



May 14, 2019

The Honorable Richard Shelby
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Pete Visclosky
Chairman
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

The Honorable Richard Durbin
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Ken Calvert
Ranking Member
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Chairmen Shelby and Visclosky, and Ranking Members Durbin and Calvert,

On behalf of the Coalition for National Security Research (CNSR), a broad-based alliance of more than 100 members from industry, academia, scientific and professional associations, and non-profits committed to a strong Defense science and technology (S&T) enterprise, I would like to thank you for your historic support of the Defense S&T program in fiscal year (FY) 2019. The additional resources for defense basic research programs such as University Research Initiatives and applied research programs such as the Defense-Wide Manufacturing S&T program will support innovative scientific research to help the U.S. military maintain technical superiority now and in the future.

As you begin crafting the FY 2020 Defense Appropriations bill, enclosed please find CNSR's recommendations for funding levels for the Defense S&T program, and select Research, Development, Test and Evaluation (RDT&E) program elements (PEs). In FY 2017, coalition members performed more than \$3.6 billion in U.S. Department of Defense (DOD)-sponsored scientific research to create new and improve existing technologies and capabilities for the U.S. military to counter emerging and future threats¹. Additionally, with support from the Defense S&T program, CNSR members are spearheading efforts to strengthen and build the national security innovation base through education and workforce development.

FY 2020 Budget Request for Defense S&T

The *National Defense Strategy (NDS)* lays out numerous defense objectives and goals for the U.S. to remain the preeminent military power in the world. Investing in the Defense S&T program is not only consistent with the *NDS*, it is essential. Meeting the objectives of deterring

¹ https://ncesdata.nsf.gov/herd/2017/html/herd2017_dst_59.html

adversaries such as China and Russia, sustaining Joint Force military advantages, establishing an unmatched twenty-first century National Security Innovation Base and ensuring that we do not have to fight tomorrow's conflicts with yesterday's weapons or equipment will require improving and developing military technologies and capabilities that provide technological overmatch for our Armed Forces.

Unfortunately, the FY 2020 budget request fails to provide the resources to meet those objectives of the *NDS*. While the overall \$750 billion FY 2020 DOD budget request represents 2.8 percent real growth over FY 2019 enacted levels and includes the largest Research, Development, Test and Evaluation (RDT&E) request in 70 years, it simultaneously calls for ***cutting Defense S&T funding by nearly \$2 billion including basic research funding by approximately \$300 million relative to FY 2019 enacted***. The funding levels proposed in the FY 2020 budget would essentially result in a two-year rollback in Defense S&T funding. We cannot expect to meet the *NDS* objectives by cutting resources from the scientific research programs that underpin and provide DOD with the technologies and capabilities to deter war and secure our nation.

Our FY 2020 funding recommendations stem from [*Innovation: An American Imperative*](#) (Innovation Imperative), a statement signed by the CEOs of Northrop Grumman, Lockheed Martin, Boeing, and Microsoft, and endorsed by over 500 other leading organizations from industry, academia, and science and engineering. Specifically, the Innovation Imperative urges Congress to provide steady and sustained real growth in funding of at least 4 percent for basic scientific research at numerous federal agencies, including DOD. Our specific funding recommendations for CNSR's priority PEs can be found on the last page.

Defense Basic Research Program Element (PE) Recommendations

For decades, the defense basic research programs have provided the scientific breakthroughs to give the warfighter the weapons and equipment needed to succeed in conflicts. Capabilities that help ensure our national security such as stealth technology, night vision, near-real-time delivery of battlefield information, GPS, communication and weather satellites, laser technology, nuclear propulsion, counter-stealth technology, and precision munitions all derive from defense basic research. If we are to continue to succeed in future conflicts, we cannot underinvest in the long-term basic research that will provide the military with the new transformational capabilities needed to assure technical dominance over adversaries such as China and Russia. Defense basic research is currently exploring future military capabilities in many areas of interest such as quantum materials, biologically-enhanced sensing and computing, autonomous reasoning, and adaptive materials to ensure we do not fall behind foreign adversaries.

University Research Initiatives (URIs)

Of the nearly \$300 million cut to basic research in the FY 2020 budget, we are specifically concerned with the proposed cuts to the University Research Initiative (URI) programs. Overall URI funding would drop below 2005 levels adjusted for inflation. Navy URIs are proposed to be cut by 27.6 percent from FY 2019 enacted levels while those of the Army and Air Force would be funded at historic lows. We are concerned that cuts of this magnitude would harm technological developments critical to maintaining our military superiority across the air, land, sea, space, and cyber domains.

