



National Center for Science and  
Engineering Statistics

# FFRDC Research and Development Expenditures: Fiscal Year 2020

Data Tables | NSF 22-304 | October 12, 2021

## Contents

---

General Notes	2
Data Tables	3
Technical Notes	17
Acknowledgments and Suggested Citation	22
Contact Us	23

---

## General Notes

---

This report provides data from the 2020 Federally Funded Research and Development Center (FFRDC) Research and Development Survey. This survey is the primary source of information on separately accounted R&D expenditures at FFRDCs in the United States. Conducted annually for university-administered FFRDCs since FY 1953 and all FFRDCs since FY 2001, the survey collects information on R&D expenditures by source of funds and types of research and expenses. The survey is an annual census of the full population of eligible FFRDCs. See <https://www.nsf.gov/statistics/ffrdclist/> for the Master Government List of FFRDCs.

## Data Tables

---

Table	Title
1	R&D expenditures at federally funded research and development centers, by source of funds: FYs 2001–20
2	Total and federally financed R&D expenditures at federally funded research and development centers, by type of R&D: FYs 2001–20
3	Federally financed R&D expenditures from federal agencies: FY 2020
4	R&D expenditures at federally funded research and development centers, by source of funds and FFRDC: FY 2020
5	Federally financed R&D expenditures at federally funded research and development centers, by federal agency and FFRDC: FY 2020
6	Total and federally financed R&D expenditures at federally funded research and development centers, by type of R&D and FFRDC: FY 2020
7	Total R&D expenditures at federally funded research and development centers, by FFRDC: FYs 2001–20
8	Total and federally financed R&D expenditures at federally funded research and development centers, by FFRDC: FYs 2017–20

TABLE 1

**R&D expenditures at federally funded research and development centers, by source of funds: FYs 2001–20**

(Dollars in thousands)

Fiscal year	All R&D expenditures	Federal government	State and local government	Business	Nonprofit organizations	All other sources <sup>a</sup>
2001	10,071,307	9,709,221	19,389	144,043	na	198,654
2002	11,536,424	11,095,110	31,423	134,251	na	275,640
2003	12,126,880	11,681,318	33,301	138,685	na	273,576
2004	12,632,207	12,321,652	29,959	119,843	na	160,753
2005	13,254,522	12,917,206	32,339	129,036	na	175,941
2006	13,218,497	12,824,552	30,122	170,879	na	192,944
2007	13,824,987	13,401,081	32,072	172,592	na	219,242
2008	15,616,390	15,177,347	32,188	202,534	na	204,321
2009	16,390,111	15,942,851	35,442	189,721	na	222,097
2010	18,880,609	18,453,552	52,871	168,561	23,665	181,960
2011	18,671,245	18,276,088	26,744	190,111	38,878	139,424
2012	18,280,943	17,875,012	39,428	184,434	45,926	136,143
2013	17,667,184	17,284,513	50,449	186,911	39,390	105,921
2014	17,718,556	17,331,396	28,337	220,735	37,182	100,906
2015	18,458,257	18,097,189	18,427	208,780	27,984	105,877
2016	19,219,702	18,855,593	21,556	192,239	40,195	110,119
2017	20,038,307	19,667,804	29,029	192,107	46,526	102,841
2018	21,171,529	20,770,388	43,458	197,975	43,630	116,078
2019	22,737,500	22,338,855	51,167	180,583	48,238	118,657
2020	23,514,241	23,133,501	43,995	172,866	47,056	116,823

na = not applicable; data from nonprofit organizations were not collected separately.

<sup>a</sup> Prior to FY 2010, R&D expenditures from nonprofit organizations were collected under All other sources.**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 2

**Total and federally financed R&D expenditures at federally funded research and development centers, by type of R&D: FYs 2001–20**

(Dollars in millions)

Fiscal year	Total								Federally financed							
	All R&D expenditures	Basic research		Applied research		Experimental development		All R&D expenditures	Basic research		Applied research		Experimental development			
		Amount	Percent	Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent	Amount	Percent		
2001	10,071	3,875	38.5	na	na	na	na	9,709	3,726	38.4	na	na	na	na		
2002	11,536	4,744	41.1	na	na	na	na	11,095	4,523	40.8	na	na	na	na		
2003	12,127	5,122	42.2	na	na	na	na	11,681	4,880	41.8	na	na	na	na		
2004	12,632	4,931	39.0	na	na	na	na	12,322	4,790	38.9	na	na	na	na		
2005	13,255	5,110	38.5	na	na	na	na	12,917	4,977	38.5	na	na	na	na		
2006	13,218	5,197	39.3	na	na	na	na	12,825	5,048	39.4	na	na	na	na		
2007 <sup>a</sup>	13,825	5,296	38.3	3,479	25.2	4,411	31.9	13,401	5,151	38.4	3,314	24.7	4,319	32.2		
2008	15,616	5,379	34.4	3,992	25.6	6,245	40.0	15,177	5,210	34.3	3,825	25.2	6,143	40.5		
2009	16,390	5,871	35.8	4,545	27.7	5,974	36.4	15,943	5,714	35.8	4,346	27.3	5,884	36.9		
2010	18,881	6,655	35.2	5,191	27.5	7,034	37.3	18,454	6,487	35.2	5,031	27.3	6,935	37.6		
2011	18,671	6,582	35.3	5,175	27.7	6,914	37.0	18,276	6,439	35.2	5,006	27.4	6,830	37.4		
2012	18,281	6,153	33.7	5,382	29.4	6,746	36.9	17,875	6,013	33.6	5,209	29.1	6,653	37.2		
2013	17,667	4,186	23.7	6,818	38.6	6,663	37.7	17,285	4,081	23.6	6,636	38.4	6,568	38.0		
2014	17,719	4,195	23.7	6,839	38.6	6,684	37.7	17,331	4,098	23.6	6,648	38.4	6,585	38.0		
2015	18,458	4,094	22.2	7,292	39.5	7,072	38.3	18,097	4,012	22.2	7,118	39.3	6,968	38.5		
2016	19,220	4,224	22.0	7,527	39.2	7,468	38.9	18,856	4,136	21.9	7,373	39.1	7,347	39.0		
2017	20,038	4,111	20.5	7,931	39.6	7,996	39.9	19,668	4,039	20.5	7,756	39.4	7,873	40.0		
2018	21,172	4,180	19.7	8,391	39.6	8,600	40.6	20,770	4,099	19.7	8,205	39.5	8,466	40.8		
2019	22,738	4,536	19.9	9,200	40.5	9,002	39.6	22,339	4,455	19.9	9,014	40.4	8,869	39.7		
2020	23,514	4,712	20.0	9,433	40.1	9,369	39.8	23,134	4,637	20.0	9,257	40.0	9,239	39.9		

na = not applicable; separate data for applied research and experimental development were not collected before FY 2007.

