DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE
HOUSE ARMED SERVICES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

SUBJECT: Assessing Military Acquisition Reform

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for Acquisition

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The Honorable William Roper

Assessing Military Acquisition Reform

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Chairman Thornberry, Ranking Member Smith, and distinguished members of the Committee, it is an honor to appear before you today to discuss both progress and remaining challenges in achieving Defense acquisition reform and to do so with my fellow Service Acquisition Executives. Though I am still newly appointed as the Assistant Secretary of the Air Force for Acquisition, Technology, and Logistics, I am encouraged by steps the Air Force is taking to implement recent reforms championed by this Committee. Our Acquisition Workforce is strong, technically-skilled, and motivated to build and sustain the world's most lethal Air Force, so my top priority is empowering them to leverage newly-restored "power at the edge." This is more than just delegating decision authority; it is creating opportunities to reorganize, retrain, refocus, or remove barriers so that our workforce can take full advantage of having the reins in their hands.

Cost-effective modernization is a top Air Force priority, and the need for it has never been more pressing. Twenty-six years of continuous combat operations has done more than just take a toll on Airmen and equipment; it has allowed the national security environment to change while our time, talent, and treasure were otherwise engaged. I know the Committee is well aware that many capabilities developed decades ago were studied, copied, and, in many cases, exploited by our adversaries. The industrial base continued contracting as long-standing Defense companies merged and new start-ups often remained unconnected to our military. New commercial technologies likely to revolutionize warfare—particularly artificial intelligence and machine learning—accelerated significantly. Technologies our government must develop—like hypersonics and directed energy—

have slowed compared to other nations, like China. It is no wonder fundamental changes to how the Department designs, acquires, and sustains our military are a focus of this Committee. I applaud your recent reforms to effect it and for your important action to lift the sequestration caps for FY18 and FY19. Stable and timely budgets, devoid of Continuing Resolutions and defense budget caps, are absolutely necessary to build the Air Force this country needs and deserves, so I ask for your help in ending the remaining sequestration limitations and passing the FY18 and FY19 budgets.

During my time as the Director of the Strategic Capabilities Office, I was able to use streamlined acquisition to get much needed capabilities into the hands of warfighters. Through use of extensive prototyping, experimentation, and Other Transaction Authorities, we turned development and acquisition into a contact sport of doing, failing, learning, and refining that was significantly faster—and more creative—than normal processes. I see the Air Force adopting much of this approach (as it also adopts me) and applying it to many new initiatives. My goal is to continue this paradigm shift using reforms created by past and future National Defense Authorization Acts (NDAAs). I am excited to be in this position at this time and will work with the Committee, and all of Congress, to modernize the Air Force affordably and effectively.

Implementation Progress

Delegation of Authorities

The FY16 NDAA directed that Milestone Decision Authority (MDA) for programs reaching Milestone A reside with the Service Acquisition Executive after 1 October 2016, unless otherwise designated by the Secretary of Defense. The Air Force currently has milestone decision authority

over 41 of 54 Acquisition Category (ACAT) I Major Defense Acquisition Programs and Major Automated Information System programs. This is up from 19 of 49 programs prior to the enactment of the FY16 NDAA.

These programs will reach key decision points faster because fewer levels of review are now involved in each decision. Air Force programs like GPS III Follow-On, Mk 21A Reentry Vehicle, and Protected Tactical SATCOM have already benefited from these shortened timelines, saving months of work normally spent coordinating meetings to clear Defense Acquisition Boards.

I firmly believe in this philosophy: putting empowered people, vice cumbersome processes, in charge. Consequently, I support and will continue to expand additional delegation of authority for smaller acquisition programs to the lowest feasible level. Currently, MDA for 43 of 43 ACAT II programs has been delegated from me to the Program Executive Officer (PEOs), and MDA for 274 of 376 ACAT III programs has been delegated from PEOs to Deputy PEOs or Program Directors. Not only does this save valuable time, it sends a clear signal of trust to the Acquisition Workforce.

Things We Are Getting Right

Prototyping and Experimentation: Flying Before Buying

New authorities granted by Congress make it easier for Services to prototype concepts and conduct experimentation campaigns before committing to buy them. Prototyping is the natural bridge between new technology and programs of record and is the appropriate place for new concepts to "fly or die". I am pleased to see that the Air Force has embraced this approach both organically and in partnership with other organizations.

