

TABLE 2

**Summary of federal obligations and outlays for research, experimental development, and R&D plant, by type of R&D, performer, and field of R&D: FYs 2020–22**

(Dollars in millions)

Type of R&D, performer, and field	2020	2021	Preliminary	
			2022	% change 2021–22
Outlays for R&D and R&D plant	149,706	178,334	183,632	3.0
R&D	144,920	174,529	179,316	2.7
R&D plant	4,786	3,805	4,316	13.4
Obligations for R&D and R&D plant	173,553	194,434	193,551	-0.5
R&D	167,403	190,151	189,059	-0.6
Performer				
Federal agencies <sup>a</sup>	51,472	71,665	69,232	-3.4
FFRDCs	13,150	14,791	15,162	2.5
Businesses	51,428	50,225	50,762	1.1
Higher education <sup>b</sup>	38,541	39,766	40,458	1.7
Nonprofit organizations	10,699	11,985	11,753	-1.9
State and local governments	720	966	937	-3.0
Non-U.S. performers	1,393	753	755	0.2
Research	85,305	86,244	88,464	2.6
Performer				
Federal agencies <sup>a</sup>	19,572	16,764	18,352	9.5
FFRDCs	9,892	10,529	10,789	2.5
Businesses	10,028	10,790	10,528	-2.4
Higher education <sup>b</sup>	35,474	37,027	37,605	1.6
Nonprofit organizations	9,191	9,760	9,839	0.8
State and local governments	645	887	849	-4.3
Non-U.S. performers	503	488	502	3.0
Field of R&D				
Computer and information sciences	NA	5,350	5,877	9.9
Computer sciences and mathematics	5,912	NA	NA	NA
Geosciences, atmospheric sciences, and ocean sciences <sup>c</sup>	5,039	3,569	6,052	69.6
Life sciences	42,525	38,178	38,511	0.9
Mathematics and statistics	NA	715	733	2.4
Physical sciences	8,420	8,044	11,112	38.1
Psychology	3,276	3,770	3,776	0.2
Social sciences	1,137	1,370	1,449	5.8
Engineering	13,222	13,374	13,861	3.6
Other fields	5,773	11,874	7,094	-40.3
Basic research	41,547	42,494	43,790	3.1
Performer				
Federal agencies <sup>a</sup>	7,688	6,199	6,533	5.4
FFRDCs	5,923	5,805	6,632	14.3
Businesses	3,147	3,785	3,557	-6.0
Higher education <sup>b</sup>	20,128	21,441	21,737	1.4
Nonprofit organizations	4,326	4,500	4,557	1.3
State and local governments	114	533	541	1.6
Non-U.S. performers	221	232	233	0.4
Field of R&D				
Computer and information sciences	NA	2,264	2,383	5.3
Computer sciences and mathematics	2,524	NA	NA	NA
Geosciences, atmospheric sciences, and ocean sciences <sup>c</sup>	3,167	1,772	3,568	101.3
Life sciences	20,805	19,008	19,188	0.9
Mathematics and statistics	NA	503	536	6.5

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Physical sciences	6,513	6,432	8,737	35.8
Psychology	1,612	1,934	1,930	-0.2
Social sciences	440	537	542	0.8
Engineering	2,898	3,151	3,231	2.6
Other fields	3,588	6,892	3,675	-46.7
Applied research	43,758	43,750	44,674	2.1
Performer				
Federal agencies <sup>a</sup>	11,884	10,565	11,819	11.9
FFRDCs	3,969	4,724	4,157	-12.0
Businesses	6,882	7,004	6,970	-0.5
Higher education <sup>b</sup>	15,345	15,586	15,867	1.8
Nonprofit organizations	4,865	5,260	5,283	0.4
State and local governments	530	354	307	-13.2
Non-U.S. performers	282	256	270	5.4
Field of R&D				
Computer and information sciences	NA	3,086	3,493	13.2
Computer sciences and mathematics	3,388	NA	NA	NA
Geosciences, atmospheric sciences, and ocean sciences <sup>c</sup>	1,873	1,797	2,484	38.2
Life sciences	21,720	19,169	19,323	0.8
Mathematics and statistics	NA	212	197	-7.3
Physical sciences	1,907	1,612	2,375	47.3
Psychology	1,664	1,836	1,846	0.6
Social sciences	698	832	907	9.0
Engineering	10,324	10,223	10,629	4.0
Other fields	2,185	4,982	3,419	-31.4
Experimental development	82,098	103,907	100,595	-3.2
Performer				
Federal agencies <sup>a</sup>	31,899	54,901	50,879	-7.3
FFRDCs	3,258	4,263	4,373	2.6
Businesses	41,400	39,435	40,234	2.0
Higher education <sup>b</sup>	3,067	2,740	2,853	4.1
Nonprofit organizations	1,508	2,225	1,914	-14.0
State and local governments	75	79	88	12.3
Non-U.S. performers	890	265	252	-4.9
Field of R&D				
Computer and information sciences	NA	3,175	3,665	15.5
Computer sciences and mathematics	NA	NA	NA	NA
Geosciences, atmospheric sciences, and ocean sciences <sup>c</sup>	NA	2,055	824	-59.9
Life sciences	NA	39,394	31,702	-19.5
Mathematics and statistics	NA	292	269	-7.7
Physical sciences	NA	2,122	3,609	70.1
Psychology	NA	364	401	10.2
Social sciences	NA	139	133	-4.4
Engineering	NA	43,218	48,022	11.1
Other fields	NA	13,149	11,969	-9.0
R&D plant	6,150	4,282	4,492	4.9
Performer				
Federal agencies <sup>a</sup>	3,106	883	1,025	16.2

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FFRDCs	1,884	2,019	1,809	-10.4
Businesses	678	858	782	-8.9
Higher education <sup>b</sup>	351	360	589	63.4
Nonprofit organizations	125	155	282	81.1
State and local governments	7	6	5	-14.3
Non-U.S. performers	*	*	*	41.3

\* = amount greater than \$0 but less than \$500,000.

FFRDC = federally funded research and development center.

<sup>a</sup> Federal agencies' activities cover costs associated with the administration of federal R&D performance and R&D procurements from non-federal performers by federal personnel, transfers of funds to other federal agencies for purposes related to R&D, as well as actual federal performance.<sup>b</sup> Higher education include both public and private institutions as well as University Affiliated Research Centers.<sup>c</sup> Formerly called "Environmental sciences" prior to volume 71.**Note(s):**

Because of rounding, detail may not add to total. Percentages are computed using actual dollars reported. FYs 2020, 2021, and 2022 data include obligations from supplemental COVID-19 related appropriations (e.g., Coronavirus Aid, Relief, and Economic Security [CARES] Act). As of volume 71 (FYs 2021–22), the fields of R&D (formerly, "fields of science and engineering") were revised for consistency with other National Center of Science and Engineering Statistics surveys; some fields were added, merged, or split, and some fields were renamed. Therefore, the data are not directly comparable with totals reported in previous years. See technical table A-3 for additional notes associated with the taxonomy changes to the fields listed in this table.

**Source(s):**

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