

Stenographic Transcript
Before the

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON
DEFENSE ACQUISITION PROGRAMS AND
ACQUISITION REFORM

Wednesday, April 28th, 2021

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TO RECEIVE TESTIMONY ON DEFENSE ACQUISITION PROGRAMS AND
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Wednesday, April 28, 2021

U.S. Senate

Committee on Armed Services

Subcommittee on Readiness and

Management Support

Washington, D.C.

The subcommittee met, pursuant to notice, at 2:32 p.m.

13 in Room SR-222, Russell Senate Office Building, Hon. Tim
14 Kaine, chairman of the subcommittee, presiding.

15 Subcommittee Members Present: Kaine, Hirono,
16 Duckworth, Sullivan, and Blackburn.

1 OPENING STATEMENT OF HON. TIM KAINES, U.S. SENATOR FROM
2 VIRGINIA

3 Senator Kaine: I call this meeting of the SAS
4 Readiness Subcommittee to order. We meet today to receive
5 testimony on defense acquisition programs and thoughts about
6 acquisition reform as the committee enters into its NDAA
7 annual process.

8 I want to welcome our witnesses, thank them for their
9 public service and the efforts to make sure that taxpayer
10 dollars are well spent, and even more importantly, that what
11 we do is effective in advancing the capacity of our
12 military.

13 Here are our witnesses today. Ms. Stacy Cummings. Ms.
14 Cummings is currently performing the duties of Under
15 Secretary of Defense for Acquisition and Sustainment. Ms.
16 Cummings has a long and distinguished career in defense
17 acquisition, including leading interagency acquisition
18 efforts to support COVID response in the past year.

19 Dr. Raymond O'Toole. Dr. O'Toole is the Acting
20 Director of Operational Test and Evaluation. Dr. O'Toole
21 has over 30 years of government service as a Navy officer
22 and a civilian in operational and acquisition organizations.

23 And then Ms. Shelby Oakley, who is the Director of
24 Contracting and National Security Acquisitions at the GAO.
25 Ms. Oakley has done extensive work looking at acquisition

1 programs, including Navy shipbuilding, nuclear triad
2 recapitalization, and leading the annual GAO assessment of
3 cost schedule and performance of DoD's portfolio of
4 acquisition programs, which we have here on the table, the
5 June 20 version of that assessment.

6 I thank the witnesses for lending your expertise to
7 this important hearing.

8 Congress and the Pentagon are perpetually trying to
9 reform defense acquisition laws and practices in search of
10 better outcomes. The Congress and Pentagon have cycled
11 between centralizing authority in the Office of the
12 Secretary of Defense and then shifting more responsibility
13 back to the Military Services, and those cycles come with
14 the regularity of cicadas.

15 We have also cycled between emphasizing moving fast and
16 trying to be nimble and adopt and deploy new technologies
17 and systems quickly, while also moving more cautiously in an
18 attempt to both limit costs and reduce technical and
19 engineering risks. And I know Senator Sullivan and I have
20 seen Senator Tillis on our committee always bring forward
21 the request for proposals for the development of a military
22 pistol, and it is so massive. He always uses that as his
23 visual aid to demonstrate the back-and-forthing we do in
24 that way.

25 We have created new offices and structures, like the

1 Under Secretary for Research and Engineering and the
2 Director of Cost Analysis and Program Evaluation, to
3 emphasize different aspects of the system that seem
4 important at any point in time.

5 But regardless of whatever the current flavor of
6 acquisition reform, there are certain characteristics of
7 acquisition programs and some specific behaviors of the
8 customers, the government customers, or program managers
9 that strongly determine the performance of programs,
10 especially in terms of the ability to deliver the goods and
11 services on time and on appropriate cost.

12 Some of these consistent issues are understanding the
13 requirements for the systems being developed for
14 procurement; understanding the technical risks and then
15 funding engineering work to address and reduce risk;
16 understanding drivers for lifecycle costs -- that is really
17 important one -- and taking steps to control the lifecycle
18 costs up front; creating incentives for industry to control
19 costs and encourage innovation; having government personnel
20 in place who can act as sort of expert customers throughout
21 the whole of the lifecycle of systems, rather than have a
22 lot of turnover that loses expertise along the way.

23 We wanted to do this hearing, and Senator Sullivan and
24 I -- we have been good partners in the Readiness Committee
25 for a number of years -- we chatted before we started to do

1 Readiness Subcommittee hearings, and we wanted to do this
2 hearing to get your advice to us on a couple of key
3 questions: What are the Department of Defense's best- and
4 worst-performing acquisition programs, and I know you all
5 have your greatest hits and greatest misses, and we will
6 probably pester you about those a little bit today. What
7 are the characteristics of programs that either perform
8 really well or really poorly? What are the best practices
9 or lessons learned that can be derived from these programs?

10 And I am particularly interested in this one. I think
11 we focus a lot on the ones that go badly, and we need to,
12 but we often do not focus on the ones that go well and say,
13 how can we replicate the aspects of the well-performing
14 programs across the Pentagon? And finally, how can we
15 assess our recent acquisition reforms as well as the
16 Pentagon's own reforms and make adjustments as needed to
17 support better outcomes?

18 In closing, I think is a good set of subjects for us to
19 tackle at the beginning of this NDAA process. We have got
20 to make sure we are pushing to get the best new systems and
21 technologies into operation as we deal with tough
22 competition. We talk an awful lot about China in this
23 committee, and we need to because of their innovation and
24 speed, but we have got other competitors as well that are
25 challenging us in at least one domain or more for military

1 superiority. At the same time, we owe it to servicemembers
2 and the nation's taxpayers to have effectiveness and also
3 have cost controls that make sense.

4 I once again thank my committee members, the witnesses,
5 and I particularly want to thank the ranking member, Senator
6 Sullivan, for his agreement that this would be a great topic
7 to start of the readiness work this year, and I now turn to
8 you, Senator Sullivan.

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1 STATEMENT OF HON. DAN SULLIVAN, U.S. SENATOR FROM
2 ALASKA

3 Senator Sullivan: Thank you, Mr. Chairman, and I want
4 to thank the witnesses, and I look forward to both of us
5 working together in our new roles on the subcommittee, and I
6 think, as you mentioned, this is a very important topic that
7 we all need to be focused on.

8 You know, I often joke -- it is kind of an inside Armed
9 Services Committee joke -- that one of the best things we
10 could do with regard to our competition with China is take
11 the entirety of the Federal acquisition regulation in DOD
12 5000 series, package it up, stamp it "Top Secret," dump it
13 in front of the Chinese Embassy, and pray to God that they
14 think it is so important that they use in their system the
15 way they steal so many other things from us. That would be
16 really helpful.

17 But kidding aside, I think the Department's ability to
18 do it correctly, but with speed -- I am kind of about speed
19 when we look at some of these issues -- to meet the
20 strategic challenges of today is so important. And I think
21 most of us have recognized that our acquisition system, as
22 we move into this era of great power competition, is
23 becoming a definite strategic disadvantage -- disadvantage.
24 This is a complete self-inflicted wound. And what I want to
25 encourage the witnesses today to do is think big. Think

1 big. Because I believe that the members of this committee,
2 Democrats and Republicans, are looking for big ideas. This
3 is a very bipartisan issue. There are not many members of
4 the Senate or the Armed Services Committee that are pleased
5 by the fact that it took 20 years to design and deploy the
6 F-35, or pleased by the fact that this was, Mr. Chairman, in
7 the news yesterday, the Navy Times, an article that says,
8 "China simultaneously commissions three major navy warships
9 on the anniversary of the PLA's navy."

10 So I would agree certainly with the chairman on the big
11 issues that we need to look at. I would also agree that we
12 need to look at other things, like this whole issue of the
13 valley of death for emerging technologies, which I know many
14 of you are focused on, ways to cut through the middle
15 management of the acquisition bureaucracy, what I have often
16 referred to as the sludge. It is not 100 percent clear what
17 it actually does, and I think you can get rid of entire
18 sections, if you look at the history of our acquisition
19 program, and not lose a lot of excellence or quality.

