



InfoBrief

Federal Obligations for R&D Increased Nearly 14% in FY 2021, Supported by COVID-19 Pandemic-Related Funding

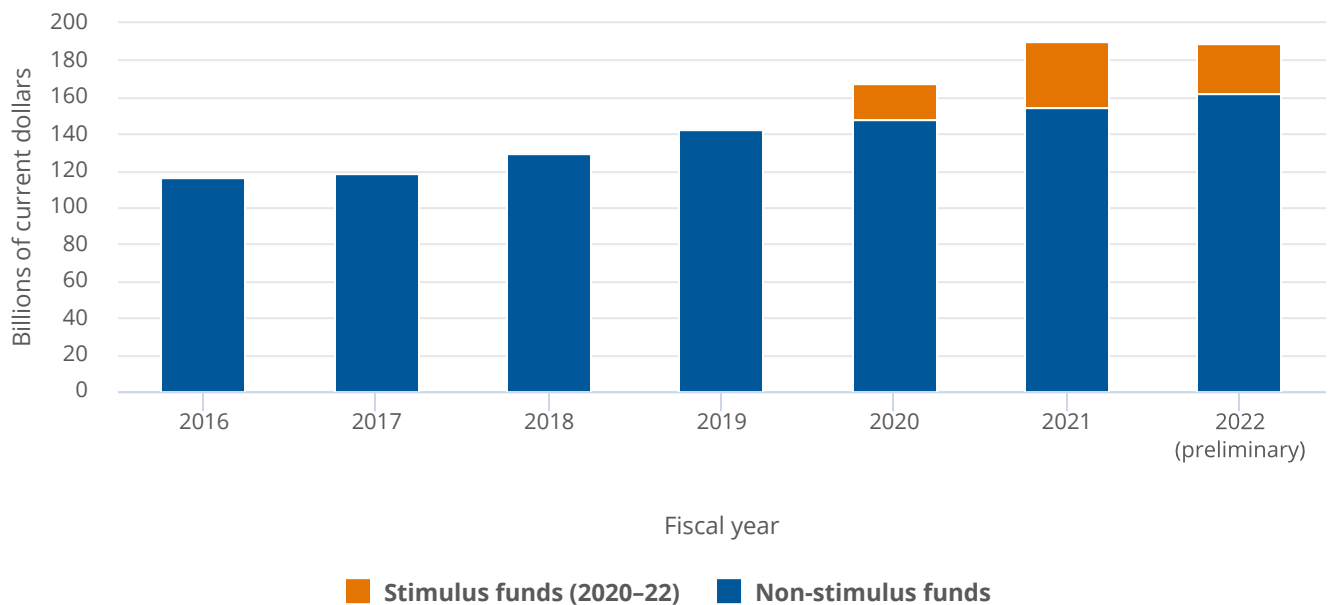
NSF 23-352 | September 2023

Christopher V. Pece

FY 2021 federal agency obligations for research and experimental development (R&D) reached an all-time high of \$190.2 billion (in current dollars), an increase of 13.6% (\$22.7 billion) from FY 2020 obligations of \$167.4 billion (figure 1).¹ Of the \$190.2 billion in federal R&D in FY 2021, \$35.6 billion are from COVID-19 pandemic-related stimulus funds.² FY 2022 obligations for R&D are estimated to decrease 0.6% to \$189.1 billion.³