<sup>a</sup> FY 2007 detail does not add to total because one institution was unable to provide a breakout of applied research and experimental development expenditures.**Note(s):**

Because of rounding, detail may not add to total.

**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 3

**Federally financed R&D expenditures from federal agencies: FY 2020**

(Dollars in thousands)

Federal agency	R&D expenditures
All federal agencies	23,133,501
Administrative Office of the U.S. Courts	6,708
Agency for International Development	7,737
Central Intelligence Agency	2,146
Consumer Financial Protection Bureau	156
Consumer Product Safety Commission	440
Department of Agriculture	4,002
Department of Commerce	69,597
Department of Defense	5,136,824
Department of Energy	12,148,340
Department of Health and Human Services	1,058,779
Department of Homeland Security	509,718
Department of Justice	29,733
Department of State	53,587
Department of the Interior	11,159
Department of the Treasury	124,270
Department of Transportation	208,744
Department of Veterans Affairs	85,451
Environmental Protection Agency	6,811
Executive Office of the President	528
Federal Deposit Insurance Corporation	508
Federal Retirement Thrift Investment Board	251
General Services Administration	1,188
National Aeronautics and Space Administration	2,846,866
National Science Foundation	319,755
Nuclear Regulatory Commission	47,634
Office of the Director of National Intelligence	9,244
Smithsonian Institution	9
U.S. Postal Service	1,832
Other agencies not listed <sup>a</sup>	441,484

<sup>a</sup> Some funding sources were not identified for security reasons or because the original source was not known.

**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2020.

TABLE 4

**R&D expenditures at federally funded research and development centers, by source of funds and FFRDC: FY 2020**

(Dollars in thousands)

FFRDC	All R&D expenditures	Federal government	State and local government	Business	Nonprofit organizations	All other sources
All FFRDCs	23,514,241	23,133,501	43,995	172,866	47,056	116,823
University-administered FFRDCs	7,003,132	6,867,741	15,445	47,427	19,034	53,485
Ames Laboratory	32,844	32,302	299	243	0	0
Argonne National Laboratory	859,658	840,237	0	14,882	381	4,158
Fermi National Accelerator Laboratory	300,002	299,811	0	108	32	51
Jet Propulsion Laboratory	2,638,412	2,638,412	0	0	0	0
Lawrence Berkeley National Laboratory	916,082	862,965	10,791	22,342	4,857	15,127
Lincoln Laboratory	1,115,927	1,093,081	0	1,731	0	21,115
National Center for Atmospheric Research	188,484	175,316	0	4,920	8,248	0
National Radio Astronomy Observatory	100,078	98,458	0	243	808	569
National Solar Observatory	16,892	16,472	0	0	0	420
NSF's National Optical-Infrared Astronomy Research Laboratory	72,686	69,685	0	0	0	3,001
Princeton Plasma Physics Laboratory	107,662	103,856	0	87	0	3,719
SLAC National Accelerator Laboratory	382,264	366,936	3,048	2,294	4,696	5,290
Software Engineering Institute	141,291	141,291	0	0	0	0
Thomas Jefferson National Accelerator Facility	130,850	128,919	1,307	577	12	35
Nonprofit-administered FFRDCs	7,419,509	7,279,066	26,063	62,498	27,432	24,450
Aerospace Federally Funded Research and Development Center	1,114,741	1,109,291	0	4,867	0	583
Arroyo Center	35,248	35,248	0	0	0	0
Brookhaven National Laboratory	595,466	569,925	17,174	4,482	404	3,481
Center for Advanced Aviation System Development	180,634	163,497	97	4,175	1,126	11,739
Center for Communications and Computing	67,072	67,072	0	0	0	0
Center for Enterprise Modernization	190,408	190,408	0	0	0	0
Center for Naval Analyses	95,874	95,874	0	0	0	0
Center for Nuclear Waste Regulatory Analyses	6,762	6,359	53	311	16	23
CMS Alliance to Modernize Healthcare	228,162	228,162	0	0	0	0
Homeland Security Operational Analysis Center	44,736	44,736	0	0	0	0
Homeland Security Systems Engineering and Development Institute	136,874	135,713	248	14	385	514
Judiciary Engineering and Modernization Center	6,765	6,708	57	0	0	0
National Biodefense Analysis and Countermeasures Center	42,330	42,330	0	0	0	0
National Cybersecurity Center of Excellence	23,557	23,557	0	0	0	0
National Defense Research Institute	64,134	64,134	0	0	0	0
National Renewable Energy Laboratory	511,585	456,336	5,983	33,885	15,381	0
National Security Engineering Center	1,143,701	1,142,013	0	0	841	847
Oak Ridge National Laboratory	1,632,684	1,616,580	232	8,943	1,756	5,173
Pacific Northwest National Laboratory	1,071,249	1,053,982	2,219	5,821	7,523	1,704
Project Air Force	46,936	46,936	0	0	0	0
Science and Technology Policy Institute	9,256	9,256	0	0	0	0
Systems and Analyses Center	171,335	170,949	0	0	0	386
Industry-administered FFRDCs	9,091,600	8,986,694	2,487	62,941	590	38,888
Frederick National Laboratory for Cancer Research	745,726	745,726	0	0	0	0
Idaho National Laboratory	494,094	481,146	717	4,585	150	7,496
Lawrence Livermore National Laboratory	1,558,071	1,526,467	935	17,292	440	12,937
Los Alamos National Laboratory	2,722,375	2,701,388	0	20,987	0	0
Sandia National Laboratories	3,395,241	3,358,481	835	17,574	NA	18,351

TABLE 4

**R&D expenditures at federally funded research and development centers, by source of funds and FFRDC: FY 2020**

(Dollars in thousands)

FFRDC	All R&D expenditures	Federal government	State and local government	Business	Nonprofit organizations	All other sources
Savannah River National Laboratory	176,093	173,486	0	2,503	0	104

NA = not available; data were not provided by institution.

