that, were we able to make some changes in our acquisition process as we go forward so that we can have a better perspective and a broader view?

Dr. LAMB. That is actually, that is the bottom line of my testimony is I don't think we have learned from that and changed the way the system makes decisions today and that is unfortunate.

We can't rely on the Secretary of all Defense to intervene personally. He doesn't have the bandwidth; towards the end of his memoirs he says, well, once MRAPS were off my plate, I could turn to one or two other issues that were of import. You have to be able to have the system more routinely make these kinds of reasoned judgments and get to the right answers.

So, it is not interesting or it could be boring to look at process and yet you have to go inside the walls of the Pentagon and see how those processes really work if you want a better acquisition system at the end of the day.

Dr. WENSTRUP. Well, I look forward to continuing on with some of your perspective on how we can make that better in the future.

Thank you, I yield back, unless anyone else would care to comment.

Mr. THORBERRY. I appreciate the gentleman's questions, having lived through that I can also testify that it was this committee pushing every step of the way on those MRAPs plus the Secretary which overcame that resistance, which is interesting because the Secretary of Defense and this committee cannot do that with every decision that comes up. And so that is why I think the gentleman's questions are so relevant.

Mr. Nugent.

Mr. NUGENT. Thank you, Mr. Chairman, it—Mr. Lamb, the conversation that you had with Dr. Wenstrup was striking from the fact that it appears that the Pentagon and we—I have only been

on this committee almost 2 years now, but it appears that the conversation a lot of times doesn't really focus on the warfighter, it focuses on I guess the real long-term view of what we need to have equipment-wise.

And sometimes I think we tend to forget that there are actual people that are put in harm's way, and I have three sons that have made this a responsibility of theirs in their service of the country.

So, as it relates to Gates and the MRAPs and you said you don't think the Pentagon has learned from that particular example. Why do you think that is—I mean do we just fall back into what is comfortable?

Dr. LAMB. Well, I think the important distinction here is between near term versus long term and irregular warfare versus warfighting. Most of the Pentagon processes are geared up to provide the force of the future with the equipment and the concepts, et cetera it needs.

But I can assure you when you have a real war going on all the warriors in the Pentagon are very focused on it. And if you look back to the first Gulf War, a large warfighting, force-on-force maneuver warfighting effort, we pushed so much material forward to Kuwait, it was infamously called "The Mountain of Iron." We couldn't use it all, and we had to at great expense, you know, haul a lot of it back.

In fact, looking at it in the rearview mirror, we said, Hey, maybe we pushed so much stuff there that we opened up risks for ourselves on the Korean Peninsula or elsewhere in the world. We weren't thinking straight. We were so intent on getting everything humanly possible to the warfighter forward.

So I don't think it is a reluctance of the Pentagon and the leaders in the Pentagon to want to equip the warfighter. In this case, it was the difference between, you know, equipping for a warfighting effort and for irregular warfare.

And the core competency, the culture of the Pentagon is to be ready for the big one because there is more at stake there. But as Secretary Gates pointed out, we do those relatively infrequently compared to these other irregular efforts. And, as he said in his memoirs, "I just wanted a little more balance. I wasn't trying to, you know, radically alter how we allocate resources in the Pentagon. I just wanted a little bit more balance," and the system stymied him effectively. I think that is a telltale anecdote.

Mr. NUGENT. And what I see in the testimony that comes before us, we just had a lot of discussion about the A-10, the retirement of the A-10 versus what the Air Force and the Pentagon are saying that it can provide close air support. We just saw what happened with close air support. When it is dropped from 30,000 feet, it is not close air support, and we lost troops because of that.

The Pentagon, and I understand they have X amount of resources, but it would appear that, you know, in talking to the guys that actually have benefited from having an A-10 overhead, slow and accurate, their voice has been lost in all this. And so how do you get that back into the acquisition process?

Dr. LAMB. Well, historically, slower flying prop-driven aircraft or aircraft like the A-10 are better in irregular warfare because you need a lot more precision and you need long loiter times. And that

is not something again that, historically, our Air Force wants to invest in. And so there is an element of the warfighting versus irregular warfare element to the A-10, although the A-10 packs quite a wallop. There could be an argument about whether that is the most discriminate means to put at the disposal of troops in close contact with irregular forces.

But, you know, that kind of shows—

Mr. NUGENT. But it also goes towards not just irregular forces, but, I mean, with a—when you go back to the first Iraqi war, it does work well. I mean, obviously, if you can control the airspace and deny, which we have the ability to do with our fast movers, shouldn't we have a diverse—

Dr. LAMB. In my own personal opinion, I don't claim to be an expert on that acquisition program. I am an A-10 fan, but I think—

Mr. NUGENT. Well, all the soldiers that I talked to, and they are all over the place, would support that. But from an acquisition standpoint, and, you know, we don't want to insert ourselves necessarily in every acquisition aspect of it. But how do we help the Pentagon make good choices?

And, one, I will tell you is the fact in regards to, you know, our carrier strike groups, but then, more importantly, the amphib assault capability that we are losing dramatically. When we had, you know, General Amos come and speak to us and talk about those amphib as really the Swiss Army Knife. And we are losing that capability rapidly.

How would we move forward? Not to micromanage, but how do we move forward? Do we do it by law just like we do with the carrier strike group, we have to have X amount? Do we do the same thing with our amphib?

And, Mr. O'Rourke.

Mr. O'ROURKE. Just a couple of points—one is the committee already and the Congress as a whole does have a mechanism in place to do that. And that is to listen to the COCOMs [combatant commanders], the regional combatant commanders, because, in the short-term, long-term spectrum that was discussed earlier, it is the COCOMs who have responsibility for voicing the near-term requirements, what they need today to do their job during the time that they have in office.

And that is supposed to act as a counterweight against a system that, otherwise, might be too heavily oriented toward the longer-term future, as the Navy acquisition can be because it takes so long to design and build ships and the ships operate and intend to operate for decades—so, bringing the COCOMs up to testify, as this committee does and the others do, that is part of it and listening to what they say.

The other thing is that the extent to which different parts of DOD may hear or not hear from the people at the tip of the spear can vary depending on operational circumstances. The Navy is a deploying force. It is forward-deployed every day in international waters. It is mixing it up with the naval and other forces of other countries and getting real-world interaction experience that then does form the basis for comments that come back that create urgent operational needs or near-term operational needs.

So, to some degree, because the naval services, the Navy and the Marine Corps collectively are a forward-deployed force on a day-to-day basis, that also tends to mitigate against this problem of not hearing from the people in the field. Because they are an operating service, they are getting that feedback from people who are engaged in real-world operations every day in international waters and international airspace.

Mr. NUGENT. Thank you for your comments.

Mr. Chairman, I thank you for your indulgence.

Mr. THORBERRY. I thank the gentleman.

Mr. Bridenstine.

Mr. BRIDENSTINE. Thank you, Mr. Chairman.

I would like to, first of all, start by saying that Chairman McKeon made a very important point when he talked about how rapidly we were able to acquire weapon systems in World War II. And, clearly, we seem to have lost that capability significantly.

And I know this body has worked on that, some of the weapon systems that we have already been talking about in this hearing. There are challenges though with rapid acquisition programs that create long-term interoperability challenges. And I can give you some—a real quick example is space systems.

So, you know, the Department of Defense has been purchasing military satellite communications [MILSATCOM] capabilities for a long time. We found ourselves in war in Afghanistan and Iraq. We didn't have the capacity required, so we very quickly started using DISA, the Defense Information Systems Agency, to rapidly purchase using OCO [Overseas Contingency Operations] funds, rapidly purchase capacity airborne. And, now, it is a good amount of our capacity is that the Department of Defense uses commercial satellite communications [COMSATCOM].

Now, that could be a good thing, it could be a bad thing. The challenge here for the warfighter is interoperability. Commercial satellite communications use different spectrum. They use C-band, Ku-band. MILSATCOM uses X-band, Ka-band. You have also got different waveforms. You have got challenges with encryption, with frequency-hopping, anti-jam capabilities. All of these challenges that present themselves where terminals—whether it is a UAV [unmanned aerial vehicle] or a warfighter on the ground—terminals, some are able to work with, you know, MILSATCOM and the others were able to work with COMSATCOM.

And so we have this interoperability challenge where you can only use certain systems in certain parts of the planet and other systems can only be used in other parts of the planet. And then, of course, each system requires different training and different capabilities, so there is an interoperability issue here that I think is detrimental in some cases.

And the challenge here was we had to very rapidly acquire satellite capacity and we had to do it, you know, using an agency that historically hasn't been purchasing satellite capacity—namely, DISA.

Are there other areas in the Department of Defense where—and the investment required from us going forward in order to align these capabilities, once again, whether it is providing some kind of encryption and anti-jam on the terminals for COMSATCOM or

some kind of just expanded capacity of MILSATCOM, the right answer, quite frankly, is unknown at this point, but there is going to be a heavy investment involved whatever the answer is. And it all started from an idea where we didn't have enough capacity at the right time.

Are there other areas in the Department of Defense where this is going to present a challenge in the future where this body is going to have to make decisions to invest huge amounts of money because we rapidly expanded capacity to respond to combatant commanders in the field?

Mr. LAMBERT. I would just say from the acquisition area that I saw, it was quite effective. I think where we could have done better is examining earlier on the concepts of hosted payload, open architecture systems which were mentioned here is a key. All of those will contribute to us taking advantage of commercial capabilities and assets. But if we continue to go down a path that is just a MILSPEC [military specification] and where a bandwidth is basically a free good in many cases for the actual user, then I think we are going to continue to run into problems in that area.

The other areas of the rapid equipping force I think were quite successful. And my only concern would be we lose some of those lessons as we draw down our forces in the two conflicts.

Mr. BRIDENSTINE. In your opinion, sir, is it possible to do rapid acquisition of MILSATCOM through the Space and Missile System Center? How fast can the Department of Defense acquire satellite capabilities indigenously apart from utilizing COMSAT—commercial satellite communications?

Mr. LAMBERT. I don't know the specifics, but I know the specific cultures. And I could tell you that one would be demonstrably longer than the other.

Mr. BRIDENSTINE. And I guess that is the point I am trying to make is that there needs to be an effort I think within the space realm to figure out what the right solution is. And, certainly, I think commercial satellite communications is going to be a big piece of that. The challenge is to get the interoperability capable so that our warfighters can actually be as lethal as possible at the right time at the right place in the world.

Thank you so much.

Mr. THORNBERRY. I thank the gentleman.

Ms. McGrath, may I follow up on that for just a second because the gentleman from Oklahoma was talking about satellite communications. It seems to me what he was talking about though applies to all sorts of IT. We need something. We need to get it quick. But it has got to work with everything else we have. So do you think there are sufficient mechanisms within the Department for the sort of interoperability on IT of all sorts?

Ms. McGRATH. So I think, as I mentioned earlier, in particular the business IT is lagging a bit behind, although I think the rapid nature of technology really is a forcing function to get the Department to ensure that it is thinking holistically across the enterprise. As I mentioned, in terms of establishing a body, a JROC-like body for, in particular, business IT to ensure that we have the ability to communicate, is critical.

We have thousands of business IT systems in the Department of Defense and they are not interoperable. That is not new news, but it is something that we are very much focused on in terms of achieving or establishing standards, not only the—you know, data standards, but the way we communicate and interoperate between the systems.

But if you don't think about it, it doesn't naturally happen, which is the point that you are making. And I would say that a body needs to own the big picture and make decisions about, you know, what is in it and how do the things in it communicate and who has got responsibility and accountability for their respective pieces?

And so I would say, yes, the scenario applies to all of IT. And, again, I can speak most specifically about the business space. We recognize it as a gap. The culture challenge however is—cannot be understated. People are incented and focused in their respective areas not only just the—you know, the component of the organization, be it a defense agency or a military department, but then the specific business area, you know, be it procurement or financial.

And so there are many, many I will just say cross-organizational boundaries that must be overcome. And I would always say to folks that, you know, we need to lift up and look out across the enterprise. We all participate in this ecosystem and we have to understand our roles and responsibilities. And part of it is understanding, again, how do you fit within the overall ecosystem, how do you enable the outcome you want to achieve, be it communications or, you know, a financial transaction, whatever it is. It is a bigger conversation, so I think there is definitely progress to be made.

Mr. THORBERRY. It sounds like you are somewhat similar to Dr. Lambert in that somebody has got to look at this whole big picture and make these tradeoffs. And that is—we started out with Ms. Sanchez asking about JROC, which is kind of supposed to do that at least for some things. And so this issue of getting the requirements right, making those tradeoffs seems to be a recurring theme, which is a challenge for us.

Mr. Lambert, let me go back. Kind of related to this. You talked in your opening statement about a millennial industrial base. Ms. McGrath makes the point that we got to buy more commercial IT. That opens up security questions in my mind. So we are going to buy IT from around the world, we are going to have it integrated and make sure it is interoperable with everything that we do at the Department, how do we know there are not backdoor bugs in it?

Mr. LAMBERT. Now, it is an excellent question. And it is one of the—I think the largest, one of the largest challenges the Department will face. We have already faced it. And we faced it on two fronts. Whether we recognize officially that we have a global defense industrial base, in reality it is true. Most of the components, particularly in IT systems, are not made in the United States anymore and they are made primarily for commercial purposes. That includes some of the components on our most sophisticated weapon systems and space systems.

And there are—when we discover false parts or counterfeit parts, that is typically done—a large majority of those are done for criminality purposes. They are not done for nefarious purposes. But

there are some that have been discovered that were nefarious. And there are famous case studies of that. So that is a part of the Department's challenge. And this committee's challenge frankly is to better understand that supply chain, which is why the government undertook the sector-by-sector, tier-by-tier effort is to help us map through that supply chain and understand where the vulnerabilities were deep in that supplier base.

Prime contractors have a pretty good understanding, much better than they did 4 years ago, of their own supply chains and vulnerabilities and they are addressing them as quickly as they can. But the Department needs to work more closely with those primes but also the smaller subs [subcontractors] in the IT field to address that issue.

Mr. THORBERRY. Okay.

Mr. O'Rourke, you have mentioned several times Naval Reactors. It is—as I think of defense-related organizations, it is actually the epitome of efficient, well-run, accomplish their mission. We have nuclear ships that can go in any port in the world pretty much and everybody has confidence they will do what they are asked to do.

Now, you know, part of that we can all trace back to its founding with Admiral Rickover and the rigorous requirements of interviewing every person which, you know, that culture again has transferred along.

You mentioned that their mission statement, sure, maybe that can apply—the question I keep coming back to, are there other elements of Naval Reactors that we can learn from and apply to other organizations or is it such a unique creature because of its founding, because of what it deals with, that really it is, just kind of stands on its own.

Mr. O'ROURKE. I think there are other elements. One would be cradle-to-grave responsibility which already has been applied to parts of the defense establishment other than Naval Reactors. Something similar to that exists within the Strategic Systems Programs Office that does the submarine-launched ballistic missiles for the Navy. They have pretty much cradle-to-grave responsibility, as well.

And there is one other thing about Naval Reactors which can be and has already been applied to other parts of the defense establishment and that is they have a long tenure in office for their very high-ranking director.

And what that means is that person knows they are going to be around. They will still be in office several years from now to be held personally accountable for the results of the decisions that they make, at least the decisions they make in their earlier years in office.

And I did highlight that in my testimony as an option for the committee to consider because the idea that you will be held personally accountable for your decisions can be a powerful conditioning element for how people undertake the way that they do their jobs.

By contrast, people who do not have long tenures in office may feel less risk that they will face a situation of being held accountable for the results of their decisions because those results in many

cases will not become manifest until years later after their terms in office are over.

And I have attended more than one congressional hearing about defense acquisition programs that have not gone well where the key point in the hearing came well, who was responsible for that. And the answer came back from the witness stand, "Well, it was our predecessors," one or two generations removed.

And let me tell you, that brings the hearing to a complete halt because what can the Members do with it at that point. It seems to me that the ability to hold somebody personally accountable for the results of their decisions and their knowledge that they will be in that situation is a powerful conditioning element to how they undertake the way that they go about their job.

So, extending tenures of office in program offices is something that can be applied and to some degree already has. Naval Reactors is probably the most outstanding example of that but there is no reason in my view why that option shouldn't at least be considered for application in certain other parts of the defense establishment as well.

Mr. THORBERRY. Okay, Admiral, it is coming to you now. Because it transitions naturally—in the report that Mr. Kendall sent out a week or two ago, he had a correlation on his charts about longevity of the program manager versus program performance. And kind of their bottom-line conclusion is just a correlation that there wasn't really a relationship.

And yet my instinct goes where Mr. O'Rourke's was, that if you are going to be there you can be held accountable for your decisions. If it rotates every couple of years, how do you ever go back?

I would be interested in your view on that and then I would be interested also in your view on lessons learned from the Joint Strike Fighter program as we often read, the most expensive acquisition system in the history of the country.

Admiral VENLET. I would say amen to everything Mr. O'Rourke said about Naval Reactors and I would add this one point in addition to tenure of leadership, is the enduring persistent presence of sound systems engineering that has been able to be preserved through all of the efforts that acquisition reform brought around the Department.

So, how does that connect to tenure of other acquisition officials? I think it depends; it is something in between there. There is the balance between how long somebody has to live a life. I mean, you take a person and then you make them head of Naval Reactors for 8 years. You know, there is a limit to what you can do and still have somebody aspire to have a job and still aspire for progression at some point.

So, is it 8 years? Probably not 8 years. Is it more than, more than 2? Yes. We get into the pressures due to board, the timing of promotion boards that meet and career milestones to attain so somebody can make O-5, O-6, and above.

That tends to—you want to give people a breadth of experience and yet a depth of experience, so how do you achieve both? And I would mentor officers that I worked with over my career, you need to stay long enough in a job so that you can genuinely be involved in the messy attributes of it and have, you know, up to your elbows

in mistakes and problems and not just flit because you are trying to get breadth. You have to be long enough for depth.

For me, depth at the working level up was a minimum of 2 years, desired 3 and 4. I think when you get selected for—to be in charge or in command of a major program, 4 years; 4 years is not—now, I have to admit, did I spend 4 years in any one of my career jobs, no, I did not.

But the length of time it is—there was a comment earlier about, you know, that alluded to do officials care about the warfighter enough or do they care about their narrow sphere of influence. I did spend enough time walking the floors of industry on many, many programs that I personally hold the view that the people working in industry on these programs have as deep a patriotic concern for the warfighter as anybody in the Defense Department or here.

They are the ones that are raising that generation that is going to volunteer to serve and use that equipment, so they do care. So, if they care, if we care, what is in between? And I would offer that it is the pressures of the rush.

When we see a threat coming, we see pressures of budgets. We have those constrained resources. We got to make decisions, so okay, I want to do it all. I need the rapid acquisition. I need the rapid capability for this urgent threat and yet I need the capital equipment, the carrier, the submarine, the bomber, the satellites.

I believe the system has shown that there are examples that it does do both. When you properly apply those sound systems engineering fundamentals, when you want to go fast, you don't skip those tricky little questions. You need leadership that has experience and the spine to say, "Wait a minute, let's answer those tricky little systems engineering questions. We could pre-answer them up-front to go fast."

That is how we go fast. We don't skip them. When you skip them you open yourselves up, so it is the tenure of leaders needs to—it is the length of time in leadership or is it the length of time that they spent in difficult jobs growing up to be that leader that gives them the judgment and the wisdom to make the right decisions when they are there.

Mr. THORNBERRY. Mr. Lamb, does this longer tenure, does that deal with the culture issue that you talked about? Does that—I mean, does it help?

Dr. LAMB. You know, in my view, a longer tenure for program managers would make sense but to me it is not the essential issue. One of the things that I have noticed in some of the research written over the past 2 years is just how hard government servants will work when they think they can actually produce results.

Some of it we have done some studies on interagency teams and even for relatively short tenures of a couple of years when people are properly empowered and see that they can make a difference they will work 24/7/365. It is not the typical image of government service that people have but in fact we are all human beings that serve in government just like people in private industry.

And when you see you can make a difference, that is what counts, I think. So, I have to believe and I am not as expert as the other people sitting at this table about the acquisition system per

se but I have to believe that it is the weight of the regulations and the second-guessing that lead to this risk-averse culture and make it difficult to make sharp decisions on key performance parameters and programs that tend to make them slide to the right and have the cost buildup. That more than just a simple issue of tenure or rewards.

Mr. THORNBERRY. It sounds to me like, and I am not trying to put words in you all's mouth, but it kind of goes back to something Mr. Wittman was talking about trying to empower the people to make decisions and then also hold them accountable, that gets better results but it also makes for a better system.

Kind of on a related note, we established the Defense Acquisition Workforce Development Fund to try to help develop acquisition workforce. It is the kind of thing that you don't see the payoff for some time to come, but I was wondering if anybody has an opinion about whether that is on the right track, whether you think we are improving the acquisition workforce, at least their skills, understanding that if they still operate in a system that does not reward those skills, they are going to, you know, follow whatever the incentives are.

But does anybody have an opinion about whether that is helpful yet or can you tell.

Mr. LAMBERT. My experience is in the brief time it was in place when I was there it was tremendously helpful. And I—people would often that wished to complain about the process would say that, you know, 50 percent of our acquisition workforce has 5 years of experience or less.

I think that is a great opportunity to train them on next-generation systems, next-generation capabilities, and then how the commercial market is moving. I think that is one of the most important programs throughout the Department, it is Department-wide.

And I can't, you know, first of all thank the committee enough for supporting it because I do think that we are starting to see the results. But as you indicated we won't likely see those results for 3 or 4 or even more years as we train these people up. But it is a great opportunity to train the new people that are coming into the system.

Ms. MCGRATH. I would just add—I would echo Mr. Lambert's comments about the benefit of the workforce. My worry would also be around the retention of those individuals, so there is training them and then ensuring that we have got the proper incentives in place so that we retain them because if it is all bad news then it is a tough environment to work in.

And so, I think it is trying to achieve the right balance of highlighting progress that has been made on programs, to ensure that we have got the right incentives to maintain the workforce because if it is all bad news all the time, that is a really tough environment.

Mr. THORNBERRY. Which also relates back to something the admiral just said, if you want somebody to stay in the job 4 or 5 or 6 years then you got to have the incentives to retain them and also the mechanisms for promotion even if they are staying in the same job.

And that is part of the reason, I think, a lot of this goes beyond what we think of as the normal acquisition regulations. It goes back to those incentives and so forth. If there are no other questions of—the gentleman from Colorado?

Mr. LAMBORN. Thank you and this has been very interesting. I only was able to catch the tail end because I was in another committee earlier. But I would like to just back up a step and ask more of a broad philosophical question and how that relates to acquisitions and that has to do with the civilian oversight of the military.

It is interesting I sometimes hear people in the military or retired from the military complain, maybe even resent the fact that they are so specialized and have such a depth of knowledge especially in certain areas, no one can know everything, of course.

And then they come and talk to committees on the Hill where no one knows anywhere near what they know about that particular area and yet the Constitution has set it up where the civilian oversees the military. And there is just a friction there sometimes.

And yet, from the examples you have given, there are times when the Department of Defense needs to be overridden and whether it is—we see the bigger picture here in Congress, or whatever it is or maybe it was a 51–49 decision, not a 100 to 0. It was a very close call and they just happened to, you know, be on the wrong side of what Congress wanted to do.

But it could have gone either way. So, how should we best leverage our role as civilian overseers of admittedly the very specialized and highly trained and effective, and I totally respect the Department of Defense specialists over in the Pentagon.

And, Admiral, maybe you would be a good person to address this one.

Admiral VENLET. I don't mean to sound glib but I believe the Constitution got it right, okay? And my appeal to you from my appearance to briefing professional staffs on both sides to appearing before committees is work very hard in your oversight role and ask very tough questions that go beyond just local interests because the three areas that I said in my opening statement that need addressing, programs that exist, running, work better.

That second one, you know, only start and pursue the right programs. I believe you have a role that is very important there at challenging the military leadership in the requirements generation. Are you sure that is the right system to pursue? I don't have any examples to offer you because that would be pretty delicate right now and I just don't have current knowledge.

But I think that is my answer to your question that says work harder not that you are not working hard forgive me for implying that, I didn't mean to. But really focus on are you sure that is the right—so, how do you have the knowledge to know? Well, that is where the staffs have to interact with those analysis groups that do exist within the services and get armed with that background information.

And then it does go back to trust. There is that level of trust. I think trust is earned based on past performance and past relationships.

Mr. LAMBORN. Anyone else to add to that?

Mr. O'ROURKE. I think another step or an additional thing to keep in mind building on the admiral's comments is to try to close the loop on accountability, because if there are bad results but no one is held accountable or there are no consequences for that, the message sent back to the system is that perhaps the same thing can happen in future. So, try to close the accountability.

And that is why I talked about terms of office because if someone isn't around long enough to be confronted with the results of their decisions some of which can take years to become manifest then that can make it a lot more difficult to close that accountability loop.

It can be done with their successors but in a lot of cases there is no substitute for personal responsibility in those matters.

Mr. LAMBERT. I would just add again that I think we are all saying the same thing, that a lot of it comes back to people. But one very different way of doing business again coming from over 20 years in the industry and then in the government, in the government if you don't do a good job most people would just leave you alone.

You know, in private industry, you try to promote maybe 10 percent of your workforce, try to help 80 percent get promoted, and the rest of the 10 just were not going to work out. My experience in the Department is that is not the ratio. It is—so, you have really good people that you want to promote and you want to demonstrate that you want promote them and retain them.

You have other people that you need to work very hard to get up to that 10 percent but then you do have some that just cannot or will not perform and the inability to act on those individuals, I think, is a challenge that we all face in management inside the Department.

Ms. MCGRATH. I would echo the last comment, spending 25 years in the Department of Defense most of which as a career civil servant, it is very difficult to make changes in the workforce that need to be made. And I would also—echoing Mr. O'Rourke's comments around accountability, I think we need to define not only what is the requirement but what does success look like so we know whether or not collectively we are actually achieving the goals that we want. So, the definition of success coupled with the accountability, I think, is really important.

Dr. LAMB. My thought on this would be that it boils down to one word—homework. If you had a series of case studies on successful congressional oversight, I think what you would find is that someone in the committee, the chairman, people on the committee were sensing something wasn't right. There was enough prima facie evidence that something wasn't right.

They dug, the answers didn't seem to make sense in the broader perspective. They dug more, they dug more on Goldwater-Nichols, on ODIN, on MRAPs, on not taking at face value that we couldn't get the up-armored Humvee kits to the field as fast as people were telling them. In all those cases, members of this committee and staff made a big difference by just continuing to dig until they thoroughly understood the circumstances. And then presented the broad base perspective saying why can't we do this. We are going to do this. And it is just that simple.