Figure 1

Federal R&D obligations: FYs 2016–22



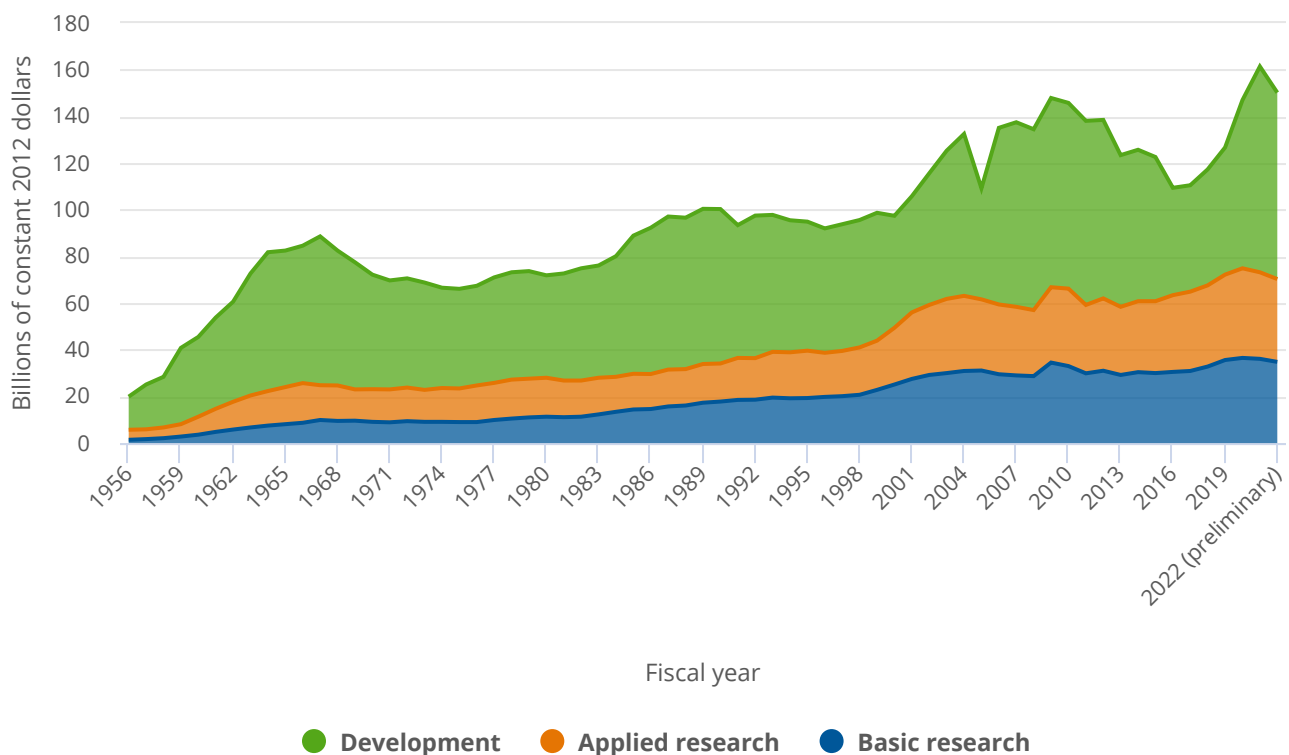
Note(s):

Stimulus funds were not included in FYs 2016–19. Because of rounding, detail may not add to total. Beginning with FY 2016, the totals reported for development obligations represent a refinement to this category by more narrowly defining it to be "experimental development." Most notably, totals for development do not include the Department of Defense (DOD) Budget Activity 7 (Operational Systems Development) obligations. Those funds, previously included in DOD's development obligation totals, support the development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current or subsequent fiscal year. Therefore, the data are not directly comparable with totals reported in previous years. FYs 2020, 2021, and 2022 obligations include additional funding provided by supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

When adjusted for inflation,⁴ federal obligations for R&D totaled \$161.5 billion in FY 2021 (figure 2). Basic and applied research totaled \$36.1 billion and \$37.1 billion, respectively, whereas obligations for experimental development were more than double those for basic and applied research combined, totaling \$88.2 billion in FY 2021 (adjusted for inflation).

Figure 2**Federal obligations for research and development, by type of R&D: FYs 1956–2022****Note(s):**

Because of rounding, detail may not add to total. While obligations for basic research have been collected since FY 1952, obligations for basic research, applied research, and development were not collected until 1956. FYs 2009 and 2010 obligations include additional funding provided by the American Recovery and Reinvestment Act of 2009. Beginning with FY 2016, the totals reported for development obligations represent a refinement to this category by more narrowly defining it to be "experimental development." Most notably, totals for development do not include the Department of Defense (DOD) Budget Activity 7 (Operational Systems Development) obligations. Those funds, previously included in DOD's development obligation totals, support the development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current or subsequent fiscal year. Therefore, the data are not directly comparable with totals reported in previous years. FYs 2020, 2021, and 2022 obligations include additional funding provided by supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

Data are from the latest cycle of the Survey of Federal Funds for Research and Development (Federal Funds Survey), sponsored by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF). Data for FY 2021 are actual amounts as of the fiscal year end; FY 2022 data are preliminary and subject to revision in future surveys. Data presented in this InfoBrief are in current dollars unless otherwise noted.

Federal R&D and COVID-19 Pandemic-Related Stimulus Funds

Federal agency obligations for R&D from COVID-19 pandemic-related stimulus funds increased 83.1% between FY 2020 and FY 2021, from \$19.5 billion to \$35.6 billion (table 1). At the same time, obligations from non-stimulus funds (namely, regular congressional appropriations) increased by 4.4%, from \$147.9 billion in FY 2020 to \$154.5 billion in FY 2021. Obligations from stimulus funds are estimated to decrease 23.0% in FY 2022 to \$27.4 billion.

