

An Overview of the Defense Science and Technology Program

What is the Defense Science and Technology Program?

The Department of Defense's Science and Technology (S&T) Program supports the fundamental research, development, and demonstrations in sciences and technologies identified as important to military capabilities and operations. The S&T Program supports the development of the nation's high technology weapons systems, and the technology base upon which those systems rely. The program also plays an important role in developing certain key technologies that transfer to commercial applications and help to grow the overall economy.

Where is the DoD S&T Program in the Defense Budget?

The Department of Defense budget has four major elements: Personnel, Operations and Maintenance, Procurement, and Research, Development, Test and Evaluation (RDT&E) program. DOD S&T is found in the RDT&E program.

RDT&E is sub-divided into 7 separate activities denoted by account numbers. These are: basic research (6.1); applied research (6.2); advanced technology development (6.3); demonstration and validation (6.4); engineering manufacturing development (6.5); management support (6.6); and operational systems development (6.7). DoD's Science and Technology (S&T) Program consists of the 6.1, 6.2, and 6.3 accounts.

6.1 Basic Research - supports research that produces new knowledge in a scientific or technology area of interest to the military. Areas include atmospheric and space sciences, ocean sciences, biological and medical sciences, chemistry, cognitive and neural sciences, computer sciences, electronics, engineering, materials science, mathematics, mechanics, physics, and terrestrial sciences. About 60% of basic research awards go to universities through grants or contracts, and about 25% to DoD R&D facilities.

6.2 Applied Research - supports the exploratory development of new technologies for specific military applications or further development of existing technology for new military applications. About 50% of 6.2 research is performed in industry and 30% at DoD facilities.

6.3 Advanced Technology Development - supports larger scale hardware development, integration, and experiments that can demonstrate capability in more operationally realistic settings. About 50% of 6.3 research is performed in industry and 30% at DoD facilities.

Who performs research for the DoD S&T program?

The DOD S&T program supports research conducted by universities, industry, and defense research laboratories. This research is conducted in every state in the Union. Each service (Army, Air Force, and Navy) organizes its research differently, and each service has its own research laboratory and a central research office that oversees its basic research activities.

The Defense Advanced Research Projects Agency (DARPA) is the defense-wide central research and development organization for DOD. DARPA manages and directs selected basic and applied research and development projects for DOD, and pursues research and technology where risk and payoff are both very high.

How do DOD S&T Programs benefit the U.S.?

- DoD S&T projects seek to discover new and/or improved ways of accomplishing tasks of military value and to understand the underlying scientific and engineering principles involved.
- DoD S&T projects are not directed at developing specific operational weapon systems, although they may support such development by solving specific problems.
- Investments in the S&T Program often take time to reap results. The weapon systems used with such effectiveness in the Gulf War can trace their origins to DoD S&T projects from the 1960's and 1970's.
- DoD S&T programs support the future work force expertise the DoD relies upon. For example, DoD sponsors the National Defense Science and Engineering Graduate Fellowship program that provides fellowships to substantial numbers of graduate students majoring in areas of science and engineering of interest to DoD.
- The S&T Program supports a large share of university research in certain scientific and engineering disciplines. The S&T Program accounts for:
 - more than 40% of total federal investment in mathematics and computer science.
 - 65% of total federal investment in electrical engineering.
 - 66% of total federal investment in mechanical engineering.
 - 47% of total federal investment in metallurgy and materials research.

Who oversees the DoD S&T Program?

The Deputy Undersecretary of Defense for Science and Technology oversees the S&T Program. The DUSD (S&T) reports to the Director of Defense Research and Engineering (DDR&E). The DDR&E reports to the Undersecretary of Defense for Acquisition and Technology (USDAT). The USDAT resides within the Office of the Secretary of Defense (OSD) and reports to the Secretary of Defense (SecDef).

More information about the work done at the service research laboratories can be found on their web sites:

Air Force Research Laboratory: <http://www.afrl.af.mil/>

Air Force Office of Scientific Research: <http://www.afosr.af.mil/>

Army Research Laboratory: <http://www.arl.army.mil/>

Army Research Office: <http://www.aro.army.mil/>

Defense Advanced Research Projects Agency (DARPA): <http://www.darpa.mil/>

Naval Research Laboratory: <http://www.nrl.navy.mil/>

Office of Naval Research: <http://www.onr.navy.mil/>

The Coalition for National Security Research (CNSR) is a broadly-based coalition united by a commitment to a stronger defense science and technology base. Participants include scientific, engineering, mathematical and behavioral societies, academic institutions, and industrial associations.

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