FFRDC = federally funded research and development center; NSF = National Science Foundation.

**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2020.





TABLE 5

**Federally financed R&D expenditures at federally funded research and development centers, by federal agency and FFRDC: FY 2020**

(Dollars in thousands)

FFRDC	All federal R&D expenditures	DOD	DOE	HHS	DHS	DOT	NASA	NSF	Other
National Defense Research Institute	64,134	63,146	0	0	0	0	0	0	988
National Renewable Energy Laboratory	456,336	10,981	433,693	0	566	1,144	241	0	9,711
National Security Engineering Center	1,142,013	956,089	125	0	1	0	60	0	185,738
Oak Ridge National Laboratory	1,616,580	39,467	1,416,854	7,772	13,453	4,754	36,793	0	97,487
Pacific Northwest National Laboratory	1,053,982	151,764	779,373	22,473	70,817	0	1,336	790	27,429
Project Air Force	46,936	46,936	0	0	0	0	0	0	0
Science and Technology Policy Institute	9,256	512	140	1,050	0	0	422	6,140	992
Systems and Analyses Center	170,949	152,774	0	0	11,949	0	11	0	6,215
Industry-administered FFRDCs	8,986,694	1,383,175	6,455,136	759,797	97,910	2,184	68,765	0	219,727
Frederick National Laboratory for Cancer Research	745,726	183	0	745,542	0	0	0	0	1
Idaho National Laboratory	481,146	72,246	373,335	0	8,717	295	7,740	0	18,813
Lawrence Livermore National Laboratory	1,526,467	281,065	1,205,937	6,831	25,012	0	2,067	0	5,555
Los Alamos National Laboratory	2,701,388	74,913	2,464,879	6,387	5,935	0	57,995	0	91,279
Sandia National Laboratories	3,358,481	930,661	2,264,166	1,037	55,705	1,889	963	0	104,060
Savannah River National Laboratory	173,486	24,107	146,819	0	2,541	0	0	0	19

DHS = Department of Homeland Security; DOD = Department of Defense; DOE = Department of Energy; DOT = Department of Transportation; FFRDC = federally funded research and development center; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation.

**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2020.

TABLE 6

## Total and federally financed R&amp;D expenditures at federally funded research and development centers, by type of R&amp;D and FFRDC: FY 2020

(Dollars in thousands)

FFRDC	Sponsor	Location	Total				Federally financed			
			All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development
All FFRDCs	-	-	23,514,241	4,711,829	9,433,095	9,369,317	23,133,501	4,637,198	9,256,845	9,239,458
University-administered FFRDCs	-	-	7,003,132	2,332,938	1,862,217	2,807,977	6,867,741	2,271,407	1,822,482	2,773,852
Ames Laboratory	DOE	Ames, IA	32,844	10,484	21,909	451	32,302	10,185	21,775	342
Argonne National Laboratory	DOE	Argonne, IL	859,658	158,106	407,691	293,861	840,237	158,106	389,481	292,650
Fermi National Accelerator Laboratory	DOE	Batavia, IL	300,002	298,918	1,084	0	299,811	298,788	1,023	0
Jet Propulsion Laboratory	NASA	Pasadena, CA	2,638,412	263,841	263,841	2,110,730	2,638,412	263,841	263,841	2,110,730
Lawrence Berkeley National Laboratory	DOE	Berkeley, CA	916,082	765,916	111,191	38,975	862,965	727,998	99,650	35,317
Lincoln Laboratory	DOD, OSD	Lexington, MA	1,115,927	6,283	991,054	118,590	1,093,081	6,283	991,054	95,744
National Center for Atmospheric Research	NSF	Boulder, CO	188,484	46,205	29,682	112,597	175,316	41,995	25,583	107,738
National Radio Astronomy Observatory	NSF	Charlottesville, VA	100,078	86,633	653	12,792	98,458	86,612	496	11,350
National Solar Observatory	NSF	Sunspot, NM	16,892	16,892	0	0	16,472	16,472	0	0
NSF's National Optical-Infrared Astronomy Research Laboratory	NSF	Tucson, AZ	72,686	72,686	0	0	69,685	69,685	0	0
Princeton Plasma Physics Laboratory	DOE	Princeton, NJ	107,662	107,117	545	0	103,856	103,423	433	0
SLAC National Accelerator Laboratory	DOE	Menlo Park, CA	382,264	360,734	21,530	0	366,936	350,827	16,109	0
Software Engineering Institute	DOD, OSD	Pittsburgh, PA	141,291	8,273	13,037	119,981	141,291	8,273	13,037	119,981
Thomas Jefferson National Accelerator Facility	DOE	Newport News, VA	130,850	130,850	0	0	128,919	128,919	0	0
Nonprofit-administered FFRDCs	-	-	7,419,509	1,695,120	2,054,301	3,670,088	7,279,066	1,689,379	1,982,799	3,606,888
Aerospace Federally Funded Research and Development Center	DOD, Air Force	El Segundo, CA	1,114,741	25,708	95,570	993,463	1,109,291	25,435	90,393	993,463
Arroyo Center	DOD, Army	Santa Monica, CA	35,248	0	35,248	0	35,248	0	35,248	0
Brookhaven National Laboratory	DOE	Upton, NY	595,466	451,180	88,238	56,048	569,925	449,041	77,089	43,795
Center for Advanced Aviation System Development	DOT, FAA	McLean, VA	180,634	0	8,189	172,445	163,497	0	7,412	156,085
Center for Communications and Computing	DOD, NSA/CSS	Alexandria, VA	67,072	16,768	33,536	16,768	67,072	16,768	33,536	16,768
Center for Enterprise Modernization	Treasury/IRS, VA, SSA	McLean, VA	190,408	0	10,091	180,317	190,408	0	10,091	180,317
Center for Naval Analyses	DOD, Navy	Arlington, VA	95,874	0	95,874	0	95,874	0	95,874	0
Center for Nuclear Waste Regulatory Analyses	NRC	San Antonio, TX	6,762	0	6,762	0	6,359	0	6,359	0
CMS Alliance to Modernize Healthcare	HHS, CMS	Baltimore, MD	228,162	0	5,375	222,787	228,162	0	5,375	222,787
Homeland Security Operational Analysis Center	DHS, S&T	Pentagon City, VA	44,736	0	44,736	0	44,736	0	44,736	0
Homeland Security Systems Engineering and Development Institute	DHS, S&T	McLean, VA	136,874	0	3,560	133,314	135,713	0	3,530	132,183
Judiciary Engineering and Modernization Center	U.S. Courts	McLean, VA	6,765	0	354	6,411	6,708	0	351	6,357
National Biodefense Analysis and Countermeasures Center	DHS, S&T	Frederick, MD	42,330	0	42,330	0	42,330	0	42,330	0
National Cybersecurity Center of Excellence	NIST	Rockville, MD	23,557	0	614	22,943	23,557	0	614	22,943
National Defense Research Institute	DOD, OSD	Santa Monica, CA	64,134	0	64,134	0	64,134	0	64,134	0
National Renewable Energy Laboratory	DOE	Golden, CO	511,585	45,634	284,134	181,817	456,336	45,634	250,985	159,717
National Security Engineering Center	DOD, OSD	Bedford, MA/ McLean, VA	1,143,701	0	62,072	1,081,629	1,142,013	0	61,980	1,080,033

