[H.A.S.C. No. 111–54]

REFORM OF MAJOR WEAPONS SYSTEM ACQUISITION AND RELATED LEGISLATIVE PROPOSALS

HEARING

BEFORE THE

FULL COMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

HEARING HELD
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REFORM OF MAJOR WEAPONS SYSTEM ACQUISITION AND RELATED LEGISLATIVE PROPOSALS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Thursday, April 30, 2009.

The committee met, pursuant to call, at 10 a.m., in room 2118, Rayburn House Office Building, Hon. Ike Skelton (chairman of the committee) presiding.

OPENING STATEMENT OF HON. IKE SKELTON, A REPRESENTATIVE FROM MISSOURI, CHAIRMAN, COMMITTEE ON ARMED SERVICES

The CHAIRMAN. Good morning. We welcome to our hearing on Reform of Major Weapons System Acquisition and Related Proposals the distinguished panel before us. We have people of rare experience, technical expertise: Rudy deLeon, our Senior Vice President for National Security at the Center for American Progress, former Deputy Secretary of Defense, most importantly, former Staff Director of this committee, and we welcome him back; Dr. David Chu, an old friend, President, the Institute for Defense Analyses, former Under Secretary of Defense for Personnel and Readiness, and former Director of Program Analysis and Evaluation in another life, am I right? And he appears in a personal capacity; David Berteau, Director of Defense Industrial Initiatives Group at the Center for Strategic and International Studies, also former Department of Defense (DOD) official; Paul Francis, Managing Director for Acquisitions and Sourcing Management, and a 32-year employee of the GAO, Government Accountability Office, and we welcome you.

It is worth noting that at least three of our witnesses participated actively in the debates surrounding Goldwater-Nichols. It is a page out of yesteryear, but it is a very important page. And, Mr. Francis, you may have also participated in those debates. I am sure you will let us know if that is so. Since the recommendations of the Packard Commission led directly to the acquisition reforms in Goldwater-Nichols, it would be interesting if each of you at some point today would share your perspective on how to best apply the philosophy of the Packard Commission to today's problems.

The Committee on Armed Services has under consideration two serious proposals to reform the acquisition of major weapon systems; not the entire, but the major systems. H.R. 2101 was introduced this Monday by myself and John McHugh, along with Rob Andrews and Mike Conaway, who led our Panel on Defense Acquisition Reform. A number of other Members cosponsored it. H.R. 1830 was introduced March 31st as the companion measure to the

Levin-McCain bill in the Senate, sponsored by Ellen Tauscher and John Spratt, both of whom have also joined us as cosponsors of our bill, H.R. 2101. Both bills focus on the acquisition of major weapon systems, which represents about 20 percent of the annual defense spending and purchases.

Now, let there be no mistake. The committee, and especially the panel, are just as focused on the other 80 percent of the defense acquisition as on this, but this is a step in the right direction.

H.R. 2101 introduces three significant new concepts. Number one, we require the Secretary of Defense to designate an official as the Department's principal expert on performance assessment. This official will provide the Department and Congress with unbiased assessments on just how successful our acquisition programs are or are not.

Number two, we require certain programs to enter into a sort of intensive care for sick programs, programs that are not meeting the standards for system development or that have had critical Nunn-McCurdy breaches. They will get the additional scrutiny necessary.

Number three, we require the Department to set up a system to track the cost growth and schedule changes that happened prior to Milestone B. That is—Milestone B is the decision point where we begin development of a production system. It is before Milestone B that some 75 or so of the program's costs are actually determined.

Although there is a lot of commonality between the two bills, about 25 percent is the same—50 percent overlaps, and about 25 percent is in the House bill only. I am confident our committee and the Senate Armed Services Committee can find common ground in compromise legislation, as we have been in the past. And I look forward to the recommendations of our witnesses on how to improve these bills as they move through the legislative process.

This is a major milestone. You know, when we were working on what turned out to be Goldwater-Nichols, we really didn't feel the great impact; though we dreamed it and guessed it, we didn't really feel the impact that it was going to have. And it changed the entire culture of the American military. And this can be just as sweeping and just as important.

I want to give a special thanks to the panel, to Rob Andrews, Mike Conaway and all those that are on the panel that have helped come up with this legislation. But I must tell them, your work ain't done yet. This is the first step.

[The prepared statement of Mr. Skelton can be found in the Appendix on page 45.]

The CHAIRMAN. John McHugh.

STATEMENT OF HON. JOHN M. MCHUGH, A REPRESENTATIVE FROM NEW YORK, RANKING MEMBER, COMMITTEE ON ARMED SERVICES

Mr. MCHUGH. Thank you very much, Mr. Chairman. Let me start by echoing your words of appreciation to our two colleagues, Rob Andrews and Mike Conaway, who have done a stellar job in leading their able Members in frankly what I think is something we all should take a great deal of pride in. We are deeply in their debt. But as you noted, Mr. Chairman, we have a ways to go.

And particularly with the final touches on this piece of legislation, I want to add my words of welcome as well to our distinguished panelists. I noted to our former two Secretaries, deLeon and Chu, this is kind of like a Personnel Subcommittee reunion, only because we are on a different topic, they let us come into the big house here. We are usually in 2212. But it is good to see them back as well, and always appreciate their input, and we look forward to today's discussion.

Last Friday, Mr. Chairman, I was pleased to join with you and Mr. Conaway and Mr. Andrews in helping to announce this legislation. And as you noted, too, this very important bill officially adds our committee voice to the conversation about reforming the Pentagon's system for acquiring weapons. And it is true, it has taken us a bit longer than our Senate colleagues in drafting the measure, but I think we can all agree we wanted to ensure that we had the benefit of feedback from industry, the Department and members of the Defense Acquisition Reform Panel.

And I would certainly argue the resulting bill addresses the most substantive concerns we have heard in that regard. But there is always room for enhancement, and that is why, of course, we have asked our panelists to join us today and help us to perfect what I believe very strongly is already a very good piece of legislation. And as drafted, the bill properly reforms and increases focus on the early stages of the system requiring the evaluation of alternative solutions at more critical points and independent oversight earlier in the process.

Focus on early stage acquisition is vital, as has been stated. And we know from experience the sins which cause cost overruns are very often created in the initial stages of the acquisition process.

Mr. Chairman, this bill, as you know very well, makes both organizational and policy changes. And rather than cite them by rote, I would simply refer to my written statement that, with your permission and unanimous consent, I will have entered into the record in its entirety——

[The information referred to was not available at the time of printing.]

The CHAIRMAN. Without objection.

Mr. MCHUGH [continuing]. And simply say beyond that we make use of the existing Panel on Contracting Integrity, which was established a few years ago by this very committee, urging it to make recommendations to minimize organizational conflicts of interest, especially for contractors who provide acquisition support to the Department, and who also may compete for future technical work.

And as well, the legislation directs the Comptroller General to review the mechanisms DOD uses for considering tradeoffs between cost, schedule and performance, and thereafter make recommendations for improvement in that area.

Despite the list of reforms, and there are several, our bill is really relatively narrow in scope. Acquisition workforce issues and acquisition of services have been addressed in prior years' bills and will continue to be considered by our colleagues on the Acquisition Reform Panel, which will carry on with its work, as the Chairman noted, and fulfill its mandate to consider initiatives that might well

be addressed by the committee as part of the 2011 National Defense Authorization Act.

The only area related to the workforce is the provision which would authorize the award of cash prizes to DOD personnel for excellence in acquisition. I know there are many, including the outgoing Under Secretary of Defense for Acquisition, Technology and Logistics, who have suggested that additional legislation in this area is not warranted. John Young recently told reporters, and I will quote, I just do not think you can mandate a process that will ensure successful defense acquisition. The bottom line, he went on, is people run programs, not documents or processes, end quote. The Secretary also noted and compared acquisition reform to mandating there will be no more crime. I have to say I find that particular analogy somewhat alarming, but I agree with him.

In the end, implementation of sound acquisition policies and maintaining a skilled workforce is probably more important than passing new reforms. Nevertheless, we continue to see poor outcomes that might well have been avoided had there been a stronger independent voice earlier in the program and the warfighters had a clearer role in establishing the requirements up front. And that is in large measure what this legislation attempts to do. And indeed, both the Senate bill, S. 454, and our House bill seek to meet these objectives.

And I encourage both Members here today and our witnesses to be really open with their questions and concerns. This is a time to make sure we get this important legislation right. And we look forward to working, as we have in the past, with industry, the Department and our Senate colleagues to enact meaningful reform within the Department of Defense.

And with that, Mr. Chairman, I would yield back the balance of my time.

Mr. TAYLOR. [Presiding.] The Chair thanks the gentleman from New York.

And the Chair now recognizes the former Chief of Staff of the House Armed Services Committee, former Secretary of Defense for Acquisition, Rudy deLeon.

STATEMENT OF RUDY DELEON, SENIOR VICE PRESIDENT OF NATIONAL SECURITY AND INTERNATIONAL POLICY, CENTER FOR AMERICAN PROGRESS, FORMER DEPUTY SECRETARY OF DEFENSE

Mr. DELEON. Thank you, Mr. Chairman and members of the committee, for this chance to testify and comment this morning on the Skelton-McHugh bill and to be part of this dialogue.

Congressman Skelton did mention Goldwater-Nichols that was passed almost 26 years ago. It did create a revolution in the military culture. Making the United States military preeminent in terms of operational planning command and control. It was a huge change largely to correct at the time the problems in the planning for Desert One rescue of the hostages in Iran in 1980, and then the peacekeeping deployment in 1983 to Lebanon.

Goldwater-Nichols created a revolution, and I think since then on so many fronts, intelligence, homeland security, now in terms of trying to get the State Department and the U.S. Agency for Inter-

national Development to become more operational. One of the ingredients of Goldwater-Nichols was the vigorous participation of both the House and Senate Armed Services Committees in the lead-up, the debate, working with the then Reagan White House, and then in the oversight of implementation. It was a very rigorous process. And so I think the Chairman and the Ranking Member have started that process on acquisition, as have their counterparts in the Senate Armed Services Committee.

No need for me to replicate what is in the written statement, and if I can just have it be part of the record. Thank you.

One of the things I think our panel will have consensus on is that we do need to focus on regenerating the expertise in the career civilian federal workforce in both contracting and in engineering. It is a core competency that the government needs to have. It is not a significantly large number of people. It is more the cadre of key people that are fully versed first on the contracting side. We saw that in Iraq where operation and maintenance contracting is so critical. We did not have the depth of people that could deploy with our military forces to go and do the logistics support and the contracting. In many cases we pressed some of our talented people in the Corps of Engineers, who had really spent their careers on the federal waterway side, to deploy to Baghdad. But they had gone from managing tens of millions of dollars of contracts per year to several billion dollars' worth of contracts per month in the military environment.

So one, we have got to put tremendous emphasis on the career personnel that are masters of standing up for the public interest on the contracting side. That is one. Two, we need to invigorate the engineering side of the federal workforce as well in the contracting process, because engineering is what has made U.S. equipment for our military forces so capable. The engineering is analytical, and it produces solutions. And so we have moved away—as our federal workforce has gotten smaller—we have lost some of the core competencies. The illustration I use is the heroic effort surrounding Apollo 13, where the folks in the back room who created a return mission plan for the astronauts, those were all government workers in their thirties and early forties who did that work, they were all engineers, they were all leading edge. We are not saying replicate that capability today, but we need a cadre of capable engineers, particularly on the information technology (IT) side, who can really advise the government, write requirements, and then make sure those requirements are filled.

In terms of the measures of your bill that is before us today, the performance assessment is very important, looking at cost and schedule. It will also be important to factor in some of the unintended things that increase cost and schedule. One is when the government side changes requirements and keeps adding to requirements. The poster for that program right now is the Presidential Helicopter, but we could go through a variety of programs where, after the program is initiated, someone on the government side has said it needs to have more capability, so then everything has to be rebaselined. Capable engineering on the government side can help minimize that and force the tradeoffs.

Equally, the budget process, when dollars get tight, programs will shift to the right in terms of doing the kinds of independent cost assessment that the program analysis and evaluation sector of the Office of the Secretary of Defense (OSD) does. With programs shifting to the right, you are adding costs, you are adding years to the program. So it is important that we be able to factor all of these things, because they are all critical to the process.

Finally, just in terms of one Goldwater-Nichols issue to have revisited here, and I think your bill references the need to bring in the component commanders into the system on requirements. Goldwater-Nichols created something called the Joint Requirements Oversight Committee, JROC, and it was to be comprised of the vice chiefs of each of the services. And so the service chiefs, the Joint Chiefs, are responsible for organizing, training, and equipping, but they really don't have a legal role in the requirements process.

So I think you have noted in your bill the need to get the military advice on the requirements process. I think that at some point we will want to further discuss the role of the chiefs, because I think the chiefs feel that this is a legal requirement that they don't currently have, but something that is operationally important to them. So the role of the chiefs in the requirement process, I think, is an important issue. I think your bill mentions that, and you make a first start.

And with that, I will certainly put my time back, but I certainly welcome this chance to be back to the committee.

Mr. TAYLOR. The Chair thanks the former Secretary.

[The prepared statement of Mr. deLeon can be found in the Appendix on page 48.]

Mr. TAYLOR. The Chair now recognizes Dr. David Chu, former Under Secretary of Defense for Personnel and Readiness, for five minutes, sir.

STATEMENT OF DR. DAVID CHU, FORMER UNDER SECRETARY OF DEFENSE FOR PERSONNEL AND READINESS, FORMER DIRECTOR, PROGRAM ANALYSIS AND EVALUATION

Dr. CHU. Mr. Chairman, Congressman McHugh, it is a great privilege to appear again before this committee this morning. I do have a written statement that I hope may be accepted for the record.

Mr. TAYLOR. Without objection.

Dr. CHU. Thank you, sir.

I am testifying today based on my prior defense experience, not in any way affiliated with my current employer. This does not necessarily represent its perspective on these same issues.

I had the privilege of starting in the Department of Defense in 1981, at a time when the then-Deputy Secretary Frank Carlucci focused in his set of management initiatives on improving the estimation of costs for major weapon systems. And he took as his instrument a notion advanced originally by David Packard when he was deputy secretary some years before that independent cost estimates ought to be seriously considered during the formulation of the Department's plans; independent because the proponents of a system obviously have an interest in the cost outcome that may af-

fect their judgment regarding the realism of the numbers that are brought forward.

Carlucci's decision, in my estimation, signaled that the role of independent cost estimates would be more than just playing an advisory function in the acquisition process itself, that it would be central to how he as Deputy Secretary of Defense managed the programs of the Department, made so-called programming decisions, and how he as Deputy Secretary would formulate his budget recommendations to the Secretary and on to the President and their embodiment in the President's budget request.

That management emphasis in that period was focused in annually the review of two significant overlapping issues that I think are important in the objectives the committee has set forward to achieve with the proposed legislation: First, that systems should be budgeted to their most likely cost; and second, that systems ought to be procured at efficient production rates. And in each year during the 1980s, Under Secretary Carlucci, then Secretary Thayer and Secretary William Howard Taft, IV, those two issues were an important management review at the conclusion of the programming phase of the planning-programming-budgeting system. I think it is very, very important in ensuring that the costs that came forward were closer to the likely level that the Department was going to confront when actual execution took place.

Everyone agrees in the wisdom of having independent cost estimates. The challenge always, of course, is how you are going to pay for the additional resources that they might entail, the offsets, so to speak. The Department does budget planning, as you appreciate, just as the Congress does here, operates within a fixed top line. So if program A needs to enjoy more resources to ensure it can be executed correctly, programs B, C, D, E or F are necessarily going to suffer or perhaps face elimination from the Department's proposals. And that is, in my judgment, where the tension arises when difficulty starts to move the Department away from what might otherwise be best practices.

In that environment, what can be done? First, I should note I agree with Congressman McHugh's point that in the end there is really no substitute for good people, good discipline and good sense in managing the processes of the Department. I do think Congress has been careful over the years to leave the actual organization of the Secretary's office to his or eventually her discretion, and I do think that principle is embodied in the House bill.

I believe five things might be considered: First, to resurrect what was required in the 1980s, and that is a report to the Congress on the utilization of independent cost estimates, how the issues they raised are indeed confronted in the budget request that I believe is part of the House bill as it is drafted.

Second, I think attention needs to be paid to the staffing of the cost estimation function within the Department. It is a subset of what Secretary deLeon raised in his comments, staffing both at the service level and at the level of the Office of the Secretary of Defense (OSD).

Third, I would urge—and this is, I think, in contrast to the Senate bill—I would urge that the cost function be kept as part of the larger analytic enterprise, the Department not separate it out.

Unity of effort in this domain improves the quality of the efforts and ensures that there is the both cross-fertilization and professional challenge that the estimators ought to face.

If you look at how two large advisory organizations on budgetary matters are organized in our government, the Congressional Budget Office and the Office of Management and Budget, they both embody the cost—they both embrace the cost-estimating function as part of their responsibilities, and I would keep it that way, in my judgment, within the Department of Defense.

Fourth, some years ago, the Committee on National Statistics, a branch of the National Academy of Sciences, has recommended to the Department that it create in essence a federated database of the performance data of all systems from birth to death, from the early developmental testing days through operational tests through actual fielding. I do think that would be an important adjunct to the performance emphasis that the House bill advances.

And finally, most important, this comes back to Secretary Carlucci's decision in 1981, to the spirit, I think, of the House bill. I think it is critical to send a signal that these independent cost estimates are important, and that they will be paid attention to in deliberations of the Department and of the Congress.

I thank you, Mr. Chairman.

Mr. TAYLOR. The Chair thanks the gentleman.

[The prepared statement of Dr. Chu can be found in the Appendix on page 52.]

Mr. TAYLOR. The Chair now recognizes Mr. David Berteau, Director of the Defense Industrial Initiatives Group, Center for Strategic and International Studies (CSIS), for five minutes, sir.