Within the URI programs, the FY 2020 budget proposes to fund the Multidisciplinary University Research Initiatives (MURI) program and Defense University Research Instrumentation Program (DURIP) below FY 2010 levels when adjusted for inflation. This will only exacerbate the problem that both programs are dramatically underfunded. ***In FY 2019 alone, 271 MURI proposals were unfunded and DURIP received proposals requesting \$259 million but was only able to award \$56 million.*** The MURI program regularly sponsors university basic research that produces revolutionary new military technologies. Drones, nanotechnology, biological detection capabilities and stealth detection sensors all stem from MURI-sponsored scientific research. DURIP helps ensure universities have state-of-the-art equipment needed to conduct cutting edge research of importance to DOD that ultimately provides technological superiority over adversaries such as China and Russia.

Given the *NDS* priority of not fighting tomorrow's conflicts with yesterday's weapons, ***we respectfully request that you increase each URI PE and require that the additional dollars be used to support the MURI & DURIP programs.*** We request that these increases not come at the expense of the other initiatives funded under these PEs. We encourage you to direct DOD to maintain and grow funding for both programs in the Future Years Defense Program.

Minerva Research Initiative

The Minerva Research Initiative, the Department's signature social science basic research program that funds university-led teams to address problems of strategic importance to U.S. national security, has been funded since its inception through contributions from the Office of the Secretary of Defense (OSD), the Army, the Navy, and the Air Force. The Navy, Air Force, and OSD have sustained their annual support for Minerva, which has aligned its research with the *NDS* in support of Department-wide priorities. However, it is our understanding that starting in FY 2019 and continuing in FY 2020, the Army has eliminated its contribution to and participation in Minerva, resulting in a reduction in overall funding and annual program awards. In FY 2018, the Army reduced its contribution by 80 percent. In FY 2018, the Minerva program selected 15 proposals for three-year awards but only 12 were funded due to the reduction in the Army's contribution. The Army's lack of continued support for Minerva also put a strain on previously-funded multi-year projects. ***We urge you to restore the cut to the Army's contribution in its URI account in FY 2020 and beyond.***

Defense Threat Reduction Agency Basic Research Initiatives

The Defense Threat Reduction Agency (DTRA) basic research program has partnered with scientists since 2007 to solve the most challenging problems for reducing the threats from weapons of mass destruction (WMD). DTRA's basic research initiatives enable revolutionary change in network sciences, sensing, materials, modeling and simulation that protect against and deter threats from WMD and chemical, biological, radiological, nuclear, or explosive threats (CBRNE). The program simultaneously promotes the development of the next generation S&T workforce for combating WMD through post-doctoral fellowships. The FY 2020 budget request proposes reducing this program by more than \$10 million from FY 2019 enacted, threatening the development of new University Research Alliances in FY 2020. ***We urge you to reverse the 30 percent cut to DTRA's Basic Research Initiatives.***

Defense Applied Research PE Recommendations

Fundamental scientific research is just the first step in creating new military technologies. Researchers and scientists must apply the fundamental knowledge learned from basic research in order to solve military problems and develop the systems and components for potential solutions. To that end, we would like to highlight the success of the Defense-Wide Manufacturing Science and Technology PE, which provides resources for DOD's contribution to the Manufacturing USA Network. The Network's public-private partnerships are helping move discoveries from the nation's universities and research laboratories to the defense industrial base while enhancing the workforce. For example, Manufacturing USA has created technologies and solutions for reducing weight in aerospace parts by up to 40 percent, developed light-based communications systems enabling more effective and safe clandestine operations, and provided workforce development opportunities for more than 191,000 workers, students, and educators. The *NDS* says, "Support for a vibrant domestic manufacturing sector, a solid defense industrial base, and resilient supply chains is a national priority." Manufacturing USA is an example of a program consistent with the *NDS* in supporting domestic manufacturing and the defense industrial base.

Defense Advanced Research Projects Agency (DARPA) Recommendation

DARPA's ability to create truly revolutionary new capabilities is well documented. The Internet, stealth technology, nearly all the technologies found in mobile phones, and more recently, an upper-limb prosthesis for military amputees inspired by the limb that Luke Skywalker wore in the *Star Wars* films all started as DARPA projects. CNSR supports ***funding for DARPA of \$3.6 billion*** to spearhead scientific research in areas such as artificial intelligence, hypersonics, detecting radiological threats, microelectronics, and long-range anti-ship capabilities.

Defense Medical Research Recommendations

In order to maintain a strong military, the U.S. must have healthy families and soldiers. It is imperative for DOD to contribute to curing diseases that affect the men and women in the military, their families, veterans, and the broader public. Defense medical research programs help ensure the U.S. has the medical technologies necessary to enable military readiness and serve those who have been wounded on the battlefield. Developments in battlefield medicine also contribute to advances which benefit civilian medical practice, such as regenerative medicines, vaccine developments, and emergency field treatments.

Thank you for your commitment to a robust Defense S&T program. Please do not hesitate to contact me if CNSR can be of any service to you.