Table 1

Summary of pandemic-related stimulus and non-stimulus obligations for R&D, by agency: FYs 2020–22

(Millions of current dollars)

Agency	FY 2020			FY 2021			FY 2022 (preliminary)		
	Total	Stimulus	Non-stimulus	Total	Stimulus	Non-stimulus	Total	Stimulus	Non-stimulus
All agencies	167,403	19,457	147,946	190,151	35,630	154,521	189,059	27,424	161,635
Department of Defense	66,695	1,530	65,165	70,707	1,644	69,063	75,473	978	74,496
Defense Health Agency	2,870	998	1,873	2,852	416	2,435	2,537	0	2,537
Department of the Air Force	11,683	236	11,447	12,390	626	11,764	13,245	533	12,712
All other defense agencies	52,141	295	51,846	23,204	602	22,602	24,279	445	23,834
Department of Health and Human Services	60,006	17,780	42,226	76,651	33,665	42,987	69,153	26,117	43,036
Biomedical Advanced Research and Development Authority	15,666	14,324	1,343	33,881	33,199	682	26,433	25,884	549
Centers for Disease Control and Prevention	497	93	404	696	279	417	661	233	429
National Institutes of Health	42,664	3,363	39,301	40,546	187	40,359	40,436	0	40,436
National Science Foundation	6,351	75	6,277	6,705	192	6,513	7,036	202	6,834
All other departments and agencies	34,351	75	34,278	36,088	130	35,959	37,397	128	37,269

Note(s):

Because of rounding, details may not add to total. FYs 2020, 2021, and 2022 total obligations include additional funding provided by supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

Although pandemic-related stimulus funds accounted for 18.7% (\$35.6 billion) of all federal R&D obligations in FY 2021, these funds were highly concentrated within the Department of Health and Human Services (HHS). In FY 2021, HHS accounted for 94.5% (\$33.7 billion) of all stimulus funds for R&D, whereas the Department of Defense (DOD) accounted for 4.6% (\$1.6 billion). Within HHS, the Biomedical Advanced Research and Development Authority (BARDA) alone accounted for 98.6% of the entire department's stimulus funds for R&D, with the balance coming from the Centers for Disease Control and Prevention (\$279 million) and the National Institutes of Health (\$187 million). BARDA's R&D obligations from stimulus funds accounted for 93.2% (\$33.2 billion) of all federal stimulus funds for R&D.

Federal Funding for Research

Federal agency obligations for basic research totaled \$42.5 billion in FY 2021. HHS obligations accounted for 50.6% (\$21.5 billion) of all federal government obligations for basic research (table 2). NSF and the Department of Energy (DOE) accounted for 13.6% (\$5.8 billion) and 12.9% (\$5.5 billion), respectively, of all federal obligations for basic research. However, stimulus funds only accounted for 0.9% (\$371 million) of basic research in FY 2021.

Table 2**Summary of pandemic-related stimulus and non-stimulus obligations for basic research, by agency: FYs 2020–22**

(Thousands of current dollars)

Agency	FY 2020			FY 2021			FY 2022 (preliminary)		
	Total	Stimulus	Non-stimulus	Total	Stimulus	Non-stimulus	Total	Stimulus	Non-stimulus
All agencies	41,546,622	1,896,948	39,649,674	42,494,145	371,366	42,122,779	43,790,457	261,776	43,528,681
Department of Defense	2,499,141	54,529	2,444,611	2,834,851	98,285	2,736,566	2,976,752	76,353	2,900,398
Department of Energy	5,501,609	60,570	5,441,039	5,500,144	1,502	5,498,642	5,947,161	0	5,947,161
Department of Health and Human Services	21,808,980	1,715,605	20,093,375	21,508,382	102,238	21,406,143	21,411,636	7,504	21,404,131
National Aeronautics and Space Administration	3,839,375	0	3,839,375	4,429,290	0	4,429,290	4,588,766	0	4,588,766
National Science Foundation	5,461,915	66,160	5,395,756	5,770,954	158,355	5,612,599	6,049,547	166,000	5,883,547
All other departments and agencies	2,435,601	83	2,435,518	2,450,523	10,985	2,439,538	2,816,596	11,919	2,804,677

Note(s):

Because of rounding, details may not add to total. FYs 2020, 2021, and 2022 total obligations include additional funding provided by supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

Similar to basic research, HHS was the largest funder of applied research with \$21.2 billion, or 48.5% of all applied research obligations in FY 2021 (table 3). However, although DOD accounted for 6.7% (\$2.8 billion) of basic research, it was the second-largest funder of applied research with 15.8% (\$6.9 billion) in FY 2021. DOE and the National Aeronautics and Space Administration (NASA) accounted for 12.1% (\$5.3 billion) and 6.2% (\$2.7 billion), respectively, of applied research obligations. All other federal departments and agencies combined totaled \$6.7 billion of applied research obligations in FY 2021. Similar to basic research, stimulus funding accounted for 1.0% (\$420 million) of all applied research obligations (\$43.8 billion) in FY 2021.

