



FY17: DEPARTMENT OF DEFENSE RESEARCH

Department of Defense (DOD)-funded basic research innovations have contributed significantly to our nation's economic and national security. DOD relies on technological innovation as a force multiplier, and cutting-edge advances have helped make our military the best-equipped and most effective in the world. Addressing complex military challenges requires innovation and new technologies. The new knowledge needed to develop such technologies depends on sustained investments in scientific and engineering basic research performed at U.S. universities.

AAU supports the 20/20 benchmark level for investments in Defense Science and Technology (S&T) and 6.1 basic research, in which investments in Defense S&T should constitute 20 percent of the total Defense RDT&E budget, and investments in 6.1 basic research should comprise 20 percent of the total Defense S&T budget (6.1, 6.2, and 6.3 programs). **AAU urges Congress to provide \$2.53 billion for 6.1 basic research and \$13.4 billion for Defense S&T, which are increases consistent with the 20/20 funding principle.**

AAU urges Congress to provide \$2.9 billion, the same as the Pentagon's FY17 budget request, for DARPA. The Defense Advanced Research Projects Agency historically has invested in high-risk, high-reward research that has led to extraordinary technological advances, such as the Internet and GPS.

6.1 basic research programs help train the next generation of U.S. scientists and engineers. Research grants and contracts support not only cutting-edge research, but also graduate research assistantships. Undergraduate scholarships and graduate fellowships funded by the National Defense Science and Engineering Graduate (NDSEG) Fellowships program help attract and retain top U.S. citizens for study in fields vital to addressing security-related challenges. AAU urges Congress to provide the

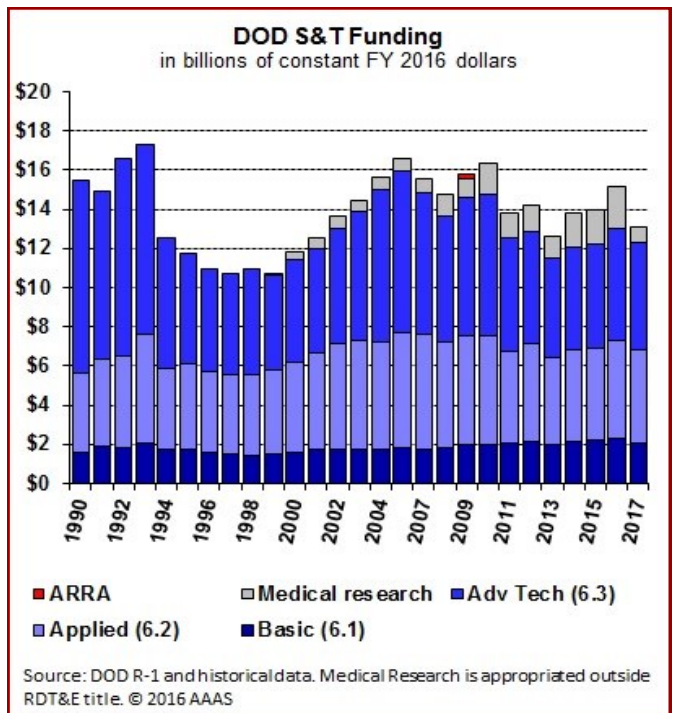
FY17 RECOMMENDATION:

AAU urges Congress to provide \$2.53 billion for Department of Defense 6.1 basic research

following FY17 funding levels, as recommended by the Pentagon:

- \$69.3 million for the National Defense Education Program (NDEP)
- \$53.5 million for NDEP's Science, Mathematics & Research for Transformation (SMART) program.

DOD basic and applied research underpins the innovative health treatments and technologies that help save lives on the battlefield and speed recovery from injuries.



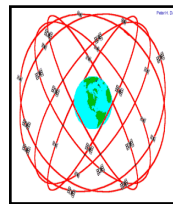
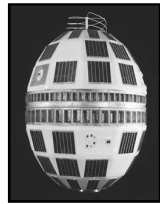
FACT SHEET:

Department of Defense Research

- **DOD relies heavily on universities to conduct research.** More than 350 universities and colleges conduct DOD-funded research. Universities receive more than 60% of DOD 6.1 basic research funding and substantial 6.2 applied research and 6.3 advanced technology funding.
- **DOD supports academic disciplines vital to national security.** DOD is the leading federal sponsor of university engineering research. DOD sponsors over half of all university research in electrical, aeronautical, and aeronautical engineering. DOD also sponsors more university research in mechanical engineering and metallurgy and materials engineering than any other federal agency. (Source: NSF Higher Ed R&D Survey, 2014).
- **DOD basic and applied research underpins the innovative health treatments and technologies that help save lives on the battlefield and speed recovery times from injuries.** For injured warfighters, this includes high technology prosthetics and other life-enhancing technologies and therapies.
- **Since 2005, DOD's SMART program has supported 1,600 students.** Approximately 900 students have already transitioned into their service commitment. *84% of them have completed their service years and continue to serve beyond their commitment.*



Defense-Funded Basic Research Enabling Progress:



1940s	1950s	1960s	1970s	1980s	1990s	2000s
Nuclear weapons	Digital computer	Satellite comms	Airborne GMTI/	GPS	Wideband	GIG
Radar	ICBM	Integrated circuits	Stealth	UAVs	Web protocols	Armed UAV's
Proximity fuse	Transistor	Phased-array radar	Strategic CM's	Night vision	Precision munitions	Optical SATCOM
Sonar	Laser technology	Defense networks	IR search and track	Personal computing	Solid state radar	Data mining
Jet engine	Nuclear propulsion	Airborne	Space track	Counter stealth	Advanced robotics	Advanced seekers
LORAN	Digital comms		C2 networks	BMD hit-to-kill	Speech recognition	Decision support

Source: Department of Defense Office of the Assistant Secretary of Defense Research and Engineering (ASDR&E)