Mr. LAMBORN. Well, thank you all so much and thank you, Mr. Chairman, for the hearing.

Mr. THORNBERRY. Oh, I thank the gentleman from Colorado. I think that is a perfect way to end because it is not just about what we try to encourage the Pentagon or industry to do, it is about what we do ourselves. We play a key role in our oversight function under the Constitution and I think that is part of the solution to improving our acquisition system.

You all have been terrific. Thank you very much for all of your insights you have shared with us today as well as all that you have all contributed to the country. We will feel free to abuse you further by asking more questions and following up.

So with that, the hearing stands adjourned.

[Whereupon, at 12:12 p.m., the committee was adjourned.]

A P P E N D I X

JUNE 24, 2014

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

JUNE 24, 2014

Opening Statement of Chairman Howard P. “Buck” McKeon

HEARING ON

Case Studies in DOD Acquisition: Finding What Works

June 24, 2014

Good morning. As most of you know I have asked our Vice Chairman Mac Thornberry to lead a long-term effort to streamline management of Department of Defense by eliminating unnecessary overhead and reducing the complexity of the regulatory environment.

I have also asked him to take a hard look at how we can make some lasting improvements in the way that DOD [Department of Defense] sets requirements and acquires things to meet those requirements. We have all heard the quote—“Those who cannot remember the past are condemned to repeat it.” This is something that we have done over and over, but I am confident this time it is going to be perfect.

Perhaps there is no better example of this futility than defense acquisitions where the same efforts, reform efforts, have been tried again and again for more than 70 years. I want to break this cycle of failed acquisition reform by learning from those that traveled down this path before. That is what this hearing is about.

We have asked our witnesses to present some case studies of their choosing not ours, that based on their experience, they feel are good examples of what is working in DOD acquisitions and what is not. I invite all Members to tread outside their committee lanes and ask questions about any of the cases studies, even programs that you are not familiar with. So no question is a bad question.

The great folks we have here before us today have worked on a variety of programs and we appreciate the breadth of their experience. We have with us today the Honorable Brett Lambert who recently left his post as a Deputy Assistant Secretary for Manufacturing and Industrial Base Policy and is now with the National Defense Industrial Association.

We also have Mr. Ron O’Rourke, who most of you here know from the Congressional Research Service. Additionally, we have Vice Admiral David Venlet, Retired—did I say that correctly—who during his service with the Navy worked on many major acquisitions programs to include the F-18 and the Joint

Strike Fighter. Now, I understand that you are just basically short time removed from that but your experience, sir, will be invaluable.

Next, we have the Honorable Beth McGrath who recently served as DOD's Deputy Chief Management Officer where she had responsibility for DOD's business systems.

And last but not least we have Dr. Christopher Lamb who is currently Deputy Director for Institute for National Strategic Studies at the National Defense University. Prior to that post, he served as the Deputy Assistant Secretary of Defense for Resources and Plans where he had oversight of requirements, acquisition and resource allocation matters for the Under Secretary of Defense for Policy.

I welcome all of you and thank you for your service, this is a very good panel for this subject. We really appreciate and value your expertise.

Statement of Congresswoman Loretta Sanchez
HEARING ON
Case Studies in DOD Acquisition: Finding What Works
June 24, 2014

Thank you for holding this hearing, Mr. Chairman. I would also like to thank our witnesses for appearing today and for sharing with us their expertise on the topic of defense acquisition.

Their insight is very helpful to our efforts to strengthen the defense acquisition system.

The acquisition system is critical to national security, because, the Department of Defense relies on the provision of superior products and services to perform its diverse roles and missions effectively.

However all too familiar challenges, such as cost overruns, schedule delays, system anomalies, and performance failures persist within the defense acquisition system, despite a pronounced need for greater discipline.

The defense acquisition system simply must become more cost-effective as budgetary resources become scarcer.

To some extent, the Department should embrace the lessons learned from former or current programs to improve acquisition practices now and in the future.

The Department should invest the knowledge gained from its achievements and its failures to: better hone its requirements generation and validation processes; empower its acquisition work force; develop integrated acquisition data management systems; maintain the vitality of the defense industrial base; and improve contractor performance.

Each of today's witnesses has extensive experience in the defense acquisition field.

I look forward to exploring how we might best leverage the lessons learned from their endeavors to effect lasting improvements to defense acquisition practices and procedures.

I am especially interested in learning how lessons derived from our witnesses' collective experience with a disparate array of acquisition issues, which includes industrial base policies, shipbuilding programs, the F-35 Joint Strike Fighter program, various information technology acquisition programs, and the mine-resistant, ambush-protected (MRAP) vehicle program, might support thematic enhancements of the Department's acquisition policies.

**Case Studies in DOD Acquisition: Finding What Works
Testimony before the Committee on Armed Services
United States House of Representatives**

**Brett Lambert
Senior Fellow
National Defense Industrial Association**

Tuesday, June 24, 2014

Mr. Chairman, Vice Chairman Thornberry, Ranking Member Smith and Members of the Committee, thank you for the opportunity to appear before you this morning. The views I will share are framed by more than 25 years of experience in the private sector working with both large and small firms in the defense and intelligence markets, from technically advanced electronics firms, to those that produce body armor, to classified imagery, to crashworthy seats, to shipbuilding, to services. Over that time I have had the opportunity to work with nearly every type of goods and services the Department acquires. From 2009 until 2013 I also had the honor of serving as the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy under three Secretaries of Defense and two Under Secretaries of Acquisition, Technology, and Logistics.

While I will discuss historic acquisition successes, I believe it is more useful to understand the underlying trends that produce success and failure on a broader scale. Singling out specific examples of program success or failure is problematic. Budgets, changing technologies, and emerging threats can make this year's acquisition success story next year's poster child for failure, and vice versa. Programs such as the M-1 and the MRAP are examples of programs that can be viewed through significantly different lenses over time, depending largely upon the threats we face at any given moment. Dr. Eugene Gholz, with whom I had the privilege of working while at the Department, has published on defense acquisition cycles, trends, and the specific issues of program success and failure. I agree with his finding that singling out specific programs or actions is not nearly as useful as understanding how the overall culture and body of policy affect the Defense Acquisition System.

Thus we should give tremendous credit and support to the efforts of Frank Kendall, the Under Secretary of Defense for Acquisition, Technology, and Logistics. Mr. Kendall has sought to quantify the effects of acquisition procedures in the aggregate over time. His recently released *Performance of the Defense Acquisition System: 2014 Annual Report* should serve as a touchstone for every effort to improve our acquisition policies. With his fact-based approach, Mr. Kendall is on the right path.

Likewise, this Committee continues to offer insightful guidance to the Department. During my four years in office, I believe this Committee worked extremely well with the Department in advancing constructive and enlightened policies which greatly benefited both the warfighter and the taxpayer, and for that I thank you.

My statement this morning will focus on looking forward. While the lessons of the past are useful in guiding the policies of the future, the pace of technological advancement and increasingly dynamic requirements of our warfighters demand that we lean forward and implement the systems and procedures that will deliver the most advanced and capable systems possible. Buying those systems will require removing many of the barriers to market entry that have steadily arisen over time. Metaphorically speaking, acquisition reform should focus less on individual “silver bullets” and focus more on creating and sustaining a “silver mine.” To enlighten and inform any change of acquisition policy, we should first understand our vendors, and those whom we want as vendors, therefore I will discuss the changing nature of the industrial base upon which the Department relies. I will then discuss the implications of this changing base for the Department, the Congress, and the industry itself.

Today’s Evolving Industrial Base

For over a decade now the nation has increased annual defense spending in support of our troops engaged in two active conflicts while, at the same time, investing in capabilities to prevent and deter future conflicts around the globe. Over that period, the Department, with the support of Congress, has sought to plan, train, fight, and win the ongoing conflicts – while simultaneously planning, training, preparing to fight and win numerous contingencies that could threaten our national interests.

As we executed that mission over the last decade, the industrial base has been with the Department every step of the way – responding to our immediate needs while also investing in our future requirements – albeit at lower rates among our traditional suppliers than one might expect.

The industrial base that supports the Department remains a vital component of our national security capability, second only to the troops themselves. To maintain the world’s finest military we need three things: high quality people, realistic and constant training, and cutting-edge technology and support from industry. If we have the first two, but not the last, we will lose our ability to protect our national security interests around the world.

In a permissive budget environment this was a difficult mission to execute. In an increasingly constrained budget environment, it is next to impossible. Fortunately for the nation, the military, and the industrial partners that support it, each continues to excel in achieving the “next to impossible.” Industry continues to respond to both the

current and emerging threats our nation faces. In return, the firms that serve our warfighters, at a fair price to the taxpayers, should reasonably expect fairness in treatment, rationality in our program decisions, and certainty in our spending plans which financially correspond to the market risks industry bears. For decades the United States has used our partnership with industry to command a decisive advantage when it comes to innovation and manufacturing of military goods and services.

However, the advantages that have enabled American preeminence are not a birthright, and key elements of the industrial base that are necessary to ensure dominance on future battlefields must be sustained and nurtured. We must foster and leverage an industrial base that keeps our troops from ever entering a fair fight. Our warfighters should never advance on an enemy only to find them better equipped due to less burdensome regulations or more reasonable audit policies. And make no mistake; while we focus on providing our forces with increasingly detailed and thorough audits, our adversaries gain ground on us technologically. If it is my daughter in harm's way, I have less concern with the thoroughness of an incurred cost audit and more concern with the quality and technological superiority of her equipment. We cannot let our bureaucratic processes become our own most dangerous enemy. The Defense Acquisition System must get our warfighters what they need, when they need it, and it must be the absolute best the world has to offer.

The industrial base that makes this possible is comprised of an extremely diverse set of companies that provide both products and services, directly and indirectly, to national security agencies including the military. References to "The Defense Industrial Base" that imply a monolithic entity are no longer analytically useful. The defense industrial base includes companies of all shapes and sizes around the globe, from some of the world's largest public companies to sole proprietorships to garage start-ups. Some companies deal directly with the federal government, but the vast majority act as suppliers, subcontractors, and service-providers in a value chain that leads to prime contractors and is often based far away or, increasingly, in "the cloud." Companies at any tier, and of any size, may supply hard-to-make products that are critical to the systems used by our warfighters.

Some products and services sold by companies in the defense industrial base are unique to defense applications, but most have substantial levels of non-defense demand or are even sold exclusively on commercial terms such that the supplier may not even know that the product is used in military systems, and likewise, the Department may not know it depends upon a primarily commercial component. Finally, while the pace of innovation is extremely rapid in some segments of the defense industrial base, other segments are based on very mature technologies where dynamic innovation is less important to the Department than long-term sustainment.

In sum, there is not a single defense industrial base. There is a defense market serviced by a diverse selection of companies which span, and often reflect, the greater global economy for goods and services.

With declining and uncertain future capital as a result of sequestration, the Department continues to struggle with “filling the shelves” with the goods and services our warfighters need today, and has increasing difficulty planning for and stocking future products. Given the current budget environment, the Department, with the help of this Committee, continues to strive to better align available resources while ensuring we have access to the best innovation and products in the world. Yet none of the efforts to better align available resources to our current and future needs will succeed if we do not have a financially robust and technologically advanced industrial base supporting our warfighters. Without that base, all the acquisition policies, both good and bad, are meaningless. The simple fact is the Defense Department builds very little. Our industrial partners and their supply chains develop, build, and sustain the goods and services upon which the Department relies.

In the coming years, the Department of Defense will increasingly purchase from what I call the “millennial industrial base.” As defense budgets flatten or even decrease, our base will become more global, more commercial, and more financially complex. This reality is truer today than it was yesterday, and will be truer tomorrow than it is today. The defense industry and the suppliers that comprise it are constantly adapting to the Department’s requirements, the conditions of the marketplace, and rules imposed by an overly bloated and bureaucratic acquisition system.

Outdated acquisition policies where the U.S. Government dictates inflexible rules reflect the flawed notion that if the Department simply wrote a large enough check, industry would magically provide for its every need. But today, the goods and services the Department relies upon reach far deeper into the overall U.S. and global economy than most appreciate. While industry does produce defense-unique items, these items often rely upon a complex and integrated supply chain of product providers, which, if restricted at the second, third, and even fourth tiers, would jeopardize even the seemingly pure-play defense businesses.

The Millennial Industrial Base

The Millennial Industrial Base is more global, more commercial, and more financially complex than the traditional “defense industrial base” and it will be marked moving forward more by its disposability than its continuity of service.

The Millennial Industrial Base in which we now find ourselves is evolutionary, where Moore’s Law is more important than Milestones, and Metcalfe’s Law is more vital to our national security than MilSpec.

Increasingly, the millennial industrial base will rely on the technologies that were not developed in the United States. Also, like the commercial marketplace, our supply chain, particularly at the lower tiers and in information technology, will include firms from countries that are not our closest allies.

Yet buying from a more global Millennial Industrial Base can offer many benefits – if done wisely. It increases competition and thus reduces costs. It introduces new technologies and concepts. It often supports coalition warfighting efforts, or at least makes them less difficult to execute. And it teaches us lessons from other nations who have faced difficult financial circumstances and enforced their own “Better Buying Power” efforts. There is also the simple fact that a globalized Millennial Industrial Base is not an option to choose, it is an inescapable reality we must embrace and exploit.

Along with the benefits come risks. These risks include, but are not limited to, the threat of counterfeit or inferior parts entering the supply chain, the potential for undue reliance on components whose origin or actual configuration may not be fully understood, and the theft of intellectual property by foreign businesses and governments.

The Millennial Industrial Base upon which we must rely will be more commercially focused. This reality is particularly acute in the area of information technology (IT) goods and services which are an ever-increasing segment of our national defense spending. The commercial trend is one the Department has recognized more in policy than in practice. While decades ago the majority of the goods and services the Department procured were defense-unique, today the ratio is reversed, and the majority of goods and services are either produced for commercial consumption or originally developed with commercial applications in mind, and a concomitant commercial supply chain.

This change is profound and disruptive, and our acquisition practices have not yet effectively adapted to it. When it comes to acquisition, the Department continues to assume it is the dog, not the tail of a market. Increasingly that is the wrong assumption.

Last, the Millennial Industrial Base is financially complex. From ships to shoestrings, the capital required to support the Millennial Base is more global and commercial. Wall Street matters, and the uncertainty of the current political and budget environment will become a threat to national security if investors shy away from the firms our warfighters depend on for next generation technology. From small technology start-ups which seek venture funding to the debt markets which support our base through access to capital as programs mature, the Millennial Industrial Base simply cannot survive without access to capital on a competitive basis. And, as with our supply chain, the financial sector is becoming more complex and more global by the day.

Implications for the Department

As I have noted, the Department relies on Industrial Age policies and procedures that often hinder it from acquiring the best Information Age technologies. This phenomenon results more from culture than from policy. Part 12 of the Federal Acquisition Regulation (FAR) already enables the Department to buy advanced commercial systems and services but is far too often bypassed in favor of the more established and comfortable government-unique source selection policies of FAR Part 15. The only barrier to entry for many IT firms seeking to offer their best technology is the acquisition skill set of informed government customers.

The Millennial Industrial Base fully embraces the Department's pursuit of Better Buying Power. Nowhere is the Department more likely to find improved productivity, innovation, capability, efficiency, cost control, competition, and reductions in process and bureaucracy than in a base that leverages a global, commercial, and financially complex supply chain. The Better Buying Power initiative, as policy if not in practice, accentuates and leverages all of the best aspects of the Millennial Industrial Base. It must be continued and encouraged at all levels of government.

As our marketplace becomes more global, our export control regimes must keep pace. Export controls are an important weapon in our national security arsenal, but they can cause harm to the defense industrial base when employed immoderately. The clearest example of this damage is the U.S. space industry. In the 1990s, after a U.S. company transferred data about failed rocket launches to the Chinese government, Congress placed commercial satellites on the U.S. Munitions List. This addition meant that each of the satellite's individual parts was also regulated. The move caused a 40 percent decrease in the United States' market share for space technology and a reported loss of \$21 billion in satellite manufacturing revenue. In 2012 the Congress moved classes of satellites to the Commerce Control List, which is less strict and complicated. This was an example of American technological dominance ceded to foreign powers out of our belief that we can control and confine technology. We cannot, and in this case, our industrial partners suffered and therefore had less capital to invest in next generation technologies.

One can easily see why a commercial firm would avoid the complication of export control regulations by shying away from opportunities with the Department. Commercial firms also increasingly invest in research and development overseas to avoid the reach of U.S. export control laws. If our nation wishes to retain our edge in innovation and technology, export controls need to be written with the Millennial Industrial Base firmly in mind, or else U.S. companies will increasingly forfeit the global market. Nowhere is this threat more acute than in the once U.S.-dominated unmanned aerial vehicle (UAV) industry. If our export controls do not adapt, American UAV

suppliers may suffer the same fate as our satellite producers did and allow history to repeat itself where the U.S. innovates and foreign nations replicate.

An advantage of the Millennial Industrial Base to the Department is burden sharing in research and development. Today debates rage over the role of "IRAD" in defense innovation. But this single acronym conflates Independent Research and Development (IR&D) and Internal R&D (unfortunately also known as IR&D). Independent R&D are funds provided by the taxpayer to defense companies at a rate of roughly \$4.5 billion a year, well over half of which goes to the major prime contractors. To be eligible for these funds, a firm must have an existing contract. There are many good reasons for these expenditures, and I support them all. It is a good program.

Internal R&D, as every other U.S. company defines it, is self-directed and unreimbursed with the goal of investing in capabilities that have a clearly articulated return on the R&D investment. As the Department increasingly leverages the commercial market, Internal R&D may likely become a greater source of innovation than Independent R&D. It may be helpful, moving forward, to simply distinguish the two pools of resources and refer to "Independent R&D" as "Reimbursable R&D" which is in effect what it is. The Department would then be better able to distinguish, as will shareholders of public companies, the dramatic increases in IR&D driven by the Millennial Industrial Base that are not taxpayer funded yet may yield significant results for the warfighter if private investments are able to develop into goods and services the warfighter requires.

Conclusion

There is not, nor has there ever been, a silver bullet for the real and perceived shortcomings of the Defense Acquisition System. I credit this Committee for its pursuit of improvements, and particularly your focus on taking a modest approach with narrower changes. The Department and the over \$1.2 billion it spends every day is simply too large and too diverse for a monolithic solution.

In my opinion, it ultimately comes back to people. How talented are they? How well are they trained? How empowered are they to make the necessary call on any one procurement action, and are they rewarded for thinking? And how supported will they be when they get it wrong - which will occur in any human endeavor?

That workforce must accept that the Millennial Industrial Base is the future of defense acquisition. How we can enable our people to recognize and leverage this reality is the challenge both this Committee and Department must address in the coming years. As I have said, our daughters and sons should never enter a fair fight. To that end, the efforts of the Department and this Committee are a very good start.

Mr. Brett B. Lambert

Brett Lambert is NDIA's Senior Fellow and responsible for the Association's work on the future of the defense industrial base. From 2009 through 2013, Lambert was the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base. Lambert served as the principal advisor to the Under Secretary of Defense (Acquisition, Technology, & Logistics) on all matters relating to the defense industrial base, including industrial capabilities and assessments; defense industry mergers, acquisitions and consolidation; preservation of essential industries and technologies; and other related matters. Lambert led President Obama's effort at the Department of Defense to establish the first National Network for Manufacturing Innovation site. In 2011 he was awarded the Secretary of Defense Medal for Outstanding Public Service and in 2013 he was awarded the Secretary of Defense Medal for Distinguished Public Service, the highest award from the Secretary available to a non-career civilian.

Prior to joining the DoD, Lambert spent 20 years working with defense and intelligence firms. From 1989 until 2007, Lambert held positions of increasing responsibility at DFI International, a national security consultancy. At the conclusion of his tenure with DFI, Lambert held the titles of Executive Vice President of DFI International and Managing Director of DFI Investment Partners.

Before joining DFI, Lambert worked for the U.S. Agency for International Development at the American Embassy in New Delhi, India. He attended graduate school at Jawaharlal Nehru University on a Rotary Graduate Scholarship he received during his senior year at Kansas State University. He also worked as an independent journalist in India, Pakistan, and Burma. Before his time in Asia, Lambert served in the Political-Military Group at the Center for Strategic and International Studies.

**DISCLOSURE FORM FOR WITNESSES
CONCERNING FEDERAL CONTRACT AND GRANT INFORMATION**

INSTRUCTION TO WITNESSES: Rule 11, clause 2(g)(5), of the Rules of the U.S. House of Representatives for the 113th Congress requires nongovernmental witnesses appearing before House committees to include in their written statements a curriculum vitae and a disclosure of the amount and source of any federal contracts or grants (including subcontracts and subgrants) received during the current and two previous fiscal years either by the witness or by an entity represented by the witness. This form is intended to assist witnesses appearing before the House Committee on Armed Services in complying with the House rule. Please note that a copy of these statements, with appropriate redactions to protect the witness's personal privacy (including home address and phone number) will be made publicly available in electronic form not later than one day after the witness's appearance before the committee.

Witness name: Brett Lambert

Capacity in which appearing: (check one)

Individual

Representative

If appearing in a representative capacity, name of the company, association or other entity being represented: National Defense Industrial Association

FISCAL YEAR 2014

federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant
None.			

FISCAL YEAR 2013

federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant
None.			

FISCAL YEAR 2012

Federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant
None.			

Federal Contract Information: If you or the entity you represent before the Committee on Armed Services has contracts (including subcontracts) with the federal government, please provide the following information:

Number of contracts (including subcontracts) with the federal government:

Current fiscal year (2014): 0 _____;
 Fiscal year 2013: 0 _____;
 Fiscal year 2012: 0 _____.

Federal agencies with which federal contracts are held:

Current fiscal year (2014): N/A _____;
 Fiscal year 2013: N/A _____;
 Fiscal year 2012: N/A _____.

List of subjects of federal contract(s) (for example, ship construction, aircraft parts manufacturing, software design, force structure consultant, architecture & engineering services, etc.):

Current fiscal year (2014): N/A _____;
 Fiscal year 2013: N/A _____;
 Fiscal year 2012: N/A _____.

Aggregate dollar value of federal contracts held:

Current fiscal year (2014): 0 _____;
 Fiscal year 2013: 0 _____;
 Fiscal year 2012: 0 _____.

Federal Grant Information: If you or the entity you represent before the Committee on Armed Services has grants (including subgrants) with the federal government, please provide the following information:

Number of grants (including subgrants) with the federal government:

Current fiscal year (2014): 0 _____;
Fiscal year 2013: 0 _____;
Fiscal year 2012: 0 _____.

Federal agencies with which federal grants are held:

Current fiscal year (2014): N/A _____;
Fiscal year 2013: N/A _____;
Fiscal year 2012: N/A _____.

List of subjects of federal grants(s) (for example, materials research, sociological study, software design, etc.):

Current fiscal year (2014): N/A _____;
Fiscal year 2013: N/A _____;
Fiscal year 2012: N/A _____.

Aggregate dollar value of federal grants held:

Current fiscal year (2014): 0 _____;
Fiscal year 2013: 0 _____;
Fiscal year 2012: 0 _____.

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HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF
RONALD O'ROURKE
SPECIALIST IN NAVAL AFFAIRS
CONGRESSIONAL RESEARCH SERVICE
BEFORE THE
HOUSE ARMED SERVICES COMMITTEE
ON
CASE STUDIES IN DOD ACQUISITION: FINDING WHAT WORKS
JUNE 24, 2014

NOT FOR PUBLICATION
UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE

Chairman McKeon, Ranking Member Smith, distinguished members of the committee, thank you for the opportunity to appear before you today to discuss case studies in Department of Defense (DOD) acquisition.

As part of my work as a naval issues analyst at CRS, I have been tracking issues related to Navy acquisition, and DOD acquisition more generally, since 1984. In addition to reports on individual Navy shipbuilding programs and other individual Navy acquisition programs, I have authored or co-authored reports on alternative funding approaches for Navy ship procurement,¹ options for lower-cost Navy ships,² factors affecting efficiency in Navy shipbuilding,³ shipyard mergers and their effect on Navy ship acquisition,⁴ the DOD full funding provision,⁵ and multiyear procurement (MYP) and block buy contracting in DOD acquisition.⁶

As requested, my statement will focus on three topics:

- some examples of Navy acquisition programs that are generally regarded as success stories;
- some potential acquisition lessons that emerge from a review of Navy acquisition in recent decades; and
- some additional observations relating to DOD acquisition and potential options for improving it.

Some Examples of Navy Acquisition Programs That Are Generally Regarded As Success Stories

Focusing on Successful (Not Just Less-Than-Successful) Programs Has Value

Discussions of DOD acquisition often focus on programs that have experienced problems with cost growth, schedule slippage, performance shortfalls, system design problems, and construction quality. While focusing on such programs is consistent with Congress' role in overseeing DOD activities, focusing on programs that are generally regarded as success stories is also consistent with Congress' oversight role, and can identify options for improving DOD acquisition that might not be easy to identify solely by focusing on programs that have experienced problems.

¹ CRS Report RL32776, *Navy Ship Procurement: Alternative Funding Approaches—Background and Options for Congress*, by Ronald O'Rourke.

² CRS Report RL32914, *Navy Ship Acquisition: Options for Lower-Cost Ship Designs—Issues for Congress*, by Ronald O'Rourke.

³ CRS Report 96-785 F, *Navy Major Shipbuilding Programs and Shipbuilders: Issues and Options for Congress*, by Ronald O'Rourke, particularly Appendix B (on spreading of shipyard fixed costs) and Appendix C (on shipyard learning effects).

⁴ CRS Report RL31400, *Navy Shipbuilding: Recent Shipyard Mergers -- Background and Issues for Congress*, by Ronald O'Rourke.

⁵ CRS Report RL31404, *Defense Procurement: Full Funding Policy—Background, Issues, and Options for Congress*, by Ronald O'Rourke and Stephen Daggett.

⁶ CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke and Moshe Schwartz.

Some Navy Programs That Are Well Regarded Today Might Not Have Been Well Regarded Years Ago

It is worth mentioning, prior to listing some examples of Navy acquisition programs that are generally regarded as success stories, that acquisition programs and the platforms they produce that are generally well regarded today were, in some cases, not very well regarded in earlier years.

For example, in the early 1980s the Navy was procuring a new class of ships that one article referred to as “an obese, \$1 billion walrus of the high seas with potentially dangerous stability problems.”⁷ The ship class in question was the Ticonderoga (CG-47) class Aegis cruiser—a ship class that today is a valued component of the Navy’s surface fleet. Indeed, the Navy in its FY2015 budget submission is proposing a strategy for continuing to operate some of its CG-47s into the 2040s.