Table 3**Summary of pandemic-related stimulus and non-stimulus obligations for applied research, by agency: FYs 2020–22**

(Thousands of current dollars)

Agency	FY 2020			FY 2021			FY 2022 (preliminary)		
	Total	Stimulus	Non-stimulus	Total	Stimulus	Non-stimulus	Total	Stimulus	Non-stimulus
All departments and agencies	43,758,135	1,925,398	41,832,737	43,750,114	419,697	43,330,416	44,673,778	310,912	44,362,866
Department of Defense	6,416,163	169,711	6,246,452	6,900,567	0	6,900,567	7,400,607	0	7,400,607
Department of Energy	5,023,579	0	5,023,579	5,276,862	0	5,276,862	4,523,208	0	4,523,208
Department of Health and Human Services	22,424,757	1,740,770	20,683,987	21,209,856	358,416	20,851,440	21,258,821	220,086	21,038,736
National Aeronautics and Space Administration	2,554,761	0	2,554,761	2,697,919	0	2,697,919	3,009,641	0	3,009,641
National Science Foundation	889,239	8,417	880,823	934,101	33,627	900,475	986,305	35,506	950,799
All other departments and agencies	6,449,636	6,500	6,443,136	6,730,809	27,655	6,703,154	7,495,195	55,320	7,439,875

Note(s):

Because of rounding, details may not add to total. FYs 2020, 2021, and 2022 total obligations include additional funding provided by supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act).

Source(s):

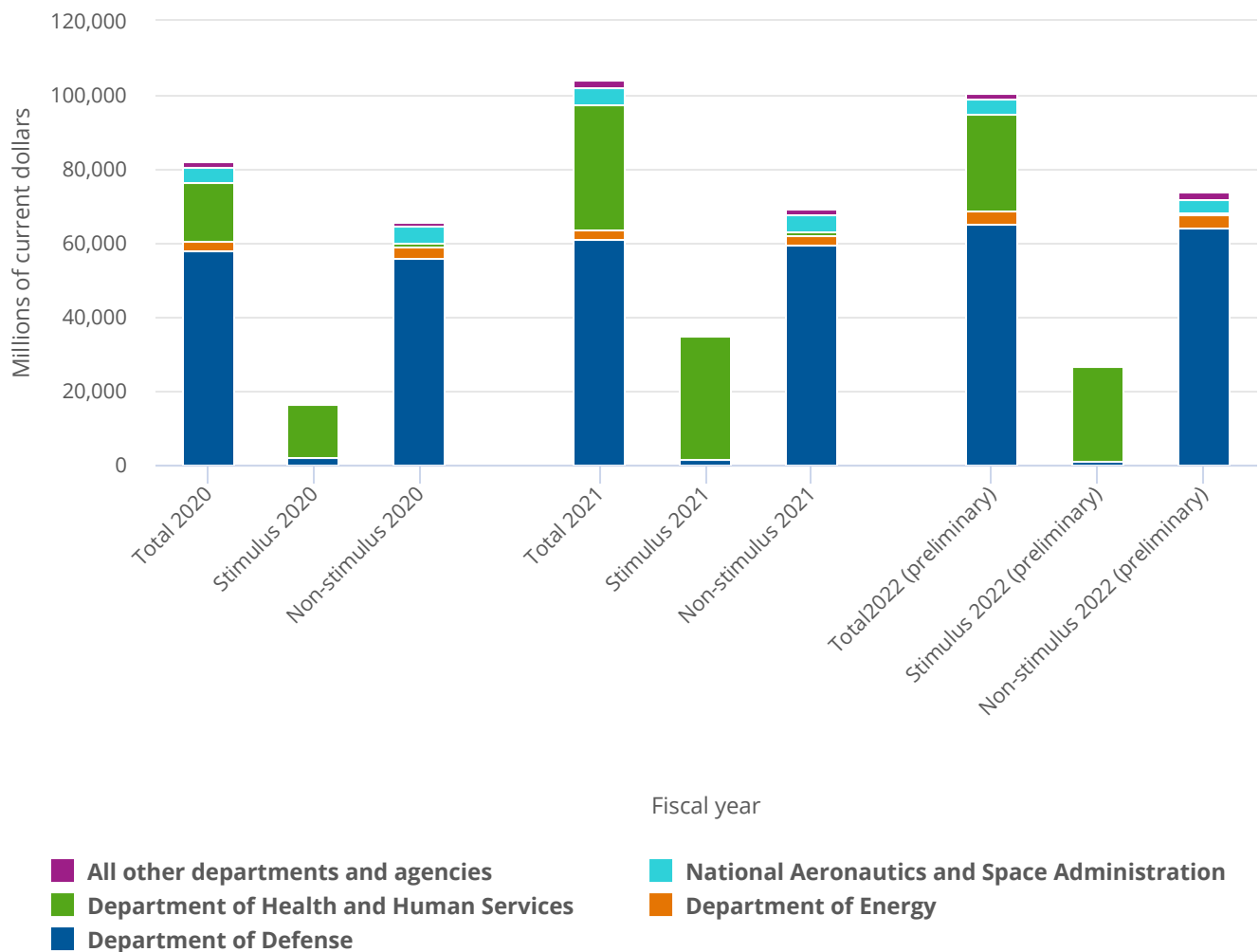
National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