One Air Force example is the Light Attack Experiment (LAE) test campaign. Phase I was successfully conducted last August where four aircraft participated in less than five months after invitation. Planning for Phase II is currently underway with the AT-6 Wolverine and A-29 Super Tucano, which will explore logistics and maintenance support, weapons and sensor issues, training, and networking. We also plan to demonstrate interoperability with partner forces by participating in the BOLD QUEST 18.1 exercise in July of this year. Other important prototyping examples include hypersonics development for long-range strike and the Adaptive Engine Transition Program for improved thrust-to-fuel ratio. Retiring the risk to receive the potential rewards of these programs is why prototyping proficiency is a skill we will continue to strengthen in our workforce.

Some examples of prototyping partnerships with external organizations include those with my former organization, the Strategic Capability Office. We are working high-end military capabilities like the Arsenal Plane; military-commercial "frankensteins" such as installing smartphone-camera navigation on Air Force weapons; and commercially-derived capabilities like Perdix swarming microdrones. Each effort is worked in partnership with Air Force Program Offices, which provide program management, engineering, test, and contracting expertise to speed development and transition when concepts succeed. The Air Force is also partnered with the Defense Advanced Research Projects Agency on important hypersonics development like the Air Launched Rapid Response Weapon. Partnerships such as these are important to ensure the Air Force can ingest promising technologies and concepts from both the broader Defense and commercial ecosystems.

These efforts are to be applauded, and I hope this Committee will support making them standard practice across Air Force development.

Leveraging Commercial Technology and Practices

As the Committee is well aware, many commercial technologies and practices have huge applicability to current military challenges. The Department must be able to adopt and adapt them at commercial speed or risk ceding opportunity to adversaries who can. Traditional acquisition has historically struggled with commercial technology for a variety of reasons, one of which is rigid requirements. I am fortunate to work with a visionary Service Chief and Vice Chief who are integrating requirements with acquisition into a more streamlined process. This opens new opportunities for the Air Force to leverage commercial technology at commercial speed.

One example is the Low-Cost Attritable Aircraft Technology (LCAAT), which leverages recent advances in advanced manufacturing, like 3-D printing, to design limited-life unmanned aircraft rapidly. Mastering the art of designing for attritability—cheap enough to take risk, expensive enough to reuse, dangerous enough to kill the enemy if ignored—will be key to imposing cost on adversaries while also keeping future Airmen safe in a contested fight.

Another example is our Enterprise Information Technology as a Service (EITaaS) initiative. This initiative will shift the burden of providing IT at military bases to commercial providers who can do it more efficiently and upgrade more agilely than traditional Defense procurement. Though this should be simple and straightforward, it is this type of initiative that often struggles in a one-size-fits-all process used for all things from books to bombers. Flexibility in the new acquisition authorities makes common sense endeavors in IT easier to jumpstart.

Though there are many other programs using commercial technology, I believe this is an area we can elevate to the next level. I look forward to exploring options within the Air Force in the coming months.

Other Transactions Authorities

I am very pleased with the Air Force's early adoption of Other Transactions Authorities (OTAs). The Air Force Research Laboratory has the lion's share of OTAs through Open System Acquisition, which supports development in command and control, communications, and cyber and intelligence, surveillance, and reconnaissance (C4ISR). The Space and Missile System Center employs OTA agreements on the Evolved Expendable Launch Vehicle program through the Space Enterprise Consortium, which increases access to non-traditional defense contractors for space-related prototyping. Additionally, the Air Force Life Cycle Management Center recently leveraged OTAs to complete the Light Attack Experiment. The fact that three separate Air Force communities—a laboratory, space program office, and aircraft program office—found a way to make OTAs work for their mission is encouraging, so I look forward to expanding the practice across our enterprise.

Things We Can Improve

Software Development

The Department's approach to software acquisition still trails current industry standards. Modern development tools have the potential to speed up both production and spiral upgrades while also reducing cost, but leveraging them remains a challenge as top talent often lies outside the traditional Defense Industrial Base. Of Air Force ACAT I programs exceeding their original cost baselines, the majority (5 of 9) are software-driven: GPS Next-Generation Operational Control System, Joint Space Ops Center Mission System Increment 2, Defense Enterprise Accounting/Management System, Air Operations Center Weapon System Increment 10.2, and Mission Planning System Increment 5.