20 And then finally -- and I think in 2020 was a rough
21 year for our country, for the world, no doubt, but we did
22 see the development, acquisition, and distribution of two
23 brand-new vaccines in less than a year, in Operation Warp
24 Speed. Now, granted, that was not a DoD issue, but I think
25 there are clearly lessons to be learned from this important

1 accomplishment, where when the government and the private
2 sector were very focused on getting a quality product out
3 quickly, for the benefit of the people and our nation, we
4 did it. We did it.

5 So again, I want to thank you for holding this hearing,
6 Mr. Chairman, and I look forward to our witnesses' insights
7 on these issues. But please, do not nibble around the edges
8 here. This is a huge national security issue. I think
9 there is bipartisan support for big ideas, but we are going
10 to need them from all of you. Thank you.

11 Senator Kaine: Thank you, Senator Sullivan. I want to
12 recognize the witnesses now for testimony. When your
13 testimony is done, I am going to give some kind of rules of
14 the road about the way we will proceed with questioning,
15 given the hybrid in-person and virtual format.

16 So I would like Ms. Cummings to testify first, then Dr.
17 O'Toole, then Ms. Oakley. So with that, Ms. Cummings, we
18 recognize you.

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1 STATEMENT OF STACY CUMMINGS, PERFORMING THE DUTIES OF
2 UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND SUSTAINMENT

3 Ms. Cummings: Thank you. Chairman Kaine, Ranking
4 Member Sullivan, and distinguished members of the committee,
5 thank you for the opportunity to testify today on
6 acquisition initiatives and performance across the
7 Department of Defense.

8 Both the 1028 National Defense Strategy and the current
9 interim National Security Strategic Guidance emphasize
10 renewing our nation's competitive advantage, supporting the
11 goal of delivering capability at the speed of relevance.

12 Over time, the DoD's acquisition system had evolved into a
13 one-size-fits-all model that, while tailorable, often
14 resulted in a checklist approach that rarely enabled speed.

15 We made the decision to comprehensively transform
16 acquisition policy to deliver a defense acquisition system
17 that empowers program managers to tailor their acquisition
18 strategies to actively manage costs, schedule, performance,
19 and risk. The resulting Adaptive Acquisition Framework has
20 laid the foundation for an agile construct that will have a
21 lasting, positive impact across the Department.

22 To enable this transformation, Congress has been a
23 steadfast partner, providing innovative authorities to the
24 Department. Recent NDAs have provided additional
25 opportunities for the Department to execute acquisition more

1 rapidly: the delegation of milestone authority for most
2 programs from the Office of the Secretary to the military
3 departments or components, establishment of the middle-tier
4 and software acquisition pathways, and flexible contracting
5 tools such as other transaction authorities and commercial
6 solutions openings.

7 Across the Services and components, the acquisition
8 pathways are improving our ability to deliver capability to
9 the warfighter. There are currently 16 early adopter
10 software pathway programs and 70 middle-tier programs, each
11 using these innovative authorities to streamline processes
12 while still applying appropriate program management rigor
13 and oversight at the lowest practical level.

14 Successful programs share several common
15 characteristics: a disciplined approach to cost estimation
16 that includes independent validation, realistic schedules,
17 and clearly defined performance requirements. Lessons
18 learned confirm, program teams that begin with unrealistic
19 baselines often fail to meet them.

20 Ensuring technology maturation occurs early, fostering
21 competition for as long as fiscally practical, and
22 addressing product support are all foundational to program
23 success. The DoD has implemented new policies that
24 prioritize intellectual property and data rights, as well as
25 cybersecurity early in the lifecycle, when those decisions

1 have the greatest impact on program success and lifecycle
2 costs.

3 Applying modern digital engineering and acquisition
4 approaches are showing significant promise, enabling digital
5 twins and automated testing, as well as ensuring affordable
6 future technology insertion. As the program progresses
7 through the lifecycle, successful programs are those with
8 stable requirements and funding and an acquisition strategy
9 that identifies, mitigates, and actively manages risk.

10 To better inform decision-making and continue evolving
11 our policies, the Department is actively establishing data
12 transparency and analytic capabilities to measure the
13 effectiveness of the acquisition system, the acquisition
14 pathways, and mission-oriented portfolios. We are committed
15 to advancing these initiatives to support our internal
16 analytics efforts, and doing so in partnership with the GAO,
17 Congress, and other stakeholders.

18 The Adoptive Acquisition Framework, associated policy
19 updates, and other innovations we have implemented are
20 intended to provide the Department with an adaptable,
21 responsive, construct to deliver emerging technology and
22 advanced warfighting capability. These efforts are the
23 beginning, not the end, of our innovation journey.

24 As we measure the impact of our transformation and
25 incorporate additional changes, they will be informed by

1 data and experiences. But these reforms will not be
2 effective in isolation. Acquisition is a team sport, and we
3 must review all aspects of the system that would benefit
4 from transformation.

5 We look forward to working with the Congress to
6 identify other opportunities to realize meaningful,
7 innovative change to the entire defense acquisition
8 enterprise. We remain focused on building upon the momentum
9 Congress has enabled to deliver operational capability to
10 our warfighters at the speed of relevance.

11 Thank you for your continued support, and thank you for
12 the opportunity to testify today.

13 [The prepared statement of Ms. Cummings follows:]

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1 Senator Kaine: Thank you, Ms. Cummings. Dr. O'Toole?
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1 STATEMENT OF DR. RAYMOND O'TOOLE, ACTING DIRECTOR,
2 OPERATIONAL TEST AND EVALUATION, DEPARTMENT OF DEFENSE

3 Mr. O'Toole: Chairman Kaine, Ranking Member Sullivan,
4 and distinguished members of the committee, thank you for
5 this opportunity to discuss the performance of DoD
6 acquisition programs as the Acting Director, Operational
7 Test and Evaluation, also known as DOT&E. It is an honor to
8 be here to testify with Ms. Cummings and Ms. Oakley.

9 I have submitted a more detailed statement for the
10 record. This afternoon I would like to highlight just a few
11 points from that statement.

12 As specified in Title 10, DOT&E provides independent
13 oversight of operational and live-fire test and evaluation.
14 We currently have 234 programs under oversight, and I have a
15 brought a copy of our FY 2020 annual report for your
16 benefit.

17 Operational test and evaluation, or OT&E for short,
18 assesses a system's operational effectiveness, suitability,
19 survivability, to include cyber survivability, and, where
20 appropriate, lethality. The parameters of operational test
21 distinguish it from other forms of testing. To be
22 considered adequate, an operational test must be conducted
23 in operationally representative conditions, with trained
24 operators, a mission-ready system configuration, and
25 representative threats. By providing an evaluation of a

1 systems operational mission performance and identifying its
2 deficiencies, OT&E gives the program office the opportunity
3 to improve the system, and positions decision-makers to make
4 informed procurement and fielding decisions. Equally
5 important, OT&E provides warfighters accurate information
6 about system capabilities and limitations.

7 While every program is unique, DOT&E has found that
8 program generally are likelier to achieve timely delivery of
9 their required capability when they understand and put into
10 practice three complementary precepts.

11 The first is understanding the value of test and
12 evaluation, which is critical to determining mission
13 performance. Unfortunately, some programs do not appreciate
14 the value of test and evaluation, and thus, they do not
15 properly plan, for example, for cybersecurity assessments.

16 As the committee is aware, cybersecurity is the most
17 pervasive threat vector, and DoD largely is not doing well
18 on this front. Of the programs DOT&E assessed in FY 2020,
19 virtually none were survivable against relevant cyber
20 threats.

21 The second precept is integrated development and
22 operational test and evaluation, the objective of which is
23 to inject operational relevance and realism into a program
24 from the start. When adequately resources, integrated test
25 and evaluation improves the changes of fielding quality

1 capability on time. We are likelier to discover mission-
2 relevant problems early, which gives the program office the
3 opportunity to fix them early. We make test and evaluation
4 more efficient by eliminating unnecessary test redundancies,
5 and we set the conditions for a successful, full operational
6 test.