STATEMENT OF DAVID BERTEAU, DIRECTOR, DEFENSE INDUSTRIAL INITIATIVES GROUP, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

Mr. BERTEAU. Thank you, Mr. Chairman. It is quite a privilege to appear before you this morning. The last time I was before this committee, the subject was base closures, and I assure you this is a much happier topic to be here today.

I do have a written statement with considerable background on a number of both general and specific comments, and I would love for it to be inserted in the record.

Mr. TAYLOR. Without objection.

Mr. BERTEAU. I will make a few points orally and then yield back the rest of my time.

I should point out that although my day job is at the Center for Strategic and International Studies, and I do draw in my statement on a number of our research and reports, my comments here this morning don't necessarily reflect the views of either my boss or my employment, or any other organization with which I might be affiliated. The lawyers make me say that so that it protects somebody, probably not me.

I think it is important to note that there are four very powerful dynamics that are at work today as you undertake your efforts to reform defense weapons acquisition, and I would like to note those as a starting point here. One is that the political climate that we operate under with regard to defense contracting is about as poi-

sonous as I have seen in 30 years here, and it is actually difficult to have a rational discussion because of that poisonous political environment. It wasn't even this bad in the mid-1980s when we had the Mel Paisley jailing and the spare parts horror stories, et cetera. So I think it takes a certain amount of courage and balance, and I applaud this committee for tackling that.

The second, though, really offsets that, because defense today has an unprecedented level of dependence on contractors, and I think that we all recognize that. We all recognize that we are not going to dramatically change that. The amount of money and time it will take is long and much. But I think it is also important to note that dependence is largely underrecognized, especially by the combat arms parts of the military. And so there is an amount of education that has to go on as well.

The third, and the Chairman—both the Chairman and Mr. McHugh noted this in their introductory comments, there is a substantial agreement that it is time to do something about all of this, and that is a very powerful element or dynamic that comes into play, because I think it gives us the opportunity, even despite the poisonous political environment, to tackle these.

And the fourth is a complicating factor of the money is not going to be quite as abundant over the next five years as it has been in the past five years, which will make it a little bit more difficult.

And I think you all are at the center of all four of those dynamics, and it is useful for you to keep them in mind as you go along.

In my statement I go into a number of the things that we see as key elements for reform. You do address a number of them in your bill.

I also spent some time on trying to answer the question of why is it that acquisition reform has not worked as well as it would like to. I have been privileged over the last 30 years to have been involved in a great number of these efforts, all the way back to the Carlucci Initiatives where Dr. Chu and I shared a number of hours together, and down through the Packard Commission, et cetera. And it leads me to ask the question that I think is useful for this committee to ask: If these are such good ideas, because the same ideas keep getting repeated over and over again in every study, why is it so hard to do them? And I attempt to come up with some of the pitfalls that I think have befallen previous efforts, and they are in my statement, and I look forward to continuing to work with the committee and the staff as you move forward here.

Finally, Mr. Chairman, I think it is useful to note that I don't think there is any ability to do acquisition reform without a change in the way we do requirements. There is a tendency today for requirements to become locked in almost as a sacred text, and the only changes that can be made is to add to them and to make them more demanding and more difficult.

I think that Secretary Gates has laid out a path which is actually quite constructive. It is one that says maybe we ought to look at the 75 percent solution; we can get it quicker, we can get it cheaper, it might be good enough.

And I would commend you to that, and also to the President's statement in his March 4th memorandum on government contracting where he basically says we need to do a better job of doing

contracting, have more competition, create more fixed-price contracts in order to control cost. Now, there is a lot of pitfalls in that process, but at its core it can only be done if we do a better job of defining requirements and then using those requirements as an element of the tradeoffs that have to be made with cost and schedule not only inside the Department, but actually in contract negotiations, so that you can achieve a performable program at the kind of schedule and money that you have in the budget. And I think that you make some steps in that direction in the bill.

I have a number of comments on other provisions.

The final point I would leave you with, Mr. Chairman, really goes back to the Goldwater-Nichols and the Packard Commission. And I did have the privilege of serving on the Packard Commission staff and working particularly with my colleague Mr. deLeon to the right in his role with this committee at that time. One of the things that the Goldwater-Nichols bill is widely recognized now to have not paid much attention to is actually the role of the Office of the Secretary of Defense in the Pentagon. It dramatically strengthened the joint staff, it dramatically changed the relationship of the military departments, but it didn't really address OSD.

Some of what your bill does is tackle that question. I urge you to keep that in mind. I think the most fundamental principle that David Packard had in mind was that it is important to let the Secretary of Defense manage and organize the Department as he needs to in order to achieve his objectives, and I think that is a principle that requires a strong OSD. And I think that you should be well to keep that in mind as well as you move towards final passage of your bill.

With that, Mr. Chairman, I will conclude my remarks, and I look forward to your questions. Thank you.

Mr. TAYLOR. The Chair thanks the gentleman.

[The prepared statement of Mr. Berteau can be found in the Appendix on page 55.]

Mr. TAYLOR. And we now recognize Mr. Paul Francis, Managing Director for Acquisitions and Sourcing Management, United States Government Accountability Office, for 5 minutes, sir.

STATEMENT OF PAUL FRANCIS, MANAGING DIRECTOR FOR ACQUISITIONS AND SOURCING MANAGEMENT, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. FRANCIS. Thank you, Mr. Chairman, Mr. McHugh and members of the committee. I appreciate your inviting me here to participate in the discussion of acquisition reform today.

Let me start off just by saying that the need for reform is not debatable. I think by any measure the cost growth and schedule delays that we see in weapon systems are excessive. These have a number of consequences, but I think of two right off the top of my head, and one is buying power. The money we set aside for individual programs in some cases buys less than half of what we thought that it was going to buy. And then the other thing I think about is opportunity cost. What could that money have done if we were able to use it elsewhere, either on other programs, somewhere else in the Department, or even somewhere else in the federal budget?

We have tried adding more money. I think in the past ten years, the amount that we put in the investment accounts, research and development and procurement, has doubled, yet the outcomes have not gotten better, so I don't think more money is necessarily the answer.

So you ask yourself the question what does need to change? And one of the consistent findings that GAO has had over the past ten years is DOD needs to have a knowledge-based acquisition process. And while there has been some improvement in that area, the portfolio of weapons today largely are not knowledge-based, and I think a main reason for that is the requirements process, the funding process and the acquisition process do not foster a knowledge-based approach to acquisition. In fact, in some cases they work against it.

For example, the requirements process today still is service-centric, still has a preference for high-performance and, I think in Secretary Gates' terminology, exquisite requirements. And the funding process, I think, still creates an unhealthy environment for competition. Programs have to compete for funds, and there is pressure on program sponsors to keep program estimates artificially low. When you finally do get into the acquisition process now, you start off, and it is overpressured. The requirements are very high, the cost estimates are very low, and the process at Milestone B typically begins before the programs know enough to really get a sound basis for cost schedule and performance. Once they get started, they become schedule-oriented, and they will go through their engineering gates, if you will, like design reviews also with insufficient information.

The consequences of these problems, the cost growth and schedule delays, are assuaged through cost-plus contracts, reductions in quantities, delays and do-overs. So cumulatively, when you look at all three processes, they are not very good at saying no when no should be said. They are very good at saying yes. And that is why it took, I think, the extraordinary efforts of Secretary Gates to come in and say no at a time when it was really hard to do so. So these processes have to do a better job of that.

So then I would like to think about the reform measures that are proposed in that context. And I think simply about the model of let's do the right thing the right way, and the "thing" in this case being an acquisition. So along those lines I think about reform in three areas. One is how do we get to a good program start? And I am thinking there about the pre-acquisition processes, particularly requirements in funding. And I really think that the proposals to strengthen cost estimating and systems engineering will go a long way to identifying the tradeoffs that need to be made in the requirements and funding processes, and help then to make them, because that is where they need to be made. When a requirement comes out of the requirement process it needs to be technically reasonable and financially reasonable, and they aren't today.

The second area of reform I like to think about is what does it mean to have a good start on a program? And there I think about some of the metrics that are in title II. The reforms that have to deal with strengthening technology maturity, the design review

process, test and evaluation and competitive prototyping, I think those need to be turned into metrics. This is the lens. Particularly for oversight you need to look at a program, at milestone B, to see if, in fact, it does measure up.

And I think the third area of reform, at least in my mind, is following through on execution. And I am thinking there of the performance assessment function. And to me that means providing the enablers, the resources to execute properly, and that is people, authority, and incentives and awards. It is also metrics to see when programs get out of line. And it is also then the consequences, establishing consequences for programs that do get out of line. And I think those three really are important to follow through on execution.

And I will just wrap up with one thought. And I like the point that Dave Berteau made, that rhetorical question about why haven't these things worked. In my mind, there can be a tendency, particularly for a person like me, to look at these processes as broken, and we are going to go in and fix them. But because they have generated the same types of outcomes for decades, I think we have to look at these processes as being in equilibrium. They generate these results over and over again, and to try to get something that is in equilibrium to behave differently, I think there is a greater challenge for reform than going in and fixing something.

And the last point I will make is the people. I think the people in the program offices and in the staff offices in the Pentagon really, in my experience, are fabulous. And so from a reform standpoint you have to say, why aren't good people getting better outcomes? And I think that is part of our challenge as well.

Thank you, Mr. Chairman, and I would be glad to answer any questions.

The CHAIRMAN. [Presiding.] I thank you very, very much.

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

The CHAIRMAN. Let me ask one question, if I may. And, Mr. deLeon, we will start with you. The House bill that we have introduced focuses the majority of it on, number one, on the early stages of program's development when the major decisions that will shape the program are made; and second, on programs that have demonstrated problems by violating Nunn-McCurdy or are not meeting entrance criteria for milestone B.

Are we correct in focusing on the early program stages and on the so-called sick programs that violate Nunn-McCurdy or are otherwise in trouble?

Mr. DELEON. I think what your assumptions are at the beginning of a program live with that program throughout its life. So if you have a particular rate of aircraft or ships, how you baseline the program lives with it from a requirement point of view, from a calendar point of view and then from a cost point of view. So you have got to really begin with programs in their very earliest stages, understand what the requirement is, why you need to buy it, and then lay that out and look at how you are going to execute.

And where the independent cost analysis becomes important is that in the internals of both the—and remember, you have got an acquisition process and a budget process that intersect at critical

times, and that at other times are completely separate from each other. So you can live in a world of logical assumptions on rate and numbers in the acquisition decision, but then the budget is going to be compressed by operation and maintenance (O&M) requirements, by other areas. So the baseline becomes very important.

Now, when those programs start to breach Nunn-McCurdy, it will be important why are they breaching. Were the original baseline numbers incorrect, overly optimistic? Have there been requirement changes? Are budgets being stretched? But once a program goes against those baseline breaches, it needs a lot of critical attention, otherwise, as our GAO witness just said, the culture will just absorb those changes.

So, I think appropriately, that front end—is the requirement right, are the assumptions on cost and schedule legitimate assumptions to make that are likely to drive the whole program—that is the critical phase, and that is where the independent cost estimating comes in.

There are many budget battles where the Secretary and the Deputy and the Chairman and the Vice Chairman have to adjudicate are we going to use service numbers. Or, as Dr. Chu and I know, there was an exceptional cost analyst in the program evaluation system for years. I am going to—his name was Dave McNicol. He was the embodiment of what a public servant would be. And we would be in these budget sessions, and Dr. Chu at one point in his career, myself at another, he would be pressing the services on some of the assumptions in their programs, and sometimes it would be ten against three. It is not a good ratio in those meetings.

But the thing about Mr. McNicol as a public servant was he was always well prepared. His numbers were always rooted in fact. And these were among the most important deliberations: Are we going to put the optimistic estimates into the budget, or are we going to put the independent Cost Analysis Improvement Group (CAIG) assessments into the budget? And these could delay program decisions by months in some cases.

But the Secretary and the Deputy, traditionally the Program Analysis and Evaluation (PA&E) was their budgeting function. So your independent analysis becomes critical; and then the culture of the Secretary, the Defense Resources Board, the Chairman and the Vice Chairman, who use these same resources, knowing why these independent numbers are different, but at the end of the day, those independent numbers, the history shows, are usually more correct than some of the early service assumptions, and that is a critical milestone.

The CHAIRMAN. Do you think we adequately address that in our House bill?

Mr. DELEON. I think if you are able to attract the capable people who will become dedicated public servants like Mr. McNicol, then you have addressed that correctly, yes.

The CHAIRMAN. Dr. Chu.

Dr. CHU. Mr. Chairman, I think you are right to emphasize what you call sick programs. I might more neutrally term them outliers. When you look at the cost history, which is what I focused on this morning, cost history programs, there tends to be a reasonably good-sized group that performs well, but then there are a number

that perform extremely badly. And so I think the emphasis that you give to what I would call the outliers as the focus of management attention is the right one. Why did they go wrong? What is wrong? Did we ignore the independent cost estimate, et cetera.

Second, regarding the issue of emphasis early stage, I could not agree more. In that regard I would like to underscore the emphasis that both Mr. Berteau and Mr. Francis gave to the setting of the so-called requirements statement. Indeed, I plead that we move away from that term in our vocabulary. The problem with saying something is a, quote, "requirement" means there is no compromise possible when it turns out that technology or cost or schedule make it very difficult to get to that objective. Indeed, I do believe the Department continues to suffer from what in the Cold War might have been a defensible outlook, but in present circumstance is much less justifiable, as Secretary Gates has underscored in his comments aiming very high on the technology performance front, so high that it is very difficult to see when you start the program from the engineering or scientific perspective how are we really going to get there. And I think you pay a price both in cost and schedule and ultimately in performance, because it turns out that is not achievable.

And so I think a more nuanced view and a more energetic willingness to think about tradeoffs in performance to meet the broader capability goals would go a long way. And I would urge as part of the vocabulary change that the system think about backing away from the word "requirements" except in those cases where it really is a requirement; that the system must operate with some other system in a software sense, for example, or that the cargo must fit inside the box of the airplane. Yes, those are requirements. But beyond that, many of these statements are really technological objectives, not perhaps requirements. And if we chase them, we pay, as you all know, often a very large price in terms of what is required to get the last five or ten percent of performance. Maybe that is not worth getting. And we often pay a huge schedule price in their achievement.

The CHAIRMAN. Mr. Berteau.

Mr. BERTEAU. Mr. Chairman, your focus at the front end is critical, and I just really have one comment to reinforce that. Before DOD has spent 10 percent of the money on a program, more than 70 percent of the total cost of that program has been determined, and so that is why you need to pay attention at the front end.

The CHAIRMAN. Mr. Francis.

Mr. FRANCIS. Mr. Chairman, I am in total agreement with focusing on the front end and the requirements process. I would add a couple of things. One is we have to make sure from a resource standpoint if we want better analysis done up front, then we have to make sure we have the organizations, the people and the analytical tools in the Department to do a better job.

And then the second thing is what you do with money decisions is really going to reinforce what you do in reform. So if you set out really good standards for programs to meet, then the programs that meet those standards are the ones that should win money. And those that don't measure up will have to lose in the money competi-

tion. And I think that will be really important to making your reform stick.

The CHAIRMAN. Thank you so much.

Mr. McHugh.

Mr. MCHUGH. Thank you very much, Mr. Chairman.

I am going to go back to a point that was just explored by Dr. Chu, and also Mr. Berteau made comments to it in his opening remarks. And when I spoke at the beginning, I talked about the ability to trade cost schedule and warfighting utility. And, Dr. Chu, I apologize, I agree with your comments about requirements, but until we get a new word for it, I am going use the word.

Requirements, as we have all recognized, based on the Chairman's previous question, are established pretty much in the front end of the acquisition process, but those key performance parameters are articulated in terms of desired performance, minimally accepted performance. And I don't see any prioritization amongst requirements or, probably equally important, any kind of dollar schedule or scheduled goals to those requirements. And you can have five key performance parameters, but it is certainly in most instances unclear which is most important and which could be eliminated if unaffordable or if something is needed sooner.

From a warfighter's perspective, there is an opportunity cost to systems, weapon systems, cost growth, because as I believe as Mr. Berteau mentioned, as that evolves, it makes other programs to become unaffordable.

So I wanted to run it through the grist mill again and give the other panelists a chance. How can we make the acquisition process more responsive to the warfighter needs in terms of identifying those capabilities; when they are needed, and at what price, and how to buy it off at 75 percent? Do you have any thoughts as to how we could formalize that into an actual structure, anybody?

Mr. DELEON. I think, Mr. McHugh, we are back to budget tradeoffs as well as programmatic tradeoffs. But I would acknowledge it took the drive from Congress to get the mine resistant ambush protected vehicle (MRAP) program going, and that was hugely a game changer once those new vehicles were integrated. So being as your bill says—talks about, bringing in the inputs from the operational side, I think, becomes more and more important in understanding what you are willing to trade off.

Now, the problem is that in our current acquisition, you are making decisions on systems that you won't see in the field for eight to ten years. And so the urgency of a tradeoff is really lost as contrasted to expeditiously needing to get a ground vehicle into Iraq that was survivable for our troops where you created some carveouts. So the timing issue here, and we are back to Mr. Skelton's question, dealing frankly with what it is you are buying up front and what the assumptions are, the military utility, that becomes very critical.

Mr. MCHUGH. Is there a way—let me just add a component to it. Beyond the formality of changing that system in the regard you just mentioned, Mr. Secretary, is just emphasizing the importance of reviewing that and making those decisions repeatedly along a time frame—can that actually change the culture to get us to make those sometimes hard decisions?

The Presidential Helicopter obviously is the primary example of nobody doing anything of the sort. It just kept being added on, added on, added on. And then ultimately, frankly, the manufacturer gets blamed and the contractor. I am not so sure that was a fair assessment to blame across the board there.

Dr. Chu.

Dr. CHU. Congressman McHugh, I think the door that you open the House bill to invite the combatant commanders to have more of a voice in this process is helpful, because in my experience, that is always the voice of reality. They are the here and now. They have actual war plans they must be prepared to execute and getting their advice.