Sincerely,

John Latini
Chairman
Coalition for National Security Research (CNSR)

CNSR FISCAL YEAR 2020 APPROPRIATIONS PROGRAM ELEMENT PRIORITIES

<u>PE Number</u>	<u>Agency/Account</u>	<u>Program Element (PE) (\$ in Thousands)</u>	<u>FY19 Enacted</u>	<u>FY20 PBR</u>	<u>FY20 CNSR Request</u>
<u>Basic Research PEs</u>					
601102A	Army RDT&E	Defense Research Sciences	\$315,912	\$297,976	\$334,551
601103A	Army RDT&E	University Research Initiatives	\$65,283	\$65,858	\$69,135
601104A	Army RDT&E	University and Industry Research Centers	\$114,115	\$86,164	\$120,848
601121A	Army RDT&E	Cyber Collaborative Research Alliance	N/A	\$4,982	\$5,276
601103N	Navy RDT&E	University Research Initiatives	\$161,433	\$116,850	\$170,958
601153N	Navy RDT&E	Defense Research Sciences	\$499,208	\$470,007	\$528,661
601102F	Air Force RDT&E	Defense Research Sciences	\$383,322	\$356,107	\$405,938
601103F	Air Force RDT&E	University Research Initiatives	\$164,991	\$158,859	\$174,725
601108F	Air Force RDT&E	High Energy Laser Research Initiatives	\$13,056	\$14,795	\$13,826
601000BR	Defense-Wide RDT&E	DTRA Basic Research Initiatives	\$37,023	\$26,000	\$39,207
601110D8Z	Defense-Wide RDT&E	Basic Research Initiatives	\$56,702	\$48,874	\$60,047
601120D8Z	Defense-Wide RDT&E	National Defense Education Program	\$135,919	\$92,074	\$143,938
<u>Applied Research PEs</u>					
602141A	Army RDT&E	Lethality Technology	N/A	\$26,961	General Support
602143A	Army RDT&E	Soldier Lethality Technology	N/A	\$115,274	General Support
602144A	Army RDT&E	Ground Technology	N/A	\$35,199	General Support
602145A	Army RDT&E	Next Generation Combat Vehicle Technology	N/A	\$219,047	General Support
603461A	Army RDT&E	High Performance Computing Modernization	\$218,322	\$184,755	General Support
602131M	Navy RDT&E	Marine Corps Land Force Technology	\$63,212	\$56,604	General Support
602235N	Navy RDT&E	Common Picture Applied Research	\$36,348	\$49,297	General Support
602236N	Navy RDT&E	Warfighter Sustainment Applied Research	\$65,782	\$63,825	General Support
602271N	Navy RDT&E	Electromagnetic Systems Applied Research	\$76,623	\$83,497	General Support
602435N	Navy RDT&E	Ocean Warfighting Environmental Applied Research	\$89,998	\$63,894	General Support
602750N	Navy RDT&E	Future Naval Capabilities Applied Research	\$137,701	\$154,755	General Support
603680N	Navy RDT&E	Manufacturing Technology Program	\$58,657	\$60,138	General Support
604536N	Navy RDT&E	Advanced Undersea Prototyping	\$112,669	\$181,967	General Support
602102F	Air Force RDT&E	Materials	\$181,373	\$128,851	General Support
602202F	Air Force RDT&E	Human Effectiveness Applied Research	\$119,018	\$131,795	General Support
602204F	Air Force RDT&E	Aerospace Sensors	\$171,534	\$202,912	General Support
602605F	Air Force RDT&E	Directed Energy Technology	\$141,898	\$124,379	General Support
602788F	Air Force RDT&E	Dominant Information Sciences and Methods	\$185,420	\$181,562	General Support
602890F	Air Force RDT&E	High Energy Laser Research	\$43,359	\$44,221	General Support
602668D8Z	Defense-Wide RDT&E	Cyber Security Research	\$14,969	\$15,118	General Support
603680D8z	Defense-Wide RDT&E	Defense-Wide Manufacturing S&T Program	\$174,887	\$96,397	\$185,205
603833D8Z	Defense-Wide RDT&E	Engineering Science and Technology	\$19,415	\$19,376	General Support
<u>Medical Research PEs</u>					
602787A	Army RDT&E	Medical Technology	\$92,075	\$99,155	\$97,507
603002A	Army RDT&E	Medical Advanced Technology	\$101,496	\$42,030	\$107,484
603807A	Army RDT&E	Medical Systems Advanced Development	\$39,284	\$31,175	\$41,602
	DHP RDT&E	Research, Development, Test and Evaluation Research	\$11,386	TBD	\$12,058
	DHP RDT&E	Exploratory Development	\$75,010	TBD	\$79,436
	DHP RDT&E	Undistributed Medical Research/Peer-Reviewed/CDMRPs	\$1,470,300	\$0	\$1,557,048
	<i>Defense-Wide DARPA</i>	<i>DARPA Total</i>	<i>\$3,432,189</i>	<i>\$3,556,221</i>	<i>\$3,634,688</i>

To learn more or contact the Coalition for National Security Research (CNSR), please visit <https://cnsr4research.org> or email cnsr.dodresearch@gmail.com.