As another example, in the late 1980s a different Navy ship acquisition program was criticized as a “procurement nightmare,”⁸ and the class of ship being acquired through the program was described by its critics as “the Navy’s billion-dollar hole in the water” and “another example of the Navy driving itself to the poor house in a Cadillac.”⁹ The ship in question was the Arleigh Burke (DDG-51) class Aegis destroyer—a class that, with a total of 70 ships procured through FY2014 and additional units scheduled for procurement in FY2015 and beyond, has become one of the largest classes of major Navy combatants in recent decades. The DDG-51 acquisition program today is generally not controversial. The program office received a David Packard Excellence in Acquisition Award from DOD in 2012, and the bidding method used in the program in recent years is cited below as an example of an acquisition success story.

Indeed, as I discussed in more detail in my testimony to the Seapower and Projection Forces subcommittee last October 23, several classes of surface combatants that the Navy has acquired since the 1970s were criticized on one or more grounds in their early years, but went on to become well-regarded (or at least less controversial) in later years.¹⁰ This is not to argue that those early criticisms were necessarily invalid; it is only to point out that problems can be overcome, and that the reputations of acquisition programs and the platforms that they produce can change over time.

With this cautionary note in mind, below are some examples of Navy acquisition programs that are generally regarded as success stories. These are by no means the only examples that might be cited, and lists compiled by other observers would likely include different examples.

Nuclear Propulsion

The Navy’s success in developing, procuring, and safely operating nuclear propulsion systems on Navy surface ships and submarines is so longstanding that it can be easy to overlook in a list of successful Navy acquisition efforts, particularly since the office in charge of this effort, Naval Reactors, generally does not

⁷ Richard Barnard, “CG-47: Overweight and ‘Ineffectual,’” *Defense Week*, August 16, 1982: 1, 15.

⁸ George C. Wilson, “\$1 Billion Navy Destroyer’s Cost Is Making Waves,” *Washington Post*, September 15, 1989: A13; Timothy McCune, “Bath Iron Works Begs Off Meeting With GAO,” *Defense Week*, September 25, 1989: 14; William V. Kennedy, “New Navy Ship Faces Its First Battle,” *Christian Science Monitor*, September 28, 1989: 8.

⁹ George C. Wilson, “The Wrong Destroyer?” *Washington Post*, August 10, 1986: B5.

¹⁰ See Statement of Ronald O’Rourke, Specialist in Naval Affairs, Congressional Research Service, Before the House Armed Services Committee, Subcommittee on Seapower and Projection Forces, on the Navy’s FY2014 30-Year Shipbuilding Plan, October 23, 2013, pp. 9-13.

go out of its way to draw attention to itself. When one considers the various things that conceivably might go wrong with integrating a nuclear propulsion system into a warship and operating that ship at sea over a period of decades, as well as the potential consequences of something going wrong with a nuclear propulsion plant, the Navy's success since the 1950s in procuring and safely operating scores of nuclear powered ships, and in developing a succession of reactor designs and using reactor fuel cores with increasingly long lives (reducing the need for mid-life refueling operations), can be considered a major success story.¹¹ Comparisons with the Soviet Union's naval nuclear propulsion program, which was frequently dangerous to its own people, are instructive.

To be sure, not everyone has always been satisfied with Naval Reactors' work. For a few years in the 1990s, for example, there was some tension between members of this committee and the Navy (including Naval Reactors) regarding submarine design and technology development. On the whole, however, Naval Reactors has usually enjoyed a strong degree of support from Congress.

Naval Reactors' success can be attributed in part to its administrative setup, which provides Naval Reactors with a clear and focused mission, clear and total (i.e., cradle-to-grave) responsibility and accountability for implementing that mission, a director with a high rank (four-star admiral/Deputy Administrator in NNSA) and a long term of office (eight years), centralized control of the program's industrial base and suppliers, and a fairly flat organizational structure with an in-house staff that is fully knowledgeable in the technology that it acquires from its contractors.¹² Naval Reactors' success can also be attributed to its operational philosophy, which is characterized by, among other things, a focus on technical excellence, rigorous quality control, comprehensive procedures and procedural compliance, careful selection of personnel, and rigorous and continuous training of those personnel. A 1998 journal article states:

A principle of transcending importance [at Naval Reactors] is that every organizational unit and each individual has responsibilities that are defined clearly and understood thoroughly. Careful attention is given to seeing that these responsibilities are internalized, that the name of an individual is identified unambiguously with each required function, and that these responsibilities are put in writing. Naval Reactors policy and practice gives emphasis to this principle to a degree matched by few organizations...

The cardinal principle applied by Naval Reactors is that the government itself is the customer—and an exacting one at that—for each and every activity and function that contractors are engaged to perform. The contractor is required to meet the requirements of the contract in all respects. Naval Reactors built up an outstanding technical staff... to ensure that it could perform as a "demanding customer."¹³

¹¹ Naval Reactors reported in March 2013 that the Naval Nuclear Propulsion Program had accumulated more than 6,500 reactor-years of operation, that nuclear-powered Navy ships had safely steamed more than 151 million miles, and that Navy nuclear-powered ships were accepted for port calls in more than 150 ports in more than 50 foreign countries and dependencies around the world. See U.S. Department of Energy and U.S. Department of the Navy, *The United States Naval Nuclear Propulsion Program*, March 2013, p. 1.

¹² Naval Reactors' administrative setup was formalized by Executive Order 12344 of February 1, 1982. 50 U.S.C. 2511, where this executive order is codified as a note, states that the provisions of this executive order shall remain in force until changed by law.

¹³ John W. Crawford and Steven L. Krahn, "The Naval Nuclear Propulsion Program: A Brief Case Study In Institutional Constancy," *Public Administration Review*, vol. 58, no. 2, March/April 1998: 160.

Virginia Class Attack Submarine Program

The Virginia (SSN-774) class attack program has been held up frequently in recent years as an example of a successful acquisition program. The program received a David Packard Excellence in Acquisition Award from DOD in 2008. Although the program experienced cost growth in its early years that was due in part to annual procurement rates that were lower than initially envisaged and challenges in restarting submarine production at Newport News Shipbuilding,¹⁴ the lead ship in the program was delivered within four months of the target date that had been established about a decade earlier, and ships in recent years have been delivered on cost and ahead of schedule.

As a requirement for the program to increase its procurement rate from one boat per year to two boats per year starting in FY2012, the program was challenged with reducing the procurement cost of each boat by about 17%, from \$2.4 billion to \$2.0 billion in FY2005 dollars. The goal was referred to as “2 for 4 in 12,” meaning two boats for \$4.0 billion in FY2005 dollars in FY2012. The program met this challenge without having to reduce the capability of the Virginia-class design. (Capability, in fact, was increased.) About half of the cost reduction was accomplished simply by shifting to two-per-year construction, which offers better production economies of scale. About a quarter was accomplished through changes to the boat’s design that make it less expensive to build, and about a quarter was accomplished through changes to the shipyard processes for building the boats.¹⁵ With congressional support, the program was increased to two boats per year in FY2011, a year ahead of the Navy’s schedule. The Navy is now working to further increase the cost effectiveness of the Virginia-class design by reducing its total ownership cost and increasing the number of deployments that each boat will make during its 33-year life.

The success of the Virginia-class program can be attributed to, among other things, achieving a higher degree of design completion prior to the start of construction than was true for previous submarine acquisition programs, establishing operational requirements for the program that were not overly ambitious, using technologies developed for previous Navy submarine classes where appropriate, sharing production best practices between the two submarine shipbuilders (General Dynamics/Electric Boat and Huntington Ingalls Industries/Newport News Shipbuilding) that jointly build each boat, and achieving production efficiencies through the use, with congressional approval, of a block buy contract (for the first four boats in the program) and a subsequent series of MYP contracts.

Acoustic Rapid COTS Insertion (ARCI) Program

The ARCI (pronounced AR-key) program is an open architecture program for continuously upgrading the acoustic signal-processing capabilities of existing Navy submarines. Under the ARCI program, the sensors on a submarine are not changed, but its signal-processing computers are changed out every four years (using commercial, off-the-shelf [COTS] hardware), and the signal-processing software that runs on those computers is improved every two years. The first ARCI installation was completed in 1998; the program improves 10 to 12 boats each year.

¹⁴ See Statement of Ronald O’Rourke, Specialist in National Defense, Congressional Research Service, before the House Armed Services Committee Subcommittee on Seapower and Expeditionary Forces Hearing on Submarine Force Structure and Acquisition Policy, March 8, 2007, Table 10 on pp. 14-15.

¹⁵ For further discussion, see the section entitled “Cost-Reduction Effort” in CRS Report RL32418, *Navy Virginia (SSN-774) Class Attack Submarine Procurement: Background and Issues for Congress*, by Ronald O’Rourke. See also David C. Johnson et al., “Managing Change on Complex Programs: VIRGINIA Class Cost Reduction,” *Naval Engineers Journal*, No. 4, 2009: 79-94; and John D. Butler, “The Sweet Smell of Acquisition Success,” *U.S. Naval Institute Proceedings*, June 2011: 22-28.

The ARCI program can be viewed as an early example of “walking the walk” on open architecture. Under the program’s open-architecture approach, firms and other organizations are invited to submit improved signal-processing solutions for incorporation into the next available insertion cycle. Lockheed, a lead contractor for the program, states that the program “harvests ‘best of breed’ solutions from all possible sources—big business, small business, University Affiliated Research Centers (UARCs), and labs,” and that to date six larger firms and 14 smaller ones have been brought into the program because of the open architecture approach.¹⁶

The ARCI program was instituted to reverse a deterioration in the submarine force’s acoustic edge over improving foreign submarines that had occurred by the mid-1990s—and do so within a submarine research and development budget that was much lower than it had been during the Cold War years of the 1980s. The program can be viewed as an example of a service responding to a reduction in funding by finding a new and less-expensive approach to accomplishing its objective. The continuous improvement in capability among existing submarines achieved through the ARCI program might be considered equivalent to adding some number of boats to the force—but at a very small fraction of what it would cost to actually build those additional boats, and at much less cost for each boat’s acoustic upgrade than had previously been achieved through the closed-architecture approach. The Navy stated in 2008 that

The old [closed-architecture] way of doing business was expensive. It guaranteed recurring revenue to manufacturers for the purchase of sonar and combat control systems. Any significant upgrade in capability resulted in a large sale for them since everything from the sensors, the beam forming hardware, the computers, the detection and tracking software, and even the cabling were in need of replacement in order to use new system’s capabilities. Previously on the order of \$150 million per ship set we have achieved a near ten-fold reduction for current cost of about \$15 million for today’s shipsets.

In [ARCI’s] open architecture/open business model system, the software is developed independently from the hardware (through the use of middleware), allowing us to choose the best software application from any company interested in doing business with us. Costs lie in changing lines of code. By continuously updating the small number of lines of code in the middleware, updates to large amounts of hardware-based code and application code are avoided.¹⁷

Aegis Ballistic Missile Defense (BMD) System

Since 2002, the Aegis BMD program has achieved what is generally regarded as a largely successful test flight record of 28 successful exo- and endo-atmospheric intercepts in 34 attempts against increasingly challenging short- and medium-range ballistic missile targets. The program builds on the baseline air-defense capability of the Aegis combat system, which entered service on the Aegis cruiser Ticonderoga (CG-47) in 1983, and the Standard Missile (SM) family of interceptors. The Aegis BMD program’s

¹⁶ Source: Lockheed information paper on ARCI program provided to CRS on June 13, 2014.

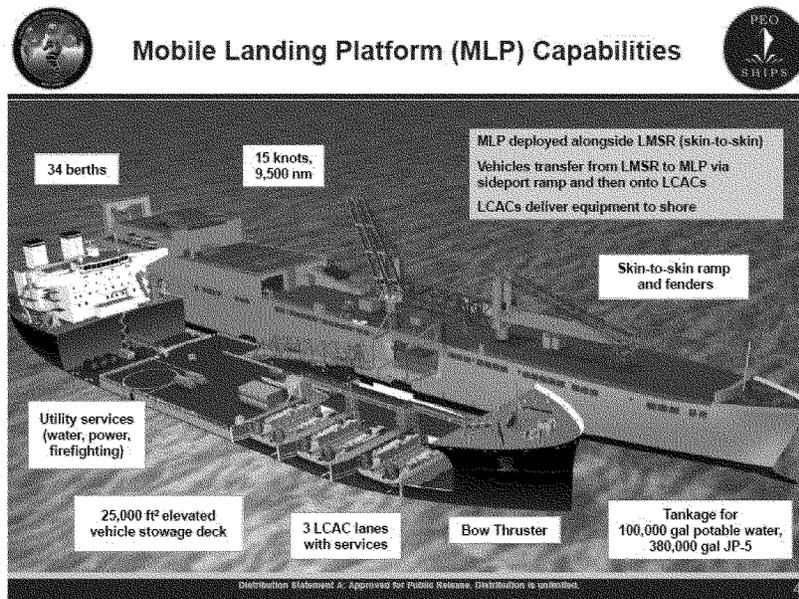
¹⁷ Jim Stevens, “The How and Why of Open Architecture,” *Undersea Warfare*, Spring 2008, accessed June 17, 2014, at: <http://www.navy.mil/navydata/cno/n87/usw/spring08/HowAndWhy.html>. See also “Acoustic Rapid COTS Insertion (ARCI),” accessed June 17, 2014, at: <http://www.navy.mil/navydata/cno/n87/future/arci.html>; John Keller, “Lockheed Martin to Make COTS Upgrades to Submarine Sonars in \$29.4 Million Contract,” *Military & Aerospace Electronics* (www.militaryaerospace.com), June 10, 2013, accessed June 17, 2014, at: <http://www.militaryaerospace.com/articles/2013/06/lockmart-arci-contract.html>; and Michael Boudreau, “Acoustic Rapid COTS Insertion: A Case Study in Spiral Development,” Naval Postgraduate School, October 30, 2006, 63 pp., accessed June 17, 2014, at: www.dtic.mil/get-tr-doc/pdf?AD=ADA458431.

success can be attributed in part to its use of the Aegis community's longstanding incremental development philosophy, known as "build a little, test a little, learn a lot [then repeat]."¹⁸

Mobile Landing Platform (MLP) Ship Program

The Mobile Landing Platform (MLP) ship provides a "pier at sea" that permits maritime prepositioning ships such as Large, Medium-Speed, Roll-on/Roll-Off ships (LMSRs) to offload their equipment and supplies to the MLP for transshipment to shore via air-cushioned landing craft (LCACs). Without an MLP, these prepositioning ships would need to find a secure port to disembark their cargo. In effect, the MLP acts something like a well deck (the floodable space in the back end of an amphibious ship that landing craft go in and out of) for prepositioning ships that do not have well decks. Adding MLPs to the fleet increases the ability of the Navy/Marine Corps team to launch and support ship-to-shore operations directly from the sea, without need for access to secure ports. **Figure 1** shows an MLP (with three LCACs on board) ready to receive equipment and supplies from a prepositioning ship.

Figure 1. Mobile Landing Platform Ship



Source: Briefing slides from PMS 385, Program Office for Strategic and Theater Sealift, undated, posted at InsideDefense.com (subscription required), January 17, 2014.

¹⁸ For more on the Aegis BMD program, see CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O'Rourke.

The Navy's original, all-new design for the MLP had an estimated procurement cost in the FY2009 budget submission of about \$1.236 billion for the lead ship and \$964 million for the second ship. This design was subsequently deemed unaffordable. As a more-affordable alternative, the Navy selected a proposal by General Dynamics/National Steel and Shipbuilding Company (GD/NASSCO) to instead modify the design of an existing oil tanker built by NASSCO into a less-capable but less-expensive version of the MLP. The resulting design permitted the two MLPs to be procured for a total of about \$930 million, or an average of \$465 million per ship—less than half the cost of the originally contemplated design.

The MLP program can be viewed as a successful example of what is sometimes referred to in DOD acquisition as a 70% (or 80%) solution, meaning a solution that provides something like 70% or 80% of the desired capability, at something less than 70% or 80% of the cost of a system that would have provided all the desired capability. (In the case of the MLP, the capability provided by the new design might be less than 70% of the capability that would have been provided by the originally contemplated design, but the cost of the new design is less than 50% of the originally contemplated design.) The baseline MLP design is now being used as the basis for a modified MLP known as the Afloat Forward Staging Base (AFSB), which the Navy is currently procuring. Current Navy plans call for procuring a total of three AFSBs.

Profit Related to Offers (PRO) Bidding for DDG-51 Destroyer Program

When the end of the Cold War led to a reduction in the annual procurement rate of Arleigh Burke (DDG-51) class Aegis destroyers, the Navy judged that the new, lower rate was insufficient to sustain a meaningful competition between the two DDG-51 builders (General Dynamics/Bath Iron Works and Huntington Ingalls Industries/Ingalls Shipbuilding) for the right to build each year's DDG-51s.¹⁹ The Navy, however, found a way to maintain competition in the DDG-51 program by using Profit Related to Offers (PRO) bidding, and has used PRO bidding in the DDG-51 almost every year since FY1996. Under PRO bidding, the Navy allocates individual DDG-51s to the two yards (over time, each yard receives roughly half of the ships), and the yard that submits the lower bid for the ships that it has been allocated receives a higher profit margin. The approach is referred to as competition for profit rather than for quantity, and can be considered a successful example of how to continue employing competition in a procurement program when the program's annual procurement rate is not deemed sufficient to sustain a meaningful competition for quantity.²⁰

Use of Multiyear Procurement (MYP) and Block Buy Contracting

The Navy, with congressional approval, has made significant use in recent years of MYP and block buy contracting in its ship and aircraft acquisition programs. Among other things, the Navy currently is using MYP or block buy contracting for all three of its year-to-year shipbuilding programs—the Virginia-class attack submarine program, the DDG-51 destroyer program, and the Littoral Combat Ship. Use of MYP and block buy contracting reduces flexibility for making changes in programs in future years in response to changing strategic and budgetary circumstances, but can reduce procurement costs. Savings from the use of MYP recently have, among other things, helped Congress and the Navy to convert a nine-ship buy

¹⁹ A meaningful competition can be defined here as one that generates bargaining leverage for the government.

²⁰ For an article discussing PRO bidding in the DDG-51 program, see Sydney J. Freedberg Jr., "Can Navy Afford Next-Gen DDG-51 Destroyer, Packard Award Or Not?" *Breaking Defense* (*BreakingDefense.com*), November 12, 2012.

of Virginia-class attack submarines into a 10-ship buy, and a nine-ship buy of DDG-51 class destroyers into a 10-ship buy.

The Navy's increasing use of MYP and block buy contracting in recent years amounts to a significant change—some might say a quiet revolution—in Navy ship and aircraft acquisition. In an interview published on January 13, 2014, Sean Stackley, the Assistant Secretary of the Navy for Research, Development, and Acquisition (i.e., the Navy's acquisition executive), stated:

What the industrial base clamors for is stability, so they can plan, invest, train their work force. It [multiyear contracting] gives them the ability in working with say, the Street [Wall Street], to better predict their own performance, then meet expectations in the same fashion we try to meet our expectations with the Hill.

It's emblematic of stability that we've got more multiyear programs in the Department of the Navy than the rest of the Department of Defense combined. We've been able to harvest from that significant savings, and that has been key to solving some of our budget problems. It's allowed us in certain cases to put the savings right back into other programs tied to requirements.²¹

Some Potential Acquisition Lessons That Emerge From a Review of Navy Acquisition in Recent Decades

A Summary of Some Shipbuilding Lessons Learned

A summary of lessons learned for Navy shipbuilding, reflecting comments made repeatedly by various sources over the years, includes the following:

- **Get the operational requirements for the program right up front.** Manage risk by not trying to do too much in the program, and perhaps seek a 70%-to-80% solution. Achieve a realistic balance up front between requirements and estimated costs.
- **Impose cost discipline up front.** Use realistic price estimates, and consider not only development and procurement costs, but life-cycle operation and support (O&S) costs.
- **Minimize design/construction concurrency** by developing the design to a high level of completion before starting construction and by resisting changes in requirements (and consequent design changes) during construction.
- **Use a contract type that is appropriate for the amount of risk involved,** and structure its terms to align incentives with desired outcomes.
- **Properly supervise construction work.** Maintain an adequate number of properly trained Supervisor of Shipbuilding (SUPSHIP) personnel.
- **Provide stability for industry,** in part by using, where possible, MYP or block buy contracting.
- **Maintain a capable government acquisition workforce** that understands what it is buying, as well as the above points.

²¹ "Interview: Sean Stackley, US Navy's Acquisition Chief," *Defense News*, January 13, 2014: 22. For more on MP and block buy contracting, see CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke and Moshe Schwartz.

Identifying these lessons is not the hard part—most if not all these points have been cited for years. The hard part is living up to them without letting circumstances lead program-execution efforts away from these guidelines.

Regarding contract type and the setting of requirements, a June 3, 2014, press report stated:

Despite a growing Pentagon movement toward fixed-price contracts to keep a lid on costs, U.S. Navy contracting officers should look to cost-plus contracts if there is a greater element of risk, says Sean Stackley, assistant Navy secretary for research, development and acquisition.

“You had better not be using fixed-price contracts for something that is high risk,” Stackley said June 2 during a question-and-answer session following his lunch keynote address during the 2014 Navy Opportunity Forum. In those cases, he says, “Use a cost-plus contract. It’s OK. What we don’t want to be is kidding ourselves.”

Generally, he says, contractors have not balked at the greater use of fixed-price contracts. “I didn’t sense any fear of taking on fixed-price contracts, as long as the risk is understood,” he said.

What has to be better understood across the board for contracts now, he says, are the requirements.

“The most important thing is getting the requirements right,” he says. “When things break down, 90% of the time it’s because we failed to get the requirements right. We’re spending more time in that phase.”²²

Littoral Combat Ship (LCS) Program Lessons Learned

Given criticisms of the LCS program in recent years for cost growth, design issues, and construction-quality issues, one issue for Congress concerns what defense-acquisition policy lessons, if any, the LCS program may offer to policy makers, particularly in terms of the rapid acquisition strategy that the Navy pursued for the LCS program, which aimed at reducing acquisition cycle time (i.e., the amount of time between starting the program and getting the first ship into service). I address this issue in my report on the LCS program; the paragraphs below are adapted from that report.²³

One possible perspective on this issue is that the LCS program demonstrated that reducing acquisition cycle time can be done. Supporters of this perspective might argue that under a traditional Navy ship acquisition approach, the Navy might have spent five or six years developing a design for a new frigate or corvette (i.e., a ship about the size of an LCS), and perhaps another five years building the lead ship, for a total acquisition cycle time of perhaps 10 to 11 years. For a program announced in November 2001 (the announced start of the LCS program), this would have resulted in the first ship entering service in between late 2011 and late 2012. In contrast, supporters of this perspective might argue, LCS-1 entered service on November 8, 2008, about seven years after the program was announced, and LCS-2 entered service on January 16, 2010, a little more than eight years after the program announced. Supporters of this perspective might argue that this reduction in acquisition cycle time was accomplished even though the LCS incorporates major innovations compared to previous larger Navy surface combatants in terms of reduced crew size, “plug-and fight” mission package modularity, high-speed propulsion, and (in the case of LCS-2) a new type of hull form (trimaran) and a new hull material (all-aluminum).

²² Michael Fabey, “U.S. Navy Acquisition Chief: Stick With Cost-Plus If Risk Is High,” *Aerospace Daily & Defense Report*, June 3, 2014: 1.

²³ CRS Report RL33741, *Navy Littoral Combat Ship (LCS) Program: Background and Issues for Congress*, by Ronald O’Rourke.

Another possible perspective is that the LCS program demonstrated the risks or consequences of attempting to reduce acquisition cycle time. Supporters of this perspective might argue that the program's rapid acquisition strategy resulted in design-construction concurrency, a practice long known to increase risks in shipbuilding and other defense acquisition programs. Supporters of this perspective might argue that the cost growth, design issues, and construction-quality issues experienced by the first LCSs were due in substantial part to design-construction concurrency, and that these problems embarrassed the Navy and reduced the Navy's credibility in defending other acquisition programs. They might argue that the challenges the Navy faces today in terms of developing an LCS concept of operations (CONOPS),²⁴ LCS manning and training policies, and LCS maintenance and logistics plans were increased by the rapid acquisition strategy, because these matters were partly deferred to later years (i.e., to today) while the Navy moved to put LCSs into production. Supporters of this perspective might argue that the costs of the rapid acquisition strategy are not offset by very much in terms of a true reduction in acquisition cycle time, because the first LCS to be equipped with a mission package that has reached IOC (initial operational capability) will not occur until the fourth quarter of FY2014—almost 13 years after the LCS program was announced. Supporters of this perspective could argue that the Navy could have avoided many of the program's early problems and current challenges—and could have had a fully equipped first ship enter service in 2011 or 2012—if it had instead pursued a traditional acquisition approach for a new frigate or corvette. They could argue that the LCS program validated, for defense acquisition, the guideline from the world of business management that if an effort aims at obtaining something fast, cheap, and good, it will succeed in getting no more than two of these things,²⁵ or, more simply, that the LCS program validated the general saying that haste makes waste.

A third possible perspective is that the LCS program offers few if any defense-acquisition policy lessons because the LCS differs so much from other Navy ships and the Navy (and DOD generally) consequently is unlikely to attempt a program like the LCS in the future. Supporters of this perspective might argue that the risks of design-construction concurrency have long been known, and that the experience of the LCS program did not provide a new lesson in this regard so much as a reminder of an old one. They might argue that the cost growth and construction delays experienced by LCS-1 were caused not simply by the program's rapid acquisition strategy, but by a variety of factors, including an incorrectly made reduction gear²⁶ from a supplier firm that forced the shipbuilder to build the lead ship in a significantly revised and sub-optimal construction sequence.

Some Additional Observations Relating to DOD Acquisition and Potential Options For Improving It

This final section presents some additional observations relating to DOD acquisition and potential options for improving it. My focus here is to attempt to add value to the discussion of defense acquisition and options for improving it by making some points that I do not see frequently made by others.

²⁴ A CONOPS is a detailed understanding of how to use the ship to accomplish various missions.

²⁵ The guideline is sometimes referred to in the business world as "Fast, cheap, good—pick two."

²⁶ A ship's reduction gear is a large, heavy gear that reduces the high-speed revolutions of the ship's turbine engines to the lower-speed revolutions of its propulsors.

The Challenge of Assessing What Works and What Does Not In A System That Is Changed Frequently

An initial observation is that in recent years there have been, through legislation and internal DOD initiatives, numerous changes and adjustments to DOD's acquisition system. These changes and adjustments have all been well-intentioned, and many of them no doubt have helped improve acquisition outcomes. But they have also had the effect of not leaving DOD's acquisition system in any one configuration for very long.