I do think you are right that insisting that there be periodic reviews of whether the, forgive us all, requirements as stated are still valid is helpful. I do think there are two different kinds of requirements problems. One is what you signaled happened in the Cold War with missile programs often where people will keep adding new features they thought were needed. And so deployment was delayed, costs rose, sometimes appropriately, I would argue, as those requirements are added.

A different problem is they are set unrealistically high, and there is no give, there is no debate, there is no mechanism for backing off. And I do think in both problems more attention to the effects we want to have with the system or the outcome we want to achieve and less on the engineering parameters per se would be meritorious.

Going back to the basic cost operational effectiveness analysis or analysis alternatives and ask, okay, what we were trying to do here was X, and let's look at how well this system is doing, and do we really have to have this last margin; do we get close enough with what is being achieved as opposed to what might require additional resources to realize.

Mr. BERTEAU. Mr. McHugh, I think I could add three things to that. Number one, I agree with Dr. Chu about the word "requirements." It has probably 20 different meanings. But I also agree we won't expunge it from our vocabulary. I prefer to use the phrase "real requirements," which has no, as yet, joint staff-approved definition, and therefore we can define it to mean those things that really matter here. And I will illustrate.

The Air Force tanker, which, of course, is a subject that many in this room have spent a lot of time looking at, there are, I believe, some 35 unnegotiable requirements built into the tanker solicitation and 800 negotiable requirements. I would respectfully submit, sir, that when you have 800 of anything, it cannot be a requirement. That is just too much to trade off.

I think there are three things that you can do. One of them, you do make a step in that direction by consulting with the combatant commanders as part of this process, and I think you could strengthen that role.

The second is I really do believe there needs to be a strong role for the Office of the Secretary of Defense there. The original proposal by the Packard Commission co-chaired the Joint Requirements—what was then the Joint Requirements Management Board, later the Joint Requirements Oversight Council. That was

to be co-chaired by the Vice Chairman of the Joint Chiefs of Staff and the Under Secretary of Defense for Acquisition. The joint staff has carefully maneuvered over time to make sure that participation by OSD is at their discretion, not at the Secretary's, and I think that is something that could be looked at.

The third is actually to make cost a requirement, because ultimately if we can't pay for it, it doesn't matter what else is in the list there. And I think that is an important element to bring into consideration.

Thank you.

Mr. FRANCIS. Mr. McHugh, I would add the requirements process I really think needs a lot more analytical rigor. And we have to have, I think, particularly with the joint staff, more ability to challenge requirements. I think Mr. Taylor will remember quite vividly how a couple of years ago the Navy made a very impassioned case for the DDG–1000 here, and it had to be approved exactly as they had laid it out, and then two years later they testified they didn't need it. That just tells me that there is room in requirements to challenge.

We need the analytical rigor, and we need data. And that is where I think we do need technical information. I think we need a group sort of like what Dr. Chu led in PA&E, Program Analysis and Evaluation, to be involved in that process and ask those questions. And I think we have to think about acquisition maybe saying we need time certain development. Let's put a limit that we are not going to engage in an acquisition that will take more than X years; pick a number, five or six years. If you can't develop and field a solution in that amount of time, then those requirements aren't actionable. I think we need to bring that kind of rigor up to the front.

Mr. MCHUGH. Thank you all very much.

Mr. Chairman, I yield back.

The CHAIRMAN. Thank you very much.

Moving right along under the five-minute rule, Mr. Taylor.

Mr. TAYLOR. Thank you, gentlemen.

Let me pose a very timely question to you. I don't think there is a single person in the United States Navy who can tell me what littoral combat ship (LCS) No. 1 ought to cost or LCS No. 2 ought to cost.

And thirdly, I don't think there is a single person in the United States Navy who knows what the electromagnetic launch should look like. I can look behind me. We have expertise of people on this staff who have flown fighters; we have people on this staff who have been captains of submarines. They have a pretty good idea what the next fighter should look like or what the next generation of submarines should look like. But when you are dealing with something like the electromagnetic launch, where we haven't done it before, where should we be looking for the expertise to make sure that this is done in a timely manner and that we don't end up in the year 2015 with a nuclear-powered helicopter carrier that should have been an aircraft carrier?

Rudy, do you want to start?

Mr. DELEON. One of the things unique about the U.S. system is the fact that on the engineering side we are always pushing technology, coming up with new ways of thinking about things and new

ways to use technology. That is partly what has made our equipment so unique. We get in these technology pushes, and we sometimes get into the optimistic assumptions, things like that.

If we look back historically on the acquisition system, there was a set of tools created across acquisition. They were called the Federally Funded Research and Development Centers, the Institute for Defense Analyses used often by the committee, RAND, Massachusetts Institute of Technology Research and Engineering (MITRE), the aerospace effort out in California. These are federally funded, nonprofit, largely engineering operations that can serve both as complements to government procurement managers, but also on the critical engineering side as a real reality check. The Center for Naval Analysis is another group in this category.

So as we look for both technical expertise, and at the same time not wanting to rely on the contractors for the technical expertise, we have these other tools that are available. Now, as with our acquisition profession——

Mr. TAYLOR. But to those specific points, Mr. deLeon, where should we be looking for some expertise?

Mr. DELEON. I think if you have got technical issues, you have got to get technical expertise. So the Federally Funded Research and Development Center (FFRDC) is one place, Massachusetts Institute of Technology (MIT), some of our leading—Georgia Tech, some of our leading engineering schools. But the independence in the system can come from the government side. But we also have, again, a technology base in the country that is very unique and extremely capable.

Mr. TAYLOR. So you feel comfortable that we can prevent an LCS type problem, a Coast Guard 123 type problem, going to the electromagnetic launch? You think they have the expertise to see to it that we don't repeat that mistake when we go to it on the *Ford* carrier?

Mr. DELEON. If you bring in the potential technology troubleshooters that are out there, that are not going to be in the contractor, probably not going to be in that service program office. So you reach out to some of your leading focal points of engineering. You might ask the GAO to go and talk with some of our leading universities on the engineering side to test some of these technologies. But what you are really doing is back to Dave Berteau's ten percent, you are forcing the tough question to be asked in that initial phase. And we can't take just on faith that some of these advanced technologies will work. We have got to bring in the troubleshooters who will ask and help the Congress, the Office of Secretary of Defense, the services themselves, to focus on the tough engineering technical questions that are there. The debate will be very helpful.

Mr. TAYLOR. Thank you. In the minute that I have left, would anyone else like to?

Mr. BERTEAU. Mr. Taylor, I spent a year on the Defense Science Task Force that looked at the LCS and the Presidential Helicopter, and I would say I looked at the 29,000 pages of Navy vessel rules that were imposed on the LCS contractors after the contract had been signed. I say I looked at them in the sense that when the two

carts with the 29,000 pages were wheeled into the room, I observed them.

I would say to you that at one level you are right, precisely saying what it is going to cost is very difficult. But it was quite clear looking from the perspective that we had that what we did know, it was not going to cost $220 million in 2 years. And everybody except one person in the Navy knew that and largely agreed with that.

And so I think one of the questions that you have in your bill actually addresses this, is how do you make sure you don't let that sort of thing happen? We can ignore the reality of what we know something is not going to be.

There is another element, though, that comes into play. Because what you have got is an emphasis on the bill as well on technological maturity before making critical decisions, and it is absolutely key that these two things go hand in hand. Until you have got better development of your technology and greater maturity, you can't do a proper cost estimate. So I think those two elements of the bill have got to stay hand in hand here, as you put them.

The CHAIRMAN. I thank the gentleman.

Mr. Bartlett.

Mr. BARTLETT. Thank you. Until you know what the problem is, it is hard to draft a solution to the problem. And I am not sure I know what the problem is here, and I wonder in the few moments we have if you would help me to try to understand that better.

There are several reasons for increase in cost growth. One is inflation. These are big programs, they take a long time and the dollar deflates. And the other is commodity price increases in excess of inflation. Let's take those off the table because we understand them, and I think that for the usual program they are fairly small.

I categorize the reasons for increased cost under three categories. Let's imagine for the moment that they represent the totality of the reasons for increase in cost.

One is requirements creep. We just keep changing the goalpost.

The second is intentional underbidding. I worked for IBM for eight years, and we were at a competitive disadvantage because our bosses wouldn't let us lie. Our competitors would underbid knowing that they could more than make it up on engineering change proposals, and I couldn't do that when I worked for IBM. I have no idea how much of this goes on in these major platform acquisitions.

And the third one, I hardly know what to call this. If I am charitable, I guess I will call it being overly optimistic. More realistically, you might call it incompetence, not understanding the complexity of the challenge.

If you would do me a favor and write these three things down on a piece of paper: requirements creep; the intentional underbidding. And the third one, call it whatever you want, incompetence, over-optimism. And then if you would put a number by each of those and make those numbers add up to 100 percent, the extent to which they contribute to cost growth. Again, the requirements creep, intentional underbidding, and the third one overly optimistic or incompetent, whatever you want to call that category.

When you have those numbers down, if you could just give me those numbers, it would be very helpful to me understanding. I am not sure I understand this problem, and you are four experts and I would like your assessment of what these are.

Mr. deLeon, do you have those numbers down?

Mr. DELEON. Well, I have got them in front of me.

Mr. BARTLETT. What do you have for requirements creep?

Mr. DELEON. I would say that is probably 50 percent of the problem.

Mr. BARTLETT. 50 percent. And underbidding?

Mr. DELEON. I would say that is the most easily corrected by the independent cost tools your bill seeks to initiate. So you can do that with vigorous independent analysis. So you could conceivably reduce that.

Mr. BARTLETT. We could make that zero if we—but what do you think it is now? Has been?

Mr. DELEON. I think it is probably 25 percent.

Mr. BARTLETT. Which would mean that incompetence is 25 percent.

Mr. DELEON. Well, you used the term "optimism." I think a technologist is going to always—if we go back to our original comment, which is let engineering drive the system, then engineers can solve those problems if you focus on them as engineering problems rather than as budget problems.

Mr. BARTLETT. So at least half the problems are ours, the requirements growth?

Mr. DELEON. I think that drives programs.

Mr. BARTLETT. Number two, what are your numbers here?

Dr. CHU. Sir, I put more weight than my good friend Mr. deLeon on the last category, excessive optimism, which I think is typically—and this is a case-by-case issue, so it is very dangerous to generalize.

Mr. BARTLETT. I understand. I just——

Dr. CHU. But in general, I think that is on the order of half the problem.

Mr. BARTLETT. Okay.

Dr. CHU. Often associated with schedule, because we think we are going to achieve something much faster than the reality. And, of course, if it takes longer, you carry all that overhead burden on for additional years.

And then I would put second requirements issues. It is not just creep, because in some cases yes, it is, additional requirements, but in others we have aimed far too ambitiously relative to what science and engineering can actually produce.

On the underbidding, I would emphasize it is not always purposive. A statistician who had nothing to do with defense procurement came to me and said, you know, you ought to think hard about decision rules that say you would give the contract always to the lowest bidder. That may be the one player who least understands exactly what is required to produce the article. So it is a bias in terms of the perceptions of those who are——

Mr. BARTLETT. Roughly what?

Dr. CHU. Again, speaking off the top of my head, I think the underbidding problem or the misbidding problem is the smallest part of the problem, maybe 20 percent or less.

Mr. BARTLETT. With few moments left, I would like the numbers from Mr. Berteau. What are your numbers?

Mr. BERTEAU. Mr. Bartlett, I actually can only get to 100 if I add a fourth category.

Mr. BARTLETT. And what would that be?

Mr. BERTEAU. And that is the disruptions of the budget on programs, and particularly the last.

Mr. BARTLETT. Let's imagine for a moment that doesn't happen.

Mr. BERTEAU. I would also echo Dr. Chu. One of the hardest memos for a procuring contracting officer to write is the memo that says: I went with the more expensive program for the following reasons.

But I will tell you, sir, I can't put a number on those four categories without much more thought than I am able to put into it in this five minutes. I will get you my detailed analysis of that down the road.

Mr. BARTLETT. Thank you, sir.

[The information referred to can be found in the Appendix on page 81.]

Mr. FRANCIS. Mr. Bartlett, I split them evenly. I considered the requirements, not only requirements creep but unreasonable requirements, I think like Dr. Chu said. I think that was the case on electromagnetic launch. Underbidding is not only contractors, it is inside the Pentagon. We have got information that shows, even when you do have an approved baseline, that we don't put those numbers in the Future Years Defense Program, we put a lower number. So we underbid inside the Pentagon.

And optimism I think extends not only to the cost estimates, but the entire schedule. And I think any program you can get derailed at the start, you can get derailed in the middle, or you can get derailed at the end.

Mr. BARTLETT. Thank you all very much.

The CHAIRMAN. I thank the gentleman. The chairman of the Acquisition Reform Panel, Mr. Andrews.

Mr. ANDREWS. Thank you, Mr. Chairman. Thank you and Mr. McHugh and my partner in this, Mike Conaway, for the teamwork that we have had. It is a pleasure serving with three such distinguished gentlemen. And I would like to thank the panel and some members of the audience as well for contributions you have already made to the panel's work. It has been invaluable, and this morning was just an extension of that.

I have learned a couple things in the time we have been looking at this. The first is that when we look at the $296 billion figure in the March 30 report from the GAO, that most people jump immediately to the wrong conclusion, which is that that is a measure of poor manufacturing and oversight in the manufacturing process. To some extent it is, and I very much enjoyed Mr. Bartlett's way of trying to score those. I thought that was very intriguing. I hope maybe everybody supplements their answers for the record.

What I have learned, though, is that very often it is driven by poor baseline definition, which we spent quite a bit of time talking

about today. And to further peel this back, the poor baseline definition I think very often is driven by an irrational and inaccurate requirements process. And I think all witnesses have been very good about that today. So it is interesting to hear the consensus that our bill's focus on pre-milestone B decisionmaking is a good place to look. But that we have to go back to, as early as we can in this, to the requirements process and take a good look at the way that is done in a way I don't think the present legislation has quite touched yet. I appreciate that constructive criticism.

I notice that Mr. Francis on page five of his testimony makes reference to a September 2008 GAO report where they reviewed Joint Capabilities Integration and Development System (JCIDS) documentation for new capability proposals, found that most were sponsored by the military services with little involvement from the joint community, including the combatant commanders.

Now, would everyone on the panel agree that that is a bad thing; that the lack of jointness and lack of involvement from the combatant commanders is a profound negative in the process? Would anybody disagree with that?

Okay. And then Mr. Berteau in his testimony I think correctly said acquisition reform cannot happen without requirements reform, and urges us to engage in some flexibility for tradeoff against cost and schedule. And I think what I heard this morning across the panel was that this is ultimately about—and I like this formulation of real requirements versus aspirational ones, or optimal, perfect performance versus sufficient performance. I hear what you are saying.

If we were going to develop a way of understanding the difference between the perfect performance in some metaphysical way and a robust, strong, terrific performance in a way that is more practical, who do you think should help us draw that line? If we were to delegate that responsibility, looking at the services, at the joint structure, the OSD, who is best positioned to define carefully for us in a way that absolutely protects the lives of people in uniform as the first priorities? Who would be the best person to draw that line or the best organization to draw that line? Mr. deLeon?

Mr. DELEON. I would start with the chiefs, the service chiefs. And right now, the service chiefs don't formally sit on the requirements board; the vice chiefs do. And so yet, you ask the service chief to be accountable for personnel and readiness and all of the other issues of organizing, training, and equipping. So I think a role for the chiefs on validating those requirements. And then you have got to force the chiefs to interact and to have the same jointness on requirements that they have on the battlefield on operations.

Mr. ANDREWS. Because I only have a minute, I would ask the others, if they could very briefly answer that question and get it on the record. Dr. Chu.

Dr. CHU. Sir, I think ultimately that is what you must hold the Secretary of Defense responsible for. So, ultimately, it is the Secretary's office who must support him or her in that deliberation. Yes, the chiefs have a role. But they are, in a sense, stakeholders in the process. They have a division for their service. You empha-

size jointness. That is a key aspect here. What is going to be the common position? Is it possible to have a common position?

So I think it is ultimately the Secretary and his office that you have to hold responsible.

Mr. ANDREWS. Mr. Berteau.

Mr. BERTEAU. I agree with Dr. Chu. I think this ultimately lies at the feet of the Deputy Secretary of Defense, and he has got to take the chiefs and the military considerations into account, but I think it is the deputy secretary who has got to make the call.

Mr. ANDREWS. Thank you. Mr. Francis, what do you think?

Mr. FRANCIS. Agree. We believe that the Deputy in his current role, dual role as Chief Management Officer, should be making that kind of a decision. And I think the Joint Requirements Oversight Council (JROC) does have to get bolstered by help I think from Program Analysis and Evaluation and DDR&E to do the analytics.

Mr. ANDREWS. I thank the chairman for his indulgence. The one comment we would be interested in supplementing on the record is, if we establish that dichotomy of real requirements versus, whatever we want to call them, would that then lead to a different set of decisionmaking dynamics? What is nonnegotiable? What is negotiable? I don't have time to ask you for an oral answer for that, but I would be very interested in thinking about what consequences would flow from that change in definition in the requirement process.

Thank you, Mr. Chairman.

[The information referred to can be found in the Appendix on page 81.]

The CHAIRMAN. Thank you.

Mr. Kline.

There is just one 15-minute vote as opposed to what the bells rang a few moments ago. But we will proceed for a short while, get the one vote, and come right back.

Mr. Kline.

