

RECORD VERSION

STATEMENT BY

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Introduction

Chairman Bacon, Ranking Member Khanna, and distinguished members of this Subcommittee, thank you for the opportunity to testify today as the War Department's Chief Technology Officer (CTO) during a period of unprecedented technological change. I am also honored to appear today alongside my esteemed colleagues: Mr. Owen West, the Director of the Defense Innovation Unit (DIU), and Mr. Cameron Stanley, the Department's Chief Digital and Artificial Intelligence Officer (CDAO).

At Secretary Hegseth's direction, the Department has realigned DIU and CDAO under my leadership. We are moving away from a fragmented and siloed innovation ecosystem toward a unified and cohesive model.

My core responsibility as the Department's CTO is to serve as the architect and steward of this ecosystem. My mandate is to ensure the United States military invests in, develops and deploys the right technologies to guarantee that the American warfighter maintains a decisive and overwhelming advantage in any domain of warfare.

The Office of the Under Secretary of War for Research and Engineering has been charged with the critical task of setting the overarching technology priorities for the entire defense enterprise. This involves directing our most precious resources — our budget, talent, and time — toward the emerging capabilities that promise the greatest strategic return for the Joint Force. Achieving success involves engaging with our nation's unparalleled innovation ecosystem in industry and academia. Most importantly, the Office of the Under Secretary of War for Research and Engineering's mandate is not to produce white papers or to admire small-scale pilot programs. The Secretary's mandate is to deliver tangible, battlefield-ready results to our warfighters at a velocity and at a scale that our adversaries cannot match. We are here today to report on the substantial progress of this mandate. The security of the United States, the credibility of our alliances and the safety of our military depend directly on our collective ability to out-innovate, out-pace and out-maneuver our adversaries. This requires the transformation of the Department from a 20th-century bureaucracy into a 21st-century mindset.

250 Years of American Innovation for National Defense

As our nation stands on the cusp of its 250th anniversary, we are presented with a profound opportunity for reflection. Two and a half centuries of American history are inextricably linked with the spirit of ingenuity. American exceptionalism has been defined by monumental technological achievements. The Manhattan Project showed the speed at which the government could mobilize the world's top scientific talent and industrial power to fundamentally alter the outcome of World War II. The development of Advanced Research Projects Agency Network (ARPANET), a Department of Defense project, laid the very groundwork for the internet, unleashing unprecedented economic and social change that continues to reverberate today. The Global Positioning System (GPS), once a purely military asset, is now an indispensable global utility that powers countless industries. These innovations are testaments to a uniquely American system that empowers, incentivizes and ultimately unleashes innovation on a world-changing scale.

To maintain this trajectory in an era of strategic competition, we must leverage the one asset our adversaries can never replicate: an innovation ecosystem of unparalleled depth, dynamism and creativity. This ecosystem contains a powerful, interwoven network of world-class research universities, visionary venture capitalists, competitive and robust capital markets, and agile small businesses. My office is singularly focused on harnessing the full, unbridled potential of this ecosystem, breaking down the barriers that have historically kept it at arm's length from the Department and connecting it directly to the most pressing needs of the American warfighter. The men and women who volunteer to serve our nation in uniform must always be equipped with the tools they need to deter conflict, defend our nation and to decisively prevail in any battlefield scenario.

The Department's Six Critical Technology Areas (CTAs)

Upon assuming the responsibilities of the Department's CTO, I inherited an organization of extraordinary talent and patriotic ambition. However, it was an organization hindered by a lack of strategic focus. Over time, the Department had accumulated a list of fourteen CTAs. While each area is important, this expansive list made true prioritization impossible. This diffusion of effort diluted our resources, confused industry, siloed the Office of the Under Secretary of War for Research and Engineering and inevitably slowed progress. To restore focus, my first order of business as CTO was to conduct a rigorous, data-driven and threat-informed analysis to identify the list of technology areas that would most significantly shape the battlefield and impact on our warfighting capability in near term.

Through this intensive process, and in consultation with leaders across the Military Services and the intelligence community (IC), and engagements with industry, we pared down the list to six critical technology areas. These six CTAs mandate how the Department allocates its investments, talent and leadership. The six CTAs are:

Applied Artificial Intelligence

The Department is moving beyond theoretical research and small-scale applications and is transforming us into a true AI-first enterprise. Our focus is on achieving decision superiority for commanders, fielding systems that operate at the tactical edge in degraded and denied environments and leveraging AI for predictive analytics to transform our logistics and the IC.

Secretary Hegseth recently released the Department's AI Acceleration Strategy, which serves as our detailed roadmap for embedding AI across three critical domains: first, in direct warfighting applications to enhance lethality and decision speed; second, in intelligence synthesis to make sense of the overwhelming amount of data from our partners in the IC; and third, in our enterprise operations to drive massive efficiencies and improve business processes.