TABLE 6

**Total and federally financed R&D expenditures at federally funded research and development centers, by type of R&D and FFRDC: FY 2020**

(Dollars in thousands)

FFRDC	Sponsor	Location	Total				Federally financed			
			All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development
Oak Ridge National Laboratory	DOE	Oak Ridge, TN	1,632,684	949,293	683,391	0	1,616,580	949,293	667,287	0
Pacific Northwest National Laboratory	DOE	Richland, WA	1,071,249	206,537	262,566	602,146	1,053,982	203,208	258,334	592,440
Project Air Force	DOD, Air Force	Santa Monica, CA	46,936	0	46,936	0	46,936	0	46,936	0
Science and Technology Policy Institute	NSF	Washington, DC	9,256	0	9,256	0	9,256	0	9,256	0
Systems and Analyses Center	DOD, OSD	Alexandria, VA	171,335	0	171,335	0	170,949	0	170,949	0
Industry-administered FFRDCs	-	-	9,091,600	683,771	5,516,577	2,891,252	8,986,694	676,412	5,451,564	2,858,718
Frederick National Laboratory for Cancer Research	HHS, NIH	Frederick, MD	745,726	143,010	602,716	0	745,726	143,010	602,716	0
Idaho National Laboratory	DOE	Idaho Falls, ID	494,094	29,647	261,869	202,578	481,146	28,869	255,007	197,270
Lawrence Livermore National Laboratory	DOE	Livermore, CA	1,558,071	123,313	1,125,217	309,541	1,526,467	118,541	1,098,385	309,541
Los Alamos National Laboratory	DOE	Los Alamos, NM	2,722,375	217,790	2,477,361	27,224	2,701,388	216,111	2,458,263	27,014
Sandia National Laboratories	DOE	Albuquerque, NM	3,395,241	161,207	961,368	2,272,666	3,358,481	161,207	950,450	2,246,824
Savannah River National Laboratory	DOE	Aiken, SC	176,093	8,804	88,046	79,243	173,486	8,674	86,743	78,069

CMS = Centers for Medicare and Medicaid Services; DHS = Department of Homeland Security; DOD = Department of Defense; DOE = Department of Energy; DOT = Department of Transportation; FAA = Federal Aviation Administration; FFRDC = federally funded research and development center; HHS = Department of Health and Human Services; IRS = Internal Revenue Service; NASA = National Aeronautics and Space Administration; NIH = National Institutes of Health; NIST = National Institute of Science and Technology; NRC = Nuclear Regulatory Commission; NSA/CSS = National Security Agency/Central Security Service; NSF = National Science Foundation; OSD = Office of the Secretary of Defense; S&T = Science and Technology Directorate; SSA = Social Security Administration; VA = Department of Veterans Affairs.

**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2020.

TABLE 7

## Total R&amp;D expenditures at federally funded research and development centers, by FFRDC: FYs 2001–20

(Dollars in thousands)