The continuously evolving features of DOD's acquisition system can complicate the task of identifying what works and what does not work in DOD acquisition, because no one configuration of the system is tested for very long, an individual program can be implemented across several versions of DOD's acquisition system, and a service's collection of programs at any given moment can include programs initiated under various versions. This situation might suggest a need for careful consideration in determining the reasons for acquisition outcomes.

Program Ambitions vs. Engineering and Design Capability

Today's defense engineers and designers are every bit as smart as their predecessors. They are at least as well-educated as their predecessors, and they have much better design and modeling tools at their disposal than their predecessors did.

At the same time, due to the reduction in the overall scale of DOD acquisition efforts following the end of Cold War, there may be fewer engineers and designers today in some defense sectors than there were in the past. Moreover, due to the general decline over the last few decades in the frequency of DOD program starts, today's designers and engineers may have, on average, fewer prior projects under their belt than their predecessors, which can reduce the store of prior project experience on which they can draw, particularly regarding lessons that might not be easy to capture in written form. In addition, today's designers and engineers are being asked to implement programs that are often more complex than those that were undertaken by their predecessors, particularly in terms of their software and networking dimensions.

The question this raises is how to factor this situation regarding the engineering and design base into assessments of the likelihood of being able to successfully execute large and complex acquisition programs, and whether it might make sense to divide larger and more-complex programs into smaller and individually less-complex efforts. Dividing larger and more-complex programs into smaller and individually less-complex ones might be thought of as a shift to a more modular form of acquisition, or as a more comprehensive application of the Aegis community's "build a little, test a little, learn a lot" approach.

Regulation and the Political Economy of Acquisition

Consider an acquisition program that has most or all of the following features:

- The item being acquired is considered a must-have item for the customer.
- The program for acquiring it is largely sheltered from international competition, and perhaps also sheltered, to some degree at least, from domestic competition.
- The program proposes to procure the end item in question at a relatively low annual production rate, reducing the potential room for making further reductions in that rate.

- The industrial base producing the item is considered critical and will not be allowed to go out of business.

If one were to describe such a program to an economist, the economist might reply that the program would be inherently vulnerable to problems in areas such as cost control, schedule adherence, and production quality, because these going-in conditions can send a message to industry that less-than-stellar performance in executing the program would not create much risk of losing the work or going out of business. Much of the regulation of DOD acquisition can be viewed as an attempt to direct DOD acquisition toward better outcomes without fundamentally changing going-in conditions such as these, which together might be thought of as forming the underlying political economy of some (perhaps many) DOD acquisition programs. Whether regulation can succeed fully in overcoming the challenges created by going-in conditions like these is a key question, because if the answer is no, it suggests certain limits to what might be accomplished through any form of acquisition reform. The existence of such limits does not mean reform should not be pursued, but it might temper expectations as to resulting outcomes (or direct attention back toward looking for possible ways to change the going-in conditions).

Programs as Sole-Source Solutions to Their Associated Mission Needs

The potential challenges of achieving good outcomes in defense acquisition efforts where there is a sole-source producer are well recognized. Less recognized is that DOD acquisition programs themselves are often set up to be, in effect, sole-source solutions for filling their associated mission needs. That is the practical meaning of the first of the above-listed going-in conditions—that the item being produced is considered a must-have item for the customer (DOD). It is a must-have item because there is no alternative program for meeting the mission need.

In contrast to the situation with producers, where much effort is frequently put into finding ways to achieve and sustain competition among multiple sources, the DOD acquisition system, through the requirements and program-definition process, frequently works in the opposite direction, to identify and define programs that are intended, in effect, to become monopoly solutions to their associated mission needs.

It appears that programs are set up as monopoly solutions to their associated mission needs for at least two reasons. First, the early stages of the acquisition process are aimed at identifying the best possible solution for filling a mission need. A competition among competing approaches can be held at this point, and if the aim is to find the best possible solution, then by definition only one solution can emerge as the best. The analyses leading to the selection of a best possible solution, however, incorporate many variables, assumptions, and uncertainties, which can result in a selection process with less precision and certainty than might be admitted.

Second, the idea of maintaining multiple programs for meeting a single mission need appears on its face to be wasteful and unaffordable, because of the resulting duplication of development costs, reduction in production economies of scale, and added life-cycle costs of supporting multiple systems. Monopolies, however, can exact their own costs. In the case of a program that is a sole-source solution to its mission need, it might mean that some of the people involved in the program, either in government or industry, though capable and honest, might nevertheless not sharpen their pencils quite as much as they would have if they faced ongoing competition from another solution to the mission need.

Setting up multiple programs for a given mission need would indeed be very expensive. The question, then, is whether there is a way to subject programs to competition for longer periods of time while avoiding the costs associated with supporting multiple programs.

One possibility would be to make greater use of overlap between programs across time. Under this approach, the existing system for filling a mission need (call it System A) would remain in production (with spiral development improvements as needed) until the new system that is being developed (System B) is fully ready to enter production. At that point, production would be cut over from System A to System B, and System B would remain in production until it appears that a still-newer design (System C) might be more cost effective in performing the mission. System B, however, would continue in production until System C is fully ready to enter production. And so on.

Under this approach, the system currently in development (System B) would face greater competition in its earlier years from the predecessor system (System A), as well as competitive pressures in its later years from a downstream successor (System C). At any one point, only one system is being developed, and only one is being produced. But as System B is being developed, it needs to perform well to earn the right to enter production, and during the years it is being produced, it needs to perform well to dissuade DOD officials for as long as possible from initiating a System C effort. The point at which System B is to enter production, and the total number of System B units produced over time, are not set in stone, but rather determined by the success of the System B program.

Under this approach, there would be less emphasis on identifying precise dates for starting and stopping production of platforms and systems, and less emphasis on planned total production quantities (which often prove illusory). There would be more emphasis on readiness for production, and more flexibility regarding production cutover dates. There would also be more emphasis on annual production rates and their relationship to supporting planned force structure over the long run, and on the ability of programs to achieve necessary annual production rates within budget constraints. The idea that a program can be helped by clearing the decks of all possible competition (i.e., shutting down production of the existing system so as to clear the path for the new program) would be deemphasized, and an alternative idea—that a program is best helped (i.e., kept strong) by keeping it in competition longer against competing solutions for meeting the mission need—would instead be employed.

Some of the Navy's quantitatively larger shipbuilding programs are in effect treated this way, which is why, in discussing these programs, there tends to be less focus on total planned production quantities and more focus on annual production rates.

This proposed approach for addressing the challenges that result from the current situation of programs often being sole-source solutions to their mission needs might not make sense for certain defense acquisition efforts, depending on the circumstances of those efforts. And this approach is by no means perfect—it has its own drawbacks, and ways could likely be found to attempt to game such a system. Among many other things, there would continue to be, for example, a question as to who determines when a program is fully ready to enter production, and how that determination is made. But it is an option that might be considered for some defense acquisition efforts. If this option is not pursued, some other approach for addressing the challenges that result from the current situation of programs often being sole-source solutions to their mission needs might be sought. The point, at least initially, is to recognize that the DOD acquisition system often creates sole-source program solutions, and that this can lead to challenges in achieving successful acquisition outcomes.

Fixed-Price Contracts

This section and the following section present, with minor changes, discussions of fixed-price contracts and minimizing procurement cost that were originally included in testimony I provided to the Seapower and Projection Forces subcommittee on October 23, 2013.²⁷

In response to instances of cost growth on DOD acquisition programs, including programs in the 30-year shipbuilding plan, there is now a strong focus on encouraging DOD to use fixed-price contracts as much as possible. Fixed-price contracts help shift the risk of cost growth from the government to the contractor, and are an important tool for constraining procurement costs. At the same time, there are some cautionary notes regarding fixed-price contracts that are worth bearing in mind:

- In writing the terms of a fixed-price contract, the devil can be in the details. A fixed-price contract could include provisions for adjusting costs that could, in the aggregate, make the contract operate more like a cost-type contract. Such a contract might be termed a Fixed-Price In Name Only (FPINO) contract.
- The contractor, in fulfilling the terms of a fixed-price contract, may choose to do the work exactly as described in the contract, and not a single thing more—even if doing that single thing more would have made sense in terms of value delivered to the government. In writing fixed-price contracts, DOD needs to understand its requirements well, so as to avoid instances in which it would have benefited from having the contractor perform work items that were not included in the terms of the contract.
- Depending on the bargaining leverage available to DOD in its negotiation with the contractor, the contractor, in return for agreeing to the use of a fixed-price contract (particularly a Firm Fixed Price contract), might demand a high price for the item to be built (a price close to what I refer to in the next section as Point D), which would mean that the contract, while avoiding cost growth, could create an increased risk for DOD of paying more for the item than was necessary.
- When the government is in a largely closed relationship with the contractor—that is, when the contractor is largely dependent on the government for its business, and the government in turn must rely on that contractor as the source for at least some of what that contractor provides to the government—then it is not clear what fixed-price contracts are accomplishing in the long run in terms of insulating the government from the risk of cost growth. Use of fixed-price contracts can translate cost growth into losses for the contractor. In a largely closed relationship between the government and the contractor, the contractor could seek to recover those losses by charging higher prices for future work it does for the government. Alternatively, the contractor could simply absorb the losses, which could weaken the contractor financially, reducing its ability invest in its work force and modernize its capital plant, which in turn could increase the cost of work that the contractor performs for the government in the future.²⁸ Either way, the cost growth

²⁷ Statement of Ronald O'Rourke, Specialist in Naval Affairs, Congressional Research Service, Before the House Armed Services Committee, Subcommittee on Seapower and Projection Forces, on the Navy's FY2014 30-Year Shipbuilding Plan, October 23, 2013, pp. 4-7.

²⁸ Another option for the contractor, at least in theory, would be to stop (or threaten to stop) work on the contract unless the government agrees to renegotiate the terms of the contract or agrees to provide a payment to cover the contractor's losses (i.e., a "bailout"), as the government, for example, has done in the past under the terms of P.L. 85-804 of August 28, 1958 (72 Stat. 972).

on the earlier contract could, in the long run, be effectively shifted back to the government. The potential implications of a largely closed relationship between the government and a contractor are potentially important to bear in mind for shipbuilding, because one of the government's principal shipbuilders, Huntington Ingalls Industries (HII), can be viewed as being in a largely closed relationship with the government: HII currently derives substantially all its revenues from work it does for the U.S. government (primarily the Navy),²⁹ and HII in turn is the Navy's sole source for building aircraft carriers and the only builder of certain parts of each Virginia-class submarine.

The points above are made not to argue against using fixed-price contracts—as mentioned above, fixed-price contracts are an important tool for constraining procurement costs. Even in a situation where the government is in a largely closed relationship with the contractor, fixed-price contracts can, at a minimum, help make cost developments in a program more immediately visible to policymakers, which can be of value in maintaining oversight of the program. The point, rather, is to provide some perspective on what can be accomplished through the use of fixed-price contracts.

Avoiding Procurement Cost Growth vs. Minimizing Procurement Costs

The affordability challenge posed by the Navy's 30-year shipbuilding plan has tended to reinforce the strong oversight focus on preventing or minimizing procurement cost growth in Navy shipbuilding programs, which is one expression of a strong oversight focus on preventing or minimizing cost growth in DOD acquisition programs in general. This oversight focus may reflect in part an assumption that avoiding or minimizing procurement cost growth is always synonymous with minimizing procurement cost. It is important to note, however, that as paradoxical as it may seem, avoiding or minimizing procurement cost growth is *not* always synonymous with minimizing procurement cost, and that a sustained, singular focus on avoiding or minimizing procurement cost growth might sometimes lead to *higher* procurement costs for the government.

How could this be? Consider the example of a design for the lead ship of a new class of Navy ships. The construction cost of this new design is uncertain, but is estimated to be likely somewhere between Point A (a minimum possible figure) and Point D (a maximum possible figure). (Point D, in other words, would represent a cost estimate with a 100% confidence factor, meaning there is a 100% chance that the cost would come in at or below that level.) If the Navy wanted to avoid cost growth on this ship, it could simply set the ship's procurement cost at Point D. Industry would likely be happy with this arrangement, and there likely would be no cost growth on the ship.

The alternative strategy open to the Navy is to set the ship's target procurement cost at some figure between Points A and D—call it Point B—and then use that more challenging target cost to place pressure on industry to sharpen its pencils so as to find ways to produce the ship at that lower cost. (Navy officials sometimes refer to this as “pressurizing” industry.) In this example, it might turn out that industry efforts to reduce production costs are not successful enough to build the ship at the Point B cost. As a result, the ship experiences one or more rounds of procurement cost growth, and the ship's procurement cost rises over time from Point B to some higher figure—call it Point C.

²⁹ HII states in its annual report for 2013 that “Revenues from the U.S. Government accounted for substantially all of our revenues in 2013, 2012 and 2011. In 2013, 2012 and 2011, approximately 94%, 96% and 97%, respectively, of our revenues were generated from the U.S. Navy and approximately 6%, 4% and 3%, respectively, were generated from the U.S. Coast Guard.” (Huntington Ingalls Industries, *2013 Annual Report*, p. 5. [pdf page 16 of 135])

Now, here is the rub: Point C, in spite of incorporating one or more rounds of cost growth, *might nevertheless turn out to be lower than Point D*, because Point C reflected efforts by the shipbuilder to find ways to reduce production costs that the shipbuilder might have put less energy into pursuing if the Navy had simply set the ship's procurement cost initially at Point D.

Setting the ship's cost at Point D, in other words, may eliminate the risk of cost growth on the ship, but does so at the expense of creating a risk of the government paying more for the ship than was actually necessary. DOD could avoid cost growth on new procurement programs starting tomorrow by simply setting costs for those programs at each program's equivalent of Point D. But as a result of this strategy, DOD could well wind up leaving money on the table in some instances—of not, in other words, minimizing procurement costs.

DOD does not have to set a cost precisely at Point D to create a potential risk in this regard. A risk of leaving money on the table, for example, is a possible downside of requiring DOD to budget for its acquisition programs at something like an 80 percent confidence factor—an approach that some observers have recommended—because a cost at the 80 percent confidence factor is a cost that is likely fairly close to Point D.

Procurement cost growth is embarrassing for DOD and industry, and can damage their credibility in connection with future procurement efforts. Procurement cost growth can also disrupt congressional budgeting by requiring additional appropriations to pay for something Congress thought it had fully funded in a prior year. For this reason, there is a legitimate public policy value to pursuing a goal of having less rather than more procurement cost growth.

Procurement cost growth, however, can sometimes be in part the result of DOD efforts to use lower initial cost targets as a means of pressuring industry to reduce production costs—efforts that, notwithstanding the cost growth, might be partially successful. A sustained, singular focus on avoiding or minimizing cost growth, and of punishing DOD for all instances of cost growth, could discourage DOD from using lower initial cost targets as a means of pressurizing industry, which could deprive DOD of a tool for controlling procurement costs.

The point here is not to excuse away cost growth, because cost growth can occur in a program for reasons other than DOD's attempt to pressurize industry. Nor is the point to abandon the goal of seeking lower rather than higher procurement cost growth, because, as noted above, there is a legitimate public policy value in pursuing this goal. The point, rather, is to recognize that this goal is not always synonymous with minimizing procurement cost, and that some amount of cost growth might need to be accepted as part of optimal government strategy for minimizing procurement cost. Recognizing that the goals of seeking lower rather than higher cost growth and of minimizing procurement cost can sometimes be in tension with one another can lead to an approach that takes both goals into consideration. In contrast, an approach that is instead characterized by a sustained, singular focus on avoiding and minimizing cost growth may appear virtuous, but in the end may wind up costing the government more.

Term of Office

As a final point, my observation of Navy and other DOD acquisition programs over the last 30 years gives me the impression that long terms of office for program officials can be a key contributor to achieving success in defense acquisition programs. Program officials with long terms of office understand that they will still be in office years from now, and consequently that they will be held personally accountable for the results of decisions they make (at least those they make during their earlier years in office). By contrast, officials with shorter terms of office face less risk of being held personally accountable for the results of their decisions, because those results may not become manifest until after

their terms in office are complete. Indeed, they might even feel an incentive to make decisions that achieve what they view as near-term success for a program (such as getting a program started), even if those decisions increase the program's risk of experiencing execution problems later.

The Navy's nuclear propulsion program and the Aegis development effort, both of which are generally considered as areas of acquisition success, were run during their formative years by officials (Admiral Hyman Rickover and Rear Admiral Wayne Meyer, respectively) who had long tenures in office. The term of office for Admiral Rickover's successors, as mentioned earlier, is eight years. In contrast, I have attended program-oversight hearings in recent years (such as those on cost growth in the LCS program or problems in the Coast Guard's Integrated Deepwater Systems program, to cite two examples) where the witnesses stated that the problems experienced by programs, while regrettable, resulted from decisions made by their predecessors. These contrasting experiences suggest that Congress might consider exploring options for lengthening the terms of office for some defense acquisition program officials well beyond the four years or so that many top program officials currently serve.

Mr. Chairman, this concludes my statement. I will be pleased to respond to any questions the Committee may have.

Ronald O'Rourke

Mr. O'Rourke is a Phi Beta Kappa graduate of the Johns Hopkins University, from which he received his B.A. in international studies, and a valedictorian graduate of the University's Paul Nitze School of Advanced International Studies, where he received his M.A. in the same field.

Since 1984, Mr. O'Rourke has worked as a naval analyst for the Congressional Research Service of the Library of Congress. He has written numerous reports for Congress on various issues relating to the Navy. He regularly briefs Members of Congress and Congressional staffers, and has testified before Congressional committees on several occasions.

In 1996, Mr. O'Rourke received a Distinguished Service Award from the Library of Congress for his service to Congress on naval issues.

In 2012, Mr. O'Rourke received the CRS Director's award for his outstanding contributions in support of the Congress and the mission of CRS.

Mr. O'Rourke is the author of several journal articles on naval issues, and is a past winner of the U.S. Naval Institute's Arleigh Burke essay contest. He has given presentations on Navy-related issues to a variety of audiences in government, industry, and academia.

Testimony Remarks

What Do We Do For Different Outcomes?

David J. Venlet
Vice Admiral, US Navy, Retired

Prepared For

House Armed Services Committee
June 24, 2014

Case Studies in DoD Acquisition:
Finding What Works

Chairman McKeon, Ranking Member Smith,

Thank you for the invitation to appear with this panel. It is a privilege to offer what I can in support of your committee's efforts to improve defense acquisition.

May I offer that mankind has always lived in a world of constrained resources, in our personal, professional and national lives. Time, money, and people are all constrained in quantity. All people have the highest value intrinsically, and time and money have value related to their constrained availability and competing needs.

Optimization of these constrained resources is what produces real outcomes that are useful and enduring. Optimization of resources for the greater good of the whole – America's security and defense – is the foundation upon which I hope to frame my ideas in my submitted written statement and responses to your questions.

Acquisition reform may not be a sufficiently descriptive stand-alone theme to shape thinking and guide action in optimizing constrained resources for defense systems. Certainly well founded frustration sounds the urgency to do something, and the broad call to do something about costly acquisition has been a clanging bell for multiple decades. Specific actions in specific areas are called for to ideally improve the opportunity to achieve better outcomes. It is a long road.

Three places need improved outcomes. The first is making the programs underway perform better. The second is to only start and pursue the right programs. The third is removing waste in the infrastructure and process. The things to do for better outcomes are different for each one.

I am here today to do what I can to help you based upon my exposure to and participation in a large number of programs, of successes, disappointments and undeniably confrontation with failure. Specific program case studies would yield the nonspecific program insights in my written submission. Nonspecific here is not meant to avoid specific program criticism but to focus on causes and hopefully effective things to do for better outcomes for every program now and future. I hope to bring focus on ideas to attain the external result of the right capability delivery for effective national defense, with a goal of not getting distracted with attributes of any one program.

A subject for expansion is a need to focus on people doing acquisition in both government and industry. The focus goal is to create an increasing population of people with demonstrated commitment to the practice of fundamentals, transparency and realism at all levels of career progression. That will produce better outcomes. It is a long road and forces abound that suppress knowledge workers from embracing these as life habits.

This attention to people is the heart of the matter for getting to a state of dependably better performing programs. I offer this suffers from being an area that

leaders too often presume is an activity on autopilot. It does not sustain leadership focus. It rises in view at regular leadership turnover speeches as if it is stock leadership messaging. It cannot be decreed or written in instruction and then have leadership attention move on to a next theme or crisis. This must be checked and rechecked and then checked again by leaders at every level as a life habit – both in government and in industry. This is a corporate board duty as fundamental as fiduciary duty to share owners. It is a management and leadership personal duty of habit that does not materialize when placed in charge; it has to already be there when chosen.

It is a very long road to create the broader presence of people with professional life habits of doing the work of acquisition with faithfulness to fundamentals, commitment to transparency and appetite for realism.

Our decades of clanging the bell for reform have at times unintentionally created forces that suppress all three of these necessary habits. I repeat this for emphasis.

Your committee and many who have served on it before have long worked with devotion to improving military education and acquisition corps education specifically. You may consider asking the Defense Acquisition University and the Service graduate education schools to explore if possibly some acquisition reform activities over recent decades have had unintentional, yet diluting impact on foundational first principals pertinent to specific competency fundamentals. Then work with curriculum sponsors to adjust where necessary to sound fundamentals in training and produce people who know and recognize both the presence and the absence of sound fundamentals. Reform efforts at times put emphasis on certification to perform in certain roles and acquire certain authorities. Please encourage attainment of knowledge and demonstrated facility with fundamental skills above delivery of certifications in support of career advancement.

Let me return to an earlier point that this people focus applies to industry people as well as government. The fundamentals I speak about are the same for both groups of people. The schools producing people working in defense industry acquisition should do a similar review.

What do I mean by fundamentals?

Systems engineering is a discipline that emerged in the middle of the last century to actually attend to optimization of systems. Process developed over time in systems engineering to illuminate the consequences of choices available in design and development. A fundamental in that process is independent review of one's work. A program should not chair its own systems design review. That fundamental gets violated too often in reaction to previous well intended reform themes and policies – generally in seeking speed by avoiding perceived “interference” of the

infrastructure. Drinking one's own bath water in a design review destroys transparency and creates designs and schedules void of realism.

Good contracting fundamentals know what motivates behavior and they create incentives that produce outcomes of value to the customer. It may not be contract type as much as it is how incentives are created and used for reward or correction.

How does this help programs perform better and what other fundamentals am I talking about? Programs start better with a sound baseline that can be better estimated, better resourced, better executed, better measured and better overseen. The better start has a better contract because people know the fundamentals of what to incentivize. It has a better technical baseline because people know the fundamentals of optimizing a stated system requirement, which can then be better resourced. It has a better schedule because people know the fundamentals of testing, of software development, of supplier management, of production planning, of sustainment. The two Under Secretary of Defense for Acquisition, Technology and Logistics (USD ATL) reports, 2013 and 2014 Annual Reports on the Performance of the Defense Acquisition System, have good analysis and content on defense program performance. They include some insight on various fundamentals impact on performance and contract incentive analysis useful for informing contracting fundamentals.

What do I mean by transparency?

Two things I have found to be critical. First it is a useful character trait that does not fear discovery of something because nothing needs hiding. In practice it contributes to trust within a program team. That includes the government and industry team working on a contracted effort together. It sustains trust with those performing oversight and those who provide the resources and have stake in the outcome. They include the warfighter and American families that are the source of those volunteering to serve and operate the systems in national defense. When GAO or an IG appear to review a program the program leader should welcome them in and provide open access to every piece of data, warts and all. *Mi casa es su casa* – the most valuable attitude of the program leader in these reviews is that “we will deliver better because of what you the inspector/auditor/overseer illuminate that we did not see. Then with consequence illumination regarding resources, schedule and performance, proceed to correct.” The same trait contributes to better operational testing when that community is intimately woven into the program and development test team. There is a need to keep an eye on balance and sufficiency in the number of external reviews. Too many too often detract the team attention from trying to execute the program. Some attention to the number of different reviews would be useful. I understand various oversight roles and needs for information to support that oversight. Numerous reviews arise when trust is low. If increased transparency and trust can produce better program reporting, the

number of outside reviews can reduce. Program performance needs to earn that trust with a record of reporting transparency.

A second transparency thing is the duty of program leaders to illuminate the consequences of choices for decision makers, including their own decisions and those above them. Decision makers are served best when they know and trust their people to fully illuminate the consequences of the choices before them. This connects to the practice of sound fundamentals because that enables sound consequence analysis.

What do I mean by realism?

When you are doing hard stuff, reaching for a dominant capability, you have to acknowledge and plan for discovery and rework – in both budgeting and scheduling. Yes the capability is needed in a time driven by a threat and bounded by those pesky constrained resources. Enter here the optimization skill; enter here effective consequence illumination for decision makers (chiefs of good enough).

What about programs presently in a mess? My first question back is do you need and want to continue the program? Find courage to answer truly. The consequences are painful either way you chose. The mess can be stabilized. I say stabilized because for me it feels like fingernails on a chalkboard to say the mess is optimized. Optimization was missed at the beginning. Next key question is how long will it take and how much will it cost to stabilize and deliver the program given your affirmation of the requirement (yes I know these are two of the Nunn McCurdy breach questions - they are very, very good questions!)? The answers emerge by finding people who recognize the absence of fundamentals, applying them to the mess to produce a schedule and resource requirement with realism. Then the mess only gets stabilized when it becomes resourced with realism. Then buckle down for the remaining ride, which may still have technical discovery; and do not damage the precious adjusted resource stream you sacrificed to provide so the program has the means to deliver. Nicking its resources along the way, pestering it to “do it with less” will cause it to either depart sound fundamentals again or be prevented from executing them and send it back into the ditch. Remember you said you needed it.

Does this emphasis cling to ponderous, costly and time wasting fundamentals? “Don’t you know the warfighter needs it now? Don’t you know we need money for (fill in the blank)?” This is a complex question that has unintentionally misplaced presumptions that close down helpful discussion and discovery of useful paths forward. This is the same question that drives reform down a separate path searching for the new and modern methods of rapid acquisition. It drives reform that creates different rules for different types of systems. I have been in the middle of this one many times over many programs. My scars from these stressful debates

along with my observation of and participation in both success and failure shape my thoughts offered here.

There are fundamentals of the laws of nature that do not change and are never trumped by desire. There are competency fundamentals that do evolve and benefit from advances in knowledge and technology. There are fundamentals of providing a program manager with sufficient composition of acquisition team skills. I take it for granted we know that where fundamentals can evolve, people ought to be trained and refreshed with the benefit of such progress. That is my presumption with fundamentals, not that they are unchangeable over decades on dusty bookshelves.