One of our most immediate victories in rapid AI deployment is the Department's official AI platform, GenAI.mil. In a remarkable demonstration of both technical agility and speed to delivery, we developed and deployed this secure, enterprise-wide generative AI platform to the Department's three million personnel, military and civilian alike on our Controlled Unclassified Information (CUI) network. By securely integrating frontier Large Language Models from America's leading AI labs into our own secure environments, we will provide our workforce with a powerful tool for a vast array of tasks. Our warfighters are now using it to draft reports and correspondence, write and debug software code and generate creative solutions to complex operational problems.

The Army's XVIII Airborne Corps offers an important example of this transformation. Producing a Corps-level Operations Order (OPORD) has historically required six to nine months of work by a team of technical writers replicating the expertise of hundreds of senior staff officers, generating more than 2,000 pages across multiple command-and-control systems. By using GenAI.mil, the Corps generated a complete exercise OPORD for the U.S. Southern Command area of responsibility (AOR) in just six weeks, with a small team of nine writers replicating the output of the entire XVIII Airborne Corps staff. This is an illustration of how AI is already accelerating operational readiness and delivering decision advantage across the Joint Force.

This amount of AI adoption is unprecedented within the U.S. Government. In just five months of operation, GenAI.mil has attracted over 1.4 million unique users who have collectively generated over 65 million prompts. This represents what is arguably the fastest and broadest adoption of an advanced AI platform in the history of the Federal Government. GenAI.mil is an undeniable proof point that the Department can and will move at the speed of relevance. Acting on President Trump's directive to rapidly expand AI across Government, we are moving beyond deployment on our CUI network. The Department will soon bring AI model and infrastructure capabilities into our classified environments. Two weeks ago, the Department announced agreements with eight American companies to deliver a diverse suite of AI capabilities to our Secret and Top Secret networks for our warfighters across all AORs, which will give them a real-time decision advantage.

Biomanufacturing

The Biomanufacturing critical technology area will focus on leveraging synthetic biology and advanced biotechnologies to revolutionize defense manufacturing. The Department will help develop and produce materials with novel properties that are stronger, lighter, or even self-healing. Biomanufacturing will enhance warfighter performance and resilience in any environment and help shore up our domestic supply chains against adversarial disruption.

Contested Logistics Technologies

Future conflict will challenge the Department's logistics and sustainment systems, including through persistent, multi-domain attacks on the Joint Force's mobility. This CTA will push forward autonomous delivery technologies, AI-driven predictive maintenance and distributed, advanced manufacturing to produce spare parts on-demand at the point of need. This will strengthen the Department's ability to secure and distribute food, water, energetics and the delivery of essential warfighter sustainment under contested conditions. The goal is to build a resilient, agile and survivable logistics enterprise that can sustain the force in a high-intensity, protracted conflict.

Quantum and Battlefield Information Dominance

Quantum technology promises to be as revolutionary in this century as the microchip was in the last century. The Department's quantum and advanced sensing efforts focus on delivering capabilities that preserve communications, spectrum maneuverability and position, navigation and timing (PNT) in degraded or denied environments. The Department is prioritizing quantum sensing and advanced atomic clocks because they offer the most immediate operational value, including alternative PNT solutions when GPS is contested or unavailable. The Department is also advancing quantum computing research to address complex optimization and materials science challenges relevant to the Department. At the same time, the Department is accelerating post-quantum cryptographic standards to ensure our most sensitive national security data remains secure against future adversarial quantum systems.

Scaled Directed Energy

For decades, the Department has pursued the promise of directed energy, and the Department is close to truly fielding these systems at scale. The Department's focus remains on high-energy lasers and high-power microwave systems that provide a low-cost-per-shot defense against the growing threat of unmanned aerial systems and other munitions, forming a key element of a future layered air and missile defense architecture. Through the Scaled Directed Energy (SCADE) CTA, we are driving the development of the Joint Laser Weapon System (JLWS), which scales laser and microwave technologies to deliver cost-effective, high-impact solutions against emerging threats, including cruise missiles. JLWS aligns with the Department's modernization strategy and strengthens an integrated air and missile defense network capable of responding to multi-domain challenges. We are sending a clear demand signal to industry that we need directed energy systems that are affordable, scalable, and ready for production.