Federal Funding for Experimental Development

Although federal obligations for research (both basic research and applied research) increased 1.1% (\$939 million) between FY 2020 and FY 2021, from \$85.3 billion to \$86.2 billion, obligations for experimental development increased 26.6% (\$21.8 billion).⁵ Total FY 2021 obligations for experimental development totaled \$103.9 billion, increasing from \$82.1 billion in FY 2020 (figure 3). DOD's obligations for experimental development increased \$3.2 billion between FY 2020 and FY 2021 and accounted for 58.7% of all federal experimental development in FY 2021. HHS's obligations for experimental development, driven by an increase in pandemic-related stimulus funds, rose from \$15.8 billion in FY 2020 to \$33.9 billion in FY 2021 and accounted for 32.7% of all federal obligations for experimental development in FY 2021. NASA's obligations for experimental development totaled \$4.6 billion in FY 2021, increasing from \$4.1 billion in FY 2020, whereas DOE's obligations declined 8.6%, from \$2.9 billion in FY 2020 to \$2.7 billion in FY 2021. All other federal departments and agencies combined accounted for 1.6% of all other funding for experimental development in FY 2021.

Figure 3

Federal obligations for experimental development, by stimulus and non-stimulus funds, by agency: FYs 2020–22



Note(s):

Because of rounding, detail may not add to total. FYs 2020, 2021, and 2022 data include obligations from supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act), referred to here as stimulus funds.

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

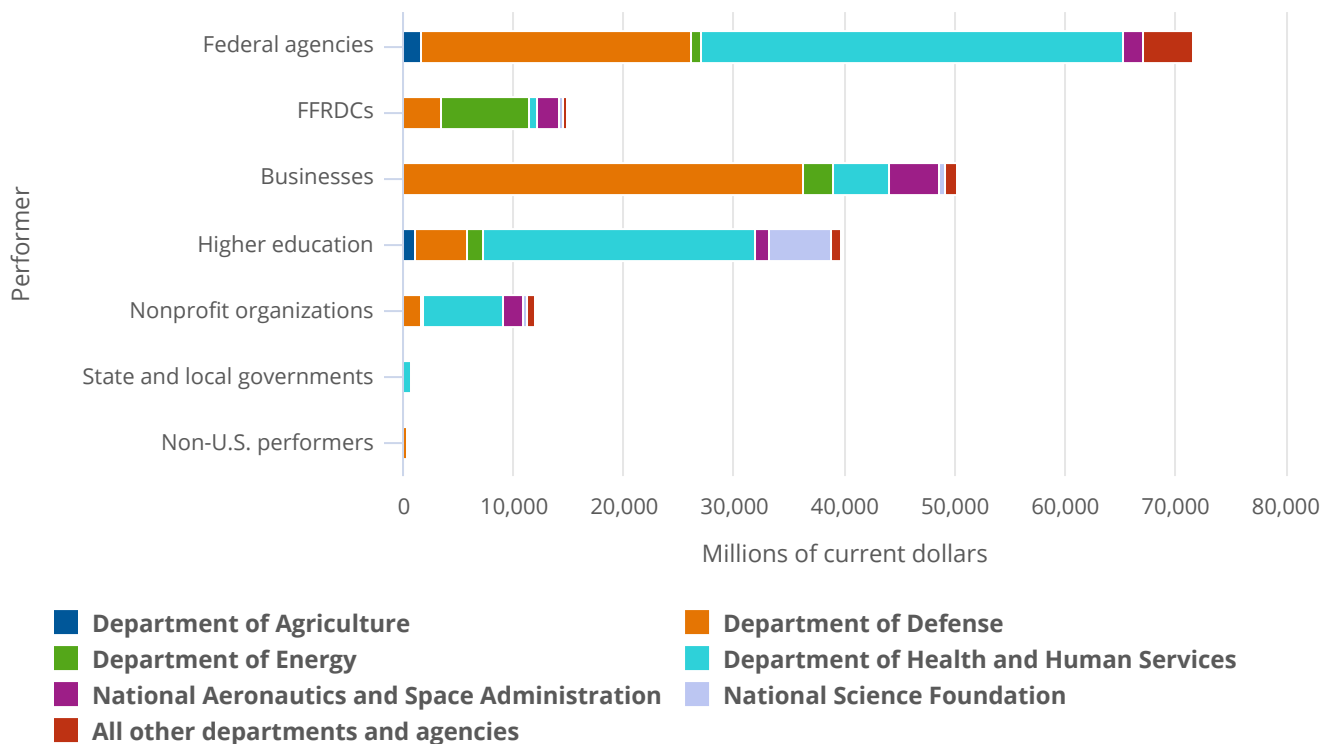
The addition of pandemic-related stimulus funds through HHS have had an impact on the federal government's composition of experimental development. For instance, without the additional stimulus funding to HHS, its share of experimental development would be 1.1%, or \$729 million out of \$69.1 billion in FY 2021. At the same time DOD's share would be 86.0%, or \$59.4 billion out of \$69.1 billion. So, the additional funds to HHS increase its share of experimental development to \$33.9 billion out of \$103.9 billion. Excluding the stimulus funds, NASA and DOE accounted for 6.7% (\$4.6 billion) and 3.9% (\$2.7 billion), respectively, of federal experimental development obligations in FY 2021.