7 The third precept is development and prudent use of
8 credible modeling and simulation, or M&S. Due to the
9 complexity of the systems DoD is acquiring, the rising
10 importance and difficulty of representing complex operating
11 environments and a growing sophistication of our
12 adversaries' weapon systems, robust M&S is becoming critical
13 to executing operationally realistic test and evaluation.

14 Everyone in DoD wants to provide our warfighters the
15 best capability possible, as fast as possible. DOT&E is no
16 different. That said, DOT&E is concerned that the agile
17 approach utilized by some middle tier of acquisition
18 programs, or MTA for short, exacerbates certain acquisition
19 challenges. For example, MTA's test strategies often lack
20 the rigor typically required to demonstrate operational
21 effectiveness, suitability, survivability, and lethality.
22 They also frequently lack well-defined resources to plan and
23 execute operational testing and to properly train the
24 personnel involved. Certain MTA programs have wisely
25 incorporated an integrated test approach with rapid test fix

1 test cycles, but doing so has begun to stress the service,
2 operational test agencies, and development test
3 organizations.

4 Unfortunately, the test community is not resources or
5 staffed for the continuous level of effort this approach
6 requires. Faster acquisition and fielding are important,
7 but MTA programs still need to be positioned to assess and
8 demonstrate operational performance -- what the system can
9 and cannot do, and whether tactics, techniques, and
10 procedures can remediate system shortcomings.

11 For test and evaluation to add value to the acquisition
12 process, our infrastructure, tools, and personnel must keep
13 up with rapidly changing warfighting technology and threats.
14 To this end, earlier this year, DOT&E developed a science
15 and technology strategy to guide test and evaluation
16 modernization. With the right resources, we hope to begin
17 implementing it by the start of the next fiscal year.

18 Again, I very much appreciate the opportunity to
19 represent the operational test community today. I look
20 forward to your questions.

21 [The prepared statement of Mr. O'Toole follows:]

22 Senator Kaine: Thank you, Dr. O'Toole. Ms. Oakley.

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1 STATEMENT OF SHELBY OAKLEY, DIRECTOR, CONTRACTING AND
2 NATIONAL SECURITY ACQUISITION, GOVERNMENT ACCOUNTABILITY
3 OFFICE

4 Ms. Oakley: Chairman Kaine, Ranking Member Sullivan,
5 and members of the subcommittee, thank you for having me
6 here today to discuss GAO's body of work on weapon
7 acquisition at the Department of Defense. My written
8 statement covers a range of issues, but today I would like
9 to emphasize a few areas, namely the role that knowledge
10 plays in improving program outcomes and the critical need
11 for data and metrics to ensure that the reforms are working
12 as expected.

13 I do not think anyone here is unfamiliar with the
14 disappointing performance of the defense acquisition system
15 over the past several decades. Consistently, DoD developed
16 system that, while they have no rival and superiority, they
17 often cost more, take longer, and deliver less capability
18 than planned. F-35 is a prime example of this.

19 In an era of increasing near-peer threats, both
20 Congress and DoD have recognized that we can no longer
21 accept such outcomes and expect to maintain our edge as a
22 nation. DoD has responded, and has undertaken fundamental
23 reforms, such as through the introduction of its Adaptive
24 Acquisition Framework, that provides multiple pathways
25 intended to enable speed and innovation and remove

1 unnecessary bureaucracy.

2 Our work shows that the fundamental need for knowledge
3 remains, regardless of the pathway a program takes. Having
4 the right knowledge at key points, especially up front, with
5 a sound business case, is an enabler for going faster. At
6 its very core, a sound business case ensures that a
7 program's resources -- the time, technology, funding, design
8 knowledge -- match the requirements. Our work shows
9 statistically significant positive effects on cost and
10 schedule when programs have acquired necessary knowledge.
11 Among other things, these programs mature their critical
12 technologies and conduct the systems engineering needed to
13 provide confidence that the design is feasible.

14 Over the years, GAO has too often found sound business
15 cases lacking for major programs. For example, in 2004, the
16 Ford aircraft carrier program began with a weak business
17 case. It had an unrealistic cost estimated based on many
18 unproven technologies. The result has been over \$2 billion
19 in cost growth and years of delays to date, just for the
20 lead ship.

21 Our work is also showing that DoD's largest middle-tier
22 programs have also started without key knowledge to provide
23 confidence that they will meet statutory objectives to field
24 capabilities within 2 to 5 years. For example, the Army's
25 OMFV program was initiated as middle-tier effort in

1 September 2018, without approved, achievable requirements
2 and acquisition strategy or an assessment of cost, schedule,
3 or technical risk. The Army cancelled its first
4 solicitation in January 2020, and has since restructured the
5 program, but has yet to award a contract for the development
6 of prototypes.

7 While DoD has made fundamental changes to its
8 acquisition policies to enable speed, our past work suggests
9 policy changes alone will not be enough. Decision-makers
10 must address incentives that lead programs to move forward
11 with insufficient knowledge. This includes holding programs
12 accountable for having the discipline to slow down, if
13 necessary, to avoid delays later. Otherwise, recent reforms
14 will not provide DoD or the Congress the outcomes they
15 desire.

16 Our work over the years has shown that other factors
17 will also affect DoD's ability to attain the speed and
18 innovation it seeks. For example, DoD needs a robust
19 science and technology pipeline, but still has work to do to
20 bring how it manages its science and technology investments
21 in line with leading companies to ensure that the right
22 technology is being pursued and is available when needed.

23 Further, the implementation of an open systems
24 approach, to take advantage of technology as it becomes
25 available, requires complex decisions to be made about

1 intellectual property and cybersecurity, which DoD is still
2 grappling with.

3 Finally, it is essential that DoD and congressional
4 leaders have information to know if reforms are working and
5 whether there are any unintended negative consequences. DoD
6 has committed to conducting data-driven oversight, and the
7 folks in Stacey's office are working hard to identify and
8 collect information for programs across the pathways.

9 But more needs to be done. Congress also needs
10 information to support its important work. For over 40
11 years, annual selected acquisition reports have provided
12 decision-makers with authoritative, centralized, and
13 consistent information to guide programmatic decisions and
14 policymaking. The current SAR reporting requirement is
15 ending with fiscal year 2021.

16 Fundamental questions remain about DoD's proposed
17 solution, and GAO has ongoing work intended to help address
18 these open questions.

19 Mr. Chairman, Ranking Member Sullivan, and members of
20 the subcommittee, I would be happy to answer any questions
21 you have at this time.

22 [The prepared statement of Ms. Oakley follows:]

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1 Senator Kaine: Great opening comments, and we will
2 jump right into it. So first, a little bit of housekeeping.
3 Because we are doing this hybrid setting I am going to
4 remind everybody about how we are going to proceed with
5 remote participation by Senators. Since it is impossible to
6 know exactly when colleagues who will be joining via the
7 computer arrive, we will not follow the norm in the SAS of
8 the early bird timing rule. Instead, we will handle the
9 order of questions by seniority, alternating between the two
10 sides, until we have gone through everyone. Once we reach
11 the end, if there is anyone we missed we will start back at
12 the top of the list and continue until everybody has had
13 their turn.

14 With that I will start with a first 5-minute round of
15 questions, and I would encourage all my colleagues to try to
16 stick with time and do a second round if you need more.

17 [Audio malfunction] in the Ford class that I would love
18 you all to quickly address.

19 Ms. Oakley: Sure. I will get started. The story is
20 basically the same with both of the programs. Both of the
21 programs were starting with huge technological leaps, lots
22 of innovative, new technologies. They were premised upon
23 the design -- the design was premised upon those
24 technologies working as intended, but the work had not been
25 put in to be able to know that those technologies were going

1 to work. And so, for example, with the Ford class, they are
2 still maturing technologies on that program right now, but
3 they began designing and building the ship at the same time
4 they were maturing those technologies. And our work has
5 shown that when you see concurrency between phases of
6 development, it leads to inefficient decision, like
7 construction sequencing and things like that had to be
8 adjusted. And that is what has led to a lot of those
9 overruns.