Pursuit of both large complex capital systems (like vessels to serve in maritime, air and space domains) and rapid capabilities adaptable and fieldable in short order are done right by people practicing fundamentals, transparency and realism. To deliver a capability rapidly, half of the system optimization questions are answered quickly up front by the requiring source. This enables the providers to know better what to do and what not to do to deliver within time expectations. National defense needs both complex capital systems and urgent capabilities rapidly delivered. The system we have has shown the capability to do both when people collectively practice fundamentals, transparency and realism - properly for the application.

Fundamentals skipped, shorted or ignored are opportunities for unnecessary discovery, rework and delay to waltz into program execution. You do not go fast by skipping fundamentals or being creative with them. You go fast by answering in advance (pre-answering) sound systems engineering questions. They seem like tricky, nasty and delaying questions. The time to consider and answer is short compared to the time consumed by unnecessary discovery and rework.

Reform and effective implementation is ideally respectful of the design engineer, the tester, the supplier, the production workforce, the contracts writer and negotiator, and the sustainer because they are genuinely respectful of the need of the warfighter - both industry and government acquisition workers possess the same patriotic concern for the safety and mission success of our warfighter. Tell them up front how long the system needs to work (one time or 30 years?), do you care if the paint peels, is plus or minus 5 or 50 knots OK, is 5 meters or 50 meters close enough, are you reaching for something new, never achieved or ever built before, or is the corner store model rugged enough?

This sounds so obvious can it be serious? With very good operational testers that write reports because we asked them to make sure we don't give ineffective tools to our warfighters, these points are serious. Operational test is a sound and irreplaceable fundamental. I fully support them and applaud their mission. They test to what we write down about what we want. As we reach for more complex and capable systems, dominant systems, we write very tall requirements. Then we get incredulous when the tall is found missed by margins we believe we cannot abide and the volume of discontent increases. This creates forces suppressing acquisition

fundamentals for speed and cost, suppressing transparency for personal preservation and suppressing realism for hope in the unlikely. Our system does not abide critical OT reports well. We have to deal with that much better than we presently behave. There is a left and right hand here – the right program, with a good start, sound and stable baseline, proper resources should perform better and get fewer poor OT reports. When errors are uncovered, when the limits of physics or regrettable design choices impact attainment of a required trait, OT should write transparently about it.

So what to do with critical OT reports? We are not talking about dumbing down what is acceptable for our warfighter. No nothing of the sort. But in this world of constrained resources and fully acknowledging the intrinsic value of every warfighter, and threats that appear with no regard to schedules, there is a proper place for a “chief of good enough”. We do not need to create them. They already exist. They identify when to make a judgment. These are extremely difficult choices. It requires collaboration with congressional oversight. Across the spectrum of program size they are the JROC, service secretaries and service chiefs, again in consultation with Congress.

How to address only beginning and pursuing the right programs? This is the optimization of national intelligence about threats, knowledge of the state of technology in hand, near in hand and what is not soon attainable. It understands trends in deterrence effectiveness and the balance of constrained resources. It feeds national strategy development to guide doing only the right programs. National defense capability strategy, building the right collective program to pursue, should also inform other national strategy on resource and wealth creation to afford sufficient defense and preservation of our security. To say merely we should only pursue what we can afford leaves a hollow sound to future generations aspiring to live with the benefits voiced in our founding American documents. Inescapable realism with acquisition reform has to see the way clear to be both good in our society and secure in our society. It is no choice at all to chose between good society and secure society. We can provide both.

How to address eliminating waste in our infrastructure and process? From my experience I offer insight and hopefully understanding why some negative unintended consequences do more harm to effective system acquisition than possible benefits are believed to achieve. I humbly suggest another method might emerge with full collaboration across branches of government.

The unintended consequences of the BRAC process create forces that inhibit overall Defense Department acquisition effectiveness. Large complex infrastructure organizational management and ownership continues to bedevil opportunities for better efficiency. My observation and participation in the process as practiced show that bases, laboratories and commands that need to work together both within and across service boundaries in mutual support are driven to be critical of everyone

else to defend themselves. Dueling with data to show one's own value and mission criticality creates wounds across organizational relationships. Those wounds last a long time and go deep into local work forces and communities. Decisions for the greater good were very difficult to reach and meaningful ones largely became elusive. Long, very long, after a BRAC analysis process ends and execution of the decisions begins do the wounds slowly heal and sound mutual support returns. Then another BRAC rears its head again in the clanging for reform and waste elimination. Advances in mutual support are reversed and the maddening cycle repeats itself.

I do not deny overlap of capacity and mission exists. There is a clear need for appropriate and adequate infrastructure supporting research and testing. There is a need for the right infrastructure that enables the government knowledge worker to maintain defense specific environment domain skills and experience. Everyone hates "infrastructure" – labs, test ranges, etc. because it costs and consumes part of those constrained resources. But the right infrastructure has to exist somewhere in an economic system – cost is borne somewhere either inside or outside government. We have yet to try a method that works on it without destroying achievable progress due to exercise of the method.

I have no unique method to suggest for such a challenge – other than an approach adopted in Naval aviation and then spread further across the Navy over the last ten years. It is not new and not unique to Navy. It has foundation in the principal back in the second paragraph of this writing – optimization of constrained resources for the greater good of the whole. It is an approach fundamental in business for enduring relevance and delivering the only results that matter which are measurable external results. The measurable and meaningful external results of the defense acquisition process are systems in the hands of Sailors, Marines, Airmen, Soldiers, Coast Guardsmen – systems that have the capability and reliability for them to succeed in their missions and return safely home to their loved ones. It is enterprise operation of the organization and the whole system where resources are viewed not as one's own, but the "Team's". Importantly the team is valued greater than self. An enterprise with the mission of providing the right things in the hands of our defense force is a banner that helps people make difficult decisions; and find meaningful alternatives that repurpose the excess rather than shove it overboard to fend for itself or disappear - because the excess consists of people with intrinsic value.

To get at waste elimination in the national defense infrastructure the administration and Congress have to align under the banner of decisions made for the greater good. The BRAC process attempted that but just did not get far beyond local accommodation, which is undeniably important to valuable people in every town and every state. It is too easy to just call for authority granted to DoD officials to "manage their own enterprise" – but that is not aligned with proper balance of powers and oversight across branches of government. Congress and DoD have to do it together and the size of the challenge suggests it not be pursued with "all or nothing" choice mandates. It will necessarily be done incrementally, steadily not

episodically, continuously over a long time. Enterprise methods demand identifying the right results that matter, making them measurable, and using what you measure in view of constrained resources to make decisions for the greater good of the whole.

Thank you for the opportunity to offer these ideas about making programs execute better, only doing the right programs and eliminating waste in infrastructure and process.

David J. Venlet
Vice Admiral, US Navy, Retired

Background Presently an independent consultant. Spent 22 years in defense acquisition, ten of those years in flag rank. Flew operationally in F-14 Tomcats.

Summary Restored confidence, performance and stability in a large defense investment program, the \$390B F-35 Joint Strike Fighter. Personally applied transparency and realism, in high-risk communication, to restore trust with 12 international governments, Congressional committees, Defense senior leadership and international aviation industries.

Strengths

Strategic planning
 Establishing international client trust and confidence
 Operational effectiveness of large complex organizations
 Senior officer succession planning and leadership development

Results Value Demonstrated

- Joint Strike Fighter, F-35 Program, strategic planning - Chosen to take charge in the face of Congressional cancellation. With personal courage, rebaselined cost and schedule with realism. Established steadily improved performance in test and production. Restored trust with Congress and received support for necessary funds for three straight years. Resolved technical challenge of the Marine Corps variant and earned Defense Department confidence to keep it. Experienced to see reality in complexity, courage to deal with it, knowledge to fix it.
- International F-35 trust and confidence - With personal briefings and in-country visits to defense ministers, MPs, chiefs of military services, national acquisition executives and media gave 12 countries reason to have restored confidence and trust that the program would deliver the capability at the cost and schedule they required. Two new countries signed on, all 8 original stayed in the face of great pressure to exit and two more were potential customers.
- Navy and Marine Corps Aviation operational effectiveness - Managed a 24,000 person organization operating with over \$30B annually to provide the full spectrum of safety, technical, maintenance and logistics support. Sustained a total inventory of over 3,000 aircraft across fighter, rotary wing, patrol and unmanned vehicles to support operations at sea and ashore in combat and disaster response. Developed future systems capability with industry.
- Shaped Naval Aviation Acquisition Corps succession planning - Evaluated senior officers in defense acquisition. As the senior aviation acquisition flag officer in the Navy for six years, advised and counseled Navy Department executive leadership in making recommendations to the Secretary of the Navy for assignment and appointment of acquisition admirals.

David J. Venlet

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Work History

Independent Consultant, DJ VENLET, LLC

2013-Present

Program Executive Officer, Joint Strike Fighter F-35

2010-2012

Office of the Secretary of Defense, Arlington, Virginia

- Directed the enterprise of testing, production and sustainment of three aircraft versions with the latest system capabilities for the Air Force, Navy and Marine Corps and 10 additional international purchasers of the F-35. Steady personal contact with international media, Congressional defense committee members and staffs, and heads of defense departments, ministries and militaries for the U.S. and internationals. Largest program in Defense.

Commander, Naval Air Systems Command
Patuxent River, Maryland

2007-2010

- Provided technical and logistics support for Navy and Marine Corps aircraft and unmanned vehicles ashore and at sea. Developed aircraft, weapons and unmanned systems for future capabilities. Oversight of two large technical warfare centers and three large maintenance, repair and overhaul depots. These all operated as working capital fund activities accountable for financial gain and loss performance. Operated with \$30B plus annually and 24,000 people.

Program Executive Officer, Navy and Marine Corps Tactical Aviation
Patuxent River, Maryland

2004-2006

- Managed development testing, production and modernization of fixed wing fighter, electronic warfare, and carrier-based surveillance, command and control aircraft. Also included carrier launch and recovery systems, new electromagnetic catapults, and aircraft self defense systems.

Commander, Naval Air Warfare Center, Weapons Division
Assistant Navair Commander for Test and Evaluation
China Lake and Point Mugu, California

2003-2004

- Managed the business of the center conducting test for US and international customers. Managed Navy ranges, laboratories and the test workforce nationally for air weapons systems. Managed the plant property and environmental sustainment of five bases across the country.

Military biography available at <http://www.navy.mil/navydata/bios/navybio.asp?bioID=288>**Associations**

National Association of Corporate Directors, Boardroom Executive Member

Society of Experimental Test Pilots, Member

Education

M.S. Aerospace Engineering, Naval Postgraduate School

Engineering Test Pilot, U.S. Naval Test Pilot School

B.S. Systems Engineering, U.S. Naval Academy

**DISCLOSURE FORM FOR WITNESSES
CONCERNING FEDERAL CONTRACT AND GRANT INFORMATION**

INSTRUCTION TO WITNESSES: Rule 11, clause 2(g)(5), of the Rules of the U.S. House of Representatives for the 113th Congress requires nongovernmental witnesses appearing before House committees to include in their written statements a curriculum vitae and a disclosure of the amount and source of any federal contracts or grants (including subcontracts and subgrants) received during the current and two previous fiscal years either by the witness or by an entity represented by the witness. This form is intended to assist witnesses appearing before the House Committee on Armed Services in complying with the House rule. Please note that a copy of these statements, with appropriate redactions to protect the witness's personal privacy (including home address and phone number) will be made publicly available in electronic form not later than one day after the witness's appearance before the committee.

Witness name: David J. Venlet

Capacity in which appearing: (check one)

Individual

Representative

FISCAL YEAR 2014

federal contract	federal agency	dollar value	subject of contract
HQ0034-11-A-0001 PO 4223001008	DoD DASD (SE)	\$3,900 Expended \$65,500 Ceiling FY14	Professional Engineering Services
No others			

FISCAL YEAR 2013

federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant
None			

FISCAL YEAR 2012

Federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant
None			

Federal Contract Information: If you or the entity you represent before the Committee on Armed Services has contracts (including subcontracts) with the federal government, please provide the following information:

Number of contracts (including subcontracts) with the federal government:

Current fiscal year (2014): 1 (one)
 Fiscal year 2013: None
 Fiscal year 2012: None

Federal agencies with which federal contracts are held:

Current fiscal year (2014): DoD DASD (SE)
 Fiscal year 2013: None
 Fiscal year 2012: None

List of subjects of federal contract(s) (for example, ship construction, aircraft parts manufacturing, software design, force structure consultant, architecture & engineering services, etc.):

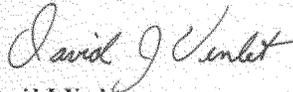
Current fiscal year (2014): Professional Engineering Services
 Fiscal year 2013: NA
 Fiscal year 2012: NA

Aggregate dollar value of federal contracts held:

Current fiscal year (2014): \$3,900 expended: \$65,500 ceiling FY14
 Fiscal year 2013: NA
 Fiscal year 2012: NA

Federal Grant Information: If you or the entity you represent before the Committee on Armed Services has grants (including subgrants) with the federal government, please provide the following information:

No Federal Grants at any time 2014, 2013 or 2012.



David J. Venlet
June 18, 2014

**Written Testimony of Beth McGrath
Former Deputy Chief Management Officer, Department of Defense
Before
The House Armed Services Committee
June 24, 2014**

Chairman McKeon, distinguished members of the committee. It is a privilege to appear before you today to testify regarding efforts to achieve meaningful and lasting reform in the acquisition process of the Department of Defense.

I appreciate the commitment the House Armed Services Committee has shown in searching for innovative and productive ways to meet that goal, to streamline agency spending, to develop more effective processes and to achieve significant savings wherever possible for the American taxpayer.

It's a challenging time for the Department of Defense. Budget constraints placed on the DoD as a result of sequestration and a shrinking public appetite for government spending overall are focusing a powerful spotlight on all aspects of the Department's complex budgetary and spending processes. The Department's acquisition program is a critical component that deserves the Committee's scrutiny. Together, it is an area in which all stakeholders can collaborate on solutions that will work both in the short and long terms.

This area of management – business operations and their linkages to the acquisition process and the enterprise Information Technology (IT) environment – is one with which I have considerable/significant familiarity and experience. Until recently, in my capacity as the Deputy Chief Management Officer for the DoD, I was responsible for drafting strategies, implementing plans and recommending changes in critical business operations on behalf of the Secretary and Deputy Secretary of Defense. I am grateful for your interest today in my perspective.

I served for 25 years across all aspects of Defense business operations. I was an acquisition-certified professional, a program manager at various levels, and finally as a Milestone Decision Authority for many large scale business IT systems. Each of these prepared me well for instituting changes in acquisition that have led to substantial reforms.

The commitment to providing maximum, positive impact on acquisition and procurement strategies is integral to my current role as Director in the Federal advisory team of Deloitte Consulting. In that capacity, I continue to support meaningful, actionable and sustained reform in the acquisition and procurement areas across the federal government.

In recent years, the modernization of DoD's business systems has increased, and the efforts of this Committee, and Congress at-large, have contributed significantly in shaping the governance

framework and oversight efforts. Some of the most visible of those defense business system advances have come through the department's Enterprise Resource Planning systems (ERPs).

ERPs serve broadly as a backbone for DoD operations. Each stands at a different stage in its lifecycle and many if not most are encountering challenges in the transition from design to implementation.

Changes Implemented at the Department of Defense

Strategic performance management is about identifying what matters, measuring it, and then managing it to improve effectiveness, efficiency and overall performance. During my time as Deputy Chief Management Officer, I pursued answers about root causes of program success or failure, in terms of cost, performance and schedule, and what we could do to improve chances of future success.

We learned some important lessons from that self-study, lessons that continue to apply to our collective efforts to identify programs that work, those in need of fixing, and why each succeeded or didn't.

I can say that the chance of success can be predicted early in the acquisition lifecycle – frequently before a request for proposal is issued. Understanding the key aspects of a program as early in the program as possible is essential.

In planning for a successful outcome, a variety of factors come into play:

- Is the design of the program clear enough, in terms of objectives, requirements and technical elements, so that it is commonly understood by all stakeholders?
- Is the program robust enough to remain a good government investment even when problems materialize?
- Can program requirements be severed from one another, to maximize return on investment (ROI) delivery across the full lifecycle of the program?
- Is program design stable enough to minimize changes and mitigate risks?
- Are program dependencies with other requirements, systems or data sources identified up front to ensure program success?
- Is the level of accountability clear, to ensure various stakeholders are aligned, and that they recognize and communicate critical messages required for decision makers?

Acknowledging each of these considerations, we took the following steps to raise the odds of a successful outcome. I urge you to consider these elements in any future reform approach.

We increased our emphasis on the use of the Business Capability Lifecycle (BCL) alternative acquisition processes for defense business systems. The BCL recognizes that technology rapidly evolves and changes, and consequently mandates delivery within 18 months or less of program initiation. BCL is outcome-based, and modeled on best commercial practices. The process allows for the fact that not all solutions are purely technical. The entire DOTMLPF (Doctrine, Organization, Training, Materiel, Leadership and education, Personnel and Facilities) spectrum of potential solutions are considered as a matter of course. This enabled the Department to apply more consistency and rigor to programs throughout different lifecycle phases.

A problem statement review process was implemented within the Defense Business Council. This required comprehensive business cases to justify IT functionality provided by large programs at the earliest stages of the project.

We launched reviews of large, Major Automated Information Systems (MAIS)/ACAT-1 business systems to identify if and how problems were developing at each step in the lifecycle. We established a performance management structure to measure leading indicators that ideally would keep programs from incurring cost increases or delays.

While we were able to make great strides toward a more efficient acquisition model, there are still many hurdles to overcome.

One statistic never seems to change. Double-digit percentages of software development projects fail to meet schedule or cost promises. Or, they fail to meet the customer's ultimate requirements. Every component in the development chain, from hardware to compilers, has grown more powerful and efficient than ever. Yet an unacceptably high percentage of software projects don't work out.

Can this trend ever be reversed, and software projects undertaken with a high degree of confidence in the ability of the government and industry working together to deliver them on time, within budget, and with acceptable levels of functionality? I believe it can.

Recommendations Going Forward

As this committee continues to assess where the government currently stands, and considers how reforms discussed today can take root at the DoD, there are several areas that deserve continuing attention.

How the government defines clear, measurable results is critical for both the DoD and for industry. There are benefits for all parties involved in executing an efficient acquisition program. But cost overruns, system underperformance and scheduling delays continue to produce adverse effects.

Requirements

Acquisition requirements must articulate the government's desired outcomes, and must do so in ways that incorporate instructive market research and portfolio analysis. Refined requirements can determine what the agency can achieve; can establish what is feasible in eliminating acquisition chain redundancies.

This is especially true in the area of enterprise IT and its value in reforming the acquisition process.

During my time at the DoD, we learned three important lessons for any group wanting to build software projects in a flexible yet predictable fashion:

First, put prototype functionality in front of users as soon as possible after they articulate what they need in the system. That initial release often sparks changes in the requirements or priorities once users see the possibilities.

For example, functions planned for a later release may move up to the first release. In fact, frequent, incremental releases keep a project fresh, and keep users constantly engaged and excited to get new functions. Each release is regarded as a checkpoint at which to compare progress against the expectations of mission stakeholders. Keep in mind, the earlier in the development cycle corrections are made, the cheaper they are.

Second, use strong program and IT managers. The program manager must keep the project focused on outcomes, and he or she must be the advocate for the ultimate system users. The IT project manager guides the development and adherence to sound, standards-based practices to avoid risks from bugs and security vulnerabilities. Both IT and program managers need to intimately understand the planned features of the system.

Third, build flexibility into the contract while protecting the interests of the government. Realize that between prototyping and delivering releases, change orders will occur. Include the contracting officer in establishing a change process that is definitive, predictable and fair to all stakeholders. Focused upfront planning should define the scope of the contract, with flexibility built-in to allow for changing priorities.

The budgets for IT will be tight for the foreseeable future. No agency has money or time to waste. The tools exist to develop mission-critical software projects that meet specifications – functional, as well as cost and schedule. Project Management teams need to think creatively and work collaboratively.

Contracts

Securing the best value for the money has rarely been more important than it is now. Finding the right contract vehicle offers substantial benefits – controlling costs while reducing risk, to name two. Because of the DoD's program variations and complexity, a highly tailored approach when selecting contracts is preferred. The opportunity exists to align acquisition plans with the right contract vehicles.

I would recommend a study of the effectiveness of specific source selection techniques, such as Lowest Price Technically Acceptable (LPTA). This not only would identify optimal conditions for use, but could also shed light on how mis-matched source selection techniques contribute to program failure..

Also, greater use of value-based contracts can better align contractor performance with providing clear, agreed-upon value to the government. Examples like Share-in-Savings (SiS) can also help promote powerful cost-saving tools to the broader government community.

Workforce

I believe that a qualified, dedicated and fully engaged workforce is inextricably linked with developing successful acquisition programs. However, within the three DoD decision-making support systems lies an imbalance between responsibility and accountability among the key stakeholders.

There are a number of ways we can close that imbalance and promote the kind of accountability that breeds success. With regard to workforce issues, there are three key considerations to guide any approach to reform.

The first is by creating an incentive structure that is both equitable and matched against specific acquisition success measures. This can foster a shared reward system and attach performance responsibility to maintaining baseline metrics.

The second is the development of deeper leadership and skillsets all across the acquisition process within the government workforce.

Third is the establishment of specialized centers of excellence staffed by subject-matter experts operating within high-priority acquisition programs, and providing program-specific expertise. When used in combination with contracted acquisition support, the workforce can focus on governmental work while still being able to access a much larger experience base.

Conclusion

The acquisition process is dynamic and complex. Any effective and workable solution must consider a wide number of factors and a diverse group of stakeholders. That can make comprehensive acquisition system reform difficult and unwieldy.

As Congressman Thornberry has noted, building a comprehensive acquisition model relies on valuable input from the Pentagon, the individual services, Industry, and members of Congress. That level of engagement is vital, and we must continue to search for ways to instill new, innovative and efficient techniques into the process.

I look forward to continuing to work with this committee in the months and years ahead and being able to report additional gains in the quest for greater efficiency, increased effectiveness, and further agility, enabled by modern, interoperable IT capabilities.

Thank you very much, Mr. Chairman, for the opportunity to discuss these critical budgetary and operational issues today.

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Beth McGrath

Elizabeth (Beth) McGrath is a director Deloitte Consulting LLP in the Federal Strategy & Operations practice. She advises Deloitte's federal government and commercial clients, providing strategies that enable them to innovate and improve their business operations.

Beth has broad, multi-disciplined, strategic and operational management experience acquired during a highly lauded federal career that culminated at the Undersecretary level in the Department of Defense (DoD). A proven thought leader, she possesses exceptional interpersonal skills with specific expertise in strategic planning, performance management, investment review, program management, and organizational transformation.

Just prior to joining Deloitte, Beth served as the Deputy Chief Management Officer for the Department of Defense (DoD). During her tenure she addressed numerous management challenges with a variety of approaches, including instituting an investment review process for the Department's \$7 billion of "business IT" systems, authoring the DoD's Strategic Management Plan (SMP) and overseeing needed improvements to the Department's business architecture and security clearance processes. She also served as Principal Staff Assistant (PSA) and advisor to the Secretary and Deputy Secretary of Defense for matters relating to management and the improvement of business operations. During her tenure as DoD's first Deputy Chief Management Officer, Ms. McGrath was extraordinarily effective in redirecting the approach to business operations away from short-term, risk averse, status quo behaviors to a more strategic, enterprise focused environment. She brought a dedicated focus to improving the business operations and her business-minded approach reaped great dividends for the Defense Department in the areas of strategic planning, performance management, process improvement, and business information technology acquisition and investment management.

She also served as the vice chair of the Federal Suitability and Security Clearance Performance Accountability Council overseeing government-wide security clearance process reforms. Previously, McGrath served as the Deputy Director for Systems Integration, Defense Finance and Accounting Service (DFAS) where she created a financial migration strategy that included a comprehensive architecture and identification of DoD-wide systems valued at more than \$1 billion. She also held a variety of business/acquisition roles within the Department of the Navy.

McGrath holds a Bachelor of Science degree in economics from George Mason University and is a graduate of the Federal Executive Institute. She is a member of the National Academy of Public Administration, obtained acquisition certification in program management, financial management and logistics, and was a long-serving member of the DoD Acquisition Professional Community. Her extraordinary accomplishments earned her numerous awards including: the DoD Medal for Distinguished Public Service (twice conferred), the Presidential Rank Award, the Office of the Secretary of Defense Exceptional Civilian Service Medal, and the National Intelligence Meritorious Unit Citation. She has been recognized by Government Computer News with the Defense IT Executive of the Year award and has also received multiple Federal 100 awards.

**DISCLOSURE FORM FOR WITNESSES
CONCERNING FEDERAL CONTRACT AND GRANT INFORMATION**

INSTRUCTION TO WITNESSES: Rule 11, clause 2(g)(5), of the Rules of the U.S. House of Representatives for the 113th Congress requires nongovernmental witnesses appearing before House committees to include in their written statements a curriculum vitae and a disclosure of the amount and source of any federal contracts or grants (including subcontracts and subgrants) received during the current and two previous fiscal years either by the witness or by an entity represented by the witness. This form is intended to assist witnesses appearing before the House Committee on Armed Services in complying with the House rule. Please note that a copy of these statements, with appropriate redactions to protect the witness's personal privacy (including home address and phone number) will be made publicly available in electronic form not later than one day after the witness's appearance before the committee.

Witness name: Elizabeth A. Williams

Capacity in which appearing: (check one)

Individual

Representative

If appearing in a representative capacity, name of the company, association or other entity being represented:

FISCAL YEAR 2014

federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant

FISCAL YEAR 2013

federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant

FISCAL YEAR 2012

Federal grant(s)/ contracts	federal agency	dollar value	subject(s) of contract or grant

Federal Contract Information: If you or the entity you represent before the Committee on Armed Services has contracts (including subcontracts) with the federal government, please provide the following information:

Number of contracts (including subcontracts) with the federal government:

Current fiscal year (2014): _____;
 Fiscal year 2013: _____;
 Fiscal year 2012: _____.

Federal agencies with which federal contracts are held:

Current fiscal year (2014): _____;
 Fiscal year 2013: _____;
 Fiscal year 2012: _____.

List of subjects of federal contract(s) (for example, ship construction, aircraft parts manufacturing, software design, force structure consultant, architecture & engineering services, etc.):

Current fiscal year (2014): _____;
 Fiscal year 2013: _____;
 Fiscal year 2012: _____.

Aggregate dollar value of federal contracts held:

Current fiscal year (2014): _____;
 Fiscal year 2013: _____;
 Fiscal year 2012: _____.