Mr. KLINE. Thank you, Mr. Chairman. Thank you, gentlemen, for your years of service and your testimony today. I have been scratching my head, like most of you, over this it seems like all my life, and noticing that we have had Secretaries of Defense and Deputy Secretaries of Defense and Under Secretaries of Defense for Acquisition (USDAs) and Under Secretaries of Defense for Acquisition, Technology, and Logistics (USDAT&Ls) and Program Analysis and Evaluation (PA&Es) and Directors of Defense Research and Engineering (DDR&Es) and on and on and on in an endless stream trying to solve this problem. And so, Mr. Berteau, I had great sympathy and empathy with your comments of, if this is such a good idea, how come we haven't done it? Because clearly there have been great ideas after great ideas after great ideas.

I appreciated very much the discussion this morning about the requirements process, and it always has seemed clear to me that it has been badly broken for a very, very long period of time. A lot discussion here today about requirements creep or overreaching or looking at the stars to put a requirement in. And, Dr. Chu, I appreciated your question, what is the requirement? It is the box that has got to fit in the airplane. Presumably the airplane has to fly, and you have got to—so there is a level there for a requirement.

But, clearly, if it doesn't do more than what we have, there is no point. We will just make some more M–151 Jeeps instead of Humvees or something. And so it seems to me anything we can do to fix that requirement process is going to be time very, very well spent.

I happen to think there are lots of other problems still existing in the acquisition from developmental testing, operational testing, organizations itself and the services and in OSD. And this bill that Mr. Andrews and Mr. Conaway and others put together, with the guidance of the chairman and the ranking member, gets at this early end, and that seems to me to be a pretty good thing. But we are going to make law here. We are going to pass some legislation. We are going to put some things out there.

And so my only question to you is, does this do harm? Does this bill do harm? And maybe it is marginally better, maybe it is a lot better. But is there something in this legislation that you looked at and said, "We had better not do this"? And, if so, this will be your chance to say so.

It is open to anybody who has looked at something in this bill and said it is not a good idea, this will hurt.

Dr. CHU. If I may, sir. I have less concern with provisions of the House bill than some provisions of the Senate bill, and two specifically would concern me. One is splitting the cost function out from the larger analytic enterprise. I think you will diminish its excellence over time by that. But that is a specific.

More generally—and this is I think supportive of the House version. More generally, I think Congress in my estimation wisely has left the specifics of the organization of the Secretary of Defense to the Secretary. It needs to be tailored to his or her needs, to the needs of that era, to his or her decisionmaking style, et cetera. So be very careful about hard wiring, which I don't believe to my reading—I am not a lawyer, but to my reading the House bill does not do.

Mr. KLINE. I knew there was something about you I like.

Dr. CHU. But I would be very careful of hard wiring the Secretary's office in statute. It will not necessarily produce the results that you desire.

Mr. KLINE. And you don't think that this bill does that. So you don't see harm there——

Dr. CHU. You ask, if I understand the House bill correctly, that there be an official designated for this responsibility. So you call out certain capacities you want to see in the Secretary's office, but you leave it, as I understand the legislative language, to the Secretary to decide how is he or she going to achieve that end.

Mr. KLINE. Anybody else see it, is there harm in this thing? In the do no harm? There may be some physicians in the room.

Mr. FRANCIS. Mr. Kline, I think as written I don't see harm. As it gets implemented, there is potential for harm that I think you want to watch out for. I think one is what you do with the role of the Cost Analysis Improvement Group. As part of the larger organization for cost estimating, I think care would be—you need to take care to keep the integrity of that organization and not have its, I think, its expertise lost in a larger organization. And so I think that can be protected.

I think how the principal assistants are charged with their responsibilities, I think that will be important. Because somehow, somewhere out there, there is a line between making people, say, champions for function so these functions don't get traded away like they do today. But at some point, if that becomes too powerful, then I don't know where the Under Secretary of Defense for Acquisition, where his responsibilities, say, end, and then no one is accountable. So there is a line out there.

And I think the third thing is the pre-milestone B thresholds for cost and schedule. I think that is a good thing that when a program, let's say, has a 25 percent increase before milestone B, you want to know that so you can make trades. But by the same token, you don't want that threat of a threshold to suppress programs from actually admitting they do have a cost increase, because that could happen.

Mr. KLINE. Thank you very much, Mr. Chairman. I see my time is out. I yield back.

The CHAIRMAN. We will recess very briefly for the vote and return immediately.

[Recess.]

The CHAIRMAN. Mr. Kissell.

Mr. KISSELL. I would like to thank the panel.

I was just talking to a group of people from my home state and telling them the importance of what we are doing, that the procurement process is one that obviously goes to the regular citizen is one, why can't you solve it? You know what the issues are. Why can't you solve it? I was just talking to them about some of the complexities behind the notion of why can't you solve it, and I was talking to them about how much I appreciate you all coming in and the interest that you have in helping us to solve this and what it can mean to our nation to be able to have these savings to reinvest in another place.

The question that I know you have been addressing, and I hate to ask you again, but trying to get in my mind as we look to solve it that balance between is more of our issue breaking that mindset of putting in a cost that someone knows is not realistic but it has been accepted for so long that they can get away with it and add to later on, versus how much where we ask for a system of some type. And then the requirements of that system. And I heard someone mentioning as I was going to meet another group of people, the requirements could be—I think it was on the tanker where you might have 800 options to be considered. Are we not defining the systems well enough? And whoever wants to jump on this one. You know, where in your opinion is the biggest challenge we have, that mindset that we can do anything in terms of adding costs or the mindset that we are not defining well enough what we want?

Mr. FRANCIS. Mr. Kissell, I will start off. I think to some extent the requirements process is not well enough informed about our limitations of technology and cost. And I think there is the impression that if you write the requirement in great detail, you make it so. And I think that is where the disconnect is.

So to some extent the requirements I think get overly detailed to prescribe a solution, and they aren't informed as to whether in

fact those are achievable. And I think that gets—that is part of the problem right at the start.

And then the cost estimate is no better than the information at the time. So if you are writing what I would consider to be relatively uninformed requirements in high detail, you don't have good enough cost estimates to challenge those requirements so you can proceed then. And then the end result is you get a lot more programs started through the requirements process than you can ever finish through the acquisition process.

Mr. KISSELL. And if that is the case, we have also talked about the lack of the persons in the Department of Defense to manage the projects anymore, that we have contracted that out. And to get that expertise back in—once again, whoever wants to go with this—how long do you think that would take and where do we find those people?

Mr. BERTEAU. It is a job that will actually never be finished in terms of how long it will take. It is an ongoing process. I do think it is useful to recognize that this is a great time to be doing it. The economy works in our favor as well as it ever will.

There are three challenges really in terms of that. One, this committee I think addresses some of the areas like cost estimating and systems engineering, both of which are critical success factors to addressing the very question you raise: How do you bring realism into your programs and into your budget? And by putting somebody at the top, you create a pole for that as a career field. I think that is a very important factor to come into play.

People want to come to the work for the government and do good work. They particularly want to come to work for national security because you are working on something that matters. And as we have looked at the individual people who make these decisions, there are two critical things. One is their first decision to come. The second is their decision to stay. And that is by far the harder part, because it means you have got to give them something useful to do. You have got to give them training, you have got to give them a real job. If you bring smart people in and you give them nothing to do, they are going to stick around for no time at all. You can't legislate that, but you can fund it and you can make sure that in fact the support is there for them.

Mr. KISSELL. And one last point, and maybe more an observation than a question, is that we have got to also increase that mindset to reward the people that do do well. We had a hearing on that, and we know that it is very hard to quantify a system that in effect gives bonuses to people that do well, the measurements there. I worked in a manufacturing site for years where you got paid on what you did; and if you didn't do anything you didn't get paid. And I know it is very hard to come up with that system in government. But we have got to be able to reward people enough in ways that if they see something not working and they let us know, that they are not penalized.

My office was trying—this is just one example. My office was trying to contact somebody on behalf of someone in our district that was interested in doing some contracting work for DOD, and the answer we got is we don't do education. Hire a lobbyist. And that was just one example. So we have got to break that mindset.

And thank you, Mr. Chairman, for this opportunity. Thank you all for being here.

The CHAIRMAN. Mr. Conaway, the ranking member of the panel.

Mr. CONAWAY. Thank you, Mr. Chairman. I appreciate the panel being here today.

I would like some comments on two things. One would be, Mr. Francis, you mentioned a fixed timeframe for programs that would have to live within, so to speak, in terms of I guess one of the requirements, because it seems to me that the longer something takes, that the more temptations there are to add things to something that was not necessarily originally contemplated in the deal. And then, also, the differences between what the program managers are estimating the programs to cost versus what the independent body does.

I would prefer to see our bill require a reconciliation of those two numbers. In other words, it seems to me that the decisionmakers ought to have access when they are deciding which numbers to use as to why there is a difference. And your comments as to whether or not this bill has enough teeth in it that we can require the decisionmakers to know why there is a difference. They get to decide which way to go, but I think it would be helpful to know that issue.

And then maybe a third one, if there is time. The idea that should there be a career path in the uniformed services that puts a greater emphasis on requirements service so that it is not just looked upon as a way station within my career. I have got no upside. I have got to do it well. If I do it well, there is no benefit; but if I do it badly, my career is over. So some sort of a comment on the uniformed services having an extended role within the requirements piece that would add to our knowledge base.

Mr. FRANCIS. Mr. Conaway, I will start with the time certain development of putting a bound of time on a program. I don't suggest that to be draconian in that if you can't get the program done in this amount of time, it is not a program. But I think it is instructive to think about what is a reasonable period of time for an acquisition to incentivize a couple of things. One is, policy does prefer the evolutionary approach, but practice seems to go to revolutionary approach.

So I think, if we talk about getting something done in five years, then it is going to create incentives for more evolutionary type approaches to acquisition.

I also think part of the problem we are dealing with today is we are throwing some science and technology over the fence into acquisition, and programs become a good way to get big money to do some of the things you should have done earlier. I think if you put a limit there on what can be done after milestone B, you may actually then have to get some things done before then. And I don't know that that happens today.

The third thing is accountability. It is very hard to hold people accountable for a project that extends 10 years. Something around 5 years, I think some of the people might still be around for that.

Dr. CHU. Congressman, to your question on reconciling the conflicting cost estimates, I do think the requirement in House bill, as I understand it, the report that you asked the Department to render could be the vehicle for coming forward to the Congress

with that kind of reconciliation. I would be careful not to be too precise, because these things vary in terms of their specifics each time.

To the career path issue, I think one interesting question is the issue of tenure of program managers. I am one who is a fan that it would be useful to try to construct career paths so managers could serve from one milestone to the next. That means that they are responsible essentially for the outcomes that they promised at the prior milestone. That would take some adjustment, candidly, in how the promotions systems work in military services, because those intervals are quite long in character and it is one of the reasons I think the military department is a little bit reluctant to allow someone to serve for that period of time. But I do think that is an issue worth looking at.

Mr. DELEON. Congressman, on the independent cost analysis, I think the committee is exactly right on on that issue, and it is the resourcing on the independent side. If we can get those capable people, because this is—we have a slight disagreement among ourselves on whether the Deputy Secretary should adjudicate requirement differences with the Joint Chiefs or not. But on the reconciliation of the independent cost accounting versus service, that is a responsibility that the Deputy Secretary has. And, generally, the rule is that we divert from the CAIG numbers in the Deputy's office only with compelling analysis otherwise. And this is an irritant between the Services and the Deputy, but the CAIG is to be independent and removed in doing——

Mr. CONAWAY. Is there some history we can look at where the CAIG's estimate has proved more accurate than the program manager's? In other words, that irritant, is it just because they don't like it or is it because the CAIG gets it right? Or, is it because CAIG gets it wrong and they are right? Can we look at a more historical track record on that?

Mr. DELEON. Usually because it is vigorous and it makes people uncomfortable. Rather than just anecdotally answering, I think that would be a great GAO issue just to look at the numbers. But my view would be, historically—my first budget markup was in this room in 1977, so I probably have been through almost 35 rounds of this—but that those CAIG numbers, particularly up front, tend to have more reality.

On the acquisition career management, there is an interesting thing. There is a unique—it is the Rickover Navy. The nuclear piece of the Navy has its own unique program management culture. Largely, you are taking most capable coming out of the academy in engineering, physics, things like that, and this Special Program Office that the Navy has had has been an exceptionally capable system largely manned by military personnel supplemented by leading engineering, by some of the FFRDCs. But it is—the committee actually looked at it in the late 1980's because it was an exceptional program system.

Mr. CONAWAY. Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Wittman, Mrs. Davis, Mr. Coffman, in that order. Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman. I appreciate the opportunity. I want to thank the members of the panel for joining us

today. I want to thank the chairman and the ranking member, Mr. Conaway, and Mr. Andrews for their efforts in putting together this bill. I think it is a great step.

I wanted to get each of your opinions about the bill itself as it relates to decisionmaking. I think we all hear about where decisionmaking goes wrong, whether it is on the cost estimate side, whether it is on operational testing and evaluation, whether it is on the requirements side, systems engineering. We see at points that the system breaks down and we don't have good outcomes as far as decisionmaking.

My question to each of you is, does this bill accomplish what you would like to see accomplished or what you think needs to be accomplished to make the decisionmaking process as good as it can be? And, are there things that should be added or subtracted to the bill to get us to that point of that best scenario for decisionmaking? And the thought is, too, is to try to get us to a scenario where we have the best value coming out of the decisionmaking.

So I would like to get your thoughts and ideas on any additions or subtractions to the bill to get us to that point.

Mr. FRANCIS. Mr. Wittman, a couple of things that I can think about. One is I really do think there could be some more specificity about the analytical rigor that can be brought to the JROC and JCIDS process. I think right now it is very difficult for that staff to actually do what they have been chartered to do, and I think they can use some help in being able to broker and establish priorities among programs. So I think some more could be done there.

I had mentioned earlier, I think it is going to be important when we are dealing with the cost estimating to—I think I would like to see the role of the CAIG preserved, but there does have to be some kind of a reconciliation process I think for cost.

We have actually done some of the analysis on cost, and you have a service estimate that is a number. The CAIG estimate is higher. But what actually goes into the budget is lower than the service numbers. So we already have some data, and I think that does need to be corrected.

And the other thing I would think about is there are a number of, I think, functions that the legislation calls for that do need to be buttressed with resources, people, money, and time, and some specificity there might be useful.

Mr. BERTEAU. Congressman, I would add one thing in terms of the bill's ability to help foster better decisionmaking. It is often easy to avoid paying attention to issues as if they inconvenience where you like to go otherwise. And I think a number of the provisions of this bill make it more difficult for those issues to be ignored in that process. And I think those are positive contributions.

Dr. CHU. Congressman, as I have commented, I think the House bill is careful to leave the specific organizations of the Secretary's office to the Secretary's discretion. I think that is meritorious. I do want to underscore something Mr. Francis said: It will be important that there are resources sufficient to these functions. And perhaps, without being unduly intrusive or recommending micromanagement, some encouragement in the report that you ask from the executive branch about, okay, what resources have been devoted to these functions, particularly relative to what was devoted

earlier. In other words, has there been the added resource effort that I suspect will be necessary to carry out the function that you outlined, might be helpful.

Mr. DELEON. Congressman, this bill creates tools, and it will be as effective or ineffective only as the tools are utilized. And as I said early on, one of the things that made Goldwater-Nichols so unique was the congressional commitment not only to creating the tools but then to make sure that the tools were implemented and resourced. And so I think that will be the challenge, is to stay on this topic. And then, additionally, and this may be the first effort, I think at some point you may want to also just factor in how to think about O&M contracting, because that is becoming increasingly a larger segment and medical contracting a piece of that as well. But this creates usable tools to decisionmakers and then usable tools for the legislative branch to render oversight, but it will require sticking with it much in the same way that the committee's history of Goldwater-Nichols, not just simply creating the tools, it was monitoring how those tools were being used, and that created a revolution.

Mr. ANDREWS. [Presiding.] The gentleman's time has expired. Thank you very much.

The gentlelady from California, the Chair of the Personnel Subcommittee, Mrs. Davis, is recognized.

Mrs. DAVIS. Thank you. Thank you, Mr. Chairman. Thank you all for being here. You have really been an excellent panel. As you know, in addition to the committee that is really looking at acquisition, the Oversight and Investigation Committee has also done that. And we focused a lot more I think on service contracts and even the culture that has been created, and perhaps the changes that really need to be made in that way to incentivize people to want to go into the field and stay in the field and bring the best, get the best out of it.

What I would like to know is how some of the issues that we have looked at in terms of the service contracts really do have relevance in these much larger weapons systems, contracts as well. And one thing that I think we haven't had a chance to really look at is you mentioned the track record that people have had. In service contracts, we know that folks have gotten contracts after they have performed very poorly.

What do you see within the larger weapons contracts that is relevant in that regard? Is there a way of looking at that in a way that we actually can track? And it goes back to the accountability. I think that there are certainly performance incentives that you have spoken about. Maybe the carrots are better than the sticks. But can we track? Not just the larger contractors. And I want to talk a little bit about competition. But the subcontractors as well. Do even larger contractors know about subs who have performed poorly in some cases? How do we work with that information? And do you see a part of that in the bill that has already been addressed, or is that something that should be addressed in some other fashion?

Mr. FRANCIS. On the contracts, I think in the weapons systems area versus service contracts, one of the things is we kind of know almost exactly how bad things are and in services we don't. The

data on services isn't very good at all. And I think over time we have been letting service contracts to bolster, let's say, our workforce, if you will, without really consciously deciding on where we want to be in terms of service contracts. No normative vision there.

I think, in the weapons system areas on contracts, one of the things that I had mentioned earlier is we do use cost reimbursable contracts. There is a place to use them and a place not to use them. And where we are starting to use them where I think we have to really be careful is in production. When you are using a cost reimbursable contract in production, then to me that raises a flag that we really don't know what we are producing yet.

The other area I think is using award fees. And we have done a number of reports on award fees now where what you described is exactly what was happening, that contractors were getting pretty big award fees for not performing well. I think the issue of visibility into subcontractors is a key one. I don't know that the primes have good visibility, and it especially becomes a problem when you are doing systems of systems.