Scaled Hypersonics

The Department is continuing to rapidly advance both offensive hypersonic strike capabilities and a layered defense to counter adversary systems. This remains a top modernization priority as adversaries and competitors expand their hypersonic arsenals and as the Joint Force requires time-sensitive, precision strike options in Anti-Access/Area Denial (A2/AD) environments. The Department's portfolio includes boost-glide systems, air-breathing

ramjet and scramjet missiles, and early work on reusable hypersonic vehicles, supported by the materials and manufacturing advances needed to field them at scale. The Test Resource Management Center (TRMC) is enabling this acceleration, including the Nation's first recovery of a reusable hypersonic test vehicle since the X-15 program, two recoverable flights just 24 days apart, and rapid stand-up of new test infrastructure to support high-tempo campaigns. Together, these efforts are increasing test cadence and providing cost-effective delivery of lethal operational hypersonic capabilities.

Paring down our CTAs also requires unwavering accountability. For each of these six areas, we have assigned a single, accountable and empowered senior official responsible for driving progress and delivering results. These leaders are charged with running intensive, time-bound "technology sprints," a methodology from the private sector designed to deliver demonstrable capabilities and tangible outcomes in months, not years. This approach compels the Department to operate with a focus and speed that more closely resembles that of our most innovative commercial partners. These sprints are our primary mechanism for breaking through institutional inertia and for transforming the Department from a slow-moving bureaucracy into a bastion of impactful innovation.

Unifying the Defense Innovation Ecosystem

For far too long, the Department's vast innovation ecosystem has been characterized by stove-piped pockets of excellence. World-class research and development took place within the Defense Advanced Research Projects Agency (DARPA), the Strategic Capabilities Office (SCO), the DIU and the Department's network of laboratories. However, these organizations have often operated with disparate strategies and without a unifying set of priorities. This fragmentation resulted in inefficiency, needless duplication of effort and the persistent lack of technology delivery to the warfighter.

Under my leadership as the Department's CTO, the Department's Office for Research and Engineering have undertaken a fundamental reorganization of the Department's innovation ecosystem, unifying it under a single, coordinated strategic structure led by the CTO. Key organizations — including the CDAO, DARPA, DIU, SCO, TRMC and the Office of Strategic Capital (OSC) — are now aligned under my purview. This realignment ensures that the Department's collective efforts are deconflicted and that the Department's entire innovation ecosystem is working in the same direction.

The Department will no longer tolerate a system where good ideas and promising technologies fail to reach the warfighter due to internal bureaucracy or a lack of coordination. This new, unified structure guarantees that a breakthrough, whether it is born in a university laboratory or a startup's garage, has a clear and rapid pathway from idea to prototype and then to full-scale delivery to the Joint Force.

Science, Technology, Engineering, and Mathematics (STEM) Workforce and Research

Unifying the Department's innovation ecosystem also requires unifying the talent and research foundations that sustain it. Breakthrough technologies are created by a skilled workforce, protected by a resilient research enterprise, and propelled forward by institutions that push the boundaries of science.

Science, Mathematics, and Research for Transformation (SMART) Scholarships

The SMART Scholarship for Service Program remains one of the Department's most important tools for cultivating the next generation of technical leaders. SMART provides full scholarships, internships and mentorship for students pursuing degrees in twenty-one STEM fields essential to national security. The program is expanding at an extraordinary pace. Last year's cohort was the largest in its history with over six hundred scholars, and more than eight thousand students applied for the 2026 cycle. SMART ensures that these scholars are cleared, trained and ready to contribute to Department missions immediately upon graduation, creating a steady pipeline of scientists and engineers who will anchor our future technological advantage.

Research Protection

The Department is strengthening the security of the research ecosystem that is the backstop for our innovation enterprise. The Department issued an updated Program Protection Plan framework that streamlines how we identify and mitigate risks to high priority technologies and lays the foundation for an AI-enabled digital capability that will accelerate approvals. The Department also published the Fundamental Research Security Initiatives and Implementation memorandum, which directs actions to protect Department-funded research from malign foreign influence. These actions include prohibiting awards to companies on the 1260H List, establishing a Department-wide risk review repository, and developing automated vetting and continuous monitoring tools. I would like to personally thank the House Select Committee on China for diligently and thoroughly providing relevant information to inform much of the Department's push to protect taxpayer funded research. Through these efforts, the Office of the Under Secretary of War for Research and Engineering is building a research environment that is open to innovation yet resilient against exploitation.

Providing Support for New Entrants and Industry Innovators

A unified strategy and a clear focus are necessary, but insufficient conditions for success, even with a specialized STEM workforce. They are meaningless without the resources to fuel our innovation engine. To that end, the Department is continuing to employ a flexible set of funding mechanisms designed to attract, nurture, and scale the most innovative companies to provide solutions to the American warfighter.

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program

I want to take a moment to commend this Congress for reauthorizing the SBIR/STTR programs. These programs are an indispensable lifeline for our nation's small business community. They provide millions of dollars to America's small businesses, allowing startups and small enterprises to undertake the high-risk, high-reward research and development that produces the critical, often dual-use, technologies that the Department desperately needs to maintain its edge.