Federal Grant Information: If you or the entity you represent before the Committee on Armed Services has grants (including subgrants) with the federal government, please provide the following information:

Number of grants (including subgrants) with the federal government:

Current fiscal year (2014): _____;
Fiscal year 2013: _____;
Fiscal year 2012: _____.

Federal agencies with which federal grants are held:

Current fiscal year (2014): _____;
Fiscal year 2013: _____;
Fiscal year 2012: _____.

List of subjects of federal grants(s) (for example, materials research, sociological study, software design, etc.):

Current fiscal year (2014): _____;
Fiscal year 2013: _____;
Fiscal year 2012: _____.

Aggregate dollar value of federal grants held:

Current fiscal year (2014): _____;
Fiscal year 2013: _____;
Fiscal year 2012: _____.

Statement of

Dr. Christopher J. Lamb*

Distinguished Research Fellow and Deputy Director

Institute for National Strategic Studies,

National Defense University

On

“Impediments to Acquisition Excellence Illustrated by the MRAP Case”

At a Hearing Entitled

“Case Studies in Defense Acquisitions: Finding What Works”

Before the House Armed Services Committee,

U.S. House of Representatives

June 24, 2014

* The views expressed are those of the author and do not reflect the official policy or position of the National Defense University, the Department of Defense, or the U.S. Government.

Mr. Chairman and members of the Committee, thank you for the opportunity to appear here today and share some observations about acquisition reform based on my past experiences and research. My understanding is that the Committee is taking a slow, deliberate approach designed to produce a deep understanding of the major forces affecting our ability to deliver effective weapons and services to our armed forces efficiently. I strongly support that approach and am honored to have the opportunity to make a contribution to your deliberations. I hope to contribute despite the fact that I have not worked in the Pentagon's acquisition system directly. During my career in the Department of State and Department of Defense I have had some memorable experiences with acquisition programs. Also, as a policy official in the Department of Defense and later as a researcher at National Defense University I had the opportunity to study how acquisition programs are managed in the broader context of strategy, planning and operational concept processes. I hope insights from these experiences and research will be of interest to the Committee.

In summary, I argue that:

- Efficient and effective acquisition is not possible without reform of other associated Department of Defense planning processes.
- The trend to move away from disciplined defense analyses in favor of intuitive and impressionistic decision making need to be reversed.
- The flexibility to manage acquisition programs differently depending on circumstances is important.

In making these points and lesser ones I will try to limn the important distinction between helpful oversight and unhelpful micromanagement by drawing lessons from successful programs and identifying problems that impede acquisition excellence. I will concentrate on research I conducted on the mine-resistant, ambush-protected (MRAP) vehicle program in 2009, but will first share some earlier related experiences that I believe reinforce lessons from the MRAP acquisition program.

A Different Model: The Train and Equip Program¹

In 1995 I had the opportunity to participate in our effort to arm and train Bosnian forces as part of the Dayton peace agreement. Widely referred to as the “Train and Equip Program,” this security assistance project was highly controversial at the time but quite successful. The program achieved all of its operational goals. In less than 2 years the task force rectified the military imbalance between the Bosnian Serb and Bosnian Federation forces. It helped demobilize more than 200,000 Federation soldiers while providing tanks, howitzers, small arms, ammunition and other materiel to the remaining 45,000 active duty troops. The program also trained and organized these former Warsaw Pact soldiers to NATO standards. It did this using only about half of the total resources originally estimated to be necessary by the Institute for Defense Analyses. The program facilitated arms control objectives, strengthened Bosnian Federation institutions and rid Bosnia of foreign extremists.

The Train and Equip Program was not a normal United States security assistance program. It was a small interagency task force of seven people housed in the Department of State and led by a former defense official who was given ambassador rank. It benefited from stellar leadership, an unusual level of authority, and employed some creative mechanisms to accomplish its objectives. It partnered with other countries and many executive branch departments and agencies. It benefited from \$100 million in drawdown authority from Congress but it also held foreign funds in trust for other countries that were used to purchase weapons and training services on the open market. No funds or equipment in the program were ever diverted or used for illicit purposes and the program never violated any other provisions of the Dayton Accords, U.S. law or policy.

Two specific elements of the program are especially noteworthy for students of acquisition reform: the program’s training contract and its funding mechanism. The program

¹ For a detailed account of this program see Christopher Lamb with Sarah Arkin and Sally Scudder, “The Bosnian Train and Equip Program: A Lesson in Interagency Integration of Hard and Soft Power,” Strategic Perspectives, Institute for National Strategic Studies, National Defense University, March 2014.

borrowed Department of Defense contract specialists who drafted a contract for individual soldier training, infantry unit training and integration, development of a noncommissioned officer corps, light and heavy weapons training, and education of Ministry of Defense and Joint High Command staff. The initial draft of the contract was well over 200 pages and included vast amounts of language required by acquisition rules. Some clauses addressed equal opportunity or other social goals but the bulk of the material was difficult-to-understand provisions that seemed to encourage attention to various problems that might arise without definitively requiring prophylactic measures.

The contract specialists explained the language was complex and even ambiguous because the clauses were intended to safeguard against potential problems without dictating solutions that were situation-dependent and required judgment. Past errors in judgment that led to poor outcomes had been addressed by new regulations that, like barnacles on a ship, grew over time until their sheer volume and obscure intent was an impediment to productivity. With the help of the contract specialists we jettisoned language not required for a private sector contract and reduced the draft contract to about 70 pages. The Bosnians and their legal advisers then edited the document down to 30 pages that made the training tasks and terms of remuneration for their completion clear to all parties. In the following years we were often thankful for the clear and simple language in the contract, and wondered what a world of headaches and associated costs we would have borne if we were overseeing a typical Department of Defense contract for services.

Another noteworthy element of the Train and Equip program was its ingenious funding mechanism. Other nations donated funds and equipment to the program. The Executive branch is not permitted to spend money without congressional approval, so how to oversee the use of the donated funds became a major legal issue. A joint State, Treasury, and Justice Department effort finally arrived at a workable concept that allowed funds donated by other nations to be used consistent with U.S. law and our policy objectives. Because the funds had been given to the United States for a specific purpose, the Department of State could create a common law trust for them that allowed the program to administer the money but did not give it ownership rights or direct control over how the funds were to be used. The funds were held in the U.S. Treasury

with an affirmative duty to protect them on behalf of the donors, which meant ensuring they were used consistent with donor intent.

The Bosnian Defense Fund was established for this purpose along with supporting arrangements for administering the funds. When the Federation needed to pay a contract for either weapons or training services, its Defense officials would submit a written request to the donors that was prepared for them by the Train and Equip team and signed by appropriate Federation defense officials. This request was forwarded through the Train and Equip task force to the donors in the form of a diplomatic note that had to be reported to Congress, and which allowed the whole process to stay transparent and on the record. The donor country then decided whether it would allow its donation, sitting in the trust fund, to be used for the requested purpose. The Train and Equip team fulfilled U.S. Government fiduciary responsibilities as trustee by soliciting multiple bids from vendors and demonstrating the purchase was a good deal for donors. Upon donor approval, the State Department withdrew funds from the Treasury account and paid the contractor or supplier directly in keeping with contract terms.

In this manner donor funds never passed through the hands of local officials but always went directly for training and equipment delivered to the Bosnians that the donors, U.S. Government and Bosnian defense leadership agreed was necessary. The disadvantage of the somewhat cumbersome paperwork was far outweighed by the advantages of transparency and accountability. Donor countries knew where their funds went and that Washington was ensuring every cent was spent on legitimate purposes. Moreover, it left the Train and Equip team in the middle of all transactions with an “appropriate level of leverage over the disbursement of funds.” The program developed additional accountability measures that ensured no leakage of funds, but this creative mechanism was the centerpiece for managing funds. Without it the program would not have been so successful.

These examples from the Train and Equip program illustrate the disadvantages of requiring all national security acquisition programs to observe the same acquisition regulations, and the advantages of less restrictive but still supervised and accountable programs that are tailored to their own particular circumstances. It also is noteworthy that this creative program

was not emulated. Although the program had bipartisan congressional support and its leader was widely respected among senior officials in the Executive Branch, the program itself was an irritant to the larger national security bureaucracy. The success of the program stimulated other “train and equip” programs but they were administered through normal security assistance channels. The productive model pioneered by the program was not repeated; indeed it was quickly forgotten. I consider this evidence that the current system will not embrace alternative high performance models for acquisition even after they are stumbled upon and well-documented.

A Policy Perspective on Acquisition

After returning to the Pentagon from the Train and Equip program I had the good fortune to work for the Deputy Assistant Secretary of Defense, Resources and Plans as part of the Office of the Under Secretary of Defense (Policy). Our job was to generate and oversee defense plans. We produced what was then called the defense planning guidance and the contingency planning guidance, but also were involved in force generation and sustainment planning; force posture planning, force management planning; and force design planning. We were the link between strategy and programs in the long set of sequential processes that deliver weapons and services to our armed forces. Among other things this meant our office was responsible for sitting in on acquisition milestone meetings to contribute a Policy perspective. I observed numerous, diverse acquisition meetings convened to determine whether a program would pass its milestone review and enter into its next development phase. From this vantage point I witnessed all the problems typically associated with defense acquisition: cost growth, technical performance shortfalls, and schedule slippages.²

I understood the need to “sell” a program initially with optimistic assessments of capability and costs, but I wondered why program managers did not make tradeoffs between key performance parameters to keep the programs on track and within projected costs once they were underway. If one performance parameter was proving particularly challenging, perhaps it could be relaxed and compensated for elsewhere. If higher performance in another one of the

² J. R. Fox, *Defense Acquisition Reform, 1960-2009: An Elusive Goal*. S.I.: Books Express Publishing, 2011.

program's key performance parameters did not offer acceptable compensatory advantages then perhaps relying more on other military capabilities to accomplish the mission or revising the operational concept would provide the needed flexibility. What was explained to me was that those kinds of tradeoffs are not possible once an acquisition program has moved beyond analysis of alternatives and the program has an approved material solution. Program managers just have to press forward with limited options regardless of what they discover as the program develops. Because revising key performance parameters is tantamount to an admission of failure, program managers, their superiors and ultimately the Pentagon's senior acquisition official accept cost growth and schedule slippage rather than lower technical performance parameters.

Everyone agrees in principle that military capability is not simply a function of effective acquisition programs. To field a military capability we integrate doctrine, organization, training, personnel, leadership and education, and support functions that permit effective use of the weapons and other material as military capabilities. Then we integrated diverse military capabilities in support of operational concepts that permit us to successfully execute military operations in the field. Military theorists debate the relative import of the diverse factors that affect combat outcomes. Some assert that "material factors are only weakly related to historical patterns of victory and defeat."³ Others believe that since the American Civil War technology has emerged as an "independent and significant dimension" of warfare.⁴ In any case, theorists agree there are multiple important factors that must be integrated to generate effective combat capability and the Department of Defense acknowledges this point in doctrine and in its broader planning and requirements processes. So in the abstract there are many ways to compensate when any given program falls short on any given key performance parameter. Yet once we complete our mission analysis, needs analysis, and solution analysis for a major acquisition program, we lock in the key performance parameters. Even though we know it will take a decade or more to bring the program to fruition we don't look back to reassess performance parameters regardless of what we learn elsewhere in the meantime.

³ Stephen D. Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle*. Princeton, N.J.: Princeton University Press, 2004, p. ix.

⁴ Philip Towle, *Estimating Foreign Military Power*. New York: Holmes & Meier, 1982, p. 264.

I believe this simple explanation for cost overruns and schedule slippage provides a better explanation for poor acquisition performance than inadequate program manager training, short tenures and other factors often cited. The people I discussed these issues with in the Pentagon agreed the process does not make sense in the abstract but do not see a realistic alternative. They believe we cannot manage major acquisition programs with greater flexibility that would allow capability tradeoffs as a program moves forward because we do not have adequate means to measure relative effectiveness and, more generally, senior leaders do not trust the analytic process.

Although in theory trade-offs between the various factors that determine combat capability can be made, such assessments are complex and disputable. We don't have a good range of tools and processes for evaluating such trades, which inescapably require a great deal of judgment. One expert argues that:

Most analyses are either rigorous but narrow, or broad but unrigorous. Mathematical models of combat, for example, are rigorous but typically focus on material alone: how many troops or weapons do the two sides have, and how good is their equipment. By contrast, holistic assessments consider issues such as strategy, tactics, morale, combat motivation or leadership as well as just material but treat these variables less systematically. Real progress demands rigor and breadth: a systematic treatment of both material and nonmaterial variables backed up with a combination of empirical evidence and careful deductive reasoning.⁵

Currently the Services own the resources required to combine empirical evidence and careful deductive reasoning, rigor and breadth of analysis with seasoned judgment. They own the data, the models, and the trained personnel for evaluating tradeoffs. Once the Services have conducted their own assessments and successfully launched an acquisition program, they do not want to reopen the evaluation process to reconsider performance parameters that would challenge their programs in a joint venue. To improve analysis of alternatives in the Department of Defense we must pay more attention to and invest in joint contingency scenarios, joint

⁵ Biddle, *Military Power*, p. 2.

operating concepts, joint data, joint methods of analysis, joint operational metrics, and means to ensure institutional knowledge across the defense enterprise.⁶ Otherwise we get competing analyses of important programs that lead to conflicting conclusions without illuminating the reasons why. The result is that many senior officials fear “paralysis by analysis.” They see that competing analyses are not comparable because their underlying assumptions, data and modeling are not consistent or transparent. The large amounts of resources used for analysis in the Pentagon often obscure rather than illuminate choices.

As a result, many senior officials—particularly policy officials in my experience—distrust the process by which military capability options are assessed and formulated. Understanding that joint analytic capabilities are weak compared to those of the Services, that data can be manipulated to generate different outcomes that justify existing programs, and that any number of large requirements analyses conducted by the Department and outside sources have failed to have a major impact on existing programs, many senior officials are content to ignore analysis of alternatives and the entire process for assessing alternative military capabilities. Instead they rely on their own judgment and look for broad, overarching insights they can use as general guidance to nudge the Service in one direction or another. That such guidance is impressionistic and in any case ignored for the most part is lamentable but unavoidable in their minds. Occasionally a program may be canceled or curtailed to save money, but for the most part acquisition programs proceed on their initial course undisturbed.

Yet as one expert argues, it is a mistake to remain aloof from “structured, analytic, often quantitative,” defense analyses.⁷ Mentally modeling of these types of tradeoffs and assumptions are performance is unavoidable.

Whether we ‘model’ mathematically and systematically, or anecdotally and impressionistically, everyone who forms an opinion...is in effect predicting its outcome or at least its plausible range of outcomes. The issue is not really whether we try to find a

⁶ See Christopher Lamb and Irving Lachow, “Reforming Pentagon Strategic Decision Making,” *Strategic Forum* No. 221, Institute for National Strategic Studies, National Defense University, July 2006.

⁷ Michael E. O’Hanlon, *The Science of War: Defense Budgeting, Military Technology, Logistics, and Combat Outcomes*. Princeton, N.J.: Princeton University Press, 2009, pp. 1-2, 66.

simplified construct for predicting battle outcomes—all of us do; in fact, all of us must. The issue is whether we choose to employ impressionistic and purely subjective ‘modeling’ or a more rigorous and formal approach. The advantage of formal modeling is that it requires one to make assumptions explicit, and justify them as well as possible using historical, technical and operational data.⁸

The Department of Defense necessarily makes decisions based on modeling of some sort. Most of the analysis is hidden in the far reaches of disparate organizations that compete for dollars and have no incentive to show much of their homework to authorities that might use it to make decisions that improve overall force capabilities at the expense of their own. Therefore the Department’s modeling is done without the transparency and accountability that senior defense officials need. Rectifying this shortcoming would require tackling another impediment to managing major acquisition programs well: organizational limitations.

An Organizational Perspective on Acquisition⁹

In 2006 I was called back from National Defense University to lead a Quadrennial Defense Review working group investigating how to improve Pentagon so it could make decisions better in an increasingly complex and dynamic security environment. Senior leaders wanted to know why key Department of Defense initiatives like Global Force Management, better Strategic Communication, Adaptive Planning, and Capabilities-Based Future Force Development were not working. The group concluded that the structure of the Department of Defense is rigidly vertical, or “stovepiped,” by areas of functional expertise: policy, finances, operations, etc. Different offices in the Office of the Secretary of Defense lead each part of the decision making process, and the Chairman, Joint Chiefs of Staff and the military Services manage parallel processes. In theory, these many organizational components should work in close harmony to make trades between competing alternatives at each level of the logic train from strategy to programs. In practice they do not.

⁸ O’Hanlon, *The Science of War*, p. 66.

⁹ Quadrennial Defense Review, Integrated Process Team #3, “Roles, Missions, and Organizations,” Working Group #5, Defense Reorganization, Final Report. October 14, 2005.

Thus even if the Department of Defense agreed in theory on a set of measures and instruments for assessing alternatives all along the chain of reasoning from national strategy to the employment of fielded forces it would take a different organization than the one the Pentagon currently has to make good use of them. Making trades between competing alternatives requires collaborating across organization boundaries and the Department of Defense is not currently organized to do that well. This is one major reason the Department is unable to rationally allocate resources to produce the most valuable capabilities for the most important missions. It cannot generate strategy based on explicit choices between competing alternatives,¹⁰ and it cannot agree on joint operational concepts that provide context for evaluating the contributions of individual weapons systems.¹¹ Because the Department cannot make trades at these broader levels in the analytic chain of reasoning—strategy, planning and operational concepts—the rest of the downstream processes—requirements, programs and budgets—is managed without the benefit of broader context. Each link in the chain of reasoning tends to operate semi-autonomously. Trying to collaborate with other organizations and processes simply complicates the ability of leaders to meet their own objectives with the information at their disposal.

The inability of subordinate organizations to collaborate well is a major limitation on the ability of the Secretary of Defense and his deputy to manage the Department well. In the increasingly competitive international security environment these leaders need to make key planning and resource allocation decisions quickly and with the benefit of well-integrated risk assessments. They need their subordinates to do the same at each step in the Pentagon's "strategy-plans-requirements-resource" guidance process and forward only the most consequential issues to them for resolution. There is no time to integrate solutions by handing problems from one functional body of expertise to another until finally, fully coordinated but with important differences of opinion obscured, they appear on the Secretary's desk.

¹⁰ For a detailed explanation of the inability to make trades at one level of the process—strategy—see Christopher J. Lamb, "Pentagon Strategies," in David Ochmanek and Michael Sulmeyer, eds., *Challenges in U.S. National Security Policy: A Festschrift Volume Honoring Edward L. (Ted) Warner*, (Arlington, VA: RAND, 2014).

¹¹ For a discussion on Pentagon challenges in developing and agreeing upon joint operating concepts, see Christopher Lamb, M. Elaine Bunn, Charles Lutes, and Christopher Cavoli, "Transforming Defense," Occasional Paper, National Defense University Press, September 2005.

Better and faster integrated assessments of risk require cross-functional (or horizontal) integration because all of these resource activities involve multiple sources of functional expertise. To effectively collaborate across organizational boundaries and make the process work as well in practice as it should in theory the Department would have to employ cross-functional teams that are capable of putting mission success before protection of parent organizational equities. Currently, the Department is highly resistance to these kinds of organizational reforms. The Department briefly embraced the concept of cross-cutting horizontal organizations in the 2006 Quadrennial Defense Review but the initiative lacked leadership support and follow-through.¹²

Consequently the leaders of the Department's functional organizations continue to delay and dilute any recommendations that run counter to their organization's perceived interests. They have little incentive to look at problems and corresponding solutions beyond the scope of their own responsibilities. No single leader is inclined or able to solve the overarching problems of greatest importance to the Secretary. The Secretary almost never sees well-integrated assessments of problems and corresponding integrated alternative solutions. Instead he often receives watered-down recommendations that paper over critical assumptions, distinctions, and differences of opinion that need to be resolved. On occasion the Secretary is inclined to investigate such "least common denominator" products and root out critical issues and differences, but he typically does not have the time to do so. In a crisis the Secretary can focus on hammering out integrated solutions to complex problems, but as a routine matter he simply cannot pursue every issue he would like to investigate. Moreover, senior leaders are constrained by the political liabilities of routinely overriding powerful personalities and institutional interests. For these reasons decisions are made slowly or not at all, and if made in response to a crisis, are made without the benefit of requisite information and supporting analysis.

¹² The 2006 Quadrennial Defense Review promoted "the principles of transparency, constructive competition to encourage innovation, agility and adaptability, collaboration and partnership" to "guide the formulation of new strategic processes and organizational structures." It asserted "improved horizontal integration will be critical to the Department's success" and that "the Department is continuing to shift from stovepiped vertical structures to more transparent and horizontally-integrated structures." *Quadrennial Defense Review Report*. Washington, D.C.: Dept. of Defense, 2006.

MRAPs as an Acquisition Case Study¹³

The Department of Defense effort to field mine-resistant, ambush-protected (MRAP) vehicles in Iraq after the security situation there deteriorated in late 2003 provides a useful case study for considering limitations that impede the Pentagon's management of acquisition programs. The basic history of how requests for MRAPs from commanders in the field were handled by the Department of Defense is now well known. It is clear that most of the limitations on effective acquisition outlined above were all on full display as the Department struggled to make a timely decision on whether to field the MRAPs.

Improvised explosive devices (IEDs) soon emerged as the enemy's weapon of choice in Iraq and became the "No. 1 threat" to U.S. forces. From the summer of 2005 until the spring of 2008, IEDs caused 50 to 80 percent of U.S. fatalities. The IED threat evolved over time, but all major forms of IEDs were apparent early on—by 2004 or 2005 at the latest. By early 2005 insurgents were using IEDs to conduct both side and under-vehicle attacks against the entire range of U.S. armored vehicles. They also were using a particularly lethal form of IED known as the explosively formed penetrator, which was able to better penetrate armor and spray elements of the weapon and the vehicle's armor into its interior. These sophisticated IEDs never amounted to more than 5 to 10 percent of the IEDs employed by insurgents but they caused 40 percent of IED casualties.

Countering IEDs was a complex problem requiring a multifaceted response. Better armored vehicles could be part of the solution but there were few options readily available. The Army decided to procure up-armored Humvees to replace the thin-skinned versions it had in abundance. The Army worked with manufacturers to increase production from 51 vehicles per month in August 2003 to 400 vehicles per month in September 2004, and later to 550 vehicles per month. The Army also approved the emergency expedient of adding armor kits to the existing Humvees because they could be fielded more quickly than up-armored Humvees. The

¹³ For a detailed account of this program see Christopher Jon Lamb, Matthew Schmidt and Berit Fitzsimmons, "MRAPs, Irregular Warfare, and Pentagon Reform," Occasional Paper, Institute for National Strategic Studies, National Defense University, June 2009.

House Armed Services Committee (HASC) monitored these efforts and investigated Pentagon claims that production of the add-on kits could not be accelerated. With the HASC pushing hard Army depots increased production from 35 kits per month in December 2003 to 600 kits per month by July 2004. 7,000 kits were delivered 6 months ahead of the Pentagon's original timetable but only 5,330 of the 8,105 up-armored Humvees required by September 2004 were actually in place.

Secretary of Defense Donald Rumsfeld made delivery of up-armored Humvees and add-on armor kits a priority. The Army was compliant but not enthusiastic. Its Director of Force Development noted the expense of the program (over \$4 billion) but also acknowledged the Secretary's guidance: "This is an enormously expensive program, but very frankly, the communication from the secretary of defense has been real clear."¹⁴ When it became evident that even up-armored Humvees offered insufficient protection against IEDs, Senators from across the political spectrum weighed in on what one decried as an unacceptable "set of bureaucratic delays" in fielding MRAPs. Media and whistleblower exposés, war college studies, congressional investigations, and inspector general reports castigated Pentagon performance. Legislators complained about the inability to "legislate a sense of urgency" and withheld funding until improvements in armor were made.

Pentagon leaders knew it was critically important to counter IEDs, not only to reassure Congress but to counter enemy strategy. The enemy intended to use IEDs and distribute the images of their effects to undermine U.S. public support for the war. In response, the Pentagon created new organizations to find solutions to the IED problem. The Army set up a small unit dedicated to defeating IEDs which adopted the motto: "Stop the bleeding." The task force concentrated on solutions "left of the boom;" that is, on improving ways to avoid IEDs and attacking the ability of insurgents to make, emplace, and control the IEDs before they went off. The Army's Rapid Equipping Force also put its emphasis on solutions "left of the boom." In July 2004, the Army-centric task force was upgraded to an Army-led Joint Integrated Process Team to harness the expertise of all the Services. The Secretary of Defense and Deputy

¹⁴ Matthew Cox and Megan Scully, "\$4 Billion Pledged to Make Trucks, Humvees Safer," Defense News, January 3, 2005, 11.

Secretary of Defense also issued memoranda authorizing expedited procurement of equipment designed to save lives, and created the Joint Rapid Acquisition Cell for this purpose. The following year, the Pentagon upgraded its efforts to combat IEDs by creating the Joint IED Task Force. By the time the task force became the Joint IED Defeat Organization (JIEDDO) it controlled hundreds of personnel and annual budgets of more than \$3 billion.

The Pentagon organizations dedicated to countering IEDs could claim some success. IED effectiveness (measured by the ability to produce coalition casualties) dropped from a high of over 50 percent early in the war to less than 10 percent effectiveness in the fall of 2007. Their efforts, plus other counter-IED efforts such as up-armored Humvees, reduced the average effectiveness of an insurgent IED attack. Insurgents had to stage more attacks to obtain equivalent effects. Unfortunately, they were able to do so and actually managed to increase their ability to inflict U.S. fatalities. In this context, considering better armored vehicles was an obvious option, but JIEDDO did not push this solution for two reasons. It was focused on prevention rather than protection, which was considered a more elegant solution if it could be achieved. More to the point, JIEDDO did not have responsibility for acquisition of better armored vehicles. The JIEDDO mandate allowed it to fund development of better armor for vehicles but it did not have authority to procure and sustain armored vehicles, which was the prerogative of the military Services based on their assessment of requirements.

Field commanders wanted MRAPs. First, a Military Police commander in Iraq issued an urgent request in June 2003 for armored security vehicles to help protect U.S. military convoys and patrols. These vehicles were lighter than MRAPs but similarly designed for better protection against mines and other ambushes. Late in the summer of 2003, the Army's 101st Airborne Division also issued a request for more vehicle armor and training to counter IEDs. In September, other commanders began to request MRAPs. By November, a draft "urgent universal need statement" for MRAPs from a Marine field commander was circulating in the Pentagon. The final version, sent on February 17, 2005, made the case that the Marines should not continue to absorb casualties from IEDs when commercial off-the-shelf MRAPs were available. Despite these requests it took more than 2 years, political pressure from Congress, and

a determined intervention by the Secretary of Defense before the Pentagon validated a large purchase of MRAPs as a military requirement.