10 With F-35, our first report, in 2001, on the F-35
11 program indicated that the F-35 program should stop. We
12 made a recommendation -- stop, slow down, mature your
13 technologies before you enter Milestone B. The Department
14 did not agree with that recommendation and proceeded as
15 usual. In 2006, we recommended that the Department slow
16 down, do not enter production because the program had only
17 completed 1 percent of testing at that point in time. While
18 the Department agreed with that recommendation, produced
19 proceeded anyway.

20 And these outcomes that we all see now are just pretty
21 predictable when you are making decisions like that to move
22 forward, because of, you know, other incentives and other
23 reasons.

24 Senator Kaine: Can I just jump in and ask [audio
25 malfunction] but I want to kind of ask you to comment on a

1 piece of it. [Audio malfunction] and, Dr. O'Toole it seems
2 to relate to your testimony about the need for testing and
3 early testing.

4 Mr. O'Toole: Yes, Senator Kaine. For those two
5 programs in particular, both of them, actually, one of them
6 is only in initial operational test and evaluation, and that
7 is the F-35. The Ford carrier is not even in initial
8 operational test and evaluation, although we do have the
9 full ship shock trials.

10 Both of those programs are certainly challenged when it
11 comes to test and evaluation, and I certainly understand the
12 need to get the testing done, and that is what I am
13 proposing, that we need to do, similar to what Ms. Oakley
14 has indicated, to get the testing done and make sure that we
15 are ready to proceed. If you look at the number of aircraft
16 that we actually have already procured for the F-35, it is
17 well beyond what would normally be a low-rate initial
18 production decision, and we are not able to get there yet
19 because of the joint simulated environment. I am happy to
20 go into further details, if necessary.

21 Senator Kaine: You know, one of the things that we did
22 as a committee a couple of years ago, in 2017, is we
23 mandated across-the-board cuts in headquarter staff, and
24 that took out a lot of modeling and simulation staff. That
25 took out a lot of acquisition staff. It took out a whole

1 lot of housing oversight staff. And then, a couple of years
2 later, we had a problem with unacceptable housing. So we
3 have to be careful when we touch parts of the system to
4 watch what the impacts could be on the other side of the
5 system.

6 Let me ask this, and maybe give Ms. Cummings a chance
7 to tackle it. Program that I often hear good things about,
8 and I am proud of it, is the Virginia-class sub program.
9 The kind of coopetition model between the two shipyards
10 means that as I go to Newport News, they are really jazzed
11 about trying to beat the guys in Connecticut, you know, get
12 it done ahead of schedule, get it done quicker than the
13 other side did the component last time.

14 But it does not seem to me that elements of that
15 program get replicated in other acquisition programs. What
16 could we do to better take the success components of
17 successful programs and populate them more thoroughly
18 throughout the DoD acquisition ecosystem?

19 Ms. Cummings: So I would certainly agree that keeping
20 competition as long as possible in a program leads to better
21 outcomes. I think we like to say when companies compete,
22 then the government wins. And so I would certainly agree
23 that the longer we can keep competition in the lifecycle, we
24 are going to have those better outcomes, and it also helps
25 us to reduce costs.

1 I would not disagree with anything that my colleague
2 said about the importance of test. What I would say, from a
3 lesson learned perspective, is that we need to embrace and
4 take advantage of technology that allows us to do more of
5 our testing in an automated fashion. We can integrate it
6 and move it earlier in the lifecycle, because we do not want
7 to be making these discoveries after all of the decisions
8 have already been made. And, you know, I, for one, am
9 really excited about some of the programs, like GBSD and
10 some other programs, that are digital from the beginning,
11 which means that we can do more of our discovery before we
12 start building something. And again, we, in the government,
13 can understand the technology maturation and the interfaces
14 that lead to better outcomes. And I am sorry if I --

15 Senator Kaine: I am going to time-keep myself. I have
16 gone over my own time, so I am going to call now on Senator
17 Sullivan.

18 Senator Sullivan: Well, thank you, Mr. Chairman. Let
19 me follow up on this discussion of competition, but take it
20 in a little bit of a different direction. You know, the
21 Pentagon is big and bureaucratic. A lot of the big defense
22 companies are big and bureaucratic. That does not always
23 kind of lend itself to competition and speed.

24 One of the questions I have -- and it is not just a
25 jobs program -- but how do you get more small businesses,

1 more innovators plugged into the system? Let me give you
2 two examples in different parts of the country. One that I
3 am proud of in Alaska, we have this company called
4 Travarius, and it essentially was a startup that made what I
5 refer to as kind of like Zambonis for aircraft carriers. It
6 is the deck cleaner, very high tech. And they did it
7 completely in a town outside of Anchorage called Palmer,
8 Alaska. I have visited the shop. And they won this
9 contract with the Navy and the Marine Corps.

10 So really, really impressive. They are doing it -- in
11 Alaska. At one point they had a Navy contracting officer
12 saying, "Hey, if you really want to continue this and grow,
13 you need to move your operations to the Lower 48." Trust
14 me, I heard about that. I called the Secretary of the Navy
15 saying, "That is not good."

16 The former staff director here, on the Armed Services
17 Committee, now works for a company called Anduril
18 Industries, and they are also a start-up, very high tech.

19 So how can we plug companies like this more into the
20 system, who have a hard time breaking in, but in many ways
21 bring that entrepreneurship, non-bureaucratic aggressiveness
22 that is really the American style, and I think the Pentagon
23 could benefit from?

24 Ms. Cummings: I will take that, if you do not mind. I
25 think I have two sorts of different aspects of that, that I

1 would like to respond with. So first, the Congress has
2 given us some contracting authorities that really focus the
3 Department on how do we engage small businesses,
4 nontraditional businesses, nontraditional companies. We
5 used these tools extensively throughout COVID, Commercial
6 Solutions Opening. You may have heard of Air Force Pitch
7 Days. Basically it is using a less -- you mentioned an RFP
8 that is this big -- it really gives us an opportunity to
9 engage with companies with much less buy-in on their part as
10 far as documentation and paperwork.

11 So we had great experiences. We have actually issued
12 billions in COVID response using these tools.

13 Senator Sullivan: Are you see that that has a lot of
14 promise?

15 Ms. Cummings: Absolutely, yes. And the CSO is a
16 temporary authorization, so that is one thing that we would
17 definitely ask you to consider, the great benefit that we
18 have seen out of CSOs.

19 On the other side, on the weapons systems, or on the
20 side of delivering systems, one of the things the Adaptive
21 Acquisition Framework gives the program manager the
22 opportunity to separate out into multiple pathways. So for
23 some things, we need to use the traditional approach of
24 milestone-based gates that you would traditionally think of
25 with a submarine or with an aircraft carrier. We have given

1 the ability to pull parts of the program out, subcomponents
2 or software, and leverage a different part of the pathway to
3 deliver that capability. And by leveraging that, along with
4 open systems, and then that digital acquisition, we can
5 actually compete subcomponents or compete the software
6 elements to those small, innovative businesses, even while
7 we have prime contractors who might be working on the larger
8 system.

9 So those would be my two responses back to that
10 question.

11 Senator Sullivan: Great. Thank you on that.

12 Dr. O'Toole, your testimony -- and I am going to quote
13 it again -- the chairman and I both looked at each other
14 like, damn. Quote, "Virtually none of the programs assessed
15 in FY 2020 were survivable against relevant cyber threats."
16 I hope our adversaries are not watching this hearing. They
17 often do watch these hearings. But what in the hell are we
18 going to do to close that gap? That is shocking, and, well,
19 concerning, shocking.

20 Mr. O'Toole: Yes, Senator. I totally agree that it is
21 a very large concern, and I can assure you that before I
22 made that statement that it had gone through security
23 review. Every program is different, and there are some
24 common themes.

25 We need a capable cyber workforce in order to be able

1 to actually do that. That includes the cyber workforce in
2 the program offices, but it also includes the cyber
3 workforce on the NSA-certified red teams.