So I think to the extent that you can address a little bit more about what goodness looks like, matching contracting instruments to what is being acquired, and protecting the government's interest, I think there is some things that could be addressed there.

Mrs. DAVIS. Mr. Berteau, did you want to comment on that?

Mr. BERTEAU. I have spent a lot of time looking at the services contracts. We do a lot of analysis of that at CSIS, and I also was on the Gansler Commission looking at contracting in Iraq and Afghanistan.

I think that for purposes of this bill the focus is appropriately where it is now, and I think that there is much that you can do as a committee in the services contracts area. But I would urge the committee to save that for subsequent legislation even though there are some overlaps.

Mrs. DAVIS. And I know that you mentioned—go ahead, please.

Mr. DELEON. For many years we regarded contracting and the people responsible for contracts as part of the tail. And I think what we found coming out of ongoing military operations, that the people that write O&M contracts are part of the tooth; and, that is if you don't have those people up front you get some of the issues that you talked about: poor execution, poor accountability, dollars squandered and unaccounted for. But we have got to change our mindset. The people, the civilians that do contracting, particularly battlefield contracting, are part of the tooth.

Mr. BERTEAU. I come from alligator country, and we know that alligators can kill with their tails just as effectively as they can kill with their teeth.

Mrs. DAVIS. Thank you.

Mr. ANDREWS. Thank you very much. Thank the gentlelady.

The gentleman from Colorado, a very involved member of the panel, is recognized for five minutes.

Mr. COFFMAN. Thank you, Mr. Chairman.

When we talked about major weapons system acquisition, it would seem to me that we ask the contractors, the defense contractors, sometimes to develop technologies that are not yet mature, to not simply to produce the system but to develop a system. What

would the world look like if we in fact truly bifurcated those two elements? And then one was that we contracted for the development of a specific system to meet whatever requirements were laid down and separated that out from the production of a system? Could you, anybody, speak to that?

Dr. CHU. I think that is a very interesting idea, but it would require substantial revision to the U.S. Government's stand on how profits are allowed. The current reality is the major profits of most contracts are in production, not in development phase. So while your idea is if you invite separate contract development without any—and in fact I think you almost have to go to the point of saying these will not necessarily be firms who are going to get the production contract, because I think that is part of the current paradigm that does cause some of the dysfunctional behaviors that are being implemented. It will take a major change in how the U.S. Government thinks about this function. One advantage of course is that you could encourage more designs if you were willing—in fact, discipline issues that my fellow panelists have underscored, if you are willing to say no. No, we are only going to do one or maybe we are going to do zero of these, even if the development is successful, so that you separate the development function from the production function in terms of how you think about weapons system procurement. But that would be truly a revolutionary step, in my judgment, in terms of how the United States has typically done it.

Mr. DELEON. To the gentleman's question, I think engineering gives you technical data. So the engineer from the contract, the engineer from the government, the engineer from MIT all are giving you data that you can then analyze. If you don't analyze it and force the tradeoffs, then I think you are missing an opportunity. But we need to make sure that some of our most successful programs have been driven by the engineering rather than driven by budgets, things like that.

The Global Positioning System (GPS), that was a revolution. It was generated by the engineering of it. David Packard always, though, when he testified in 1986 was enamored with the Advanced Medium-Range Air-to-Air Missile (AMRAAM) program because there was a competition between competing engineering houses. The winner was selected on the design, but then both of the engineering houses ended up producing part of it. So it was an extremely competitive environment and an extremely successful program in terms of the advanced air-to-air missile. I think it is still very much in the inventory and very much leading edge.

Mr. BERTEAU. Mr. Coffman, I think you have hit on a very important issue that goes well beyond the scope of the bill but is worth the attention of the committee for three reasons. One is of course our past history is we rely upon technology advancement to sustain our defense advantage worldwide and our national security advantage worldwide. But what has allowed that to happen is not only the model that Dr. Chu described. There was in fact a world in which defense was a big driver on a lot of these technologies. And we are now facing a future where defense is not the driver it once was. In fact, there are a whole lot of elements of the economy that are bigger drivers both within the U.S. and globally. We were also the driver at the technology edge globally, and there are some

who still believe that 95 percent of all the important defense technology originates in the U.S. I do not count myself amongst those. I think we need to have a system that allows us to take better advantage of what is being developed elsewhere. And I think, ultimately, we have to ask ourselves the question: Where is innovation going to come from? And how is defense going to take advantage of that when we are not the ones who pay for it?

So I think you have raised some very, very critical issues.

Mr. FRANCIS. Mr. Coffman, a couple of thoughts. One of the risks in separating, if you will, the system development phase from production is in the past we have had problems with the engineering in the system phase not paying enough attention to production, and then when we went into production you had to redo the design to make it producible. And I think what we found in the best industry practices is they are actually doing more teaming there and making design build teams to bring that production discipline into the design process.

Where I would think more about making the separation is between the technology development and the system development. Right now, we are pushing technology into system, and then we can't get the system development done right. So I would think more about making the dichotomy right there.

Mr. COFFMAN. Thank you very much, Mr. Chairman. I yield back the balance of my time.

Mr. ANDREWS. Thank you very much, Mr. Coffman. The Chair is pleased to recognize the gentleman from Pennsylvania, who has made a very important contribution to this bill in the area of bringing out confidence points in estimates, Mr. Sestak, for five minutes.

Mr. SESTAK. Thanks, Mr. Chairman. And that was going to be my first question.

Mr. deLeon, you have the ability to be over here and to be over there across the river. The aircraft carrier which is in the budget, the Future Years Defense Program (FYDP), is going to cost I think $13 billion. The internal confidence factor of the Navy, which is not provided over here, is about 37 percent. The other day when the Littoral Combat Ship was told it wasn't going to cost $250 billion but $450 billion, when asked what the internal confidence factor was, they said about 50 percent.

Now, you can get that information if you get a letter signed by the chairman, not this young one. But the point here is, don't you think that in this transparency and as we are dealing with this issue, it would be good for us to receive the confidence factors of the costing that we are about to appropriate national treasury in so we don't come back and beat you up, of what do you mean it is going to cost more? Well, I told you 50 percent confidence.

What do you think?

Mr. DELEON. I think that is absolutely right. And, in fact, the GAO as a tool that the House Armed Services Committee has played a historic role.

Mr. SESTAK. Thank you. That is what led me into this.

The second question I have, Dr. Chu, because I was taken also with what Mr. deLeon said, force the tradeoffs. When then Senator Nunn, who wasn't even a member of the Senate Armed Services Committee (SASC) committee stepped onto the House floor and

said, let's start having us know when you break thresholds, and he said—which became the Nunn-McCurdy threshold, we have had 30 programs since January 2006 break Nunn-McCurdy. It is a wonderful monitoring system, but there is no teeth. All of them got approved, and, yep, that is great, continue on.

What do you think about forcing the tradeoffs, that when you have a significant break, that you come back and you say, look, here is what the real cost is, and here is the confidence factor on it. It is about 80, 85 percent. And if we go to the critical break, you know, the 15 percent more, here is where we will trade it off. In other words, forcing the tradeoffs. I thought Mr. deLeon had a very key point there. I am kind of talking about Nunn-McCurdy on steroids.

Dr. CHU. Congressman, I am told that the recent revisions to Nunn-McCurdy have made it more effective in the direction that you——

Mr. SESTAK. No sir, not this way. I have read both bills.

Dr. CHU. No, I am not speaking to the bills here, but changes in the last several years to Nunn-McCurdy are alleged by some. I am not expert on recent developments to have improved that process.

I think the real tradeoff problem, however, is not Nunn-McCurdy per se. Nunn-McCurdy does require the Secretary to certify, as you know, if there is a break that he is going to report on why that has got to be true. The real tradeoff problem is inside the Department. And the same thing happens here in the Congress, as I know you would acknowledge. If you are going to recognize a higher estimate for system A against a fixed top line, it means someone else has to give up resources. And that is why the tension that Mr. deLeon described occurs when the cost doesn't go forward, not because the estimators are unpleasant people; it is because they are raising an issue of, at the highest level of the Department, sacrificing some other objective in order to make this program right. And that is always a very painful decision.

Everyone is enthused about the wisdom of the higher estimate. It would be more likely to predict correctly the cost. The real tension, the read tradeoff, in my judgment, is what do you have to give up within a fixed set of resources in order to sustain that higher-priority program?

Mr. SESTAK. Sir, I have four questions. Could I have a second round if I don't finish these four after everybody else?

Mr. ANDREWS. We have to consult with the Minority about that.

Mr. MCHUGH. I think I can speak for our side. That is fine.

Mr. ANDREWS. I know Mr. Taylor is also going to have a second round, so, yes.

Mr. SESTAK. I understand that. But if you take that as a given, this tyranny of optimism that is inherent in the Pentagon with defense industry, however, does that then say but Nunn-McCurdy doesn't matter, why bother to tell you about it—in other words, just to go down to another level, having made that decision there, should we then have more than a monitoring system, but one that continues to force tradeoffs, which they don't presently do? You would like to get that at the beginning, but shouldn't we continue that throughout?

Dr. CHU. I am not arguing against your point, sir. I think I make obviously a different observation. I think the real problem when it comes to recognizing these issues in the budget specifically, the President's budget request, is that to do so requires some other objective be sacrificed. And that is where the tension arises. So, yes, there is the optimism out there, all those problems, but in the end it is not as if people don't know they are taking risks. They know that. The question is where do they want to take those risks?

Mr. SESTAK. I agree. I think you have hit it right on the head, and I just didn't know if still had to force those tradeoffs later on.

Can I ask you a question, sir? JROC. I was quite taken, and I have told Mr. Andrews, that after Goldwater-Nichols was passed, and the Chairman walked into the tank that day, the other four members of the Joint Chiefs of Staff stood up for the first time. He was now not one of equals, he was the decisionmaker.

I have watched JROC evolve. That was operations. It is not procurement. And JROC over the years, as you were over there, seemed to get so little bit of OSD into it on the lower levels, you might even sit at JROC today, but I am quite taken that it is not dissimilar, in my opinion, than the Joint Chiefs of Staff or pre-Goldwater-Nichols. I have got my program, you have got yours; why don't we kind of agree how we are going to do them both. It kind of gets to the tension question here.

Should legislation, Goldwater-Nichols II, be brought about to say, well, wait a minute, the Chairman, who really is in charge of the JROC, by the way, even though the Vice Chairman sits there, should be the decider of the tension of the tradeoffs rather than the committee?

Mr. FRANCIS. Mr. Sestak, I don't know that legislation just to make the Chairman the decider is going to change the status quo much. I think our analysis shows that the joint staff is basically overwhelmed with the amount of volume that comes in, and they simply don't have either the people or the analytical tools to come in and look at what the priorities are or what tradeoffs are necessary. So a new Chairman with that power would still be limited by the abilities of his staff.

At the same time, most of the requirements coming in are still servicecentric, so I think we would have to do more to get at those kinds of problems.

The CHAIRMAN. [Presiding.] I thank the gentleman.

We will go to a quick second round. Mr. Taylor. Anyone else that has additional questions, we will go to them, and Mr. Taylor.

Mr. TAYLOR. Thank you, Mr. Chairman.

And I appreciate you gentlemen to stick around this long.

Going back to Mr. Berteau's comments on the thousands of pages of requirements, when I think we correctly went back to having the LCS made with military specs rather than civilian specs since this is a military craft. But to your point. My impression is that the people, the superintendent of shipbuilding, are very good at looking at a set of specs, looking at what the contractors are doing, but really aren't qualified enough to say, do you know what, there is a better way to get to this place. They are pretty good at seeing that the specs are being made; I don't think they have enough ex-

pertise to say, you know what, another yard is doing this quicker, better, faster by acquiring this piece of machinery.

If you think about it, guys like Admiral Sestak had many years of training to become ship drivers, Captain Ebbs to become a submarine captain, et cetera, et cetera. What I sense we are lacking within the military is a dedicated career path with the adequate training to become acquisition experts. And again, given the vast variety of your expertise of you four gentlemen, if you think I am wrong, tell me so; if you think we are on to something, I would like to know that.

The second thing is when I visit Walter Reed, as all of us do, I encounter a lot of people who want to stay in uniform. And they realize they have lost an arm, a leg, their hearing is not what it was, their eyes aren't what they were, but they want to stay on the team. Should we be making a greater effort as a nation to take some of those folks who are no longer going to be special forces-qualified or no longer flight-qualified or no longer infantry-qualified and offering them the option of pursuing a career in the military as an acquisition expert, which I think you can be trained to become?

So it is a two-part question, and I would welcome your thoughts on it.

Dr. CHU. If I may, Congressman, on the second part, in my judgment, the military services are forging a new path in this regard and have been quite open to continued service in a different specialty, not necessarily acquisition per se.

Mr. TAYLOR. Have they pushed acquisition as one of those options, Dr. Chu? I would think that would be a natural.

Dr. CHU. That certainly could be one of them. But they have, in my judgment, opened the door on a whole wide range of possibilities for people. And so you do have individuals doing all sorts of things, including one officer lost his eyesight teaching at West Point, for example, as an extreme case. But I have had individuals—as you know, in fact, one individual returned to combat with a prosthetic leg. So I do think military services have grasped the spirit of your second challenge.

On the first, whether it is adequate or not is obviously a judgmental issue, but I think it is important that, to direction from the Congress, the Department in the last 20, 30 years has invested a lot in Defense Acquisition University, in the notion of an acquisition career professional and what that certification might entail. So I do think there is in both the civilians and the military a good set of tools once again.

Mr. TAYLOR. So help me out. I know, for example, the nuclear school is in Charleston. Where do we train people to be an acquisition expert?

Dr. CHU. Not exclusively, but a good deal of it goes on right down the road here at Fort Belvoir at Defense Acquisition University Program Defense System Management College. And there is a well-worked-out curriculum, a set of standards. In terms of certification you get various levels of certification depending upon the training that you have received. Now, whether it is enough is another issue.

Mr. BERTEAU. Mr. Taylor, we spent a lot of time looking at this on the Gansler Commission from the narrower set of just con-

tracting career fields, not overall program management and acquisition, and we found that there had been a dramatic lessening of both the number of military who are pursuing that career and the opportunities to those military for promotions. In fact, the general officer billets have essentially disappeared. We went from about 20 18 years ago to 1 last year. Now, some of that is being reversed in large part due to some intervention by the Congress.

On the broader career field for program management and acquisition, there is still an awful lot of dynamics at work that does not make it the most attractive career field for military promotions. It is not a warfighter field. I think the proposition that you put on the table of warfighters who no longer can be warfighters is not a bad one to look at, but it is a tough game to start late in your career and become the level of expertise that you need to have.

The nuclear, I think, is a perfect example. Mr. deLeon brought it up earlier. You have got to build that in from the 01, 02 level if you really want to have flag rank who are capable of really managing the complexities that we have out there today.

Mr. DELEON. But, Mr. Taylor, you are asking one of those core questions where the more we delve into it, the more we sort of are striving to actually get the truth here. Most of the schools that focus on program management are focused on the business side of that, acquisition policies, things like that. And when the Members broke for the vote, we sort of caucused here and we talked about the electromagnetic propulsion as contrasted to steam-generated catapults. And so when do you know that you are ready to take a jump in technology that will actually help the warfighter versus when are you pushing technology simply because your technical and scientific world says you can do it differently and you can do it fancier?

And so that kind of tradeoff doesn't get taught in the schools, but that was actually an excellent example. And we caucused and talked about it because we all have different views on it sort of. But that is going to drive cost tremendously.

And so is there a flaw in the current system that says we have got to change the technology? If we go to the advanced technology, will it be a game changer? But as we school people on the program management side, we don't really focus on the engineering and the technical. And I think one of the tools your bill creates would be—and the testimony of our former colleagues Paul Kaminsky and Dr. Gansler really focusing on this technical piece, not that the government is going to be designing these systems, but so that the government can adequately get into the middle of the tradeoffs on the engineering side. So long-winded.

But our schools really focus on business side issues. And at the core of some of these critical decisions are engineering and technical rather than business and budget. And so we have got to acknowledge that and factor that into the tools that we have.

Mr. TAYLOR. Thank you, sir.

Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Sestak has additional questions.

Mr. SESTAK. Thank you, sir. I just have two.

Dr. Chu, I think you are right about this, having to look at this tension at the beginning, or let me just phrase it that way. And I would like to ask that question, but first another one.

Back when Alan Antovin established—you weren't born then—what became PA&E and the CAIG was born, the costing office, and no other service had a costing office in the 1960s. Now you got a couple of people there, and you mentioned worried they don't have the resources, joint staff. This bill talks about having a person bless the cost from the services. How can he if the CAIG, which traditionally is almost always right, even they suboptimize the cost, if he doesn't have the resources and the independent assessment of what the services under this tyranny of optimism give him? Don't you really have to take it the whole next step and have an independent office which comes to Congress as the cost?

Dr. CHU. I wouldn't recommend a separate office do a reporting responsibility. I think that is not going to work well over the long term. I do think you raise a critical point I touched very briefly on earlier, which is does the CAIG and do the service independent cost functions have adequate staff to carry out what is expected in this statute? And I do think encouraging some reporting on that point in the report the bill asked for would be meritorious without being unduly intrusive.

It is the case, apparently, that the costing staffs were cut back as part of the general reductions in the 1990s. And it is not clear, therefore, that the cost staff numbers today——

Mr. SESTAK. If I might, just because of time, I think it is a great point, but if there is no teeth in them—it is nice for them to make an assessment—shouldn't that—since they are almost always every time much better, more realistic, and, you know, studies have been done on this, why don't we just take their costs?

Dr. CHU. That is obviously the Congress' privilege.

Mr. SESTAK. Could I ask a second question, because I think you hit it on the head actually. You have something called the JROC, the Joint Requirements Oversight Committee. That is where this inherent tension should be decided. It should be decided by a committee, but it needs to be decided at the very beginning.