FFRDC	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 <sup>a</sup>	2012	2013	2014	2015	2016	2017	2018	2019	2020
All FFRDCs	10,071,307	11,536,424	12,126,880	12,632,207	13,254,522	13,218,497	13,824,987	15,616,390	16,390,111	18,880,609	18,671,245	18,280,943	17,667,184	17,718,556	18,458,257	19,219,702	20,038,307	21,171,529	22,737,500	23,514,241
Aerospace Federally Funded Research and Development Center <sup>b</sup>	17,600	26,306	32,745	32,529	32,500	34,200	36,490	38,940	41,470	880,653	908,458	874,653	835,068	838,708	888,119	909,868	942,704	1,020,827	1,065,989	1,114,741
Ames Laboratory	22,916	23,416	25,213	27,227	29,293	26,460	25,254	27,306	29,012	30,836	32,442	33,853	34,234	41,824	45,845	46,886	53,527	36,858	33,612	32,844
Argonne National Laboratory	478,391	506,666	500,828	520,881	482,051	472,961	489,684	533,530	543,169	650,504	710,435	679,387	708,501	719,459	719,521	733,377	723,824	777,246	810,693	859,658
Arroyo Center	24,317	24,484	27,889	26,101	28,152	24,518	25,195	23,852	27,692	28,647	32,180	31,278	32,789	33,391	40,594	44,616	42,723	39,738	37,956	35,248
Brookhaven National Laboratory	454,500	454,482	452,728	450,342	483,039	490,686	510,212	480,455	569,240	535,546	526,571	516,921	529,634	573,364	587,194	579,087	556,875	552,640	590,470	595,466
Center for Advanced Aviation System Development	5,683	6,256	6,633	6,462	6,429	6,601	7,290	126,171	133,869	149,686	165,645	159,311	146,860	149,054	155,696	156,644	168,169	177,530	174,123	180,634
Center for Communications and Computing	43,100	45,296	45,960	50,238	50,800	51,500	57,400	59,500	66,293	71,927	72,600	62,600	51,477	63,199	56,478	61,625	66,692	68,237	68,371	67,072
Center for Enterprise Modernization	1,161	2,434	2,834	3,687	4,802	6,342	7,101	166,894	181,958	170,460	187,785	226,539	202,319	158,069	145,442	146,436	154,933	162,690	174,712	190,408
Center for Naval Analyses	69,102	72,712	75,869	79,087	83,837	87,499	99,993	106,967	109,694	109,068	85,165	91,628	86,132	80,283	80,358	84,232	90,401	95,198	96,697	95,874
Center for Nuclear Waste Regulatory Analyses	14,977	16,398	17,625	16,847	16,391	16,397	17,007	17,960	16,614	15,346	16,377	13,147	12,331	12,314	12,636	8,600	6,312	5,054	6,987	6,762
CMS Alliance to Modernize Healthcare	na	na	na	na	na	na	na	na	na	na	na	na	17,521	70,458	168,142	141,860	169,013	175,030	213,369	228,162
Fermi National Accelerator Laboratory	310,928	313,556	303,340	318,435	323,153	330,980	337,306	340,486	376,791	402,658	420,119	412,438	376,472	334,522	319,700	323,507	320,516	328,419	334,258	300,002
Frederick National Laboratory for Cancer Research	187,222	260,000	296,000	335,000	334,400	334,500	339,800	509,700	378,200	643,935	431,600	430,100	433,900	448,500	495,300	642,165	704,223	748,500	751,452	745,726
Homeland Security Institute	na	na	na	na	NA	20,521	25,370	27,400	na	na	na	na	na	na	na	na	na	na	na	na
Homeland Security Operational Analysis Center	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	8,622	46,321	54,751	44,736
Homeland Security Studies and Analysis Institute	na	na	na	na	na	na	na	na	32,173	33,402	36,870	30,213	22,452	20,866	16,965	22,038	na	na	na	na
Homeland Security Systems Engineering and Development Institute	na	na	na	na	na	na	na	na	3,387	58,715	85,154	77,159	75,530	94,353	77,176	101,628	104,414	104,689	115,813	136,874
Idaho National Laboratory	270,636	259,562	330,154	180,306	232,289	163,074	248,322	236,037	388,062	478,356	425,072	536,399	496,818	479,801	476,376	521,618	482,840	395,112	478,324	494,094
Jet Propulsion Laboratory	1,355,463	1,435,039	1,390,560	1,551,171	1,606,409	1,548,019	1,717,203	1,733,597	1,711,528	1,640,341	1,543,969	1,493,613	1,519,258	1,664,539	1,749,689	1,852,369	2,324,826	2,733,908	2,709,063	2,638,412
Judiciary Engineering and Modernization Center	na	na	na	na	na	na	na	na	na	na	4,650	5,309	6,399	2,299	4,318	9,289	8,030	6,697	7,331	6,765
Lawrence Berkeley National Laboratory	408,487	467,461	441,500	482,159	482,672	485,626	503,775	573,917	611,711	759,381	788,386	767,554	768,563	762,601	792,457	797,831	813,267	832,457	872,237	916,082
Lawrence Livermore National Laboratory	1,090,875	1,227,111	1,286,215	1,425,840	1,456,368	1,431,019	1,353,980	1,301,874	1,321,633	1,370,747	1,424,993	1,353,454	1,313,293	1,170,571	1,273,066	1,363,525	1,290,134	1,386,687	1,517,429	1,558,071
Lincoln Laboratory	380,200	451,200	522,851	594,822	627,201	622,993	618,011	641,386	706,555	789,502	822,358	873,104	872,298	830,076	914,071	949,138	969,090	1,013,320	1,103,870	1,115,927
Los Alamos National Laboratory	1,333,194 <sup>e</sup>	1,994,031	2,106,145	1,986,235	2,101,211	2,145,200	2,046,260	2,073,538	2,172,179	2,505,913	2,307,197	2,056,878	1,708,000	1,767,000	1,865,000	1,987,000	1,972,769	2,145,232	2,461,275	2,722,375
National Astronomy and Ionosphere Ctr.	10,986	12,295	11,508	12,285	13,831	14,108	13,591	12,586	14,738	13,203	14,317	na	na	na	na	na	na	na	na	na
National Biodefense Analysis and Countermeasures Center	na	na	na	na	na	na	6,320	12,979	19,934	50,058	41,786	31,201	29,849	30,310	30,716	32,902	34,991	37,598	39,003	42,330
National Center for Atmospheric Research	119,846	157,173	140,756	154,714	135,893	153,343	144,293	161,130	203,627	220,328	198,231	169,743	172,527	162,259	166,385	177,422	171,551	158,260	199,476	188,484
National Cybersecurity Center of Excellence	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7,843	13,076	13,436	19,556	22,205	23,557
National Defense Research Institute	25,512	25,317	26,908	26,550	25,747	34,203	38,152	40,051	42,265	51,652	46,330	53,832	59,460	62,073	56,736	62,848	69,013	57,743	67,647	64,134
National Radio Astronomy Observatory	34,208	43,900	42,842	42,215	52,023	40,771	129,000	146,098	151,396	137,607	81,305	79,168	93,253	85,327	89,689	90,411	91,720	100,691	101,901	100,078
National Renewable Energy Laboratory	207,230	197,438	221,496	226,460	211,323	196,449	190,874	229,399	273,640	326,652	386,539	398,873	347,368	359,998	378,436	362,087	357,916	388,500	455,016	511,585
National Security Engineering Center	29,458	31,163	32,696	35,932	37,213	37,073	46,368	936,228	939,312	925,027	941,187	946,737	928,614	885,382	919,441	966,542	1,012,155	1,078,610	1,124,861	1,143,701
National Solar Observatory	na	na	na	na	na	na	na	na	na	11,549	11,724	10,236	10,648	10,039	11,752	12,783	11,841	14,733	15,931	16,892
NSF's National Optical-Infrared Astronomy Research Laboratory	37,364	41,051	44,409	43,020	52,775	54,616	53,608	55,922	56,972	45,596	36,165	36,321	30,021	25,161	23,660	24,917	25,906	33,874	38,262	72,686

