

RECORD VERSION

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BEFORE THE

**SUBCOMMITTEE ON INTELLIGENCE AND
EMERGING THREATS AND CAPABILITIES
COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES**

ON

**THE FISCAL YEAR 2020 BUDGET REQUEST FOR DEPARTMENT OF DEFENSE
SCIENCE AND TECHNOLOGY PROGRAMS**

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INTRODUCTION

Chairman Langevin, Ranking Member Stefanik, and distinguished members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the U.S. Army's approximately \$2.4 billion request for Science and Technology (S&T) funding for Fiscal Year (FY) 2020. The Subcommittee has a vital role in supporting Army S&T and ensuring that the U.S. Army modernizes to meet future readiness requirements, and your demonstrated commitment to our program is most appreciated.

The Army S&T vision directly supports the goals of Army readiness to provide Soldiers with the capabilities needed to win decisively. The publication of the *2018 National Defense Strategy of the United States of America* (NDS) marked an inflection point for the U.S. Army, and a shift from irregular warfare to great power competition. The NDS prioritizes China and Russia, describing China as the primary long-term threat, and Russia as the primary near-term threat. Aligned with NDS, the Army is pursuing a new operational approach, Multi-Domain Operations (MDO), to ensure we stay ahead of our competitors and remain ready and lethal into the future.

Last year's Army Modernization Strategy outlined how the Army will revitalize our modernization efforts to meet these challenges to our military advantage, and to create the capabilities needed to execute MDO. The strategy was established upon the vision for the future Army and the framework of our overarching strategy to balance near-, mid-, and far-term investments. In doing so, the Army is depending on its vital S&T program to help prepare for the future, mitigate the possibility of technical surprise, and ensure that we are able to remain dominant in any environment.

IMPORTANCE OF S&T TO ARMY MODERNIZATION

The Army's S&T program has a large role in enabling the six priorities of the Army Modernization Strategy: (1) Long Range Precision Fires, (2) Next Generation Combat Vehicles, (3) Future Vertical Lift, (4) Army Network, (5) Air and Missile Defense,

and (6) Soldier Lethality. In the Army's FY20 budget request, approximately 83 % of S&T Applied Research and Advanced Technology Development funding is aligned with the Army's modernization priorities. Organizationally, the Army S&T program is working closely with Army Futures Command (AFC), the four-star command tasked with spearheading the Army's modernization efforts, and the Cross Functional Teams under AFC that are aligned with each of the priorities. Our S&T program is focused on maturing technology, reducing program risk, developing prototypes to better define affordable and achievable requirements, and conducting experimentation with Soldiers to refine new operational concepts.

The major S&T efforts in support of the Army's Modernization Priorities include:

- Long-Range Precision Fires to provide massed, mobile, operational-level kinetic strike options to restore overmatch and disrupt near-peer threat capabilities on a complex, contested, and expanded battlefield, including options for extended range.
- Next Generation Combat Vehicles to develop technologies for the Optionally Manned Fighting Vehicle and Robotic Combat Vehicle that realize lighter weight, improved sustainment, and cost-per-unit savings over current platforms – as well as increase the capability of existing formations and improve their ability to survive and win in the complex terrain of the future battlefield.
- Future Vertical Lift to develop technologies to provide next-generation aviation platforms with increased speed, extended range, extended station time, and the ability to operate in complex, distributed, expanded, and contested battlefields.
- Army Network to develop the hardware, software, and infrastructure technologies needed to enable a unified network and resilient mission

command on the move, retaining and exploiting the initiative against a peer adversary in an inherently contested cyber and electromagnetic environment.

- Air and Missile Defense to reduce the cost curve of missile defense, restore overmatch, survive volley-fire attacks, and operate within sophisticated Anti-Access/Area Denial and contested domains.
- Soldier Lethality to improve Soldier and small unit performance, reduce surprise, increase protection, and enhance lethality in close combat on an intensely lethal and distributed battlefield and within complex, urban terrain.

INFRASTRUCTURE

The Army's 12,000 civilian scientists and engineers at laboratories across the country are critical assets in identifying, developing, and demonstrating technology options that inform and enable effective and affordable capabilities for our Soldiers today and in the future.

The Army relies on its laboratories to foster innovation, develop and demonstrate new technologies, assess competing technology options, and help transition basic research investments as they mature. This is one of the primary reasons why state-of-the-art facilities are imperative to the success of Army S&T.

The three primary areas for infrastructure modernization include:

- Modernizing organic technical infrastructure for state-of-the-art research laboratories and equipment;
- Engaging in Public-Public and Public-Private infrastructure collaborations;
and

- Embedding Army Scientists and Engineers in the Public and Private sector, using the Army Research Laboratory (ARL) open campus business model.

Not only are these facilities important to enabling research and development, they are critical in the Army's ability to recruit new employees, develop existing employees, and retain them. I would like to thank Members of Congress for the numerous staffing flexibilities provided to the Army laboratories. Direct Hiring Authority, Renewable Term Appointments, and the Laboratory Demonstrations Project have been critical to growing the Army's technical workforce and sharpening our technical acumen in emerging research areas.

REFORM

The Army, with the support of Congress, has undertaken a number of reforms to improve the way we do business. Chief among these reforms is the Army's new Intellectual Property (IP) Policy, which fosters greater communication with industry early on in the process so that we can be clear about our data requirements. IP plays an important role in our ability to develop new weapon systems and maintain the technological advantage.

We are also focused on talent management, especially the ability to recruit and retain top-talent in order to keep the Army on the cutting-edge of technology. Our plans in this area are designed to:

- Develop senior S&T leaders to enable effective execution of S&T programs;
- Reshape the existing technical workforce to meet emerging S&T challenges, dedicated to retraining current Army S&T professionals to prepare them to perform work in higher demand technical areas;
- Recruit new personnel, and timely onboarding of S&T employees; and

- Leverage the best-and-brightest from across the Army S&T Enterprise, bringing together scientific professionals – Government, academic, and industrial – to address technical problems; these novel public-private partnerships are expected to enable rapid technology developments necessary to outpace emerging threats.

The Army has also expanded its industry outreach program. We are actively reaching out to non-traditional businesses with innovative ideas that are willing to engage with the Army via numerous mechanisms, including the Small Business Innovation Research (SBIR) program, the Small Business Technology Transfer (STTR) program, Other Transaction Authority (OTA) consortia, the Army Expeditionary Technology Search (xTechSearch) prize competition, the Defense Innovation Unit (DIU), the Army Research Laboratory Open Campus initiative, and traditional mechanisms such as Broad Agency Announcements (BAAs) or Cooperative Research and Development Agreements (CRADA) with Army laboratories.

CONCLUSION

Today, we find ourselves at a perilous place in history. Our focus is on great power competition, and the Army is moving quickly to address modernization shortfalls. Time is not on our side. We must invest in Army S&T to meet the challenges of the future. With continued support from Congress, including predictable, adequate, sustained, and timely funding, the Army will build a force ready to deter potential adversaries, and if deterrence fails, to rapidly deploy, fight, and win.

Thank you again for this opportunity to discuss Army S&T and for your strong support for the Army's program. I look forward to your questions.