How do you—I mean, I honestly believe that the unfinished business of Goldwater-Nichols I, which was tremendous, but the unfinished business was Program and Budget Analysis Division (PBAD) sitting down there in J8, a little budget office, and then under JCIDS—and General Cartwright, when he was the three-star there, created that wonderful modeling, and the JCIDS process and all the analysis that gives you the inherent tension gets to the JROC. That is the decision point.

How can we, unless we change JROC, like we did the Joint Chiefs of Staff, ever get—and, Mr. deLeon, if you would comment on it, too—truly joint requirement that resolves up front the inherent tensions between my requirement and my requirement? And that is what Goldwater-Nichols I did on the operational side. And everything is resident in JCIDS, sitting in J8, with OSD participating to resolve it at JROC.

Either comments, both of you?

Mr. DELEON. This is another one of those questions where when you start peeling back the layers, you get to ground truth.

After Goldwater-Nichols the prime focus was changing the way we did military operations, because that was the most pressing.

Mr. SESTAK. Can you speak up closer, sir?

Mr. DELEON. After we approved Goldwater-Nichols, the most pressing was to make the changes in how we did military operations, stressing jointness. Now, where the JROC had success was really in creating that joint environment. So it was a command and control structure that all of the services could use; it was the integrating tools that would integrate air, land, sea and space.

And I remember walking into a DRB meeting, the Defense Resources Board, where not the acquisition, but the budget decisions are made. And the services are grumbling about the large C3I bill and the intel bill, because those are areas where the JROC has had an impact, and were very definitive in terms of integrating forces in the joint combat arena. And so there would be grumbling from the services about the expense of these systems. But then you would ask, well, give us a show of hands who don't believe these are the budget priorities, and those hands would never appear.

So where the JROC did do its job very well was creating the integration of the joint environment from a technology point of view. Where the JROC probably needs to go to a new phase, to the second Goldwater-Nichols, which is an appropriate description of it, is how to get to the joint environment on the prime warfighting tools that are unique to the services and to force those tradeoffs.

And then back to Mr. Taylor's issue. To have that discussion up front, is a—and I don't know the answer—is a steam-generated catapult sufficient, or do you need to have an electromagnetic generated catapult system? It is going to be a cost driver. It is going to have operational effective issues. But forcing that kind of thing into a JROC environment up front.

Mr. SESTAK. Thank you.

The CHAIRMAN. I thank the gentleman, and a special thanks to our panel for this excellent testimony and advice. We go from here. We will mark this bill up, the House bill up, on May 7th, and we look forward to that moment. Good day.

[Whereupon, at 12:45 p.m., the committee was adjourned.]

A P P E N D I X

April 30, 2009

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

April 30, 2009

House Armed Services Committee

Chairman Ike Skelton

Opening Statement

Hearing on Reform of Major Weapon Systems Acquisition

April 30, 2009

"Welcome to today's hearing on reform of major weapon systems acquisition and related legislative proposals. Our witnesses have a rare combination of policy experience and technical expertise. Rudy deLeon, Senior Vice President for National Security at the Center for American Progress, former Deputy Secretary of Defense, and most importantly, former staff director of this committee; Dr. David Chu, President of the Institute for Defense Analyses, former Under Secretary of Defense for Personnel and Readiness, and former Director of Program Analysis and Evaluation, he appears today in a personal capacity; David Berteau, Director of the Defense Industrial Initiatives Group at the Center for Strategic and International Studies and also a former DOD official; and Paul Francis, Managing Director for Acquisitions and Sourcing Management and a 32-year employee of the Government Accountability Office.

"It is worth noting that at least three of today's witnesses participated actively in the debates surrounding Goldwater-Nichols, the last time that DOD's acquisition organization was given a top-to-bottom overhaul. Mr. Francis, you may have also participated in those debates, and I'm

sure you will let us know if that is so. Since the recommendations of the Packard Commission led directly to the acquisition reforms in Goldwater-Nichols it would be interesting if each of you at some point today might share your perspective on how we can best apply the philosophy of the Packard Commission to today's acquisition problems.

"The Committee on Armed Services has under consideration two serious proposals to reform the acquisition of major weapon systems. H.R. 2101 was introduced this Monday by myself and John McHugh along with Rob Andrews and Mike Conaway who lead our Panel on Defense Acquisition Reform, and a number of other members. H.R. 1830 was introduced March 31st as the companion measure to the Levin/McCain bill in the Senate, and was sponsored by Ellen Tauscher and John Spratt, both of whom have also joined as co-sponsors of H.R. 2101.

"Both bills focus on the acquisition of major weapon systems, which represent 20% of DOD's annual spending on purchases. Now let there be no mistake, this committee and especially the Panel, are just as focused on the other 80% of defense acquisition. In addition, we remain focused on the overarching structural questions of the sort dealt with in Goldwater-Nichols. As is often the case, we must walk and chew gum at the same time, and we will deal meaningfully with all these issues.

"H.R. 2101 introduces 3 significant new concepts. Number one, we require the Secretary of Defense to designate an official as the Department's principal expert on performance assessment. This official will provide the Department and Congress with unbiased assessments of just how successful our acquisition programs are or are not. Number two, we require certain programs to enter into a sort of intensive care for sick programs. Programs that are not meeting the standards for system development or that have had critical Nunn-McCurdy breaches will get

additional scrutiny. Number three, we require the Department to set up a system to track the cost growth and schedule changes that happen prior to milestone B, the decision point where we begin development of a production system. It is before milestone B when 75% of a program's costs are actually determined.

"On the whole there is a lot in common between the two bills. About 25% is the same, about 50% is overlapping, and about 25% is only in the House bill. I am confident that our committee and the Senate Armed Services Committee can find common ground and compromise on this legislation expeditiously as we have so often in the past. I look forward to the recommendations of our witnesses for how to improve these bills as they move through the legislative process. Now let me recognize my friend and colleague, John McHugh."

Testimony of
Rudy deLeon

Before the
House Armed Services Committee

Major Weapon System Acquisition Reform
April 30, 2009

Senior Vice President for National Security,
Center for American Progress Action Fund

Testimony of Rudy deLeon
House Armed Services Committee
April 30, 2009

Mr. Chairman and Members of the Committee,

Thank you for the invitation to testify before this committee on the committee's acquisition reform package. I would like to further acknowledge Chairman Skelton and Ranking Member McHugh for their leadership on this matter.

I would like to begin today by highlighting the problems in the weapons acquisition system. A blue-ribbon group of former Pentagon acquisition officials concluded in late 2007 that the military contracting process was plagued with systematic problems and failures.

The investigators found that acquisition and contracting procedures were inadequate to support U.S. military forward deployments in Iraq and Afghanistan. As the blue-ribbon group concluded, "the most notable characteristic of the testimony is a nearly unanimous perception of the current problems, their gravity, and the urgent need for reform." This panel of experts report is the starting point for examining acquisition and contracting needs.

Solutions should begin at the top, with the Quadrennial Defense Review. The QDR should include a thorough review of the Pentagon investment program to ensure that budget decisions are aligned with the current military needs and priorities.

The review should include all weapons programs, joint combat and network systems, intelligence and information assurance, a full examination of space programs, and missile defense research and development. The procurement and R&D component of last year's defense budget is $183.8 billion, more than one-third of the defense baseline. Appropriately, this portion of the QDR will be particularly important because significant budget realignment and redirection is likely. Secretary Gates' statement earlier this month was the beginning of this process.

Related to this area, the QDR must also examine the availability of critical technical personnel, especially government executives who serve as program managers for these Pentagon programs. The government needs highly skilled people who understand the technology, and can make high-tech trade-offs to get taxpayers good return for their investment and the right equipment to our troops. The career civilian workforce is the best source of candidates for these positions, but their ranks were reduced by administration and congressional directed budget cuts. Technical expertise is essential to protect the public interest.

Testimony of Rudy deLeon
House Armed Services Committee
April 30, 2009

After the QDR, the next step is to implement sensible adjustments in the acquisition process. We must ensure that major defense acquisition programs are subject to careful review. I will offer my comments on the pending legislation in my oral presentation.

For any of these reforms to bear fruit, we must first invest in government personnel responsible for engineering and acquisition. No improvements will materialize without adequate expertise. Several issues require attention:

(1) The Pentagon's capability to manage and integrate large acquisition programs needs to be improved. The solution lies in a combination of a strengthened Pentagon acquisition workforce, greater reliance on not-for-profit independent advisory bodies like RAND, the Institute for Defense Analysis, MITRE, and the other federally funded centers, and a return to industry prime contractors that are exclusively concerned with system engineering and program management.

(2) The Pentagon needs a new policy on mergers and acquisition of defense contractors that ensures a healthy defense industrial base, a robust and innovative workforce, fair competition, and low cost. For the past few years, the acquisition workforce for the DOD has been shrinking, even as procurement appropriations increased. Without adequate numbers of qualified personnel, the acquisition process will be plagued with inefficiencies.

Investment in human capital must occur now to increase the workforce in the pipeline in preparation for the retirement of the most senior and skilled personnel. We should also seek dedicated training for government personnel responsible for contract negotiation and management. This critical function and these important improvements have the potential to save dollars. Furthermore, the Pentagon could improve its capabilities for program management if it could accelerate the time required to issue security clearances to acquisition and other personnel.

(3) Many experts believe that too little emphasis is being given to technology-based activities on which advanced military weaponry is dependent. While it is true that the military must compete for technical talent in the highly competitive commercial market. Some of these obstacles can be overcome through mutually beneficial military-commercial dual use projects.

(4) There is growing concern that the future supply of U.S. scientist and engineers will be inadequate for the defense industry, a critical educational issue identified by the National Academy of Sciences report, "Rising above the Gathering Storm." We cannot allow this to occur if we are to maintain military superiority.

The American defense workforce – public and private -- is a critical national security asset. The preservation of these advanced technology skills in the engineering, manufacturing, and system integration areas is a national priority.

The Pentagon and private sector must work together to preserve and regenerate these critical skills for the future.

Furthermore, there should be integration in the acquisition system.

(1) Technology advancement requires integration of platforms (aircraft, ships, ground vehicles) with redundant information networks.

(2) Successful next generation systems require that the people who will use the equipment in the future establish clear requirements that include appropriate technological trade-offs. .

(3) There should be integrated planning, programming, and budgeting for intelligence programs.

(4) The separation of the requirements process (under the Joint Chiefs of Staff) and the acquisition process (the Pentagon's Defense Acquisition Board) should be eliminated.

I'll be happy to address any questions you may have.

Testimony before the House Armed Services Committee

on

Reform of Major Weapons System Acquisition and Related Legislative Proposals

Statement of

Dr. David S.C. Chu

Director/Assistant Secretary of Defense (Program Analysis and Evaluation) 1981-1993

30 April 2009

Mr. Chairman and Members of the Committee it is a privilege to appear before you again, on this occasion to testify regarding my experience with Independent Cost Estimates during the period I served as Director and then Assistant Secretary of Defense for Program Analysis and Evaluation (1981-93). I should emphasize that this testimony represents my personal views, and does not necessarily reflect any position or set of findings by my present employer.

I joined Secretary Weinberger's team at the Department of Defense at a time when the Deputy Secretary, Frank Carlucci, had decided to give particular attention to management issues. You may recall that he promulgated a series of points, or initiatives, one of which was to give greater weight to Independent Cost Estimates—not just in the acquisition process, but in the programming and budgeting processes of the Department. One feature of that decision was to support preparation of a group of "issue papers" on such management issues during the programming review. Two in particular were important to the role of Independent Cost Estimates: one on "Budgeting to Most Likely Cost", and a second on "Efficient Production Rates".

I should acknowledge that the issues raised by these papers were typically controversial. Budgeting to Most Likely Cost usually implied more resources for a program in the near years. Likewise, moving to more efficient (typically, higher) production rates often meant additional resources would be required in immediate budgets, even if they might reduce unit costs. Those unit cost savings were not normally enough to offset the added quantities immediately involved, although they were expected to reduce total budget requirements over the life of the program.

The reallocation of funds to favor a program in the immediate budget, when faced by a fixed budgetary topline, means that other programs must be reduced. While in principle there might be widespread support for the both the realism of Independent Cost Estimates, and the benefits of more efficient production rates, in practice the search for the best way to finance the changes they implied through reductions in other programs understandably triggered vigorous debate within the Department.

Secretary Carlucci's initiative was reinforced in that period by actions of the Congress. The Armed Services Committees inserted a provision in Title 10 requiring that Independent Cost Estimates be considered at each major milestone for the largest programs. The Department was required to report to the Congress on the issues raised by the Estimates, and how it dealt

with those issues. Satisfied by the progress achieved by the Department of Defense, Congress revoked the reporting requirement some years later.

To the extent that Independent Cost Estimates were successfully employed during this period, I believe it is important to emphasize their larger role, beyond their use in the acquisition system itself. That they played a significant role in the budgetary deliberations of the Department ensured that they informed the then-administration's President's Budget recommendations to the Congress. And that significant role sent a strong signal to the acquisition process regarding the Deputy Secretary's intent, to the benefit of the deliberations by what is now known as the Defense Acquisition Board.

While it is tempting to prescribe specific structures through which the Department might conduct such deliberations in the future, normally the Congress has followed the principle of giving the Secretary of Defense considerable latitude in how he organizes the Department, especially the principal officers reporting to him and his Deputy. Likewise he is normally afforded considerable latitude in the structure of decisionmaking processes, recognizing that the circumstances of each era differ, as do the styles of each Secretary and Administration. I believe those principles continue to have great merit. As I understand Deputy Secretary Lynn has testified, ultimately there is no real substitute for good people, good discipline and good sense in securing the programmatic outcomes we all seek for the future benefit of the United States.

Oversight, of course, is part of good discipline. I note that one provision of H.R. 2101 would resurrect reporting on Independent Cost Estimates by the Department of Defense. Provided this can be done in a manner that reinforces their independence (rather than limiting it), such a provision could indeed create the climate—and the reality—that I believe the Congress is seeking.

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Statement before the House Armed Services Committee

"IF THESE ARE SUCH GOOD IDEAS, WHY ARE THEY SO HARD TO IMPLEMENT?"

A Statement by

David J. Berteau

Director, Defense Industrial Initiatives Group

Center for Strategic and International Studies (CSIS)

April 30, 2009

Rayburn House Office Building

Chairman Skelton, Congressman McHugh, Members of the Committee: I appreciate the opportunity to appear before you this morning and to offer my views on what promises to be very important legislation for this Committee and this Congress, the WASTE TKO bill.

I have a number of both general and specific comments on the bill, but I want to begin with some overall thoughts on acquisition reform. In these matters, I try to take the viewpoint of the practitioner, of the managers who have to operate within the defense acquisition system today. As many of you know, I have been involved deeply in many of the major acquisition reform efforts of the past thirty years, both in developing the recommendations and in trying to implement them, from the "Carlucci Initiatives" of 1981 and the Packard Commission in 1985-1986 through the Gansler Commission and my current work at the Center for Strategic and International Studies. My goal today is to describe ways to support the efforts of this Committee and the Congress as it tackles the critical questions of acquisition improvement. I note, however, that my comments here today are entirely my own and do not reflect the views of either CSIS or any other entity with which I am affiliated.

The Situation Today

Mr. Chairman, I want to share with you the latest thinking from our work at CSIS. We find that there are four powerful and somewhat contradictory dynamics that shape the defense acquisition situation today.

First, the overall environment for defense contracting is profoundly negative, with new reports of problems arising each day. For example, the stimulus bill, the American Reinvestment and Recovery Act of 2009, offers little for defense procurement, despite the ready availability of "shovel-ready" programs where current needs and funding shortfalls exist. The funding from supplemental appropriations since Fiscal Year 2002 and the cost overruns in major defense acquisition programs seem to have combined to produce a sentiment on Capitol Hill, in the media, and even in the executive branch that "defense already had their stimulus."

The second dynamic is the unprecedented dependency of DoD on contractors. Since 1994, defense spending has doubled on procurement and tripled on services. There are many reasons for this dependency: reductions in the acquisition workforce, access to skills not available in the government, price advantages, bureaucratic or statutory caps on employment, wartime requirements, funding availability, and technology development are among them. Significantly, there is no quick or easy way to reduce that dependency. In addition, much of that dependency is under-recognized by military or civilian leadership, and DoD has no broad policy framework for deciding when to use contractors. This is an area where this Committee's recently formed Panel on Defense Acquisition Reform can add value as it moves forward.

The third dynamic is one that gives some hope for change. Despite the negative overall climate on contracting and the high level of dependency by the government, there is also a general feeling that it's time to do something to fix weapons acquisition. This broad agreement is reflected in the elements of your bill: rebuilding the government's acquisition workforce capability in areas like cost estimating and systems engineering, improving the management of cost and schedule and contract performance, providing greater visibility and transparency to both

the process and the results. It is also reflected in the memorandum from the president of March 4 on government contracting and on the reviews initiated by that memo.

The fourth dynamic is that funding for defense contracts is facing significant contraction in the next few years, as the government works to reduce budget deficits. Several times in past decades when defense budgets have been capped or reduced, contracting has been a bill payer, as procurement of major systems have been cut to offset must-pay bills from operations and maintenance accounts. Secretary of Defense Robert Gates proposed some dramatic budget changes earlier this month, but they are not enough to fix defense budget problems. Under future budget pressures, acquisition programs will decline, which makes reform all the more critical but also makes it harder for the investments in restoring the acquisition workforce capability so critically needed.

Five Key Improvements

Taken together, these four dynamics make it more complicated to develop and implement acquisition improvements in DoD. The consensus behind the need to fix acquisition problems is, however, quite strong and widespread. Here are five key elements that in my view would lead to improvement in defense acquisition.