TABLE 7

**Total R&D expenditures at federally funded research and development centers, by FFRDC: FYs 2001–20**

(Dollars in thousands)

FFRDC	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 <sup>a</sup>	2012	2013	2014	2015	2016	2017	2018	2019	2020
Oak Ridge National Laboratory	581,135	620,328	690,538	776,203	897,252	928,090	1,083,509	1,251,336	1,259,259	1,538,412	1,558,073	1,553,460	1,451,684	1,293,722	1,333,332	1,283,729	1,403,204	1,399,445	1,470,372	1,632,684
Pacific Northwest National Laboratory	562,000	608,500	679,000	692,370	779,522	749,365	851,512	885,984	1,064,230	1,116,648	1,095,923	1,033,768	934,491	1,021,912	951,099	914,747	983,962	956,193	1,012,136	1,071,249
Princeton Plasma Physics Laboratory	76,021	73,610	66,764	75,255	81,803	78,151	75,720	78,154	81,113	83,932	84,863	81,389	85,088	97,768	81,348	82,246	81,444	82,435	91,271	107,662
Project Air Force	29,361	32,439	33,555	33,049	35,742	39,107	39,315	41,794	45,162	43,957	44,171	41,031	36,003	39,351	44,393	49,165	48,521	48,858	48,325	46,936
Sandia National Laboratories	1,416,796	1,583,348	1,742,861	1,833,571	1,946,435	1,968,488	2,031,309	2,076,786	2,043,509	2,157,022	2,277,166	2,293,307	2,412,476	2,507,099	2,621,891	2,781,547	2,878,000	3,009,105	3,373,217	3,395,241
Savannah River National Laboratory	87,164	93,602	94,423	94,326	98,650	102,547	114,895	118,400	130,292	127,160	134,530	132,357	115,857	121,013	121,675	125,881	141,477	154,281	176,379	176,093
Science and Technology Policy Institute	7,311	8,878	6,710	3,681	5,415	6,800	5,600	6,000	5,100	6,000	8,700	7,547	5,010	10,949	8,724	7,459	8,401	8,086	9,080	9,256
SLAC National Accelerator Laboratory	145,979	171,343	164,747	206,402	205,690	214,026	231,960	234,316	294,421	354,393	327,716	329,747	327,005	316,646	310,167	313,031	327,453	341,615	368,938	382,264
Software Engineering Institute	37,052	45,088	45,412	57,920	62,262	75,636	80,566	80,963	89,077	99,334	107,837	113,371	134,973	123,217	131,146	145,981	132,967	142,891	140,954	141,291
Systems and Analyses Center	92,930	98,236	110,200	126,226	118,600	130,400	141,500	146,500	166,000	156,000	156,200	149,150	142,977	145,211	157,645	169,580	163,125	168,034	177,948	171,335
Thomas Jefferson National Accelerator Facility	102,202	106,305	106,966	104,659	113,349	96,228	81,242	82,254	88,834	90,456	90,456	94,167	100,031	105,868	128,036	120,009	107,320	118,631	125,796	130,850

e = estimated by institution. na = not applicable. NA = not available; R&amp;D totals not available for Homeland Security Institute in FY 2005.

FFRDC = federally funded research and development center; NSF = National Science Foundation.

<sup>a</sup> R&D expenditures decreased in FY 2011 due to removal of expenditures for capital projects. In this survey, R&D expenditures do not include capital projects. In previous years, some FFRDCs included capital expenditures in their R&D totals. Previous years include an unknown amount of capital expenditures, estimated to be less than \$500 million per year.<sup>b</sup> Prior to FY 2014, the Aerospace Corporation reported only internal R&D projects. After discussion with the National Center for Science and Engineering Statistics, the Aerospace Corporation agreed to report all R&D expenditures for FY 2014 and provide revised data to include all R&D expenditures for FYs 2010–13.**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 8

**Total and federally financed R&D expenditures at federally funded research and development centers, by FFRDC: FYs 2017–20**

(Dollars in thousands)