4 Senator Sullivan: And are we implementing that, do you
5 think?

6 Mr. O'Toole: We are at different elements of that, and
7 as a matter of fact, Congress has provided us some funding
8 associated with some pilot programs, where we have been able
9 to reach out to help with some of that cyber development of
10 workforce by providing some scholarships to get new people
11 to come into the Department of Defense from either, as a
12 senior, then as a requirement for them to come in and work
13 for the Department of Defense, or as a master's level. And
14 we get them through that. And we have a number of pilot
15 programs through a number of different institutions around
16 the country, Senator, as one small example.

17 But I mentioned in my T&E workforce S&T strategy going
18 forward, workforce and having the workforce and a capable
19 workforce is certainly one of our concerns in moving
20 forward.

21 Senator Sullivan: Well, if you need authorities or
22 money on that, I think committee would be very supportive of
23 trying to help close this vulnerability that we have.

24 Mr. O'Toole: Yes, sir, and we certainly would
25 appreciate it.

1 Senator Kaine: Senator Hirono by Webex.

2 Senator Hirono: Thank you very much, Mr. Chairman.

3 Thank you to our witnesses.

4 Acquisition reform has been an issue that this
5 committee has sought to tackle as well as the SAS committee,
6 and it was one of former Chairman John McCain's major goals
7 to try and get a better handle on acquisitions. And it is
8 hard, I realize, because there are a lot of moving parts.

9 And I am looking at the testimony of Ms. Oakley, and she
10 says that in the GAO's upcoming 2021 annual weapons systems
11 assessment, they expect to report that DoD's 84 major
12 defense acquisition programs had accumulated over \$615
13 billion, or 50 percent, in total cost growth since the
14 program, about 60 percent of which was unrelated to the
15 increase in quantities purchased. Similarly, over the same
16 time frame, the time required to deliver initial
17 capabilities increased by about 35 percent, resulting in an
18 average delay of more than 2 years.

19 Our committee has gotten so used to major cost
20 overruns, major delays, and I realize you are doing your
21 best but, you know, this is yet another critical assessment.

22 So, Ms. Cummings, what are you doing to address the
23 upcoming GAO report? Maybe the report has already been
24 issued by now.

25 Ms. Cummings: The report has not yet been issued, but

1 as Ms. Oakley pointed out, she has been working with my
2 staff and going through the data.

3 So we have a long history of working closely with GAO
4 through these reports by providing data. I think the '21
5 report, which is currently in draft but which Ms. Oakley has
6 talked about today, looks at from program initiation, and I
7 think that what we will find is that every program is
8 unique. There are programs that grew in cost and time, and
9 there are programs that actually were reduced in cost and
10 time.

11 Some of the things I talked about in my testimony
12 related back to stable requirements, and from personal
13 experience I can tell you that when you build requirements
14 in, and you document those requirements, and you start to
15 move down the pathway as a program manager of delivering
16 them, sometimes you find that either the capability that you
17 are looking for is not going to meet your evolving threat,
18 and so sometimes those requirements do need to change. That
19 can often result in cost and schedule growth. Sometimes you
20 will find that, as was pointed out by my colleagues, key
21 technologies, we made certain assumptions about our ability
22 to advance the technology to the level it needed to be
23 before moving on to the next phase, and, Senator Kaine, you
24 mentioned those milestone gates that we follow, which is
25 where we stop and pause and look at the programs to see if

1 they are meeting their requirements.

2 I would agree with my colleagues in that when we find
3 we get to those gates and we have either technology
4 challenges or schedule challenges or testing challenges,
5 that is the role of the milestone decision authority,
6 whether it is at the Office of the Secretary, whether it is
7 at the Services or the components, to take a hard look and
8 decide what risk the Department is willing to take. And we
9 have examples where the Department has been willing to take
10 that risk, because we are driving on schedule, so we are
11 willing to take risks in other areas, or we are driving on
12 cost and we are willing to take risks in other area.

13 Those risks need to be taken deliberately, but, of
14 course, as you have pointed out, sometimes those risks are
15 taken by people 15 years ago, and now the program manager of
16 today is trying to rectify them.

17 Senator Hirono: It sounds as though, Ms. Cummings, we
18 are seeing that we should get used to -- as you said, the
19 technologies are constantly changing and perhaps
20 requirements continue to be reassessed. So we should get
21 used to pretty massive cost overruns and delays, in terms of
22 our major acquisition programs. That is what I get from
23 what you said, because things do not stay static, and since
24 these acquisition programs go over a period of times,
25 sometimes 10 years or more, things change. And so is this

1 something we just have to learn to accept?

2 Ms. Cummings: I do not mean to give you the impression
3 that I am asking for you to accept cost growth and schedule
4 growth when it is not justified. There are going to be
5 times, again, when the Department does decide to take that
6 risk, because of an increase in capabilities required.

7 Again, you know, I will harken back to my colleagues who
8 have talked about discovery, and that we want to have as
9 much knowledge as possible to make the decision on whether
10 or not we are going to take that risk.

11 I talked about the promise of digital acquisition,
12 which will enable us to actually deliver a capability that
13 is meeting a subset of our requirements, but then iterate,
14 through open systems architecture or through software
15 updates, to be able to iterate on that technology so that
16 even if we are delivering a better capability than we have
17 today, it is not the last capability that we are going to
18 deliver tomorrow.

19 Senator Hirono: I am nearly running out of time. I
20 just have one short question regarding the other transaction
21 authorities through OTAs that provide flexibility and an
22 ability to attract more nontraditional vendors through the
23 process, that does not have to meet all of the various
24 requirements that are imposed on other situations.

25 Ms. Cummings, has the Department been able to attract

1 more nontraditional vendors through the use of OTAs?

2 Ms. Cummings: Yes, we have leveraged the other
3 transaction to increase the diversity of our defense
4 industrial base, and again, we have had some amazing
5 experiences over the last year, increasing the amount of
6 work that is being done, using other than FAR-based
7 contracts.

8 Senator Hirono: Thank you.

9 Senator Kaine: Thank you, Senator Hirono.

10 Senator Hirono: Am I out of time?

11 Senator Kaine: Yes, you are, but we may be circling
12 around to a second round soon.

13 Next, via Webex, Senator Duckworth.

14 Senator Duckworth: Thank you, Mr. Chairman. I have
15 been watching the Army's future vertical lift program
16 curiously, in part because, as a former helicopter pilot, I
17 am personally invested in the future of our next-gen
18 vertical lift aviation. I just think it is cool stuff. And
19 on the subcommittee I have also been encouraged by the
20 program's success so far, and part of my interest in FVL
21 program comes from my role as a steward of taxpayer dollars.
22 As the components of FVL develop, I think it is important
23 that we learn from their successes to replicate victories,
24 where possible, across other acquisition programs, so that
25 we can deliver necessary capabilities to our military, on

1 time, on budget.

2 Ms. Cummings, you mentioned the component of the future
3 vertical lift program, the future long-range assault
4 aircraft, or FLRAA, in your written testimony, and you
5 highlighted it as an example of a program that has
6 successfully fostered industry competition. I saw some of
7 these early results myself when I traveled with then
8 Secretary McCarthy to view one of the industry tech
9 demonstrations for FLRAA. All feedback since then seems to
10 indicate that Army will have two incredibly impressive
11 options to choose from when it does make its final
12 selection.

13 Ms. Cummings, it is clear to me that this outcome with
14 FLRAA, two high-performing options produced at relatively
15 little risk to taxpayer dollars, is ideal. What conditions
16 are necessary, do you think, for a program to be able to
17 adopt some of FLRAA's best practices to yield similarly
18 productive industry competition, and is there anything that
19 Congress can do to encourage other program managers and
20 executive officers to learn from FLRAA?

21 Ms. Cummings: So I did talk a little bit about how
22 fostering competition for as long as fiscally practical.
23 Not all programs are able to bring competition as far into
24 the lifecycle as other programs, but, Senator, you brought
25 up a good example of where we have been able to do that.

