

Defense Primer: RDT&E

Advanced technology plays a critical role in ensuring U.S. national security. To maintain technological superiority on the battlefield, the Department of Defense (DOD) relies on scientific and technical knowledge developed in large measure through research, development, test, and evaluation (RDT&E) funded by the department and performed by industry, universities, federal laboratories, and others. DOD also relies increasingly on technology developed by the private sector for commercial markets. This In Focus describes DOD's RDT&E appropriations structure and funding levels.

DOD appropriations are provided annually through the defense appropriations act, one of the 12 regular appropriations acts. DOD RDT&E funding is generally provided in three of this act's titles (see box). Congress also sometimes provides DOD RDT&E funding through supplemental appropriations acts. DOD reports FY2021 total obligational authority (enacted) of \$110.8 billion.

RDT&E by Organization

RDT&E Appropriations Under Title IV

Approximately 97% of DOD's RDT&E funding is appropriated in Title IV (Research, Development, Test, and Evaluation), which includes appropriations for the Army, Navy, Air Force, Space Force, a Defense-wide RDT&E account, and the Director of Operational Test and Evaluation. Space Force is a new account included in the FY2021 request. The Defense-wide account includes the Missile Defense Agency (MDA), Defense Advanced Research Projects Agency (DARPA), Office of the Secretary of Defense, and 15 other DOD organizations. Within each of these accounts are program elements (PEs) that provide funding for particular activities.

RDT&E Under Other Titles

RDT&E funds are also appropriated for programs in other titles of the defense appropriations act. For example, RDT&E funds are also appropriated in Title VI as part of the Chemical Agents and Munitions Destruction Program, the Defense Health Program, and the Inspector General. In some years, RDT&E funds have been provided in Title V as part of the National Defense Sealift Fund.

In recent years, RDT&E funds have also been appropriated in Title IX as part of DOD's funding for Overseas Contingency Operations (OCO). Typically, the RDT&E funds appropriated for OCO activities support specified PEs in Title IV, though they are requested and accounted for separately. Alternatively, they may be provided to a transfer fund. Congress establishes transfer funds for a particular purpose, and may authorize DOD to transfer a portion of these funds to other accounts, such as RDT&E, to help achieve that purpose. President Biden's budget request does not include OCO funding for FY2022.

Defense Appropriations Act Titles That Fund RDT&E

Title IV: Research, Development, Test, and Evaluation

- Army/Navy
- Air Force
- Space Force
- Defense-wide
- Operational Test and Evaluation

Title V: Revolving and Management Funds

- National Defense Sealift Fund

Title VI: Other Defense Programs

- Chemical Agents and Munitions Destruction
- Defense Health Program
- Inspector General

RDT&E by Character of Work

While DOD Title IV funds are appropriated only by organization, DOD budget justifications and congressional appropriations reports and explanatory statements also typically describe this funding by the character of the work to be performed. This characterization consists of eight categories, each with a budget activity code (6.1 through 6.8) and a description. (See **Table 1.**)

Table 1. DOD RDT&E Budget Activity Codes

Code	Description
6.1	Basic Research
6.2	Applied Research
6.3	Advanced Technology Development
6.4	Adv. Component Development and Prototypes
6.5	System Development and Demonstration
6.6	RDT&E Management Support
6.7	Operational Systems Development
6.8	Software and Digital Technology Pilot Programs

Source: Department of Defense, *Financial Management Regulation (DoD 7000.14-R)*, Volume 2B, November 2017.

Funding in codes 6.1 to 6.3 is referred to by DOD as the science and technology (S&T) budget. This portion of DOD RDT&E is often singled out for attention by analysts, as it is seen as the pool of knowledge necessary for the development of future military systems. In contrast, 6.4, 6.5, and 6.7 funds are focused on the application of existing scientific and technical knowledge to meet current or near-term operational needs. The funds in 6.6 are for RDT&E management and support work in any of the other RDT&E budget accounts. DOD added budget activity 6.8 in its FY2021 budget request to support software and digital technology pilot programs.

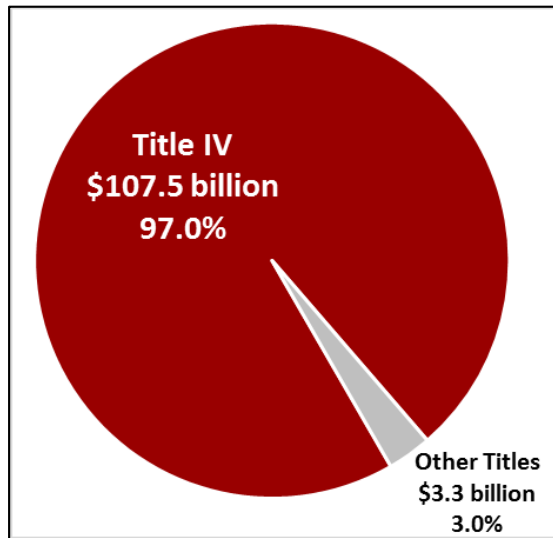
Within the S&T program, basic research (6.1) receives special attention, particularly by the nation's universities.