The slow approval of MRAP requirements did not reflect lack of appreciation for their effectiveness. Early and throughout the war, U.S. experts on military requirements recommended armored cars and MRAPs for Iraqi forces also under attack from IEDs. Those in charge of Pentagon requirements just did not think these options were a good fit for the U.S. military. An internal Marine Corps' report¹⁵ found that the Marine requirements process largely discounted the need for MRAPs. When Marine Corps senior leaders convened on March 29–30, 2005 to consider MRAPs, the flag officers heard a strong case for the immediate purchase of the vehicles from a Marine who had long studied their value in irregular warfare. However, the decision was made to hold out for a future vehicle that would meet all the requirements for mobility and protection better than either the up-armored Humvee or MRAPs. The Army requirements process was even less favorably inclined toward the MRAP. It moved more slowly to approve MRAP requirements and in smaller numbers.

Field commanders persisted, however, and in 2006 finally succeeded in getting the Pentagon requirements process to approve MRAPs. On May 21, 2006, the commanding general, Multi-National Force–West, submitted a request for 185 MRAPs to the Joint Requirements Oversight Council and in July he submitted a second request for 1,000 more. The eventual approval of the requirement for 1,185 MRAPs cleared the way for a joint MRAP acquisition program, which began in November 2006. However, an approved MRAP requirement did not guarantee the program a high priority for Pentagon funding. In testimony to the HASC on March 13, 2007 General Robert Magnus, USMC, acknowledged MRAPs are “up to 400 percent more effective than the up-armored Humvees in reducing injuries and deaths” and can “cut casualties by perhaps as much as two-thirds.”¹⁶ However, he also explained to the dismayed HASC that MRAPs were an “unfunded requirement.”

¹⁵ Sharon Weinberger, “Report: IED Crisis ‘Avoidable’ with Armored Trucks,” *Wired.com*, February 19, 2008, available at <<http://blog.wired.com/defense/2008/02/report-ied-cris.html>>. The report is available at <http://blog.wired.com/defense/files/franz_gayl_complete_mrap_study_archive.pdf>.

¹⁶ Hearing on National Defense Authorization Act for Fiscal Year 2008 and Oversight of Previously Authorized Programs before the Committee on Armed Services, House of Representatives, 110th Congress, 1st Sess., Readiness

Almost 3 years after units in the field submitted their requests for MRAPs, the Pentagon requirements system had moved to the point where senior Service leaders could invite Congress to pay for a large number of the vehicles if it was willing to do so over and above the Pentagon's normal budget and its additional warfighting supplemental funding. Two months later, a frustrated Secretary Gates announced MRAPs were the Pentagon's number-one acquisition priority. Shortly thereafter, the Joint Requirements Oversight Council validated huge MRAP requirements, first for 7,774 and then for 15,374 vehicles.

When MRAPs were finally approved for U.S. forces in mid-2007, General Petraeus' new strategy was just being implemented. He supported the dispersion of an increasing number of U.S. forces (the so-called surge of five additional Army brigades) among the Iraq population, principally in Baghdad. The acquisition system was already primed to move quickly on MRAPs before the Iraq War began because Army's engineers had navigated the Army requirements process well enough to obtain a handful of MRAP prototypes for clearing mines from transportation routes. This fact, along with the support of Congress and Secretary Gates, allowed more than 10,000 MRAPs to be fielded in record time—about a year and a half.

The MRAPs made a significant impact once they arrived in theater, but their impact is obscured by the decline in violence that accompanied the American shift in strategy under General Petraeus. In addition to other factors such as cooperation with Sunni tribal leaders, the surge in U.S. forces and General Petraeus' emphasis on population security helped produced a sharp drop in violence—including IED attacks—from the summer of 2007 onward. That drop in violence meant a reduction in U.S. casualties. Yet the number of fatalities and wounded from IED attacks dropped even further after MRAPs arrived. When MRAPs began to flow to Iraq in November 2007, almost 60 percent of U.S. casualties were attributed to IEDs. Just a little over a year later with 10,000 MRAPs in country, only about 5 percent of casualties were attributable to IEDs, even though insurgents were targeting MRAPs with IEDs for symbolic reasons.¹⁷ In

Subcommittee Hearing on Budget Request on Adequacy to Meet Readiness Needs, March 13, 2007 (Washington, DC: U.S. Government Printing Office, 2008).

¹⁷ Andrew Gray, "New U.S. Armored Trucks are Symbolic Targets: General," Reuters, August 24, 2007, available at <www.reuters.com/article/latestCrisis/idUSN24356492>.

short, General Magnus's testimony in March 2007 to the effect that MRAPs could "cut casualties by perhaps as much as two-thirds" seems well founded.

The acquisition system was not responsible for the Pentagon's lack of preparedness for irregular warfare or its inability to respond quickly to the need for better armored vehicles. The glaring deficiency was in the Pentagon's requirements system. The major tradeoffs between MRAPs and lighter tactical vehicles were well understood from the beginning. As Representative Hunter noted at the time, the advantages the MRAP has over a Humvee are clear: "It's a simple formula. A vehicle that's 1 foot off the ground gets 16 times that [blast] impact that you get in a vehicle that's 4 feet off the ground," such as the MRAP.¹⁸ At issue was the optimum number and mix of armored vehicles and their performance parameters, which was not self-evident. The relative value of survivability, mobility, and other armored vehicle attributes is a function of multiple factors, including the threat posed to U.S. forces, which evolved over time and reached unprecedented levels in Iraq's unique circumstances.

Even so, the evolution of the IED threat in Iraq does not adequately explain the resistance to purchasing MRAPs for U.S. forces. The Pentagon's requirements system was slow to validate the need for MRAPs even after insurgents were using all the major types of IEDs. Department of Defense experts were advising the Iraq military early on that they needed MRAPs for counterinsurgency, so their value for irregular warfare was understood. The reality is that decision makers in the Pentagon's requirements system were not enthusiastic about any additional armor, much less heavy, expensive MRAPs. The Services hoped to get by with less expensive up-armored Humvees, but they were being penny-wise and pound-foolish. Adding armor to a Humvee cost only \$14,000; up-armored Humvees cost twice as much as the unarmored version (about \$200,000), and MRAPs cost three to seven times as much as an up-armored Humvee, from \$600,000 to over \$1 million per vehicle. Yet as some Senators noted at the time, protecting people in an all-volunteer military is cheaper than replacing them. The cost of enlisted casualties averages \$500,000 while officers, depending upon their military occupation, range from \$1 million to \$2 million each. Given these evident savings and the other

¹⁸ Peter Eisler, Blake Morrison, and Tom Vanden Brook, "Pentagon Balked at Pleas From Officers in Field for Safer Vehicles: Iraqi Troops Got MRAPs; Americans Waited," *USA Today*, July 16, 2007, 1.

advantages of countering IEDs and reducing casualties, MRAPs were more than a bargain. Nevertheless, decisions to provide additional armor to U.S. forces had to be imposed on the system, first by Secretary Rumsfeld and then by Secretary Gates.

Conclusion

Learning from the MRAP experience, Secretary Gates made a determined effort to “institutionalize procurement of [irregular] warfare capabilities,” so they could be quickly fielded when needed in the future. The source of resistance to his goal was not the Pentagon’s acquisition system. As acquisition professionals emphasize and the MRAP experience illustrates, nothing can be procured without a validated requirement and congressional funding. Once senior leadership validated the requirement and provided resources, the acquisition system fielded large numbers of MRAPs within 18 months—an accomplishment often described as an industrial feat not seen since World War II. The long delay in fielding MRAPs is attributable first to the Pentagon’s force development or requirements system, secondly to Service cultures that generally undervalue irregular warfare capabilities, and finally to the Pentagon’s decision-making structure and processes that typically favor specialization over integration of diverse areas of expertise across organizational boundaries to solve complex problems.

The MRAP case thus underscores the need for reform in the Pentagon, and reinforces the lessons gleaned from other experiences. The Pentagon’s current organizational structure and processes push decisions down to bodies of functional expertise that cannot make decisions in their proper context. The Pentagon cannot integrate diverse areas of functional expertise across organizational boundaries to solve complex problems. Therefore the Secretary of Defense or his deputy must do so as time permits or mistakes like the delayed fielding of MRAPs will continue to be made. In addition, it is clear that Service cultures will remain singularly focused on their major warfighting capabilities, which is not altogether bad. It simply means that if we want better niche capabilities for irregular warfare or joint capabilities for other major mission areas beyond large Service-centric force-on-force combat operations we will have to embrace alternative decision making mechanisms and processes. Finally, we have to acknowledge that real progress in better managing acquisition programs cannot be made without broader

organizational reforms that would improve the ability of the Pentagon to consider alternative courses of action.

In light of these findings, I believe we need to consider several remedial courses of action to improve our ability to deliver material and services to our armed forces:

- We need to consider organizational reforms to Department of Defense processes that would improve our ability to make trades between competing alternatives by collaborating across organization boundaries. This needs to be done at every step along the analytic chain of reasoning from strategy to planning to operational concepts to requirements and programs. Without the ability to consider and make tradeoffs in these areas, it will be impossible to provide decision making context to inform tradeoffs between key performance parameters of major acquisition programs.
- Thus we need to reverse the trend to remain aloof from “structured, analytic, often quantitative,” defense analyses. As Michael O’Hanlon argues, even though the results of defense analysis are “imprecise, we must nonetheless strive to understand, improve, and employ them” because doing so improves the chances of delivering the best possible chances of survival and victory for our armed forces. They are worthwhile “even if our main goal in analysis is generally to illuminate choices, bound problems, and rule out bad options—rather than arrive unambiguously at clear policy choices.”¹⁹
- We also need the flexibility to manage material solutions differently in irregular warfare and peace operations. The intense oversight and rigid processes that govern large, long-term major acquisition programs are not appropriate for quick fielding of creative solutions in irregular and rapidly evolving circumstances. Comparing the latitude afforded the Train and Equip program and its outcomes to the rigidity of the processes that delayed fielding MRAPs makes this point clear.

¹⁹ O’Hanlon, *The Science of War*, pp. 247-8.

I know this reform agenda is daunting. I am sure many will say it is politically unrealistic and exceeds the scope of acquisition reform. Yet I believe it is long overdue. The Pentagon wastes prodigious amounts of its most expensive asset—human capital—in processes that are not generating valued outcomes. Many observers recommend more modest solutions to acquisition reform like educational programs, monetary incentives, and better personnel selection processes. These may help, but the most invigorating incentive for high performance is the conviction that you can make a difference. In the current system it is very difficult for defense officials and program managers below the level of the Secretary to make a difference in acquisition. There are just too many constraints on their ability to deliver desired outcomes, which makes it difficult to hold anyone accountable for performance. The solution is not to further isolate the acquisition system from other processes but to reform those processes so that program managers have more context for making trades among program performance attributes. To manage acquisition programs better there is no real alternative to improving the Pentagon's ability to generate better strategy, plans and operational concepts.

Many observers will worry that such reforms would inject unhelpful micromanagement into Pentagon acquisition programs rather than helpful oversight. This would be the case if we simply tried to mandate more interaction between the Pentagon's planning, requirements and acquisition processes without reforming its organizational structure and ability to collaborate. The difference between helpful oversight and unhelpful micromanagement is contextual insights. Secretary Gates intervention in the MRAP case was helpful oversight because he could see the larger connections in play that were not evident to functional experts further down the decision making chain. To make helpful oversight more common in the Pentagon and below the level of the Secretary of Defense, it is necessary to make good analysis more common. To make good analysis more common, it is necessary to reform the Pentagon's ability to collaborate across organizational boundaries. These changes would be difficult, but like the old adage says, "If it's worth doing, it's worth doing well."



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Dr. Christopher J. Lamb currently serves as Deputy Director, Institute for National Strategic Studies (INSS), assisting the Director in leading and managing the NDU research enterprise. He also is a Distinguished Research Fellow at the Institute, conducting research on national security strategy, policy and organizational reform, defense strategy, requirements, plans and programs, and on Special Operations Forces. He joined the Institute in January 2004.

Prior to joining INSS Dr. Lamb served as the Deputy Assistant Secretary of Defense for Resources and Plans where he had oversight of requirements, acquisition, and resource allocation matters for the Under Secretary of Defense (Policy). He was responsible for Strategic Planning Guidance, Transformation Planning Guidance, Contingency Planning Guidance, the Information Operations Roadmap and oversight of Combatant Commander contingency planning.

Dr. Lamb has been Director of Policy Planning in the Office of the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict; Deputy Director for Military Development on the State Department's Interagency Task Force for Military Stabilization in the Balkans; and Director for Requirements and Plans in the Office of Secretary of Defense.

From 1985 to 1992 Dr. Lamb was a Foreign Service Officer, serving in Haiti and Ivory Coast. He received his doctorate in International Relations from Georgetown University in 1986. From 1993 through 1998 he was an Adjunct Professor in the National Security Studies program at Georgetown University.

In 2008 Dr. Lamb led the Project for National Security Reform study of the national security system, which led to the landmark 2008 report, "Forging a New Shield." His recent research includes numerous collaborative studies on national security and defense reform, interagency teams, military requirements and transformation, and Special Operations Forces; e.g.:

"9/11, Counterterrorism, and the Senior Interagency Strategy Team," Simons Center for the Study of Interagency Cooperation, Ft. Leavenworth, March 2014; *"The Bosnian Train and Equip Program,"* Strategic Perspectives, Institute for National Strategic Studies, National Defense University, March 2013; *"Pentagon Strategies,"* in *Challenges in U.S. National Security Policy*, RAND, May 2014; *Human Terrain Teams: An Organizational Innovation for Sociocultural Knowledge in Irregular Warfare*, Institute for World Politics Press, July 2013; "Special Operations Forces," in Oxford Bibliographies in Military History, Oxford University Press, July 2013; "Deception, Disinformation, and Strategic Communications," Strategic Perspectives 11, INSS, May 2012; and *U.S. Special Operations Forces* (Columbia University Press, 2007).

Dr. Lamb has received the Chairman, Joint Chiefs of Staff Joint Distinguished Civilian Service Award; the Presidential Rank Award for Meritorious Senior Executive Service; the Superior Honor award from the Department of State; and Meritorious Civilian Service awards from the Department of Defense.

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

JUNE 24, 2014

QUESTIONS SUBMITTED BY MR. FORBES

Mr. FORBES. What, specifically, should be done to leverage modeling and simulation in the early stages of acquisition to ensure mission/operational relevance for new capabilities and continued mission/operational relevance of existing capabilities?

Mr. LAMBERT. In the early stages of acquisition, relevance for new capabilities can be investigated using mission-level simulations to estimate the effectiveness of new systems in their intended operational environment. The specific simulations to be used will depend on the specific missions of the new system—for example, the Extended Air Defense Simulation (EADSIM) is a well-established simulation to explore system effectiveness for air and missile defense systems. A recent study performed by the Modeling & Simulation Committee of NDIA's Systems Engineering Division identified approximately two dozen mission types for which there exist mission-level simulations.

In the early stages of the acquisition of new capabilities, only estimates of the performance of a new system are available, very often expressed as Key Performance Parameters (KPPs) and Key System Attributes (KSAs). These performance estimates are used as inputs to mission-level simulations. Other key inputs to these mission-level simulations are similar performance estimates for threat and friendly systems, representations of the natural and man-made environments in which the new system will operate, and representative scenarios in which the new system will be used. To ensure the credibility of the results of these simulations, it is important that all system performance estimates, environment representations, and scenarios have been validated, preferably by real data, or through examination by subject matter experts where real data is not available.

For existing capabilities, similar mission-level simulations can be used to examine their continued operational relevance. In this case, performance estimates of new threat systems and potential new scenario representations are key to estimating the effectiveness of existing systems in the new threat environment and potential new system employment strategies.

Mr. FORBES. What standing and available advanced prototyping and/or system integration lab capability exists within the services for material developers to conduct early and often simulation based (live, virtual and constructive) integration and assessments of their system developments prior to developmental and operational tests?

Mr. LAMBERT. The conceptual design of systems should be generated through model based systems engineering (MBSE) using tools such as the FACT (Framework for Assessing Cost & Technology) trade-space exploration framework developed by Marine Corps Systems Command. MBSE based on validated models for performance (KPP), cost (procurement, and lifecycle sustainment) and RM&A (reliability, maintainability, and availability) generates a range of potential system designs that can then be processed through a tool such as the Army Research Lab's EASE (Executable Architecture for Systems Engineering) to produce parametric representations of the design for use in analytical simulations such as Storm or OneSAF.

Using the representation of fully articulated engineering designs for a future system/platform in analytical models allows them to be run against validated threat scenarios of future enemies with future threat weapon systems. The results of these analyses comparing a wide variety of proposed system designs can identify where investments and trades should be made in the pre-Milestone A phase of an acquisition program. Far more insight into the operational value of a system design can be obtained by better use of MBSE before "bending metal" to build a prototype. Building a prototype of the wrong design (e.g. the EFV or FCS platforms) can waste years and billions of dollars on a major acquisition programs that should have been validated first in simulation.

Mr. FORBES. What, specifically, should be done to leverage modeling and simulation in the early stages of acquisition to ensure mission/operational relevance for new capabilities and continued mission/operational relevance of existing capabilities?

Dr. LAMB. What operational-level modeling and simulation we do in support of acquisition programs occurs early on to justify the program start. There is a tendency to exaggerate the achievable program attributes and promise leap ahead capabilities in order to build support for the program. Even so, frequently this modeling and simulation in support of the analysis of program alternatives is done quite well. From my point of view the problem is that the modeling and simulation of the program capabilities within a broader operational concept largely ends there. What we need to do is maintain this kind of modeling and simulation effort to support program management through later milestone decisions, exploring the relative value of alternative performance attributes as the program moves forward.

In addition, these analytic efforts should be more "joint" and more transparent. If other sources of analytic expertise could investigate alternative ways of achieving operational objectives using the same scenarios, operating concepts, data, analytic methods, and metrics the results would be comparable and helpful to both the program manager and senior decision makers. Without these common, essential precursors to good analysis provided in a timely fashion so that results are comparable and replicable, senior leaders cannot usefully evaluate alternatives and their consequences. Some believe it would cost too much to provide the analytic foundation for decision support but just the opposite is the case.

As I have noted elsewhere, each year, the Pentagon spends untold amounts on analytic support that cannot be harnessed in support of senior leader strategic decision-making. "The situation is so bad that the Pentagon occasionally pays contractors to study past studies in hopes of finding a baseline of authoritative knowledge on a subject. Invariably the answer comes back that the results from many years of expensive studies are not transparent, comparable, or consistent and cannot be explained."* This trend, more pronounced in recent decades according to some, ensures a lot of analytic resources are wasted. It would be more efficient to convert some of this spending into a coherent, joint analytic foundation for comparable studies that support good acquisition program management.

Mr. FORBES. What standing and available advanced prototyping and/or system integration lab capability exists within the services for material developers to conduct early and often simulation based (live, virtual and constructive) integration and assessments of their system developments prior to developmental and operational tests?

Dr. LAMB. I am not competent to describe the Service advanced prototyping and simulation capabilities currently available.

I will say that I am inclined to think we need more of such capabilities if they were configured to stimulate competition. I was a big supporter of the Office of Force Transformation, which used advanced prototyping and simulation to experiment on better alternatives to existing programs. Initially it enjoyed insider status, received senior leader protection, and had enough resources to contribute realistic prototypes. It challenged existing orthodoxy and I thought made significant contributions. It was an irritant as it was meant to be, but a productive one with small costs. Because it challenged the status quo it was eventually disbanded, which I believe was unfortunate.

QUESTIONS SUBMITTED BY MS. TSONGAS

Ms. TSONGAS. Congress funds most acquisition programs one year at a time; however, DOD acquisition is planned for several years out and contracts often last for much more than a year. Thus, there are situations where we in Congress make decisions that completely disrupt the funding profile of a particular program, causing uncertainty for the program managers and the contractors. How much does this funding uncertainty affect the ability of program managers to effectively do their jobs? Would you suggest a different method for funding acquisition programs, such as multi-year appropriations for major programs?

Mr. LAMBERT. Funding instability can have serious and negative impacts on program efficiency. Programs that are early in the design or production phase benefit significantly from a steady, sufficient, and predictable line of funding, which makes it possible for program managers to address challenges posed by the immaturity of a program's technology, integrated design, or manufacturing. Mr. Kendall has recommended a management reserve to account for some of these challenges, and multi-year funding would similarly shield program managers from unpredictable swings in appropriated funds. A sudden lapse in funding may mean paying a con-

*Christopher J. Lamb and Irving Lachow. Reforming Pentagon Strategic Decisionmaking. Washington, D.C.: Institute for National Strategic Studies, National Defense University, 2006.

tractor just to keep a program in “warm storage,” and a sudden spike in funding may mean accepting significant technology, design, or production risks to expend the funds in the allotted timeframe. Both scenarios lead to waste in a program.

The challenge to implementing either solution is in asking the Congress to set aside its own funding prerogatives in the name of efficiency, a challenge that is heightened whenever individual program managers make decisions that seem unwise in hindsight or that Congress calls into question for some reason, and which were enabled by additional flexibility granted by Congress. Nevertheless, to the extent that Congress will provide funding stability to program managers, more efficient programs are likely to result.

Ms. TSONGAS. A few of you mentioned incentives for acquisitions personnel during your opening statements. Unfortunately this has been a common theme for many years. Nearly all of the major comprehensive DOD Acquisition reviews throughout the years have stated the exact same thing; DOD does not provide the right incentives to its acquisition workforce. What incentives can Congress or the Defense Department put in place that would strengthen the DOD's acquisition system?

Mr. LAMBERT. Misaligned incentives are easy to identify but devilishly difficult to fix. Unfortunately the solution is not as simple as putting new incentives in place, but requires addressing the conflict between incentives already in existence. These conflicting incentives begin with our constitutional form of government, which deliberately sets the branches of government at odds with each other, and proceed from there. This basic misalignment of incentives is the root cause of many of the misaligned incentives within the acquisition process.

Take, for example, the milestone approval process mandated by 10 U.S.C. 2366a and 2366b. The Congress established milestone certification requirements because it decided that insufficient attention was paid to these functional areas during program design and development. Yet, because of how a large bureaucracy operates, the Milestone Decision Authority is not in a position to independently certify that the program manager has met each of these requirements; instead, he or she relies on the advice of staff experts responsible for each functional area. A review by each of these experts adds delay to the program, and some experts may recommend changes that are beneficial to their functional area but harm the program as a whole. Although the program manager may consider these changes unwise, he or she may nevertheless carry them out to secure milestone approval. The program manager's incentive is to see the program make progress, and the experts' incentives are to make sure their functional areas are addressed as they see fit.

The basic problem is that these experts have sway over a program's progress without being held accountable for it. While eliminating milestone decision reviews would fix these misaligned incentives, it would not necessarily improve outcomes. (If the earlier process was superior, why did Congress create the milestone review process in the first place?) So we should ask: what review process would align both sides' incentives?

One option might be to reverse the milestone process to force functional experts to seek milestone disapproval rather than forcing the program manager to seek milestone approval. In such a scenario, the functional expert would make his or her case to the Milestone Decision Authority whose incentive is for program progress and success. Ideally, this process would bring the program manager's, Milestone Decision Authority's, and functional expert's incentives into alignment, each with skin in the game.

Ms. TSONGAS. Congress funds most acquisition programs one year at a time; however, DOD acquisition is planned for several years out and contracts often last for much more than a year. Thus, there are situations where we in Congress make decisions that completely disrupt the funding profile of a particular program, causing uncertainty for the program managers and the contractors. How much does this funding uncertainty affect the ability of program managers to effectively do their jobs? Would you suggest a different method for funding acquisition programs, such as multi-year appropriations for major programs?

Mr. O'ROURKE. Navy program managers that I meet with state that year-to-year funding instability due to things such as continuing resolutions (CRs), sequesters, and congressional marks on requested funding levels (and combinations of these things) can cause program-execution challenges. Similarly, shipbuilding industry officials state that stable year-to-year funding is an important contributor to program-execution success. Navy and shipbuilding industry officials from time to time express a desire for more stable year-to-year funding—a desire that Congress understands, but which can be in tension with Congress' desire to maintain and exercise year-to-year control over appropriations, which is a core congressional power.

One means of helping to achieve greater year-to-year stability in programs is to use multiyear procurement (MYP) and block buy contracting, which are two forms

of multiyear contracting that can be used in defense acquisition programs on a case-by-case basis, with congressional approval. The Navy is making substantial use of MYP and block buy contracting in its ship and aircraft acquisition programs. MYP and block buy contracting are discussed in some detail in a CRS report. Another potential mechanism for achieving a greater degree of year-to-year funding stability would be to use advance appropriations, which can be thought of as a legislatively locked in form of incremental funding. Under incremental funding, Congress must take a positive action each year to approve each year's funding increment for the procurement of a given end item. In contrast, under advance appropriations, each year's funding increment happens automatically, unless Congress takes a positive action to stop it. DOD from time to time has requested the use of advance appropriations for shipbuilding or other acquisition programs. In shipbuilding at least, these requests have been turned down by Congress, in no small part because the use of advance appropriations is viewed as being in tension with maintaining year-to-year congressional control over appropriations. Traditional (i.e., single-year) full funding, incremental funding, and advance appropriations are discussed in some detail in a CRS report.

Ms. TSONGAS. A few of you mentioned incentives for acquisitions personnel during your opening statements. Unfortunately this has been a common theme for many years. Nearly all of the major comprehensive DOD Acquisition reviews throughout the years have stated the exact same thing; DOD does not provide the right incentives to its acquisition workforce. What incentives can Congress or the Defense Department put in place that would strengthen the DOD's acquisition system?

Mr. O'ROURKE. As one contribution to this discussion, my observation of Navy and other DOD acquisition programs over the last 30 years gives me the impression that long terms of office for program officials can be a key contributor to achieving success in defense acquisition programs. Program officials with long terms of office understand that they will still be in office years from now, and consequently that they will be held personally accountable for the results of decisions they make (at least those they make during their earlier years in office). By contrast, officials with shorter terms of office face less risk of being held personally accountable for the results of their decisions, because those results may not become manifest until after their terms in office are complete. Indeed, they might even feel an incentive to make decisions that achieve what they view as near-term success for a program (such as getting a program started), even if those decisions increase the program's risk of experiencing execution problems later.