FFRDC	Total				Federally financed			
	2017	2018	2019	2020	2017	2018	2019	2020
All FFRDCs	20,038,307	21,171,529	22,737,500	23,514,241	19,667,804	20,770,388	22,338,855	23,133,501
University-administered FFRDCs	6,155,252	6,715,338	6,946,262	7,003,132	6,013,003	6,560,094	6,796,696	6,867,741
Ames Laboratory	53,527	36,858	33,612	32,844	52,830	35,696	33,211	32,302
Argonne National Laboratory	723,824	777,246	810,693	859,658	690,234	747,349	787,513	840,237
Fermi National Accelerator Laboratory	320,516	328,419	334,258	300,002	319,559	327,630	333,460	299,811
Jet Propulsion Laboratory	2,324,826	2,733,908	2,709,063	2,638,412	2,324,826	2,733,908	2,709,063	2,638,412
Lawrence Berkeley National Laboratory	813,267	832,457	872,237	916,082	755,899	769,839	807,967	862,965
Lincoln Laboratory	969,090	1,013,320	1,103,870	1,115,927	963,584	1,001,849	1,084,953	1,093,081
National Center for Atmospheric Research	171,551	158,260	199,476	188,484	151,138	139,532	187,615	175,316
National Radio Astronomy Observatory	91,720	100,691	101,901	100,078	89,791	98,642	99,881	98,458
National Solar Observatory	11,841	14,733	15,931	16,892	11,833	14,027	15,892	16,472
NSF's National Optical-Infrared Astronomy Research Laboratory	25,906	33,874	38,262	72,686	22,479	24,172	28,760	69,685
Princeton Plasma Physics Laboratory	81,444	82,435	91,271	107,662	81,123	82,057	91,119	103,856
SLAC National Accelerator Laboratory	327,453	341,615	368,938	382,264	311,686	326,587	352,527	366,936
Software Engineering Institute	132,967	142,891	140,954	141,291	132,870	142,877	140,940	141,291
Thomas Jefferson National Accelerator Facility	107,320	118,631	125,796	130,850	105,151	115,929	123,795	128,919
Nonprofit-administered FFRDCs	6,413,612	6,617,274	7,033,162	7,419,509	6,297,166	6,490,564	6,891,730	7,279,066
Aerospace Federally Funded Research and Development Center	942,704	1,020,827	1,065,989	1,114,741	939,793	1,018,425	1,062,804	1,109,291
Arroyo Center	42,723	39,738	37,956	35,248	42,723	39,738	37,956	35,248
Brookhaven National Laboratory	556,875	552,640	590,470	595,466	539,075	525,170	561,030	569,925
Center for Advanced Aviation System Development	168,169	177,530	174,123	180,634	148,610	156,437	152,539	163,497
Center for Communications and Computing	66,692	68,237	68,371	67,072	66,692	68,237	68,371	67,072
Center for Enterprise Modernization	154,933	162,690	174,712	190,408	154,829	161,448	173,127	190,408
Center for Naval Analyses	90,401	95,198	96,697	95,874	90,401	95,198	96,697	95,874
Center for Nuclear Waste Regulatory Analyses	6,312	5,054	6,987	6,762	5,207	4,647	6,340	6,359
CMS Alliance to Modernize Healthcare	169,013	175,030	213,369	228,162	169,013	175,030	213,369	228,162
Homeland Security Operational Analysis Center	8,622	46,321	54,751	44,736	8,622	46,321	54,751	44,736
Homeland Security Systems Engineering and Development Institute	104,414	104,689	115,813	136,874	104,414	104,689	115,813	135,713
Judiciary Engineering and Modernization Center	8,030	6,697	7,331	6,765	8,030	6,697	7,331	6,708
National Biodefense Analysis and Countermeasures Center	34,991	37,598	39,003	42,330	34,991	37,598	39,003	42,330

TABLE 8

**Total and federally financed R&D expenditures at federally funded research and development centers, by FFRDC: FYs 2017–20**

(Dollars in thousands)

FFRDC	Total				Federally financed			
	2017	2018	2019	2020	2017	2018	2019	2020
National Cybersecurity Center of Excellence	13,436	19,556	22,205	23,557	13,436	19,556	22,205	23,557
National Defense Research Institute	69,013	57,743	67,647	64,134	69,013	57,743	67,647	64,134
National Renewable Energy Laboratory	357,916	388,500	455,016	511,585	328,197	349,410	405,923	456,336
National Security Engineering Center	1,012,155	1,078,610	1,124,861	1,143,701	1,009,971	1,077,697	1,123,616	1,142,013
Oak Ridge National Laboratory	1,403,204	1,399,445	1,470,372	1,632,684	1,373,042	1,378,398	1,454,122	1,616,580
Pacific Northwest National Laboratory	983,962	956,193	1,012,136	1,071,249	971,060	943,147	993,733	1,053,982
Project Air Force	48,521	48,858	48,325	46,936	48,521	48,858	48,325	46,936
Science and Technology Policy Institute	8,401	8,086	9,080	9,256	8,401	8,086	9,080	9,256
Systems and Analyses Center	163,125	168,034	177,948	171,335	163,125	168,034	177,948	170,949
Industry-administered FFRDCs	7,469,443	7,838,917	8,758,076	9,091,600	7,357,635	7,719,730	8,650,429	8,986,694
Frederick National Laboratory for Cancer Research	704,223	748,500	751,452	745,726	704,223	748,500	751,452	745,726
Idaho National Laboratory	482,840	395,112	478,324	494,094	462,659	376,053	463,588	481,146
Lawrence Livermore National Laboratory	1,290,134	1,386,687	1,517,429	1,558,071	1,259,015	1,353,502	1,480,978	1,526,467
Los Alamos National Laboratory	1,972,769	2,145,232	2,461,275	2,722,375	1,950,268	2,120,857	2,440,514	2,701,388
Sandia National Laboratories	2,878,000	3,009,105	3,373,217	3,395,241	2,839,993	2,967,822	3,340,658	3,358,481
Savannah River National Laboratory	141,477	154,281	176,379	176,093	141,477	152,996	173,239	173,486

FFRDC = federally funded research and development center; NSF = National Science Foundation.

**Source(s):**

National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.



## Technical Notes

---

### Survey Overview

*Purpose.* The Federally Funded Research and Development Center (FFRDC) Research and Development Survey is conducted by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF). It is the primary source of information on separately accounted for R&D expenditures at FFRDCs in the United States.

*Data collection authority.* The information is solicited under the authority of the NSF Act of 1950, as amended, and the American COMPETES Reauthorization Act of 2010. The Office of Management and Budget control number for the FY 2020 FFRDC R&D Survey is 3145-0100, with an expiration date of 31 August 2022.

*Survey contractor.* ICF.