1 I think some of the characteristics and lessons learned
2 that we need to incorporate across the Department is a clear
3 understanding of requirements and then open feedback, back
4 and forth, between industry, so that we make sure that when
5 we put out requests for proposals that they are informed by
6 the level of current technology and the capabilities of
7 industry so that we are not going out with requests for
8 proposals that are unrealistic and forcing industry to come
9 back and either under-deliver on their proposal or over-
10 deliver on their proposal to something that is unrealistic,
11 from a cost schedule and performance perspective. So thank
12 you for bringing up that success.

13 Senator Duckworth: Dr. O'Toole, you also mentioned the
14 FLRAA program as an example of a weapon that has used the
15 middle tier of acquisition, or MTA, pathway, to quickly
16 provide advanced new capabilities via emerging technologies.
17 However, you did mention that the agile strategies employed
18 by some MTA programs are not always successful. To the best
19 of your knowledge, what qualities of the FLRAA program have
20 allowed it to use agile strategies successfully to develop
21 new capabilities, and do you have any recommendations to
22 improve implementation of agile practices so that the MTA
23 programs can move quickly but also do it with some rigor?

24 Mr. O'Toole: Senator, that is a great question. So
25 the FLRAA program is a great example of a program manager or

1 a program office that embraces and understanding value of
2 test and evaluation. We have fully engaged in that program
3 that is under DOT&E oversight for both operational testing
4 and live-fire test and evaluation. We are right now in the
5 midst of finalizing a draft temp for a potential RFP
6 development in June of this year. They have been very
7 receptive to our T&E comments against that temp. And just
8 to put things into context, there are approximately 600
9 comments we are working through with the program office, and
10 once again, they are very receptive to understanding.

11 As I said in my testimony, Senator, you know, they
12 understand the value of T&E, they understand the integrating
13 of developmental and operational test and evaluation, and
14 that is an example of how we can go forward with future MTA
15 programs. That is all I have.

16 Senator Duckworth: Thank you. I yield back, Mr.
17 Chairman.

18 Senator Kaine: I am going to follow up from Senator
19 Duckworth. We are back around to a second round. Dr.
20 O'Toole, why would there be a cultural reluctance to embrace
21 early testing and evaluation? I analogize it a little bit
22 to when we have hearings in the SAS with the CoComs, they
23 never get enough ISR. They always want more ISR than they
24 get. And to me, ISR would be kind of like the equivalent of
25 why wouldn't I want earlier testing and evaluation in a

1 program, because if I do not do it and it works out badly,
2 you know, it does not look so well for me.

3 So what, culturally, has been the bar toward using more
4 T&E at an earlier point in acquisition programs?

5 Mr. O'Toole: Senator Kaine, that is a great question,
6 and I cannot answer that, why the culture has changed, and
7 why the culture, even within the Services there is not a
8 Service specific. You asked earlier what is a great
9 example. Besides this one, the amphibious combat vehicle
10 out of the Marine Corps, which has just recently completed
11 its IOT&E, and I may say, very successfully completed its
12 IOT&E. That was another example of the culture of that
13 program embracing test and evaluation right up front,
14 understanding the operational mission relevance that needs
15 to be done early, find the problems early, fix the problems
16 early when they are cheaper, and then deliver a capable
17 product that meets the requirements of the warfighter.

18 Senator Kaine: Thank you.

19 Ms. Oakley, one of the things that Ms. Cummings
20 testified to in kind of her opening comments were feeling
21 like the balance now is pretty well between OSD control
22 versus Military Service control. And we do cycle back and
23 forth, not only within the Pentagon. It is just a general,
24 you know, kind of organizational cycle, centralization,
25 decentralization.

1 How would you, from GAO, how would you describe that
2 balance right now -- you know, too hot, too cold, or just
3 right?

4 Ms. Oakley: Well, we took a look at this exact issue -
5 -

6 Senator Kaine: In 2019.

7 Ms. Oakley: -- yeah, 2 years ago, and it was a little
8 bumpy at first, obviously, with regard to having that
9 delegation of authority and --

10 Senator Kaine: Which would not be a complete surprise.
11 If you are making a shift to more Military Service you
12 would expect a little bit of chop at the beginning.

13 Ms. Oakley: Absolutely. Absolutely. And I think that
14 the Department has done a lot to try and clarify roles and
15 responsibilities in that regard by, you know, issuing
16 charters and putting in place pretty strongly worded
17 policies with regard to who is responsible for what.

18 I think the biggest thing that I see right now that is
19 a challenge for Ms. Cummings' office is their ability to, in
20 fact, conduct data-driven oversight, because oversight is
21 still important. Even if the Services are running the show
22 for their own programs, DoD, as the portfolio manager -- OSD
23 as the portfolio manager of all of the weapon programs has
24 to play a role in determine what we are investing in and
25 understanding and deciding what those risks are and where

1 they are at, and are the Services taking appropriate risks.

2 And they are working real hard to try and figure out
3 what that data is that they need from the Services to be
4 able to do that kind of oversight, but, you know, the
5 Services are feeling empowered and in charge, and I think
6 that there is a little bit of a struggle there in terms of
7 what data and how they are going to get transparent data
8 from the services to be able to make smart decisions from an
9 OSD level for those programs.

10 Senator Kaine: Let me ask this question, which kind of
11 flows from that one. What would your advice to us, as a
12 committee, be? Do we need more committee-driven acquisition
13 reforms, or do we need more just rigorous oversight of the
14 analyses of these annual programs, and then getting the key
15 acquisition folks before us to like pester them over the
16 poor performers? You said it is not just a matter of
17 policy. It is kind of a matter of the implementation of
18 policy.

19 So do you want more congressional acquisition reforms,
20 or do you want us just to pay more attention to the ones we
21 have already designed? And I will let Ms. Cummings start
22 since she is on the receiving end of that question.

23 Ms. Cummings: I would be happy to answer that
24 question, Senator. Thank you. So there have been, from
25 2016 to 2021, a significant number of reforms, pilot

1 programs, authorities, and as Ms. Oakley has pointed out,
2 giving us the opportunity to get some experience with these
3 authorities, with the Adaptive Acquisition Framework and the
4 associated policies, giving us the opportunity to collect
5 that data, and not so that OSD can oversee individual
6 programs but so that we can oversee the success of our
7 policies. So we want to be able to look from a system
8 perspective, are we moving in the right direction from a
9 cost schedule performance perspective? We want to be able
10 to see --

11 Senator Kaine: Can I just interrupt you for a second?

12 Ms. Cummings: Of course.

13 Senator Kaine: We do not need to give you more
14 authority to get data from the Service secretaries, do we?

15 Ms. Cummings: No. We have a policy of data
16 transparency.

17 Senator Kaine: Yeah.

18 Ms. Cummings: And the Secretary and Deputy Secretary
19 have made the same offer. Any data that we need, we can
20 have access to it.

21 Senator Kaine: You just need the Service secretaries
22 and their operations to be able to provide you with the data
23 that you need to do the oversight that you need to do.

24 Ms. Cummings: We also need time to standardize the
25 data element, so we understand what data means, and then the

1 systems to be able to analyze it. Right now our analytics
2 is very, very people-focused. We want to move it to be
3 system-focused. We want to be able to take machine
4 learning, put data into a system where we can look at it
5 more holistically for trends, as opposed to the way we
6 historically have looked at data, which is to dive in, and I
7 think, Senator Sullivan, you brought this up, for us to be
8 able to dive into individual programs. We want to bring
9 that up and look for trends and then let our policy and our
10 oversight drive the trends in the right direction, as
11 opposed to trying to oversee a program that is being
12 overseen by a service acquisition executive, a PEO, and a
13 program manager.

14 Senator Kaine: Senator Blackburn has joined us by
15 Webex, and since she has not had a first round I will call
16 on her next.

17 Senator Blackburn: Thank you, Mr. Chairman, and thank
18 you all for being there.

19 Ms. Oakley, I wanted to come to you, if I could, on
20 this National Guard and Reserve equipment account. This is
21 something that many times gets overlooked, but we have to
22 realize that for our Guard and Reserve it is vital when it
23 comes to their readiness and the lethality of these Reserve
24 components.