Federal Funding to R&D Performers

Federal R&D funds are obligated to a variety of different performers classified as either intramural, which are those performers that are part of the federal government sector (i.e., federal departments and agencies, as well as the federally funded research and development centers, or FFRDCs), or extramural, which are those who perform R&D outside the federal government (e.g., businesses, higher education institutions, and nonprofit organizations). In FY 2021, \$103.7 billion (54.5%) of the \$190.2 billion in federal R&D was obligated to extramural performers, whereas intramural performers accounted for \$86.5 billion in obligations, or 45.5% of all R&D (figure 4).

Figure 4

Federal obligations for research and experimental development, by performer and agency: FY 2021



FFRDC = federally funded research and development center.

Note(s):

Because of rounding, detail may not add to total. Federal agencies' activities cover costs associated with the administration of federal R&D performance and R&D procurements from nonfederal performers by federal personnel, transfers of funds to other federal agencies for purposes related to R&D, and actual federal performance. Higher education include both public and private institutions as well as University Affiliated Research Centers. FY 2021 obligations include additional funding provided by supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act). See technical table A-2 for additional notes associated with the agencies listed in this table (<https://nces.nsf.gov/surveys/federal-funds-research-development/2022#methodology>).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, FYs 2021–22.

Although obligations to federal agencies for intramural R&D totaled \$71.7 billion in FY 2021, data users should note this amount includes not only obligations for the conduct of R&D within federal labs and facilities but also the transfer of R&D funds within the federal government from one federal agency to another. Specifically, agencies are instructed to include funds transferred to other agencies as federal intramural, whereas agencies receiving funds are instructed to exclude those funds from their survey submission.⁶ This practice is consistent with guidance provided to federal agencies by the Office of Management and Budget (OMB), Circular A-11, Section 20.⁷ Following this guidance, BARDA reported \$31.4 billion in intramural R&D obligations, but most of this was a transfer to DOD to fund vaccine development, which DOD would later issue to extramural performers in the form of grants and contracts.⁸ As such, although the final disposition of these funds is determined by DOD, they are reported by the originating agency, BARDA, as federal intramural. Based on new data collected in volume 71 of the Federal Funds Survey, HHS transferred a total of \$31.3 billion of intramural obligations to DOD in FY 2021 (table 4).⁹

Table 4**Federal agency interagency fund transfers for research and experimental development: FY 2021**

(Millions of current dollars)

Transferred from agency	Transferred to agency								
	Total	DOC	DOD	DOE	HHS	NASA	NSF	USDA	Other ^a
All departments and agencies	38,343	134	35,125	422	61	40	10	609	1,941
Department of Agriculture	1	0	0	0	*	0	0	*	0
Department of Commerce	41	0	14	4	5	1	*	*	17
Department of Defense	6,216	128	3,658	199	15	11	4	607	1,594
Department of Energy	34	1	3	22	*	1	2	1	5
Department of Health and Human Services	31,540	2	31,280	2	*	12	0	1	244
National Aeronautics and Space Administration	282	2	78	165	*	0	4	0	32
National Science Foundation	8	2	2	1	*	*	0	0	3
All other departments and agencies	221	0	89	30	40	14	0	1	46

* = amount greater than \$0 but less than \$500,000.00.

DOC = Department of Commerce; DOD = Department of Defense; DOE = Department of Energy; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation; USDA = Department of Agriculture.

^a Includes funds from the Departments of Education, Housing and Urban Development, Homeland Security, the Interior, Justice, Labor, State, Transportation, Treasury, and Veterans Affairs; the Agency for International Development; the Appalachian Regional Commission; the Consumer Product Safety Commission; the Environmental Protection Agency; the Federal Communications Commission; the Federal Trade Commission; the Library of Congress; the National Archives and Records Administration; the Nuclear Regulatory Commission; the Patient-Centered Outcomes Research Trust Fund; the Postal Service; the Smithsonian Institution; the Social Security Administration; and the Tennessee Valley Authority.

Note(s):

Because of rounding, detail may not add to total. FY 2021 obligations include additional funding provided by supplemental COVID-19 pandemic-related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, FYs 2021–22.

