

GAO Highlights

Highlights of [GAO-23-105396](#), a report to congressional addressees

Why GAO Did This Study

Scientific and technological innovation are critical to long-term U.S. economic competitiveness, prosperity, and national security. The U.S. has long been a global leader in advancing the frontiers of science and technology. Increased competition from other countries has led some experts to express concern that the U.S. may be losing its competitive edge in certain technologies. Agencies are investing in various R&D initiatives, including those that are of strategic national importance, such as network and information technology, nanotechnology, quantum information science, and global environmental changes.

This report describes (1) trends in federal R&D funding over the last 10 years and (2) the funding and organization for selected multi-agency R&D initiatives, among other objectives.

To address these objectives, GAO analyzed data published by the National Science Foundation on annual R&D expenditures and examined Office of Management and Budget (OMB) data. GAO also reviewed agency documentation and collected written responses to structured questions on federal R&D from the Chief Financial Officer or budget office from the five agencies that fund most R&D.

In addition, GAO interviewed officials from OMB and the Office of Science and Technology Policy, including the Directors of the National Coordination Offices for selected multi-agency R&D initiatives, which are coordinated under the auspices of the National Science and Technology Council.

View [GAO-23-105396](#). For more information, contact Candice N. Wright at (202) 512-6888 or wrightc@gao.gov.

December 2022

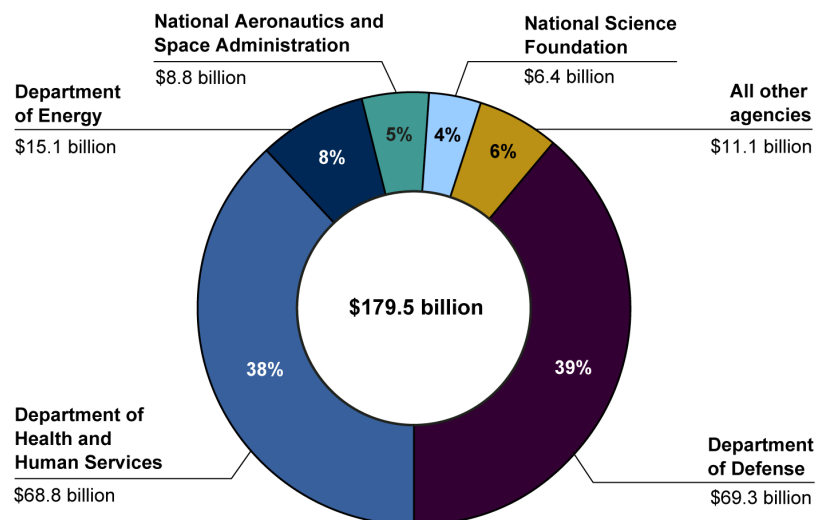
FEDERAL RESEARCH AND DEVELOPMENT

Funding Has Grown since 2012 and Is Concentrated within a Few Agencies

What GAO Found

Federal research and development (R&D) funding has increased since 2012—most recently because of COVID-19 stimulus funding. Five agencies obligated the majority of federal R&D funding with the Departments of Defense (DOD) and Health and Human Services (HHS) accounting for nearly 80 percent in fiscal year 2021 (see figure). HHS has mainly funded research, while DOD mainly funds development. However, HHS has become a major funder of development in recent years because of COVID-19 stimulus funding. HHS averaged less than 1 percent in development funding through fiscal year 2019 but reported 37 percent of its R&D obligations were for development in fiscal year 2021. Of the estimated \$179.5 billion in federal R&D obligations in fiscal year 2021, about two-thirds went to organizations outside the federal government. In fiscal year 2021, industry, universities, and colleges received the majority of these external R&D obligations—almost \$90 billion.

Federal Research and Development Obligations, Fiscal Year 2021



Source: GAO analysis of data from NSF's *Survey of Federal Funds for Research and Development*. | GAO-23-105396

Note: FY 2021 data are estimates provided by federal agencies to the National Science Foundation.

Federal funding also includes four multi-agency initiatives in areas identified as having long-term national importance, such as quantum information science and nanotechnology. These initiatives coordinate activities in areas that are too broad or complex to be addressed by one agency alone. For example, more than 60 agencies participate in an initiative on network and information technology, which includes investments in artificial intelligence and machine learning. Not all participating agencies contribute funding to such initiatives. Funding for these initiatives increased over the previous decade, and accounted for roughly \$14 billion in fiscal year 2020, just under 9 percent of the total federal R&D budget.