The Navy's nuclear propulsion program and the Aegis development effort, both of which are generally considered as areas of acquisition success, were run during their formative years by officials (Admiral Hyman Rickover and Rear Admiral Wayne Meyer, respectively) who had long tenures in office. The term of office for Admiral Rickover's successors, as mentioned earlier, is eight years. In contrast, I have attended program-oversight hearings in recent years (such as those on cost growth in the LCS program or problems in the Coast Guard's Integrated Deepwater Systems program, to cite two examples) where the witnesses stated that the problems experienced by programs, while regrettable, resulted from decisions made by their predecessors. These contrasting experiences suggest that Congress might consider exploring options for lengthening the terms of office for some defense acquisition program officials well beyond the four years or so that many top program officials currently serve.

Ms. TSONGAS. Congress funds most acquisition programs one year at a time; however, DOD acquisition is planned for several years out and contracts often last for much more than a year. Thus, there are situations where we in Congress make decisions that completely disrupt the funding profile of a particular program, causing uncertainty for the program managers and the contractors. How much does this funding uncertainty affect the ability of program managers to effectively do their jobs? Would you suggest a different method for funding acquisition programs, such as multi-year appropriations for major programs?

Admiral VENLET. Congressional funding of acquisition appropriately supports your oversight duties and does not adversely affect program managers. Beneficial balance results from healthy tension in the review.

The fret concerning uncertainty primarily derives from over-programming due to lack of realism in department resource planning. Industry contributes to this as much as department resourcing decisions.

Review of program performance and adjustments to funding drive accountability by the department and should not be changed.

Congressional oversight focused upon administration requests for new start programs is the place to apply focus on resource realism and only starting the right

programs with the right resources. I speak more on this in my submitted written statement.

Multi-year funding for procurement should be used to bring the benefit of lower price where it is defensible and auditable.

Ms. TSONGAS. A few of you mentioned incentives for acquisitions personnel during your opening statements. Unfortunately this has been a common theme for many years. Nearly all of the major comprehensive DOD Acquisition reviews throughout the years have stated the exact same thing; DOD does not provide the right incentives to its acquisition workforce. What incentives can Congress or the Defense Department put in place that would strengthen the DOD's acquisition system?

Admiral VENLET. Throughout my career in uniform, and I firmly believe all civilian and uniform personnel presently in acquisition, work and live with no angst about incentives other than duty and commitment to providing the capability and reliability Soldiers, Airmen, Sailors and Marines expect to succeed in their missions and return safely to their loved ones.

Proposals and continued inquiry about incentives are fundamentally misplaced. This is not a serious factor in acquisition program performance and will provide no fruitful contribution to external program performance results. My submitted written statement addresses more productive examination and focus on people. We need to build a greater presence in the workforce of commitment to fundamentals, transparency and realism. It is a long road to raise such a generation. There are no shortcuts.

Ms. TSONGAS. Congress funds most acquisition programs one year at a time; however, DOD acquisition is planned for several years out and contracts often last for much more than a year. Thus, there are situations where we in Congress make decisions that completely disrupt the funding profile of a particular program, causing uncertainty for the program managers and the contractors. How much does this funding uncertainty affect the ability of program managers to effectively do their jobs? Would you suggest a different method for funding acquisition programs, such as multi-year appropriations for major programs?

Ms. MCGRATH. [The information was not available at the time of printing.]

Ms. TSONGAS. A few of you mentioned incentives for acquisitions personnel during your opening statements. Unfortunately this has been a common theme for many years. Nearly all of the major comprehensive DOD Acquisition reviews throughout the years have stated the exact same thing; DOD does not provide the right incentives to its acquisition workforce. What incentives can Congress or the Defense Department put in place that would strengthen the DOD's acquisition system?

Ms. MCGRATH. [The information was not available at the time of printing.]

Ms. TSONGAS. As you mentioned in your opening statement, the ability to rapidly assess needs and field new technologies is critical for IT and cyber. Many program managers and area experts discuss the need for "flexibility" beyond a traditional multi-year, sometimes multi-decade, weapon systems acquisition. However, when you start drilling down on what "flexibility" really means, there is not a lot of clarity. Can you describe what flexibility in cyber/IT acquisition means to you and what it looks like? In order to do these things, what types of authorities does the DOD need from Congress to realize that type of flexibility? It is widely believed that the commercial sector leads and drives advancements in IT/cyber acquisition and that DOD could improve by adopting proven commercial practices, processes, and policies. What is one specific example of a commercial practice you feel could be beneficial to the Department of Defense?

Ms. MCGRATH. [The information was not available at the time of printing.]

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Dr. LAMB. Funding uncertainty arising from larger political forces—unrelated to program or defense goals—complicates acquisition performance and is a risk factor that should be minimized.

However, it is important to note that funding consistency and variation are not intrinsically good or bad. Depending on the type of contract and its provisions, program managers need the flexibility to withhold, reduce, advance and increase funding to maximize program performance. Funding adjustments based on compelling analyses that demonstrate other programs can offer some or all of the same capabilities more efficiently and effectively are also justified. In such cases it would just

be necessary to accurately account for the penalties and other inefficiencies associated with reducing or terminating the program. Hence, the goal should not be insulating the program funding stream from all variation, but rather from interruption by extraneous factors unrelated to the performance of our military forces.

Thus, in order to further acquisition performance I would favor multi-year appropriations for major programs as part of a larger reform package designed to increase flexibility and accountability for program managers while decreasing the risks of program interruption by extraneous political forces.

Ms. TSONGAS. A few of you mentioned incentives for acquisitions personnel during your opening statements. Unfortunately this has been a common theme for many years. Nearly all of the major comprehensive DOD Acquisition reviews throughout the years have stated the exact same thing; DOD does not provide the right incentives to its acquisition workforce. What incentives can Congress or the Defense Department put in place that would strengthen the DOD's acquisition system?

Dr. LAMB. The gist of my testimony was the argument that programs are not currently managed in light of their contribution to a broader operational concept, but that they should be.

Program managers ought to be encouraged to adjust key performance parameters consistent with mission needs that are repeatedly evaluated to account for the contributions other programs and capabilities can make toward successful execution of the operational concept. If the program is not meeting one performance parameter for reasons beyond anyone's control, the program manager could relax this requirement and compensate with greater capability from other program attributes or from separate programs that contribute to the execution of the operational concept. The point would be to manage the program for a maximum contribution to the operational concept(s) within budget and time limitations.

This approach assumes there would be enough analytic clarity about the operational concept to inform the program manager's decision-making. It also assumes the program manager is provided the right personal performance incentives. We would want the program manager to devote his or her attention to managing their program to success as defined by the broader operational concept and not necessarily as defined by his or her parent organization or previous chain of command. Program managers need an incentive to do this. Simply stated, the program manager's likelihood of promotion must be based on good performance as defined by those who execute the operational concept. RAND made a similar observation about program manager tenure and acquisition performance: "A fundamental conflict exists between what military officers need to do to be promoted and their tenure as program managers. Unless these two objectives are connected so that lengthy tenure in a program can be advantageous for promotion, it is unlikely that these tenure policies will consistently yield positive results."* The same point is true more generally about incentives for managing an acquisition program so that it makes the maximum contribution to an operational concept within time and budget constraints.

QUESTIONS SUBMITTED BY MR. WITTMAN

Mr. WITTMAN. What can Congress do to simplify the defense acquisitions process while empowering program managers with more responsibility and authority?

Mr. LAMBERT. Yours is the fundamental question of acquisition reform. To get the process started, Congress should look first at where it can remove and reduce requirements, reports, and paperwork it has mandated in the past. To fix the defense acquisition system, one must first understand it, and no one does because of its complexity. Simplicity alone will not fix the problems of defense acquisition, but it may make it easier for us to identify problems in order to fix them. At the very least, simplicity will reduce the process costs involved in acquisition. Yet making these reductions will not be easy, since each was put in place by a Member of Congress who may believe they are worthwhile and necessary to improve acquisition outcomes.

Take, for example, the milestone approval process mandated by 10 U.S.C. 2366a and 2366b. The Congress established milestone certification requirements because it decided that insufficient attention was paid to these functional areas during program design and development. Yet, because of how a large bureaucracy operates,

*Mark V Arena, Irv Blickstein, Abby Doll, Jeffrey A. Drezner, Jennifer Kavanagh, Daniel F. McCaffrey, Megan McKernan, Charles P. Nemfakos, Jerry M. Sollinger, Daniel Tremblay, and Carolyn Wong. Management Perspectives Pertaining to Root Cause Analyses of Nunn-McCurdy Breaches: Program Manager Tenure, Oversight of Acquisition Category II Programs, and Framing Assumptions. RAND, 2013: 105.

the Milestone Decision Authority is not in a position to independently certify that the program manager has met each of these requirements; instead, he or she relies on the advice of staff experts responsible for each functional area. A review by each of these experts adds delay to the program, and some experts may recommend changes that are beneficial to their functional area but harm the program as a whole. Although the program manager may consider these changes unwise, he or she may nevertheless carry them out to secure milestone approval. The program manager's incentive is to see the program make progress, and the experts' incentives are to make sure their functional areas are addressed as they see fit.

The basic problem is that these experts have sway over a program's progress without being held accountable for it. While eliminating milestone decision reviews would fix these misaligned incentives, it would not necessarily improve outcomes. (If the earlier process was superior, why did Congress create the milestone review process in the first place?) So we should ask: what review process would align both sides' incentives?

One option might be to reverse the milestone process to force functional experts to seek milestone disapproval rather than forcing the program manager to seek milestone approval. In such a scenario, the functional expert would make his or her case to the Milestone Decision Authority whose incentive is for program progress and success. Ideally, this process would bring the program manager's, Milestone Decision Authority's, and functional expert's incentives into alignment, each with skin in the game.

Mr. WITTMAN. How should the LPTA acquisition strategy evolve to ensure that the DOD is achieving the best value over a program's complete lifecycle?

Mr. LAMBERT. A recent GAO report on the use of LPTA source selection concluded that DOD contracting officers were properly using LPTA, yet it also concluded that the use of LPTA as a source selection method had increased by 10 percent over the period of review. LPTA is a proper source selection method only when the requirements are firmly established with no likelihood of value distinctions between product offerings. It is not an appropriate source selection method when two offerings may present a substantially different value.

Yet LPTA is increasing in popularity as a source selection method. The reason is two-fold: first, because the defense budget is in decline and therefore cost receives more emphasis in source selection, and second, because cost is an objective method of source selection that is difficult to contest in the event of an award protest, while value almost always includes a subjective element that is more likely to receive scrutiny.

Given the GAO's conclusion that LPTA is being properly used, it may be challenging to alter DOD's approach to LPTA in the near term. In the longer term, reducing the cost pressure that DOD contracting officers face and making reasonable improvements to the protest process are likely to reduce the prevalence of LPTA as a source selection method.

Mr. WITTMAN. What can Congress do to simplify the defense acquisitions process while empowering program managers with more responsibility and authority?

Mr. O'ROURKE. Again drawing on my experience in tracking Navy acquisition programs, one option that the committee may wish to consider would be to examine, as a possible model to follow, the terms of Executive Order 12344 of February 1, 1982, which establishes the broad, cradle-to-grave authorities and responsibilities of the Naval Nuclear Propulsion Program (aka Naval Reactors), an office whose work over the years can be considered a major acquisition success story. This executive order, which is codified as a note at 50 U.S.C. 2511, contains a total of about 915 words.

Another option would be to deemphasize regulation that attempts to direct DOD acquisition toward better outcomes without fundamentally challenging the going-in conditions I outline my prepared statement, and put more emphasis on acquisition strategies that attempt to change these going-in conditions. One possibility for doing that would be to make greater use of overlap between programs across time. Under this approach, the existing system for filling a mission need (call it System A) would remain in production (with spiral development improvements as needed) until the new system that is being developed (System B) is fully ready to enter production. At that point, production would be cut over from System A to System B, and System B would remain in production until it appears that a still-newer design (System C) might be more cost effective in performing the mission. System B, however, would continue in production until System C is fully ready to enter production. And so on.

Under this approach, the system currently in development (System B) would face greater competition in its earlier years from the predecessor system (System A), as well as competitive pressures in its later years from a downstream successor (System C). At any one point, only one system is being developed, and only one is being

produced. But as System B is being developed, it needs to perform well to earn the right to enter production, and during the years it is being produced, it needs to perform well to dissuade DOD officials for as long as possible from initiating a System C effort. The point at which System B is to enter production, and the total number of System B units produced over time, are not set in stone, but rather determined by the success of the System B program.

Under this approach, there would be less emphasis on identifying precise future dates for starting and stopping production of platforms and systems, and less emphasis on planned total production quantities (which often prove illusory). There would be more emphasis on readiness for production, and more flexibility regarding production cutover dates. There would also be more emphasis on annual production rates and their relationship to supporting planned force structure over the long run, and on the ability of programs to achieve necessary annual production rates within budget constraints. The idea that a program can be helped by clearing the decks of all possible competition (i.e., shutting down production of the existing system so as to clear the path for the new program) would be deemphasized, and an alternative idea—that a program is best helped (i.e., kept strong) by keeping it in competition longer against competing solutions for meeting the mission need—would instead be employed.

Some of the Navy's quantitatively larger shipbuilding programs are in effect treated this way, which is why, in discussing these programs, there tends to be less focus on total planned production quantities and more focus on annual production rates.

This proposed approach might not make sense for certain defense acquisition efforts, depending on the circumstances of those efforts. And this approach is by no means perfect—it has its own drawbacks, and ways could likely be found to attempt to game such a system. Among many other things, there would continue to be, for example, a question as to who determines when a program is fully ready to enter production, and how that determination is made. But it is an option that might be considered for some defense acquisition efforts.

Mr. WITTMAN. How should the LPTA acquisition strategy evolve to ensure that the DOD is achieving the best value over a program's complete lifecycle?

Mr. O'ROURKE. Mechanisms for achieving best value over a program's complete lifecycle include, among other things, using competition where possible through much or all of that lifecycle (as opposed to using it only for awarding the initial production contract), aligning contract incentives with desired outcomes, and maintaining an adequately sized and trained acquisition workforce.

Mr. WITTMAN. What can Congress do to simplify the defense acquisitions process while empowering program managers with more responsibility and authority?

Admiral VENLET. This question contains two distinct issues that do not necessarily flow from one to the other.

First I believe program managers presently enjoy fully adequate responsibility and authority for their scope of duties and career experience level. I never found any process complexity that reduced real responsibility. There exist process requirements that get blamed for reducing authority, but such a complaint most often is a failure to recognize value added sound fundamentals, an attempt to avoid transparency or a detour from realism in planning, budgeting and resourcing.

I would point the attention of Congress to department organizational structures and repeated appearances of offices that do not add true value to the planning and execution of programs. The presence of assessment support to every acquisition executive level has grown such that their attempt to do assessment consumes too much time, energy, focus and money in the actual management of programs. Oversight is necessary and value added, I do not debate; however, there is an abundance of assessors that require answering on behalf of senior officials that in actuality becomes mostly opinion based and makes no difference to real outcomes—the external results of the program.

The Weapons Systems Acquisition Reform Act of 2009 got it right by accepting Defense Science Board and GAO recommendations for emphasis on systems engineering (Title 1 Section 101) and adequate developmental testing (Section 102). However, it reacted in the only way legislative force finds outlet by creating new additional assessing offices at the OSD level, when the practitioners of these fundamentals exist within well-developed technical systems commands. Directors of Systems Engineering and Developmental Test and Evaluation, specifically, cannot add assistance in their field to improve any program outcome. They become advocates for healthy infrastructure in their fields and admirably so, but their attempts to assess programs for the Defense Acquisition Official injects more non value added exercise of review, inquiry and reporting system than their advocacy benefit adds.

The excellent professionals in these offices are faced with searching how to bring their talents to bear for program benefit and they find all they have available is assessment, which further intrudes upon program execution focus.

The value added alternative to these two offices is asking Service Acquisition Officials to: 1. Ensure the technical systems commands that already report to them provide a proper talent supply to programs. (Defense Acquisition Workforce Fund, Section 852, is one small part. Institutional and Working Capital Fund resources that enable sustaining adequate technical specialties in support of programs are also necessary.) 2. Provide necessary resourcing and support of laboratory and range infrastructure. 3. Provide a competency-aligned support to programs with enabling technical conscience accountability to program executive officers and program managers.

Mr. WITTMAN. How should the LPTA acquisition strategy evolve to ensure that the DOD is achieving the best value over a program's complete lifecycle?

Admiral VENLET. A request for proposal that states technical and cost are approximately equal or only slightly differentiated is often found within a stated best value strategy solicitation. That evaluation weighting and criteria reduce what is intended as a best value solicitation to be in fact lowest price technically acceptable.

Approval authorities for releasing RFPs to industry must look for this mixed signal and eliminate it. It persists today in many solicitations and drives industry proposal behavior to reduce technical performance capability to win with lowest price.

This is a downward capability spiral that is not in the best interest of the government. This applies to solicitations for both services and hardware systems.

The government has to weigh and value capability and performance in some proportion over cost to enable industry to distinguish and differentiate their offerings. This is a fundamental to enabling evaluation of a proposal for true best value instead of simply lowest cost.

Mr. WITTMAN. What can Congress do to simplify the defense acquisitions process while empowering program managers with more responsibility and authority?

Ms. MCGRATH. [The information was not available at the time of printing.]

Mr. WITTMAN. How should the LPTA acquisition strategy evolve to ensure that the DOD is achieving the best value over a program's complete lifecycle?

Ms. MCGRATH. [The information was not available at the time of printing.]

Mr. WITTMAN. What can Congress do to simplify the defense acquisitions process while empowering program managers with more responsibility and authority?

Dr. LAMB. I favor a thorough review of statutory and regulatory requirements as they apply to major defense acquisition programs. The goal would be to eliminate all unnecessary, ambiguous, contradictory and unhelpful restrictions on program management that undermine efficiency and effectiveness. In addition, Congress would need to intervene in Service promotion practices to ensure that program managers are rewarded if they deliver a program on time and within budget with attributes that make the greatest contribution to overall military capability. For joint programs the Services cannot objectively make this kind of assessment and should not be allowed to do so.

Mr. WITTMAN. How should the LPTA acquisition strategy evolve to ensure that the DOD is achieving the best value over a program's complete lifecycle?

Dr. LAMB. I am not competent to provide a detailed answer to this question. However, I would like to share two quick observations.

After my oral testimony I was contacted by a businessman whose company produces analytic software that optimizes management of usage, maintenance and repair cycles for capital-intensive equipment. His claim was that better analysis of enterprise asset management could save millions and even billions of dollars over the life cycle of defense acquisition programs. He asserted that some of the same bureaucratic behaviors I mentioned in my testimony often prevent the use of such analytics. For example, existing organizational cultures sometimes incline those managing established programs to maintain large costly inventories of spare parts rather than use analytic processes to assess actual usage rates and deliver spare parts accordingly. In other words, there are few incentives for achieving savings through supply chain management and significant sanctions for taking risk in this area at the expense of mission readiness. I do not do research in this area and do not know whether the empirical record would support these assertions but I believe the topic merits investigation.

More generally, I agree with those who argue that the merits of a "lowest price technically acceptable" approach depend on circumstances such as the clarity of program requirements, technical risk, past contractor performance, and other vari-

ables.* My inclination would be to allow program managers the flexibility to structure contracts as they think best consistent with program objectives and then hold them accountable for outcomes.

QUESTIONS SUBMITTED BY MRS. WALORSKI

Mrs. WALORSKI. Many have made attempts to improve the way the DOD acquisition system functions over the years. What do you think are the “lessons learned” of previous acquisition reform efforts, particularly in terms of pitfalls to avoid or best practices to follow? What advice do you have for us in negotiating the obstacles to reform?

Mr. LAMBERT. The primary lesson that we have yet to learn is that acquisition cannot be “reformed” as we have conceived of reform in the past. The idea that there is a silver bullet we have not yet discovered, and that Congress can simply pass a bill and fix all the problems of defense acquisition has proved to be a fantasy. Instead, to achieve meaningful acquisition improvement, the Pentagon and Congress both need to commit to a slow and steady long-term process enabled by enlightened and patient oversight, modest legislative change, reduction in paperwork and process requirements, and sufficient funding.

To get the process started, Congress should look first at where it can remove and reduce requirements, reports, and paperwork it has mandated in the past. To fix the defense acquisition system, one must first understand it, and no one does because of its complexity. Simplicity alone will not fix the problems of defense acquisition, but it may make it easier for us to identify problems in order to fix them. At the very least, simplicity will reduce the process costs involved in acquisition. Yet making these reductions will not be easy, since each was put in place by a Member of Congress who may believe they are worthwhile and necessary to improve acquisition outcomes.

Mrs. WALORSKI. Many have made attempts to improve the way the DOD acquisition system functions over the years. What do you think are the “lessons learned” of previous acquisition reform efforts, particularly in terms of pitfalls to avoid or best practices to follow? What advice do you have for us in negotiating the obstacles to reform?

Mr. O’ROURKE. A summary of lessons learned for Navy shipbuilding, reflecting comments made repeatedly by various sources over the years, includes the following:

- Get the operational requirements for the program right up front. Manage risk by not trying to do too much in the program, and perhaps seek a 70%-to-80% solution. Achieve a realistic balance up front between requirements and estimated costs.
- Impose cost discipline up front. Use realistic price estimates, and consider not only development and procurement costs, but life-cycle operation and support (O&S) costs.
- Minimize design/construction concurrency by developing the design to a high level of completion before starting construction and by resisting changes in requirements (and consequent design changes) during construction.
- Use a contract type that is appropriate for the amount of risk involved, and structure its terms to align incentives with desired outcomes.
- Properly supervise construction work. Maintain an adequate number of properly trained Supervisor of Shipbuilding (SUPSHIP) personnel.
- Provide stability for industry, in part by using, where possible, MYP or block buy contracting.
- Maintain a capable government acquisition workforce that understands what it is buying, as well as the above points.

Identifying these lessons is not the hard part—most if not all these points have been cited for years. The hard part is living up to them without letting circumstances lead program-execution efforts away from these guidelines. An additional observation is that in recent years there have been, through legislation and internal DOD initiatives, numerous changes and adjustments to DOD’s acquisition system. These changes and adjustments have all been well-intentioned, and many of them no doubt have helped improve acquisition outcomes. But they have also had the effect of not leaving DOD’s acquisition system in any one configuration for very long.

The continuously evolving features of DOD’s acquisition system can complicate the task of identifying what works and what does not work in DOD acquisition, be-

* Robert Nichols, “Myth-Busting the LPTA Conundrum,” *The Government Contractor* (12/18/2013).

cause no one configuration of the system is tested for very long, an individual program can be implemented across several versions of DOD's acquisition system, and a service's collection of programs at any given moment can include programs initiated under various versions. This situation might suggest a need for careful consideration in determining the reasons for acquisition outcomes. As another observation, consider an acquisition program that has most or all of the following features:

- The item being acquired is considered a must-have item for the customer.
- The program for acquiring it is largely sheltered from international competition, and perhaps also sheltered, to some degree at least, from domestic competition.
- The program proposes to procure the end item in question at a relatively low annual production rate, reducing the potential room for making further reductions in that rate.
- The industrial base producing the item is considered critical and will not be allowed to go out of business.

If one were to describe such a program to an economist, the economist might reply that the program would be inherently vulnerable to problems in areas such as cost control, schedule adherence, and production quality, because these going-in conditions can send a message to industry that less-than-stellar performance in executing the program would not create much risk of losing the work or going out of business. Much of the regulation of DOD acquisition can be viewed as an attempt to direct DOD acquisition toward better outcomes without fundamentally changing going-in conditions such as these, which together might be thought of as forming the underlying political economy of some (perhaps many) DOD acquisition programs. Regulation that attempts to direct DOD acquisition toward better outcomes without fundamentally challenging going-in conditions such as these might be viewed as treating symptoms rather than underlying causes.

Mrs. WALORSKI. Many have made attempts to improve the way the DOD acquisition system functions over the years. What do you think are the "lessons learned" of previous acquisition reform efforts, particularly in terms of pitfalls to avoid or best practices to follow? What advice do you have for us in negotiating the obstacles to reform?

Admiral VENLET. I have written about this in an article submitted for a Senate print on acquisition reform this summer and in my submitted written statement for this committee.

Lessons learned reveal to me the insatiable hunger for something "new" to keep pursuing more program with less resources always leads to departures from sound fundamentals, departures from transparency and departures from realism in expectations, planning and resourcing.

My advice is to hold department programmers and acquisition leadership accountable for realism in requests for program starts. If you are left with gaps in national security needs, you should resist forcing more program into constrained budgets and look to enable a national economy that adequately supports the program needed.

Mrs. WALORSKI. Many have made attempts to improve the way the DOD acquisition system functions over the years. What do you think are the "lessons learned" of previous acquisition reform efforts, particularly in terms of pitfalls to avoid or best practices to follow? What advice do you have for us in negotiating the obstacles to reform?

Ms. MCGRATH. [The information was not available at the time of printing.]

Mrs. WALORSKI. Many have made attempts to improve the way the DOD acquisition system functions over the years. What do you think are the "lessons learned" of previous acquisition reform efforts, particularly in terms of pitfalls to avoid or best practices to follow? What advice do you have for us in negotiating the obstacles to reform?

Dr. LAMB. In the case of acquisition reform, my impression is that previous efforts have failed in two key respects. First, too many reforms have layered on additional reporting requirements or ambiguous restrictions that give the appearance of addressing a past disappointment without actually increasing the likelihood of preventing future ones. Second, past reform efforts define the problem too narrowly. In past decades it might have been more common to discover acquisition failures due to narrow technical lapses, such as poor manufacturing processes or inadequate testing. Career acquisition experts could speak to that issue with more authority. However, my impression is that in recent decades we have delivered high-quality products to our forces, but not quickly or at affordable cost. Gold-plating a system makes sense if the criteria for success are key performance parameters that promise a leap forward in capability. When the field of vision is broadened to evaluate the program in terms of its contribution to executing operational concepts upon future battlefields, the value of that particular program and its signature attributes comes more sharply into focus and it is easier to ascertain the best value for the defense

dollar. With respect to navigating obstacles to acquisition reform success, I would say the most important point to keep in mind is the critical need to investigate and define the problem extremely well. Many reformers conduct a superficial analysis of the problem they are addressing and define it in terms of their preferred solution (i.e. "the problem is the absence of my desired solution").

Another obstacle to success is crippling compromise. Many reformers would rather succeed than be right. They reason some reform is better than no reform and define their problem and solution within the bounds of the politically possible, even if doing so fatally compromises the efficacy of the proposed reform measures. It is better to postpone reform than impose requirements that do not actually solve the core problem. This sounds self-evident, but it is surprising how often we succumb to pressure to act even when there is little or no reason to believe doing so will solve the problem.