Redesign of the Survey of Federal Funds for R&D

Between 2018 and 2021, NCSSES engaged in a redesign of the Federal Funds Survey and the Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (Federal S&E Support Survey). The goals of the redesign were to (1) update the survey instrument to reflect best practices in survey design principles and transform the survey from a series of tables to a series of questions that would integrate definitions and instructions with each question and (2) expand the current survey items to collect additional detail most often requested by data users. As part of the redesign effort, NCSSES held a data user workshop and assembled an expert panel for consultation, worked with survey methodology experts, visited multiple federal agency respondents to receive and test input on changes to the survey, held a series of cognitive interviews with agency respondents, and conducted usability testing on the new survey design. The redesigned survey was fielded in May 2022 for volume 71 of the Federal Funds Survey, canvassing federal FYs 2021 and 2022.

Changes associated with the volume 71 redesign include the integration of the Federal S&E Support Survey as a module within the Federal Funds Survey. (NCSSES will continue to publish the Federal S&E Support Survey data separately at <https://nces.nsf.gov/surveys/federal-support-survey/>.) Four other new questions were added to the standard and the DOD versions of the questionnaire. These new questions covered the following for the fiscal year just completed (FY 2021):

- R&D deobligation
- Nonfederal R&D obligations by type of agreement (e.g., grants and contracts)
- R&D obligations provided to other federal agencies in the form of intergovernmental transfers
- R&D and R&D plant obligations to university affiliated research centers

One new question added solely to the DOD questionnaire was for obligations associated with Small Business Innovation Research and Small Business Technology Transfer programs for the fiscal year just completed and the current fiscal year at the time of collection (FYs 2021–22). Many of the other survey questions were reorganized and revised.

Some changes were made within the questions for consistency with other NCSSES surveys. For example, among the performer categories, FFRDCs were included among the extramural performers in previous volumes but were categorized as an intramural performer with the redesign. Other changes include retitling certain performer categories, where industry was changed to businesses and where universities and colleges was changed to higher education. The fields of R&D were used instead of the former “fields of science and engineering.” The survey started collecting field of R&D information for experimental development obligations; previously, field of science and engineering data were collected only for basic and applied research obligations. With the redesign, data were gathered from all agencies on federal obligations for research performed at higher education institutions, by detailed field of R&D. Previously these data had been collected only from the Departments of Agriculture, Defense, Energy, Health and Human Services, and Homeland Security; NASA; and NSF. Similarly, geographic distribution of R&D obligations was asked of all agencies with the redesign. Previously these data had only been collected from the Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Homeland Security; NASA; and NSF.

Data Sources, Limitations, and Availability

The Federal Funds Survey is a census of all federal agencies that fund R&D programs, as identified from information in the president’s budget submission to Congress, excluding the Central Intelligence Agency. Federal agencies that fund R&D are identified in the *Analytical Perspectives, Budget of the United States Government, Fiscal Year 2023*.¹⁰ Data were obtained from 33 federal agencies (14 federal departments and 19 independent agencies) that had obligations for R&D during FY 2021 or FY 2022. Because multiple subdivisions of some federal departments completed the survey, there were 74 agency-level responses: 6 federal departments, 49 agencies (within another 8 federal departments), and 19 independent

agencies. However, lower offices could also be authorized to enter data: in Federal Funds Survey nomenclature, agency-level offices could authorize program offices, program offices could authorize field offices, and field offices could authorize branch offices. When these suboffices are included, there were 730 total respondents: 74 agencies, 98 program offices, 173 field offices, and 385 branch offices.

Volume 71 of the Federal Funds Survey collected final FY 2021 data and preliminary FY 2022 totals. FY 2022 data are subject to revision when collected under next year's survey, volume 72 (FY 2022 data and preliminary FY 2023 totals).

Beginning with volume 66 of the survey (FYs 2016 and 2017), the totals reported for development obligations and outlays represent a refinement to this category by more narrowly defining it to be "experimental development" to align with federal R&D budget formulation as per the OMB's Circular A-11, Section 84. As a result, totals for experimental development from FY 2016 and on do not include the DOD Budget Activity 7 (Operational Systems Development) obligations and outlays. Those funds, previously included in DOD's development totals, support the development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current or subsequent fiscal year. Therefore, the development data and total R&D data are not directly comparable with totals reported prior to FY 2016.¹¹ Although this survey is a census of federal agencies that fund R&D and there is no sampling error, survey data are still subject to some degree of unmeasurable nonsampling error which may include errors in classification or measurement of certain aspects of an agencies R&D. For additional information see the Survey Quality Measures within the technical notes of the survey.¹²

The full set of data tables for FYs 2021 and 2022 will be available at <https://nces.nsf.gov/surveys/federal-funds-research-development/>. Individual tables may be available in advance of the full report. For more information, please contact the author.