25 And the Tennessee National Guard, let me tell you, they

1 have witnessed this first-hand, an over-reliance on old
2 equipment, a widening capability gap with active components,
3 and inability to keep pace with evolving technologies. And
4 what I would like to know from you, do you consider it a
5 best practice for parent service budgets to include Reserve
6 component budget requests, or would you change that?

7 Ms. Oakley: Senator Blackburn, thank you for that
8 question. That is outside of my area of expertise, but I
9 can certainly take that question for the record for you and
10 consult with our colleagues and our defense capabilities
11 team, absolutely.

12 But one thing I will comment on that would give you a
13 little perspective is, you know, when you are indicating
14 that our soldiers and our National Guard and our sailors are
15 relying on, you know, outdated, overused, underperforming
16 weapon systems, that is a real issue. And, you know, we
17 have done some work looking at sustainment planning during
18 the acquisition process and how that directly affects the
19 warfighter in the end, when it is not done.

20 And so many of the readiness challenges that we are in
21 now can be linked back to not effectively planning and
22 executing that kind of sustainment planning during the
23 acquisition process. But the other part of your question I
24 will take for the record.

25 Senator Blackburn: Yeah, I appreciate that, because I

1 think that when you look at acquisitions and the way that
2 DoD handles acquisitions, there is a tremendous amount of
3 room for improvement. There is streamlining and
4 transparency that needs to be brought to bear. And when
5 they do not have this, you are going to see performance
6 shortfalls, you are going to see long-term sustainment
7 challenges, and it is going to be imperative that there is
8 an appropriate, or a more up-to-date way, and really,
9 meeting needs as they arise, an ability to meet those needs
10 as they arise so that they have the goods, the equipment,
11 the training that they are going to need. So I would
12 appreciate if you would get back to me.

13 Let me ask you another question, Ms. Oakley. GAO had a
14 report, DoD Weapon Systems Acquisition, that recommended
15 implementation of leading practices for managing science and
16 technology programs. And this Joint Artificial Intelligence
17 Center is something that we feel like, in Tennessee, that is
18 very important. It is a focal point, the DoD AI strategy.
19 So we established the JAIC so that, among other purposes, it
20 would accelerate the delivery of AI-enabled capabilities to
21 expand joint forces' abilities and advantages.

22 So how does AI-based acquisition models streamline
23 processes and procedures to acquire capabilities at a tempo
24 responsive to those operational needs, because one
25 generation of technology feeds to the next very quickly.

1 Ms. Oakley: Absolutely. I would say that, you know,
2 from our perspective, establishing a center like that in
3 terms of a long-term focus on developing a disruptive
4 technology -- AI is really what we would call a disruptive
5 technology, where it has the potential to really bring
6 innovation to the acquisition system -- and so that kind of
7 focus on that long-term, disruptive technology is really in
8 line with what we would say leading companies, leading
9 innovative companies do in their S&T portfolios.

10 Oftentimes within DoD we see a focus on the near-term,
11 incremental type technology at the expense of the more long-
12 term, disruptive technology, and we have some
13 recommendations to DoD that we have actually identified as
14 priority recommendations, to take a look at how that mix of
15 the S&T portfolio is managed so that those disruptive
16 technologies like AI are not ignored or put on the back
17 burner at the expense of more short-term, incremental
18 technologies.

19 Senator Blackburn: Dr. O'Toole, I have a question for
20 you, but I see that I am over my time, so I will submit this
21 one to you. We have seen examples, in Tennessee, of the
22 JAIC and Special Forces working together. We have the 160th
23 Special Ops Aviation Regiment there at Fort Campbell, and
24 they deployed a machine learning tool known as the Work Unit
25 Code Corrector, to improve the overall quality of the UH-60

1 helicopter maintenance. So this is the kind of innovation
2 we want to see, and I will send you the question for the
3 record, for a written response on this. Thanks so much.

4 Thank you, Mr. Chairman.

5 Senator Kaine: Thank you, Senator Blackburn. Senator
6 Sullivan.

7 Senator Sullivan: Thank you, Mr. Chairman. Secretary
8 Cummings, I want to follow up on a discussion we had in this
9 subcommittee last October with your predecessor, Under
10 Secretary Lord. And she expressed the importance to me of
11 improving the National Defense Stockpile acquisition
12 authorities, particularly as it relates to securing critical
13 minerals and rare earth elements, other elements, mining
14 elements, that are really important to our national defense
15 industrial base, to our renewable energy sector, to our
16 high-tech sector, and, as you know, China dominates all of
17 this. They do not need to. We have these resources. We
18 have these minerals in the good old USA. A lot of them in
19 my state, the great state of Alaska.

20 So what are we doing, what should we be continuing to
21 do to make sure the Department has the critical minerals we
22 need to support our industrial base and not be so dependent
23 on China? We know -- just ask the Japanese -- it is not a
24 matter of "if" but "when" Xi Jinping and the others are
25 going to say, "You know what, America? We are going to cut

1 off critical minerals, rare earths, and you won't be able to
2 produce F-35s," or a whole host of other technologies. How
3 are we getting off that dependence, dangerous dependence?

4 Ms. Cummings: Thank you, Senator. That is a great
5 question, and I, too, am equally concerned with rare earth
6 elements and critical minerals. It is an area that our
7 Office of Industrial Policy has spent a significant amount
8 of time studying. We have made some strategic investments
9 with the Defense Production Act as well as some other tools
10 we have to make investments. Those are at the very initial
11 stages of understanding what we would need to do.

12 To your point, we do have the ability to mine those
13 rare earth elements. We need to be able to also process
14 them in the United States. And I have some detail that I
15 would be happy to send you on the record as far as
16 percentage of mining, percentage of processing that we are
17 looking to be able to do.

18 We do owe back to the White House a 100-day report.
19 The DoD has the lead from a supply chain perspective,
20 because of the stockpile management role that we have. We
21 expect to be finishing that report here in the next month or
22 so.

23 Senator Sullivan: Good. Well, I think securing our
24 supply chains, particularly as it relates to China and the
25 critical mineral space, rare earth elements, other space, is

1 a really good opportunity, Mr. Chairman, for bipartisan
2 cooperation. To the extent you need more authorities in
3 this area, you need to ask us what they are, and I guarantee
4 you this committee will grant them. So let us know.

5 Ms. Oakley, I am going to ask my final question to you.
6 It is a softball, and I am teeing it up for you. You are
7 the expert. What are the top three priorities -- you
8 mentioned the lessons from the F-35. You mentioned the
9 lessons from the Ford class carrier. What are, from your
10 perspective, the top three priorities we can implement, we
11 should implement, to make our system reliable, but faster?
12 We cannot take on these 20-year projects when the Chinese
13 are cranking out three navy ships a day.

14 Ms. Oakley: I would say, first and foremost, focus on
15 incremental open systems. Incremental open systems enable
16 the systems to be able to be fielded quickly and upgraded,
17 so that you get a minimum viable capability out there and
18 then it can be upgraded as the threat changes increases,
19 whatnot. And so the Department's focus on that, I think, is
20 going to be key to shortening time frames for acquisition.
21 Too often in the past we have gone with the one-fell-swoop
22 approach, where we wanted everything right out of the gates,
23 versus what do we need now and what can we continue to do to
24 upgrade the systems that we have to get there. So I think
25 that is a huge priority.

1 I think the Department does need to focus on the
2 outcomes that it is seeing of its programs, and cost and
3 schedule are important, but they are not the only
4 indicators, right, when you are focused on innovation, are
5 we getting the warfighter what they need. And so that kind
6 of user-in-the-loop feedback to be able to ensure that we
7 are giving them what they need, when they need it.

8 And then I think continuing to focus on sustainment. I
9 know it does not get a lot of play in acquisition
10 discussions, but, you know, really thinking about that long-
11 term impact of the decisions that you are making now. And
12 you are seeing it right now with the F-35, where it is
13 almost too expensive to fly and operate, right? We do not
14 want to be in that position. And so putting focus on it
15 earlier in the process will drive better outcomes in the
16 long run.