1. Restoring DoD's workforce capability is critical and will take sustained effort over time.
2. Competition is critical; we need to foster more of it.
3. Programs need clear requirements, better cost estimates, and more mature technology.
4. Requirements should not be locked in. Contract solicitations and negotiations need to focus more on tradeoffs of requirements, cost, and schedule. Secretary Gates' 75% solution, achieved faster and at less cost, demands flexible requirements. Achieving success also demands stronger negotiating teams needed on the government side, as well as a willingness to avoid taking the easy way out by picking companies who "buy in" to contract award.
5. It will take more time up front (for requirements, cost estimating, technology maturity, and negotiations) to do this better, but that will pay off in the long run.

In my view, if all of the above elements are present, the government could expect better performance at more predictable and stable prices. Said this way, such solutions can sound deceptively easy and simple.

Avoiding Past Pitfalls

There is a tendency to think of acquisition reform as an endless task that has never successfully been performed. From the Hoover Commission through the latest projects under Norm Augustine and David Walker, each time a body of experts assesses reform, the same recommendations often seem to be repeated. From a practitioner's viewpoint, many of the reforms have had benefits, but countermanding pressures still produce cost and schedule overruns, poorly defined requirements, and the opportunity for fraud and waste.

Given that each new study references the many that have preceded it, Mr. Chairman, this committee can appropriately ask of the witnesses today the following question: If these are such good ideas, why are they so hard to implement?

To answer that question, we need to identify the pitfalls that have prevented success from past reform efforts. Here are the ones I see, based on my study and experience:

- Most past efforts have been too limited in their scope. For DoD to deal with better managing of cost and schedule and performance means real integration of requirements, programs and resources. In the past, the Under Secretary of Defense for Acquisition has had a focus that was narrower, particularly following the unsuccessful attempts by the first under secretary, Richard Godwin, to take a broader approach. Avoiding future pitfalls means that new efforts need to be DoD-wide, not just those actions which fall directly under the USD(AT&L).

- Past efforts paid lip service to a process that would not encourage buy-in by the Services, the programs, and the contractors. The reality is that buying-in is often rewarded within DoD, industry, and even the Congress.

- Most past efforts have not focused on the real needs of the government to do its roles properly and on any gap analysis of those needs or how they will be met. By that I mean that requirements are too often based on more than an acceptable risk level for specific mission accomplishments.

- Past efforts have not been patient enough in time or money. Doing acquisition right takes time and money up front but saves both in the long run. That "long run" is hard to defend, thus providing incentives to "buying in."

- DoD, the Services, industry, and the Congress must work together on visible, identified common goals.

It is my belief that, taken together, the elements of success and the causes for previous pitfalls provide a framework for analysis that will enable this committee to assess the bill you introduced earlier this week. While that assessment effort clearly goes beyond today's hearing, here are my preliminary thoughts on the bill before us. I draw on a number of CSIS studies and reports, on past studies on which I participated, and on my own experience and research.
The committee has tackled a worthy set of goals, a welcome addition and complement to similar language in Senate bill S.454. I also applaud your intention to mark up your bill outside defense authorization, because this will help these issues get the attention they merit.

The Packard Commission is in some ways the gold standard for acquisition reform efforts. Its recommendations started from the premise that rules, regulations, and statutes should support the basic principle that the Secretary of Defense should have the authority to manage and organize as he sees fit to accomplish his objectives, including authorities delegated to the Under Secretary of

Defense for Acquisition, now AT&L. I encourage the Committee to adhere to this principle as you move forward.

That said, perhaps the single most important change Congress can make is to reinforce incentives on the critical issue of rebuilding the acquisition workforce, at the leadership level, the level of the Office of the Secretary of Defense, and throughout the Department of Defense. The bill's emphases on increasing attention to and focus on cost estimating and systems engineering are useful elements of that focus, and I applaud them. I note, though, that the creation of new principal advisors under sections 101-104 need to be careful that the role of the Defense Acquisition Executive can still be sustained and not undermined. I attempted to draw an organization chart that would implement these sections, and I confess to struggling with that. There are also some potential overlap areas with other officials whose authorities were established by Congress in the past year or two, and those overlap areas need to be worked carefully. One such area is the performance measurement responsibility of the Deputy Chief Management Officer, which could usefully integrate with the proposed authorities in section 104. I would be happy to work with the Committee and its staff to clarify and strengthen these and other sections.

A second area on which Congress can make clearly valuable contributions is the emphasis on assessing and accounting for technology maturity in weapon systems milestone decisions and on making those assessments clearly visible. Section 105 strengthens the role of the Director of Defense Research and Engineering in this regard, which is a step that CSIS has supported in our past series of Beyond Goldwater Nichols reports.

The third area where the bill clearly adds value is in enhancing the role of the Combatant Commanders in defining requirements. Section 106 takes a preliminary step in the direction of full involvement of CoComs in the requirements-setting process, something that CSIS has supported in those same Beyond Goldwater Nichols reports. We have pushed for a stronger role for the CoComs and will continue to do so.

The bill also endeavors to support competition throughout the life cycle of major systems, to strengthen the certification requirements at and beyond major milestone decision points, and to control cost growth in major programs. In each section, there are elements of positive value. I would respectfully suggest, though, that much of the focus still produces better vision after the fact, when what is needed is better decisions based on better information and trade-offs, which are by definition <u>before</u> the fact. The question is, how can Congress do that?

I think the answer here lies in the way DoD sets requirements. For too long, DoD has treated requirements as a sacred text that cannot be changed except through a lengthy bureaucratic process. That view must change, and I believe that Congress may have an opportunity to contribute to that change. Here is what could happen:

Acquisition reform cannot happen without requirements reform. The best way to reduce and control the cost of major systems is for DoD to produce clear and precise requirements, but those requirements cannot be locked in place. Instead, they must be flexible enough to trade off against cost and schedule. This means that requirements will change, not to become even more

demanding, but less so. The DoD culture finds that hard to support, because the old way to reduce "risk" is to put into requirements a need for the most promising technology regardless of its readiness. In reality, though, demanding requirements that are technically challenging and then making them non-negotiable does not reduce risk, it actually increases risk.

Contract negotiations for major weapon systems need to be based on requirements that are flexible enough to change, based on cost and schedule impact, prior to finalizing the contract. This would enable DoD to move toward Secretary Gates' call to acquire the "75 percent solution." Such an approach would mean DoD can:

- Define requirements better.
- Run solicitations more effectively.
- Negotiate tradeoffs between costs and requirements.
- Set performance metrics, use those as contract evaluation criteria, and make contract awards accordingly.
- Provide proper funding for execution and management oversight.
- Reward high performance by DoD and industry.

If the government can do all that, weapon costs will go down, independent of contract type, because solicitations will be clean and focused and deliverables will have a greater chance to be on schedule and at projected costs.

Mr. Chairman, Congressman McHugh, and Members of the Committee, that concludes my remarks, and I await your questions.

United States Government Accountability Office

GAO

Testimony
Before the Committee on Armed Services, House of Representatives

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DEFENSE ACQUISITIONS

Charting a Course for Lasting Reform

Statement of Paul Francis, Managing Director
Acquisition and Sourcing Management

GAO-09-663T

GAO
Accountability·Integrity·Reliability
Highlights

Highlights of GAO-09-663T, a testimony before the Committee on Armed Services, House of Representatives

April 30, 2009

DEFENSE ACQUISITIONS

Charting a Course for Lasting Reform

Why GAO Did This Study

Since 1990, GAO has designated the Department of Defense's (DOD) management of its major weapon acquisitions as a high-risk area; however DOD's problems delivering weapon systems on time, at the estimated cost, in the planned amounts, and with the promised performance go back decades. Congress and DOD have continually explored ways to improve acquisition outcomes, yet problems persist.

The committee asked GAO to testify on measures needed to reform the acquisition of major weapon systems and related legislative proposals. Specifically, this statement will describe the poor outcomes on weapon system investments that make reform imperative; attributes of the requirements, funding, and acquisition processes that will need to change for reform to be effective; and positive steps that Congress and DOD have taken to improve weapon program outcomes. The statement will also examine other factors that should be considered as the committee moves forward with its reform efforts.

The testimony is drawn from GAO's body of work on DOD's requirements, funding, and acquisition processes. GAO has made numerous recommendations aimed at improving DOD's management of its major weapon acquisitions, but it is not making any new recommendations in this testimony.

View GAO-09-663T or key components. For more information, contact Paul Francis at (202) 512-4841 or francisp@gao.gov.

What GAO Found

DOD must get a better return on investment from its weapon system programs. Since fiscal year 2003, DOD has increased the number of major defense acquisition programs and its overall investment in them. The cumulative cost growth for DOD's programs is higher than it was 5 years ago, but at $296 billion (fiscal year 2009 dollars), it is less than last year when adjusted for inflation. For DOD's 2008 portfolio of programs, research and development costs are now 42 percent higher than originally estimated and the average delay in delivering initial capabilities has increased to 22 months.

Analysis of DOD Major Defense Acquisition Program Portfolios (Fiscal Year 2009 Dollars)

Portfolio status	Fiscal year 2003 portfolio	Fiscal year 2007 portfolio	Fiscal year 2008 portfolio
Number of programs	77	95	96
Total planned commitments	$1.2 trillion	$1.6 trillion	$1.6 trillion
Commitments outstanding	$724 billion	$875 billion	$786 billion
Change to total research and development costs from first estimate	37 percent	40 percent	42 percent
Change in total acquisition cost from first estimate	19 percent	26 percent	25 percent
Estimated total acquisition cost growth	$183 billion	$301 billion	$296 billion
Share of programs with 25 percent or more increase in program acquisition unit cost	41 percent	44 percent	42 percent
Average delay in delivering initial capabilities	18 months	21 months	22 months

Source: GAO analysis of DOD data.

These problems have roots in not only the acquisition process, but also in the requirements and funding processes. Collectively, these processes create pressures to demand high performance, keep cost estimates low, and proceed with calendar-driven versus knowledge-driven schedules. These processes also do not adequately prioritize needs from a joint, departmentwide perspective, respond to changing warfighter demands, or constrain the number of programs to a level that is supportable by available resources. Programs are allowed to enter and proceed through the acquisition process with requirements that are not fully understood, cost and schedule estimates that are based on optimistic assumptions, and a lack of sufficient knowledge about technology, design, and manufacturing.

Congressionally-mandated and DOD-initiated changes to the acquisition system could provide the basis for sounder programs and improved acquisition outcomes. The committee's proposed legislation dealing with requirements, systems engineering, technology and integration risk assessment, and cost estimation—also address areas in need of reform. However, past reform efforts have failed to produce lasting change. To make the most out of this opportunity, the weapons acquisition environment and the incentives inherent within it will also have to be confronted and addressed.

Mr. Chairman and Members of the Committee:

I am pleased to be here today to discuss the Department of Defense's (DOD) acquisition of major weapon systems and the legislation that is being introduced by this committee. As you know, weapon systems acquisition has been on GAO's high risk list since 1990. Prior to and since that time, Congress and DOD have continually explored ways to improve acquisition outcomes, yet problems persist. The opportunity for meaningful change at this moment is significant, exemplified by the Defense Acquisition Reform Panel established by this committee; your recent legislative proposal to reform weapons acquisition; the Senate Armed Services Committee's acquisition reform legislation; the Senate's new Subcommittee on Contracting Oversight; DOD's revision of its acquisition policy for major defense acquisition programs; and the Secretary of Defense's recent call for acquisition reform and recommendations for the fiscal year 2010 budget that could end all or part of at least a half dozen major defense acquisition programs. Yet, we must be mindful that there have been missed opportunities in the past. The challenge today will be to address not only how to align DOD's requirements, funding, and acquisition processes to get better outcomes, but also how to confront the environment that has made the area resistant to reform.

Today, I will discuss the (1) poor outcomes on weapon system investments that make reform imperative; (2) attributes of the requirements, funding, and acquisition processes that will need to change for reform to be effective; and (3) positive steps that Congress and DOD have taken to improve weapon program outcomes. The statement draws from our extensive body of work on DOD's acquisition of weapon systems. This work was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The Case for Reform

There can be little doubt that we can—and must—get better outcomes from our weapon system investments. As can be seen in table 1 below, cost growth and schedule delays in DOD's portfolio of weapon systems have been significant.

Table 1: Analysis of DOD Major Defense Acquisition Program Portfolios

Fiscal year 2009 dollars	Fiscal Year		
	2003	2007	2008
Portfolio size			
Number of programs	77	95	96
Total planned commitments	$1.2 trillion	$1.6 trillion	$1.6 trillion
Commitments outstanding	$724.2 billion	$875.2 billion	$786.3 billion
Portfolio indicators			
Change to total RDT&E costs from first estimate	37 percent	40 percent	42 percent
Change to total acquisition cost from first estimate	19 percent	26 percent	25 percent
Total acquisition cost growth	$183 billion	$301.3 billion[a]	$296.4 billion
Share of programs with 25 percent increase in program acquisition unit cost growth	41 percent	44 percent	42 percent
Average schedule delay in delivering initial capabilities	18 months	21 months	22 months

Source: GAO analysis of DOD data.

Notes: Data were obtained from DOD's Selected Acquisition Reports (SAR) (dated December 2002, 2006, and 2007). In a few cases data were obtained directly from program offices. The number of programs reflects the programs with SARs; however, in our analysis we have broken a few SAR programs into smaller elements or programs. Not all programs had comparable cost and schedule data and these programs were excluded from the analysis where appropriate. Portfolio performance data do not include costs of developing Missile Defense Agency elements or the Defense Integrated Military Human Resources System (DIMHRS) program.

[a]The total acquisition cost growth for the 2007 portfolio was $295 billion in 2008 constant dollars.

Since 2003, DOD's portfolio of major defense acquisition programs has grown from 77 to 96 programs and its investment in those programs has grown from $1.2 trillion to $1.6 trillion (fiscal year 2009 dollars).[1] The total cost growth for DOD's portfolio of major defense acquisition programs is higher than it was 5 years ago, but at $296 billion, it is actually less than the 2007 portfolio's cost growth of $301 billion. For DOD's 2008 portfolio of programs, total research and development costs are 42 percent higher than originally estimated, and the average delay in delivering initial

[1]All dollars amounts used in this statement are in fiscal year 2009 constant dollars unless otherwise noted.

capabilities is 22 months. In addition, 42 percent of the programs reported a 25 percent or more increase in acquisition unit costs.[2] DOD's performance in some of these areas is driven by older, underperforming programs as newer programs, on average, have not yet shown the same degree of cost and schedule growth. Of the programs in the 2008 portfolio that reported comparable cost data, 75 percent (69 programs) reported increases in research and development costs since their first estimate, and 69 percent (64 programs) reported increases in total acquisition costs. Quantities have been reduced by 25 percent or more for 15 of the programs in the 2008 portfolio.

The overall performance of this portfolio is one indicator of how well DOD's acquisition system generates the return on investment it promises to the warfighter, Congress, and the taxpayer. Another is the effect cost increases have on DOD's buying power for individual systems, as demonstrated by changes in program acquisition unit costs. Some examples that illustrate the effect of lost buying power are shown in table 2 below.

Table 2: Effect of Cost Increases on Buying Power

	Total cost (fiscal year 2009 dollars in billions)		Total quantity		Acquisition unit cost
Program	First full estimate	Current estimate	First full estimate	Current estimate	Percentage change
Joint Strike Fighter	206.4	244.8	2,866	2,456	38.4
Future Combat System	89.8	129.7	15	15	44.5
Space Based Infrared System High	4.4	12.2	5	4	244.7
Expeditionary Fighting Vehicle	8.8	13.7	1,025	593	167.5
V-22 Joint Services Advanced Vertical Lift Aircraft	38.7	55.5	913	458	185.9

Source: GAO analysis of DOD data.

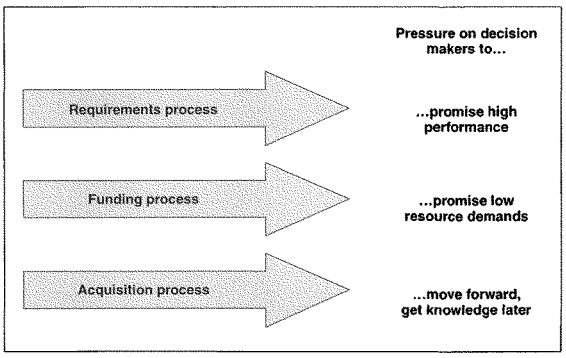
[2]The program acquisition unit cost is the total cost for development and procurement of, and system-specific military construction for, the acquisition program divided by the number of fully-configured end items to be produced. 10 USC § 2432 (a)(1).

There is no single measure that perfectly explains every variable behind cost and schedule changes in weapon systems. For example, the total cost of a weapon system can increase because more quantities are added, without necessarily being indicative of a problem. On the other hand, the total cost can stay the same while quantities are significantly reduced—a clear indication of a problem. While there can be legitimate debate over which set of measures are the best explanation of the problem, as table 1 shows, there can be no debate over the fact that the problem is significant and calls for action.

What Needs to Change?

DOD's key processes for setting requirements, providing funding, and managing acquisition programs have institutionalized some underlying causes for persistent problems in weapon system programs. As illustrated in figure 1 below, collectively, these processes create pressures to promise high performance, keep cost estimates low, and proceed with calendar-driven versus knowledge-driven schedules.

Figure 1: Factors Influencing DOD's Ability to Manage Programs and Improve Outcomes



Source: GAO.