Notes

- 1 Obligations represent the amount for orders placed, contracts awarded, services received, and similar transactions during a given period, regardless of when the funds were appropriated or when future payment of money is required.
- 2 In FYs 2020 and 2021, a series of supplemental appropriations bills were passed, starting in March 2020, in response to the COVID-19 pandemic: the Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (H.R. 6074, 6 March 2020); the Families First Coronavirus Response Act (H.R. 6201, 18 March 2020); the Coronavirus Aid, Relief, and Economic Security Act (H.R. 748, 27 March 2020); the Paycheck Protection Program and Health Care Enhancement Act (H.R. 266, 24 April 2020); the added stimulus component of the Consolidated Appropriations Act, 2021 (H.R. 133 27 December 2020); and the American Rescue Plan Act (H.R. 1319, 11 March 2021). R&D funded through these acts are collectively termed here as stimulus funding.
- 3 FY 2022 data were collected from agencies before the fiscal year closed and represent agency estimates of what projected obligations would be by the end of the fiscal year. However, due to agency and nonagency specific factors these estimates are subject to change and should be used with caution. FY 2022 data will be collected on the next survey cycle as final fiscal year actuals along with estimates for FY 2023.
- 4 Gross domestic product implicit price deflators were used to convert current to constant 2012 dollars. Data on federal fiscal year historical figures, 1951–2022, can be found in Office of Management and Budget (OMB). 2023. *Budget of the U.S. Government, Fiscal Year 2024*. Historical Tables. Table 10.1. Gross Domestic Product and Deflators Used in the Historical Tables: 1940–2028. Available at <https://www.whitehouse.gov/omb/historical-tables/>.
- 5 Experimental development is creative and systematic work, drawing on knowledge gained from research and practical experience, which is directed at producing new products or processes or improving existing products or processes. Like research, experimental development will result in gaining additional knowledge.

6 Survey instructions to federal departments and agencies specifically note agencies should include the full cost of R&D, both specific project costs and overhead costs. Include both intramural and extramural R&D programs: cost of planning and administering of R&D, laboratory overhead, pay of military personnel, and departmental administration, and include funds your agency transferred to other agencies for R&D. Do not include funds your agency received from another federal agency. The transferring agency will report those funds. See standard questionnaire, page 6 <https://nces.nsf.gov/400/assets/0/files/srvyfedfunds-2021-2022-standard.pdf> and the DOD questionnaire page 6 at <https://nces.nsf.gov/400/assets/0/files/srvyfedfunds-2021-2022-dod.pdf>.

7 For additional information, see Office of Management and Budget (OMB). 2021. *Preparation, Submission, and Execution of the Budget, Section 20(j)(4): Recording Transfers in the Budget: Expenditure Transfers*. OMB Circular No. A-11. Washington, DC: OMB. Available at <https://www.whitehouse.gov/wp-content/uploads/2018/06/a11.pdf>.

8 For details on agency obligations by type of performer, see data table 7, Federal obligations for research and experimental development, by agency and performer: FY 2021, and data table 13, Federal agency interagency fund transfers for R&D: FY 2021; both are available at <https://nces.nsf.gov/surveys/federal-funds-research-development/>.

9 Volume 71 refers to the 71st survey cycle and covers both federal FYs 2021 and 2022. See survey technical notes, technical table A-4 for a list of all volumes and fiscal years covered at <https://nces.nsf.gov/surveys/federal-funds-research-development/2022#methodology>.

10 See chapter 18, Research and Development, *Analytical Perspectives, Budget of the United States Government, Fiscal Year 2023*. Available at <https://www.govinfo.gov/content/pkg/BUDGET-2023-PER/pdf/BUDGET-2023-PER-6-5.pdf>.

11 For additional information see: Pece C, Jankowski J; National Center for Science and Engineering Statistics (NCSES). 2021. *Statistical Definition of Development Clarified: Effect on R&D Totals*. NSF 21-326. Alexandria, VA: National Science Foundation. Available at <https://nces.nsf.gov/pubs/nsf21326/>.

12 Survey technical notes are available at <https://nces.nsf.gov/surveys/federal-funds-research-development/2022#methodology>.

Suggested Citation

Pece CV; National Center for Science and Engineering Statistics (NCSES). 2023. *Federal Obligations for R&D Increased Nearly 14% in FY 2021, Supported by COVID-19 Pandemic-Related Funding*. NSF 23-352. Alexandria, VA: National Science Foundation. Available at <https://nces.nsf.gov/pubs/nsf23352>.

Contact Us

Report Author

Christopher V. Pece
Survey Manager
NCSES
Tel: 703-292-7788
E-mail: cpece@nsf.gov

NCSES

National Center for Science and Engineering Statistics
Directorate for Social, Behavioral and Economic Sciences
National Science Foundation
2415 Eisenhower Avenue, Suite W14200
Alexandria, VA 22314

Tel: (703) 292-8780

FIRS: (800) 877-8339

TDD: (800) 281-8749

E-mail: ncsesweb@nsf.gov