17 Senator Sullivan: Great. Great answer. Thank you.

18 Senator Kaine: I am going to ask a few more questions.
19 The ranking and chair have a role on this committee that
20 when one has to leave the other one can't let things get too
21 wild. So Senator Sullivan has to leave, and we have a vote
22 that we are going to be backed up against. But just a
23 couple of other things.

24 Dr. O'Toole, can you just answer the question that Ms.
25 Oakley answered, give us kind of the big three we should

1 focus on?

2 Mr. O'Toole: Senator Kaine, that is a great question.
3 I believe that very similar to what Ms. Oakley said,
4 incremental open systems that allows us to then
5 incrementally test a capability and increase that
6 capability.

7 Senator Kaine: So the open system and incremental.

8 Mr. O'Toole: Yes, sir. I really liked her answer, or
9 her second one, which was focus on the outcomes, because
10 that is really what DOT&E does. We focus on the outcomes of
11 the performance of a system that is going into the hands of
12 the warfighter.

13 Ms. Cummings, when she talks about performance
14 sometimes, she talks about costs and schedule performance of
15 the contract. I am looking at the performance of the actual
16 system and it is going to the warfighter, or, for that
17 matter, to a business system that is helping us do the
18 acquisition better, or any one of those, because we also
19 have the business systems.

20 Senator Kaine: So when you talk about early testing
21 and evaluation that is testing and evaluation about whatever
22 the system is, is performing the function that we want it
23 to.

24 Mr. O'Toole: That is correct, sir, and that is also at
25 the end, at the tail end, right? So what we really want is

1 do we want success at the end? We want to deliver the
2 warfighter the capability that they need, that they have
3 asked for, which started the whole process in the first
4 place, from acquisition of a particular system or program.
5 Because it starts with the warfighter asking for a need, and
6 we generate a system, and one of those capabilities,
7 obviously, is can we modify something that already exists,
8 which actually then dovetails back to the beginning part.

9 And then on the third one, I still go back to what we
10 need for DOT&E is we need the capability -- and it will
11 impact the law a little bit, because Title 10, Section 139
12 right now does not allow us to have any insight into, or a
13 say into developmental testing. And I have the exact
14 wording, which says "precludes the director being assigned
15 any responsibility for developmental test and evaluation,
16 other than the provision of advice to officials responsible
17 for such testing." If we are going to go with the
18 incremental testing, which I believe is the right way to go
19 and it will deliver the performance earlier that is needed
20 by the warfighter, I believe there is a latitude that needs
21 to be adjusted.

22 Senator Kaine: I see. Let me ask you this, for all of
23 you. Grade the Defense Acquisition University as a means
24 for training the kinds of acquisition professionals that we
25 need to do the kind of things that we need to do. And you

1 do not have to filibuster like a Senator would do. Just put
2 a grade on it.

3 Ms. Cummings: Since they report to me I am going to
4 have a hard time giving you a letter grade, but what I will
5 say is that we are spending this year revamping the way that
6 DAU trains, for the exact reason that you just said. In the
7 past, we have trained our acquisition professionals as if
8 they are all going to follow the same exact process and buy
9 something very large that requires development, testing,
10 production, fielding. That is a physical product. Not all
11 of our program managers need to do that. Some of them are
12 acquiring business systems, software tools, services, and we
13 are revamping the way that we deliver training, to be more
14 targeted and to be more across the lifecycle of a career,
15 instead of putting all of the training at the very front of
16 the career and then throwing them into the system and having
17 them have to learn on demand. We want them to be lifelong
18 learners, and we are creating a Defense Acquisition
19 University that supports that.

20 Senator Kaine: How about you, Ms. Oakley, or Dr.
21 O'Toole? Do you want to give it a grade?

22 Mr. O'Toole: I will go first. Thank you. I
23 appreciate that.

24 Once again, I am not going to give a grade. Also,
25 DOT&E is not part of the acquisition community, so DAU is

1 not training my action officers in the future. My action
2 officers generally come from the fleet. They rotate in. I
3 have a mixture of both military and civilians.

4 However, I am on an advisory panel associated with the
5 test and evaluation and the revamping of the curriculum that
6 Ms. Cummings just talked about, for the Defense Acquisition
7 University. I will say they are very open to what we have
8 to provide as critique and also influence.

9 Senator Kaine: Good. Ms. Oakley?

10 Ms. Oakley: I am also not going to give a grade, but I
11 will comment how important what they are doing with DAU is,
12 because through the implementation of this Adaptive
13 Acquisition Framework it is really going to require a lot of
14 critical thinking and innovation on the part of our
15 acquisition community to make it work, to get the benefits
16 out of it as possible.

17 So I think ensuring that we are developing a workforce
18 that feels empowered and enabled to be able to make these
19 kinds of critical decisions about their programs, because,
20 you know, they are in this mode of tailoring in requirements
21 versus tailoring out. And so to be able to know what you
22 need to tailor in is going to require a lot of good
23 information, and I think DAU is going to play a huge role in
24 making that happen.

25 Senator Kaine: Excellent. Let me ask one more

1 question as I am getting ready to go vote. We mandated, a
2 couple of years ago, that the Office of Under Secretary for
3 Acquisition, Technology, and Logistics be split into two:
4 the Under Secretary for Acquisition and Sustainment, and Ms.
5 Cummings is there now, and then Under Secretary for Research
6 and Engineering.

7 Was that a smart thing to do? Has it produced benefit,
8 has it produced disadvantages, or a little bit of both?

9 I am going to go with Ms. Oakley first.

10 Ms. Oakley: We also looked at this as well, and I
11 think the nature of the idea is important, right, to bring
12 more innovation to the forefront. I think it is yet to be
13 seen the role that R&E is going to play in bridging that
14 kind of valley of death gap. And, you know, what we have
15 seen in commercial companies is not such a black-and-white
16 split. It is more of a, you know, the S&T community is kind
17 of following the technologies to the acquisition community
18 and has a different kind of -- one might call it a crescendo
19 of involvement in S&T.

20 And so it will be interesting to see kind of how it
21 plays out, and I think with R&E establishing an S&T
22 portfolio management type approach, where they are really
23 talking a critical look at the incremental and disruptive
24 technologies, that is going to be super important to be able
25 to communicate with the acquisition community about what is

1 underway and what should be of value to them in their
2 acquisition programs, in the near future and in the further-
3 on future.

4 Senator Kaine: And if I could get Dr. O'Toole's
5 opinion on that same question, and I won't make Ms.
6 Cummings. Since she is just having to live what we ordered,
7 she does not have to editorialize. Mr. Dr. O'Toole, what do
8 you think?

9 Mr. O'Toole: So, Senator Kaine, I believe that the
10 DTE&A -- and that stands for the Developmental Test and
11 Evaluation and Assessments -- is buried within the Under
12 Secretary of Defense for Research and Engineering, and thus,
13 they are not as influential as I need them to be on the
14 DOT&E side to implement the three precepts as I indicated.

15 Having said that, they are great people, but they are
16 looking at acquisition programs. They are not looking at
17 the development of the new technology. And so from an
18 oversight standpoint, they have 11 programs that they
19 provide oversight on. They provide and they monitor 87
20 additional programs. But the program office does not need
21 to take into account anything that they say or do not say.

22 And so I think -- and Ms. Cummings and I have talked
23 about this particular part -- I believe that it would be
24 behoove us all to perhaps look at that organization as maybe
25 better suited in Acquisition and Sustainment Under Secretary

1 of Defense, versus the Under Secretary of Defense for
2 Research and Engineering. That assessment part is on the
3 engineering side, so there would be some transfer on that
4 aspect.

5 Senator Kaine: Thank you for that thought, and I want
6 to thank all of you. This has been a great discussion. I
7 am going to ask that the record stay open -- we know that
8 Senator Blackburn wants to ask one question in writing.
9 Today is Wednesday, so I am going to have the record stay
10 open until Friday at 5. If any other members want to submit
11 questions by then, that would be great. We would encourage
12 your prompt response to questions, if submitted.

13 And with that, the hearing is adjourned.

14 [Whereupon, at 3:48 p.m., the subcommittee was
15 adjourned.]

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