DOD's processes for identifying warfighter needs, funding programs, and developing and procuring weapon systems—which collectively define

DOD's overall weapon system investment strategy—do not work together to provide the best value to the warfighter and to the taxpayer. Instead, DOD largely continues to define warfighting needs and make investment decisions on a service-by-service and individual platform basis. As a result, DOD does not effectively address joint warfighting needs and commits to more programs than it has resources for, thus creating unhealthy competition for funding. At the individual program level, a military service typically establishes and DOD approves a business case containing requirements that are not fully understood and cost and schedule estimates that are based on optimistic assumptions rather than on sufficient knowledge. This makes it impossible to successfully execute the program within established cost, schedule, and performance targets. Because DOD's requirements, funding, and acquisition processes are led by different organizations, it is difficult to hold any one person or organization accountable for saying no to a proposed program or for ensuring that the department's portfolio of programs is balanced. Frequent turnover in leadership positions in the department exacerbates the problem. As of March 2009, the average tenure of the Under Secretary of Defense for Acquisition, Technology and Logistics over the past 22 years has been only about 20 months.[3]

Requirements Process

DOD's requirements determination process—the Joint Capabilities and Integration Development System (JCIDS)—provides a framework for reviewing and validating needs. However, it does not adequately prioritize those needs from a joint, departmentwide perspective and lacks the agility to meet changing warfighter demands. We recently reviewed JCIDS documentation related to new capability proposals and found that most were sponsored by the military services with little involvement from the joint community, including the combatant commands.[4] By continuing to primarily rely on stovepiped solutions to address capability needs, DOD may be losing opportunities to improve joint warfighting capabilities and reduce the duplication of capabilities in some areas. Furthermore, the vast majority of capability proposals that enter the JCIDS process are validated

[3]The position of Under Secretary of Defense for Acquisition was established in 1986 and the title was subsequently changed to the Under Secretary of Defense for Acquisition, Technology, and Logistics in 1999. As of March 2009, there have been 11 under secretaries.

[4]GAO, *Defense Acquisitions: DOD's Requirements Determination Process Has Not Been Effective in Prioritizing Joint Capabilities*, GAO-08-1060 (Washington, D.C.: Sept. 25, 2008).

or approved without accounting for the resources or technologies that will be needed to acquire the desired capabilities. As a result, the process produces more demand for new weapon system programs than available resources can support.

Funding Process

The funding of proposed programs takes place through a separate process—the Planning, Programming, Budgeting, and Execution system, which is not synchronized with JCIDS. We recently reviewed the impact of the funding process on major defense acquisition programs and found that the process does not produce an accurate picture of DOD's resource needs for weapon system programs.[5] The estimated cost of many of the programs we reviewed exceeded the funding levels planned for and reflected in the Future Years Defense Program—DOD's long-term investment strategy. Rather than limit the number and size of programs or adjust requirements, the funding process attempts to accommodate programs. This creates an unhealthy competition for funds that encourages sponsors of weapon system programs to pursue overly ambitious capabilities and to underestimate costs. With too many programs underway for the available resources and high cost growth occurring in many programs, DOD must make up for funding shortfalls by shifting funds from one program to pay for another, reducing system capabilities, cutting procurement quantities, stretching out programs, or in rare cases terminating programs. Such actions not only create instability in DOD's weapon system portfolio, they further obscure the true future costs of current commitments, making it difficult to make informed investment decisions.

Acquisition Process

At the program level, the key cause of poor outcomes is the approval of programs with business cases that contain inadequate knowledge about requirements and the resources—funding, time, technologies, and people—needed to execute them. In a sense, the business cases are compromised to reconcile the disparate pressures imposed by the requirements and funding processes. We analyze the soundness of individual business cases at various points in the acquisition process through the lens of three knowledge points that are indicators of technology, design, and production maturity. These knowledge points are

[5]GAO, *Defense Acquisitions: A Knowledge-Based Funding Approach Could Improve Major Weapon System Program Outcomes*, GAO-08-619 (Washington, D.C.: July 2, 2008).

consistent with best practices for product development. Some key observations on each follow.

Knowledge point 1: Resources and requirements match. Achieving a high level of technology maturity by the start of system development is an important indicator of whether this match has been made.[6] This means that the technologies needed to meet essential product requirements have been demonstrated to work in their intended environment. In addition, the developer has completed a preliminary design of the product that shows the design is feasible. DOD's acquisition policy and statute both require that technologies should be demonstrated in a relevant environment prior to starting development—a slightly lower standard than the best practice. Since 2003, there has been a significant increase in the technology maturity of DOD programs at the start of system development; however, few programs have met the best practices standard. In our most recent assessment, only 4 of the 36 programs that provided data on technology maturity at development start did so with fully mature critical technologies.[7] In addition, only 4 of the 36 programs that held a preliminary design review did so before development start; the remaining programs held the review, on average, 31 months after development began.

Knowledge point 2: Product design is stable. This point occurs when a program determines that a product's design will meet customer requirements, as well as cost, schedule, and reliability targets. A best practice is to achieve design stability at the system-level critical design review, usually held midway through system development. Completion of at least 90 percent of engineering drawings at this point provides tangible evidence that the product's design is stable, and a prototype demonstration shows that the design is capable of meeting performance requirements. Of the 29 programs in our most recent assessment that have held a system-level critical design review, 7 reported having a stable

[6]The start of system development, as used here, indicates the point at which significant financial commitment is made to design, integrate, and demonstrate that the product will meet the user's requirements and can be manufactured on time, with high quality, and at a cost that provides an acceptable return on investment. Under the revised 5000 series, this phase is now called engineering and manufacturing development and begins at milestone B. Engineering and manufacturing development follows the materiel solution analysis and technology development.

[7]GAO, *Defense Acquisitions: Assessments of Selected Weapon Programs*, GAO-09-326SP (Washington, D.C.: Mar. 30, 2009).

design. However, the level of design knowledge attained by the critical design review has been increasing over time.

Knowledge point 3: Manufacturing processes are mature. This point is achieved when it has been demonstrated that the developer can manufacture the product within cost, schedule, and quality targets. A best practice is to ensure that all critical manufacturing processes are in statistical control—that is, they are repeatable, sustainable, and capable of consistently producing parts within the product's quality tolerances and standards—at the start of production. Identifying key product characteristics and the associated critical manufacturing processes is a key initial step to ensuring production elements are stable and in control. In our most recent assessment, only 4 of the 23 programs that had made a production decision identified key product characteristics or associated critical manufacturing processes. However, it should also be noted that 4 of the 17 programs that are scheduled to make a production decision in the next 3 years have already identified key product characteristics or associated critical manufacturing processes.

When programs do not follow a knowledge-based approach to acquisition, high levels of uncertainty about requirements, technologies, and design often exist at the start of a development program. As a result, cost estimates and related funding needs are often understated. Our analysis of service and independent cost estimates for 20 major weapon system programs shows that while the independent estimates were somewhat higher, both estimates were too low in most cases.[8] The programs we reviewed frequently lacked sufficient knowledge and detail about planned program content for developing sound cost estimates. Without this knowledge, cost estimators must rely heavily on parametric analysis and assumptions. A cost estimate is then usually presented to decision makers as a single, or point, estimate that is expected to represent the most likely cost of the program but provides no information about the range of risk and uncertainty or level of confidence associated with the estimate. Second, the basic principles of systems engineering are not being followed when preliminary and critical design reviews are not conducted on time or with insufficient information. Further, testing a fully integrated, capable, production-representative prototype is essential to confirm the maturity of the design and to minimize cost growth in production. Yet of the 33

[8]GAO-08-619.

programs in our most recent assessment that reported they plan to test such prototypes, only 17 planned to do so before the production decision.

Recent and Proposed Reform Efforts Could Improve Weapon Programs

There is widespread recognition of the problems that affect the acquisition system and DOD and the Congress have taken and proposed several steps to remedy them. Changes have been introduced to improve the department's processes for determining warfighter needs and funding programs, establish sound business cases for starting acquisition programs, and execute programs more effectively.

Efforts to Prioritize Needs and Manage Resources

DOD has recently implemented measures to better address the needs of the joint warfighter and align the demand for weapon systems with available resources. The Joint Requirements and Oversight Council, for example, has been doing more to seek out and consider input from the combatant commands (COCOMs)—the principal joint warfighting customer in DOD—through regular trips and meetings to discuss capability needs and resource issues. This may help alleviate concerns that the COCOMs have raised in the past that their needs have not been adequately addressed through the department's requirements process. In addition, DOD has taken action over the past few years to field capabilities that are urgently needed for Iraq and Afghanistan, such as Unmanned Aerial Systems and Mine Resistant Ambush Protected vehicles. While these efforts have helped DOD meet the needs of the warfighter, Secretary Gates noted earlier this year that the department must figure out how to institutionalize the acquisition of urgently-needed capabilities rather than having to do so, on an ad hoc basis. Having greater combatant command involvement in determining requirements, as emphasized in the House and Senate Armed Services Committees' proposed acquisition reform legislation, would help to ensure that near-term needs are addressed. We have recommended additional actions that DOD should take to balance the needs of the military services, COCOMs, and other defense components, including establishing an analytic approach to determine the relative importance of capabilities and providing the COCOMs with additional resources to establish robust analytical capabilities for identifying and assessing their warfighting needs.

DOD has also recently established a capability portfolio management framework to facilitate more strategic choices for allocating resources through the funding process. Capability portfolios have been set up to advise the department on how to optimize investments within individual capability areas, but portfolio managers do no have independent decision-

making authority over determining requirements and funding. Although it is too soon to assess the impact of the portfolios, according to some DOD officials, portfolio managers have provided key input and recommendations during the budget process this year. However, while these portfolio managers may improve the management of individual capability areas, there still needs to be higher level DOD attention to improving the match between the number of major defense acquisition programs and available funding. The Secretary of Defense recently recommended the termination of several major weapon programs, which will help bring the portfolio into balance better and prioritize capability needs. Sustaining a balance over the long term will require DOD to improve the way it makes decisions about which programs to pursue or not pursue. Legislative proposals to promote greater consideration of trade-offs in the cost, schedule, and performance of individual programs and the development of better mechanisms to ensure this happens before a program begins could help make such decisions part of a disciplined process versus the product of extraordinary action.

Efforts to Establish Sound Programs

Recognizing the need for more discipline and accountability in the acquisition process, Congress and DOD have recently introduced several initiatives that could provide a foundation for establishing sound, knowledge-based business cases for individual weapon programs. These initiatives require programs to invest more time and resources in the front-end of the acquisition process—refining weapon system concepts through early systems engineering, developing technologies, and building prototypes—before starting system development. In the past, weapon programs often rushed into systems development before they were ready, in part because the department's acquisition process did not require early formal milestone reviews and programs would rarely be terminated once underway. If implemented, these changes could help programs replace risk with knowledge, thereby increasing the chances of developing weapon systems within cost and schedule targets while meeting user needs. However, DOD must ensure that these changes to the acquisition process are consistently implemented and reflected in decisions on individual programs. Several of the provisions in the proposed House and Senate legislation will codify DOD policies that are not yet being implemented consistently in weapon programs. Some of the key changes being introduced by DOD and the Congress to establish knowledge-based business cases for weapon programs include:

- Increased emphasis on early systems engineering activities and the enhancement of systems engineering capabilities within the department;

- A requirement for competitive prototyping of a proposed weapon system or key system elements during the technology development phase;
- Certification that critical technologies have been demonstrated in a relevant environment before the start of system development, employing independent technology readiness assessments to make these determinations;
- Early milestone reviews for programs going through the pre–systems acquisition phase;
- Conducting preliminary design reviews before starting system development;
- Requiring early cost estimates for the milestone decision to move into technology development phase; and
- Elevating the role of independent cost estimates in the acquisition process, by establishing a director or principal advisor for cost estimating who reports to the Secretary of Defense and the Congress.

Efforts to Improve Program Execution

There have also been several policy and legislative provisions introduced to improve the execution of weapon system programs. For example, to address the problem of requirements creep that has often plagued programs in the past, review boards are being established to identify and mitigate technical risks and evaluate the impact of any potential requirements changes on ongoing programs. In addition, to improve accountability in managing programs, DOD has established a policy instituting formal agreements among program managers, their acquisition executives, and the user community setting forth common program goals and the resources that will be provided to reach these goals. Further, DOD acquisition policy now incorporates a requirement that program managers sign tenure agreements so that their tenure will correspond to the next major acquisition milestone review closest to 4 years. The House and Senate reform legislation introduces a number of steps to monitor and oversee the progress of existing programs that started before the recent certification requirements were put in place for gaining approval to enter system development, and programs where DOD waived the certification requirements for one reason or another. The House proposal also includes establishing a principal advisor for performance assessment—a position that will focus primarily on program execution. In addition, requiring any program that the department determines must be continued following a Nunn-McCurdy breach, to go back through a major milestone review, should help ensure that programs with significant cost problems are not allowed to continue without a sound business case.

Concluding Observations on Achieving Lasting Reform

I would like to offer a few thoughts about other factors that should be considered so that we make the most out of today's opportunity for meaningful change. First, I think it is useful to think of the processes that affect weapon system outcomes (requirements, funding, and acquisition) as being in a state of equilibrium. Poor outcomes—delays, cost growth, and reduced quantities—have been persistent for decades. If we think of these processes as merely "broken", then some targeted repairs should fix them. I think the challenge is greater than that. If we think of these processes as being in equilibrium, where their inefficiencies are implicitly accepted as the cost of doing business, then the challenge for getting better outcomes is greater. Seen in this light, it will take considerable and sustained effort to change the incentives and inertia that reinforce the status quo.

Second, while actions taken and proposed by DOD and Congress are constructive and will serve to improve acquisition outcomes, one has to ask the question why extraordinary actions are needed to force practices that should occur normally. The answer to this question will shed light on the cultural or environmental forces that operate against sound management practices. For reforms to work, they will have to address these forces as well. For example, there are a number of proposals to make cost estimates more rigorous and realistic, but do these address all of the reasons why estimates are not already realistic? Clearly, more independence, methodological rigor, and better information about risk areas like technology will make estimates more realistic. On the other hand, realism is compromised as the competition for funding encourages programs to appear affordable. Also, when program sponsors present a program as more than a weapon system, but rather as essential to new fighting concepts, pressures exist to accept less than rigorous cost estimates. Reform must recognize and counteract these pressures as well.

Third, decisions on individual systems must reinforce good practices. Programs that have pursued risky and unexecutable acquisition strategies have succeeded in winning approval and funding. If reform is to succeed, then programs that present realistic strategies and resource estimates must succeed in winning approval and funding. Those programs that continue past practices of pushing unexecutable strategies must be denied funding before they begin. This will take the cooperative efforts of DOD and Congress.

Fourth, consideration should be given to setting some limits on what is a reasonable length of time for developing a system. For example, if a program has to complete development within 5 or 6 years, this could serve

as a basis to constrain requirements and exotic programs. It would also serve to get capability in the hands of the warfighter sooner.

Fifth, the institutional resources we have must match the outcomes we desire. For example, if more work must be done to reduce technical risk before development start—milestone B—DOD needs to have the organizational, people, and financial resources to do so. Once a program is approved for development, program offices and testing organizations must have the workforce with the requisite skills to manage and oversee the effort. Contracting instruments must be used that match the needs of the acquisition and protect the government's interests. Finally, DOD must be judicious and consistent in how it relies on contractors.

Mr. Chairman, this concludes my prepared statement. I would be happy to answer any questions you may have at this time.

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WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING

April 30, 2009

RESPONSE TO QUESTION SUBMITTED BY MR. BARTLETT

Mr. BERTEAU. My analysis includes my fourth category of budget disruptions. Mr. Bartlett could, if he chose, combine my fourth category of budget disruptions with his third category of excessive optimism, since many budget disruptions are caused by someone's optimistic belief that DOD can procure the same amount of capability for less money. Here are my percentages:

Requirements Creep: 20%
Underbidding: 20%
Excess Optimism: 40%
Budget Disruptions: 20%
[See page 21.]

RESPONSES TO QUESTIONS SUBMITTED BY MR. ANDREWS

Mr. BERTEAU. Mr. Andrews, what you propose would in my judgment and experience result in substantial and positive change in the decisionmaking dynamics of the requirements process. If DOD were forced to prioritize its requirements for systems and then to assess the cost impact of those requirements, it would be possible for decisionmakers inside DOD and in the Congress to decide if the match of requirements priorities and cost is the right match. It would make it possible to make a tradeoff decision that today is very hard to make, because the information is largely not available. This would be a big improvement, and I thank you for asking the question. [See page 23.]

Mr. FRANCIS. My experience has been that once a program is underway, its requirements do in fact become negotiable. For example, quantities are often cut to offset cost increases; reductions in performance characteristics, like the range of an aircraft are found to be acceptable; and lower than expected reliability is found acceptable as well. These requirements are not offered up as negotiable at the start of a program. It is too often the case that the dollars appropriated for a program buy less than expected—reducing buying power. If more was known about what a program could really deliver, then more requirements could be negotiated at the start and DOD could make better decisions as to which programs warrant investment and at what levels.

A key reason why such tradeoffs are not made at the start of a program is that too often, programs are allowed to enter and proceed through the acquisition process with overly optimistic requirements that are not fully understood or technically feasible. This is due in part because early systems engineering has been lacking before weapon systems are approved to start development. Systems engineering translates customer needs into specific product requirements for which requisite technological, software, engineering, and production capabilities can be identified through requirements analysis, design, and testing. Early systems engineering provides the knowledge a product developer needs to identify and resolve performance and resource gaps before product development begins by reducing requirements, deferring them to the future, or increasing the estimated cost for the weapon system's development. Because DOD often does not perform the proper up-front requirements analysis to determine whether or not a program will meet its needs, significant contract cost increases can and do occur as the scope of the requirements change or become better understood by the government and contractor.

Recent DOD-initiated changes to the acquisition system as well as the enactment of the Weapon Systems Acquisition Reform Act of 2009 could provide a foundation for establishing more realistic requirements and sounder business cases for weapon programs. The emphasis on improved systems engineering, early prototyping and preliminary design reviews, and strengthened technology readiness assessments should make the critical front end of the acquisition process more disciplined and provide key DOD leaders with the knowledge needed to make informed decisions before a program starts. However, to achieve improved program outcomes, DOD must ensure that these changes are consistently implemented and reflected in decisions on individual programs. Furthermore, to produce lasting change, the weapons acqui-

sition environment and the incentives inherent within it will also have to be confronted and addressed, such as the unhealthy competition for funding that encourages programs to pursue overly ambitious requirements and appear affordable when they are not. [See page 23.]

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