Accelerate the Procurement and Fielding of Innovative Technologies (APFIT)

The Department is focused on scaling proven technologies and getting them into the hands of warfighters. The APFIT program is our primary tool for acting on this focus quickly. APFIT is now codified in law as a program of record, and President Trump's One Big Beautiful Bill Act provided \$1 billion to make it a cornerstone of the Department's innovation ecosystem. In the last year, APFIT delivered more than \$800 million across 32 projects, accelerating the fielding of advanced sensors, resilient communications systems, and other critical capabilities, with particular impact in United States Indo-Pacific Command and United States Northern Command. I am proud to report that APFIT has now surpassed \$1 billion in total awards, representing real capability moving rapidly into operational use.

Office of Strategic Capital (OSC)

The Department is harnessing the strength of private capital through the OSC's over \$200 billion in lending authority. In the past year, OSC executed more than \$2 billion in loans and conditional commitments to strengthen domestic supply chains, expand critical materials processing and revitalize key sectors of the defense industrial base, with over \$2 billion projected to close in the coming weeks. These investments are rebuilding American capacity in areas such as rare earth separation, advanced magnet production and metals refining, ensuring that the United States is never dependent on adversarial sources for materials essential to defense. This momentum demonstrates that when the Department provides clear demand signals and is willing to share risk, private capital follows. We are committed to expanding this model to accelerate and scale private investment in critical supply chain technologies needed for national security.

Defense Advanced Research Projects Agency (DARPA)

DARPA continues to serve as the Department's engine of scientific discovery and technological surprise. Its work this year reflects the agency's enduring commitment to pushing the limits of what is possible. The DARPA Triage Challenge is driving advances in medical triage for mass-casualty environments, demonstrating how new technologies can transform emergency response when every second matters. The DARPA Lift Challenge is seeking to overcome the payload limitations of current multirotor drones by encouraging radically new

designs capable of carrying payloads several times their own weight. Through the Robotic Autonomy in Complex Environments with Resiliency (RACER) program, DARPA demonstrated how autonomous systems can take on some of the most dangerous battlefield tasks, working alongside Army units to show how robotics can enhance force protection and keep soldiers out of harm's way.

The Modern Arsenal of Freedom

We are building a modern Arsenal of Freedom. Innovators, entrepreneurs, investors, academics and the Department will continue to engage to deliver the most advanced military capabilities in history. Our national security goals are unachievable without the full and committed patriots in American industry. For too long, many innovative companies, especially new entrants and small businesses, have viewed the Department as an impenetrable bureaucracy. That era is over. The Department is opening our doors wider, becoming a faster and more transparent Department and giving companies the quick decisions they need to survive in a competitive commercial environment.

Patent Holiday Initiative

The Defense Patent Holiday gives companies the ability to evaluate government-owned intellectual property without fees or royalties to supercharge their ideas. The Department has seen a surge in engagement across the innovation ecosystem. Companies have already signed multiple commercial evaluation licenses, dozens more have applications underway and nearly one hundred firms are now working directly with our laboratories to explore more opportunities. Traffic to the Department's patent marketplace has nearly doubled, and industry inquiries have sharply increased, demonstrating that when the Department lowers barriers, innovators respond. This effort is educating a new generation of firms on how to work with the Department and allowing them to participate in technology transfer for the first time.

Mission Engineering and Integration Activity (MEIA)

The Department's MEIA initiative is another pillar of this modern arsenal. MEIA strengthens the Department's ability to rapidly design, assess and field operationally relevant capabilities by unifying mission engineering, modeling and simulation, experimentation and industry collaboration. This approach is already accelerating progress on low-cost containerized munitions and advancing affordable mass through systems which are contributing to operations in multiple theaters. MEIA ensures that promising technologies move from concept to fielding with greater speed and impact.

I have seen the energy of our Arsenal of Freedom firsthand with Secretary Hegseth during our tour of cutting-edge companies across the country. These are places where talented Americans work late into the night because they believe in the mission of protecting our nation. The Department will continue to improve and transform itself to be responsive and worthy of their patriotism and support.

Conclusion

Every technology the Department accelerates, and every engagement is done with a single purpose: to serve the American warfighter. Our men and women in uniform, who volunteer to stand on the front lines and place themselves in harm's way, deserve the very best technology that our defense industrial base can produce. They deserve to step onto any battlefield, in any domain, at any time, with the confidence that American ingenuity has given them an insurmountable and unfair advantage. It is the Office of the Under Secretary of War for Research and Engineering's solemn duty and our highest honor to provide them with nothing less.

Distinguished members of this subcommittee, thank you again for your time, for your engagement on these critical issues and for your steadfast support of our service members and the vital mission of the Department of War. I look forward to answering your questions.