DOD spends nearly half of its basic research budget at universities. DOD is a substantial source of federal university R&D funding for disciplines such as aerospace, aeronautical, and astronautical engineering (60%); electrical, electronic, and communications engineering (58%); industrial and manufacturing engineering (48%); mechanical engineering (46%); computer and information sciences (44%); metallurgical and materials engineering (39%); and materials science (33%).

Funding Profile of DOD RDT&E

Total DOD RDT&E for FY2021 is \$110.8 billion, of which Title IV funding accounts for \$107.5 billion (97.0%). (See Figure 1.)

Figure 1. Title IV Share of Total DOD RDT&E, FY2021

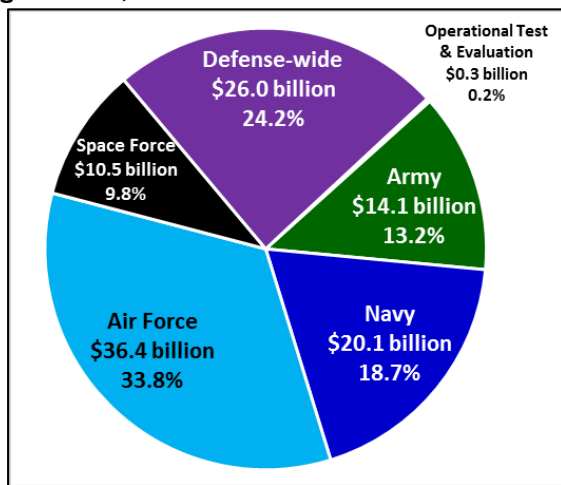


Source: CRS analysis of FY2022 DOD R-1.

Note: Percentages may not add to 100% due to rounding.

The composition of FY2021 DOD RDT&E provided by Title IV is shown by organization in Figure 2.

Figure 2. Title IV and Title IX (OCO) RDT&E by Organization, FY2021



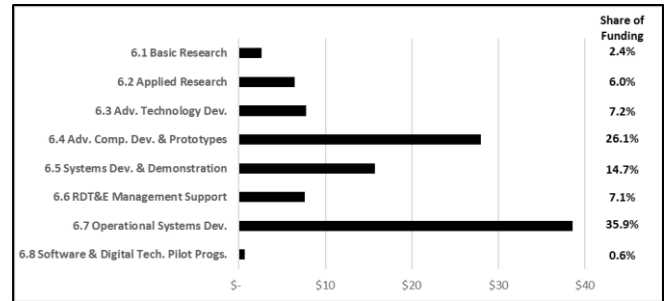
Source: CRS analysis of FY2022 DOD R-1.

Note: Percentages may not add to 100% due to rounding; dollar figures may not sum to total due to rounding.

Figure 3 illustrates FY2021 Title IV RDT&E funding by character of work. DOD S&T funding (6.1-6.3) accounted for \$16.8 billion (15.6%) of this funding. RDT&E funds provided in other DOD appropriations titles and supplemental acts are not included in this analysis as they are not parsed by character of work.

Figure 3. Title IV RDT&E by Character of Work, FY2021

Total obligational authority, in billions of current dollars



Source: CRS analysis of FY2022 DOD R-1.

Note: Funding for the Director of Operational Test and Evaluation is included in 6.6; funding for classified research is included in 6.7.

Relevant Statutes

- Title 10, U.S. Code, Chapter 139—Research and Development
- Title 10, U.S. Code, Chapter 133—Under Secretary of Defense for Acquisition, Technology, and Logistics
- Title 10, U.S. Code, Chapter 138(b)(8)—Assistant Secretaries of Defense—Assistant Secretary of Defense for Research and Engineering

CRS Products

- CRS Report R44711, *Department of Defense Research, Development, Test, and Evaluation (RDT&E): Appropriations Structure*, by John F. Sargent Jr.
- CRS Report R46341, *Federal Research and Development (R&D) Funding: FY2021*, coordinated by John F. Sargent Jr.
- CRS Report R45403, *The Global Research and Development Landscape and Implications for the Department of Defense*, by John F. Sargent Jr. and Marcy E. Gallo.
- CRS Report R44010, *Defense Acquisitions: How and Where DOD Spends Its Contracting Dollars*, by John F. Sargent Jr. and Christopher T. Mann.

Other Resources

- Under Secretary of Defense (Comptroller), DOD Budget Request
- Department of Defense Research, Development, Test, and Evaluation Programs (R-1), FY2022

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