The cost statistics reinforce my view that we should train and resource our Acquisition Workforce to manage software-related programs differently than hardware-related ones. One promising example of doing so is the Air Operations Center (AOC) Pathfinder—a joint initiative between the AOC Program, Defense Industrial Unit Experimental, and the Air Force Digital Service—to apply modern software development to the struggling AOC program. This initiative has shown great promise thus far, averaging 120 days from development to delivery of new application. One specific application slashes the time to develop by 85 percent, while halving error rates. A key lesson learned from this initiative is the importance of adopting a modern software architecture upfront to continually spiral application deliverables.

Reforming software acquisition is a top priority for me and the Air Force. We must train our workforce appropriately and have dedicated subject matter expertise, just as we do for other science-related fields. I look forward to working with the Committee on this important topic.

Innovation in Sustainment

As I look at total Air Force cost, sustainment encompasses the majority, yet it receives little focus in our research and development portfolio. Many commercial technologies and practices—agile manufacturing, artificial intelligence, augmented/virtual reality, digital twins—have the potential to reduce cost while simultaneously increasing the availability of our systems. These technologies must be aggressively explored, especially in light of current fleet aircraft availability and uncertain F-35 sustainment costs.

This does not come without its own unique challenges. Qualification of aircraft parts is not simply a material issue. Due to the variability of the additive manufacturing equipment, technical data packages will likely become machine dependent. We are also likely to encounter data rights issues,

a more general problem in Department acquisition, which will motivate looking at new contract incentives, new vendors, and academia as means to increase innovation and competition throughout a system's life cycle.

We should be cognizant of these challenges, but when looking at the opportunities and potential rewards, the Air Force must go "all in" on revolutionizing sustainment. The flight line of the future could be the difference-maker in future conflicts. This will be a major focus for me.

Operationalizing Artificial Intelligence

If the U.S. military goes to war today, only our operators will be smarter after day one. In today's world of continually evolving smart devices, "dumb" hardware will not suffice for future Airmen. Artificial intelligence (AI) will fundamentally change the character of warfare, so future Airmen must have systems that learn faster than their enemy's. To harness this technology from commercial industry, we must design, acquire, and update software like them. This will change all facets of the Air Force—requirements, acquisition, operations, sustainment—but can you imagine a future Air Force with a myriad of drones, planes, satellites, and cyber tools sensing, learning individually, sharing data, and learning collectively at machine speed. This kind of "skyborg" is not science fiction. We could build it today if data, software, and networking became as important to us as platforms. The Air Force has always pioneered new warfighting domains that allow us to observe, orient, decide, and act (OODA) the fastest: first air, then space, and then cyberspace; each new domain shrinking the OODA loop. Now, a new domain looms that will likely draw this loop into a knot of unprecedented decision speed at global scale. We must dominate the new "blue yonder" of AI, but to do so, we must design for it. Important pathfinders with the Strategic Capabilities Office are already underway, but the paradigm shift must be faster and at a larger scale across the

Department. Consequently, the Air Force is holding an AI Summit in May 2018 to gather leadership and determine our way ahead.

Other Areas for Congressional Consideration

As identified by Secretary Wilson in her testimony before the Senate Armed Services Committee on December 7, 2017, there are several areas we continue to explore that could lead to further improvements to the acquisition process:

- Current law requires us to establish program cost and fielding targets that are approved by the Secretary of Defense or the Deputy Secretary of Defense. We are working with our counterparts within the Office of the Secretary of Defense to determine where such authority would be best located. These targets are already included in annual reports and baselines. (FY17 NDAA, Section 807)
- Exploring funding flexibility to align with more modern software practices;
- Weighing the value of requiring contractors to select one bid protest forum—either the Court of Federal Claims or the Government Accountability Office—recouping protest time and accelerating fielding;
- Exploring statutory requirements that may be imposing duplication of effort on internal processes and working with the Committee to streamline them.

Conclusion

The Air Force is off to a good start in reforming acquisition, but there is still another level we can reach. Though reforming the process typically receives the focus, it is empowering people that historically made Air Force acquisition a powerhouse of innovation and agility. Throughout our history, we conducted the highest technological developments, most ground-breaking tests, and fastest deployments. Decision power was at the edge, and the center (i.e., upper management) enabled it. It is time to return to those roots, to build and sustain next-generation systems our successors will name alongside the likes of the SR-71, GPS, B-2, F-117, and X-37B, and to do so at cost and speed. Given our talent, leadership, and new authorities, I am excited about what is to come.