*Survey sponsor.* NCSES.

### Key Survey Information

*Frequency.* Annual.

*Initial survey year.* 2001.

*Reference period.* FY 2020.

*Response unit.* Establishment.

*Sample or census.* Census.

*Population size.* 42.

*Sample size.* The survey is a census of all known eligible FFRDCs.

### Survey Design

*Target population.* All FFRDCs.

*Sampling frame.* The total survey universe is identified through the NSF Master Government List of FFRDCs (<https://www.nsf.gov/statistics/ffrdclist/>). NSF is responsible for maintaining this list and queries all federal agencies annually to determine any changes to, additions to, or deletions from the list.

*Sample design.* The FFRDC R&D Survey is a census of all eligible organizations.

### Data Collection and Processing Methods

*Data collection.* The FY 2020 survey announcements were sent by e-mail to all FFRDCs in December 2020. Respondents could choose to complete a questionnaire downloaded from the Web or use a Web-based data collection system to respond to the survey. Every effort was made to maintain close contact with respondents to preserve the consistency and continuity of the resulting data. Survey data reports were available on the survey website for each institution; these reports showed comparisons between the current year and the 2 prior years of data and noted any substantive disparities.

Questionnaires were carefully examined for completeness upon receipt. Respondents were sent personalized e-mail messages asking them to provide any necessary revisions before the final processing and tabulation of data. These e-mail messages included a link to the FFRDC R&D Survey Web-based collection system, allowing respondents to view and correct their data online.

Respondents were asked to explain significant differences between current year reporting and established patterns of reporting verified for prior years. They were encouraged to correct prior year data, if necessary. When respondents updated or amended figures from past years, NCSSES made corresponding changes to trend data in the 2020 data tables and to the underlying microdata. For accurate historical data, use only the most recently released data tables.

*Mode.* Respondents could respond to the survey by completing an Adobe PDF questionnaire downloaded from the Web or by using a Web-based data collection system. All FFRDCs submitted data using the Web-based survey.

*Response rates.* All 42 FFRDCs included on the NSF Master Government List of FFRDCs during the FY 2020 survey cycle completed the key survey questions.

*Data editing.* The FFRDC R&D Survey was subject to very little editing; respondents were contacted and asked to resolve possible self-reporting issues themselves. Questionnaires were carefully examined by survey staff upon receipt. These reviews focused on unexplained missing data and explanations provided for changes in reporting patterns. If additional explanations or data revisions were needed, respondents were sent personalized e-mail messages asking them to provide any necessary revisions before the final processing and tabulation of data.

*Imputation.* No data were imputed for FY 2020.

*Weighting.* FFRDC R&D Survey data were not weighted.

*Variance estimation.* No variance estimation techniques were used.

## Survey Quality Measures

*Sampling error.* Because the FY 2020 survey was a survey distributed to all organizations in the universe, there was no sampling error.

*Coverage error.* Given the availability of a comprehensive FFRDC list, there is no known coverage error for this survey. FFRDCs are identified through the NSF [Master Government List of FFRDCs](#). NSF is responsible for maintaining the master list and queries all federal agencies annually to determine changes to, additions to, or deletions from the list.

*Nonresponse error.* Most FFRDCs have incorporated the data needed to complete most of the survey questions into their record-keeping systems. Twelve FFRDCs chose not to complete Question 5 of the survey, which asks for expenditures by type of cost. Eleven of those FFRDCs are managed by private companies for whom salary information is considered proprietary. One FFRDC, which is managed by a university, could not separate its expenditures by type from those of the managing institution. Other FFRDCs did not answer all sections of Question 5: four FFRDCs could not provide information on software expenditures, and four could not provide data on equipment expenditures. One FFRDC did not report its operating budget (Question 6). One FFRDC could not provide expenditures funded by nonprofit organizations separately from those funded by businesses (Question 1); the combined amount was reported as business-funded.

*Measurement error.* NCSSES discovered during the FY 2011 survey cycle that seven FFRDCs were including capital project expenditures in the R&D totals reported on the survey. Corrections made for the FY 2011 survey cycle lowered total expenditures by \$468 million. However, previous years still include an unknown amount of capital expenditures in the total. The amount is estimated to be less than \$500 million per year.

Prior to the FY 2011 survey, the five FFRDCs administered by the MITRE Corporation had reported only internally funded R&D expenditures. After discussions with NCSES, these five FFRDCs agreed to report all FY 2011 operating expenditures for R&D and to revise their data for FYs 2008–10.

NCSES discovered during the FY 2013 survey cycle that Los Alamos National Laboratory (LANL) was reporting some expenditures that were not for R&D, as defined by this survey. Corrections made for the FY 2013 survey cycle lowered the laboratory's total expenditures by \$349 million. LANL also incorrectly was reporting that all expenditures were for basic research. In corrections made for FY 2013, LANL reported that \$1,554 million (91%) of its total research expenditures was for applied research. LANL data from previous years still include an unknown amount of expenditures that were not for R&D and categorize all expenditures as basic research.

Prior to FY 2014, the Aerospace FFRDC reported only expenditures on internal R&D projects. After discussions with NCSES, the Aerospace Corporation agreed to report all R&D expenditures for FY 2014 and provide revised data to include all R&D expenditures for FYs 2010–13. R&D expenditures increased by more than \$800 million each year.

During the FY 2014 survey, NCSES discovered that the National Optical Astronomy Observatory had been including data for the National Solar Observatory since FY 2010. The Association of Universities for Research in Astronomy, the administrator of both FFRDCs, provided revised data for both FFRDCs for FYs 2010–13.

During the FY 2016 survey, NCSES discovered that the Judiciary Engineering and Modernization Center was incorrectly classified as an industry-administered FFRDC in FYs 2011–15. This FFRDC is administered by the MITRE Corporation, a nonprofit organization, and should have been classified as a nonprofit-administered FFRDC. The classification was corrected for FY 2016, and the Judiciary Engineering and Modernization Center's FYs 2011–15 data were reclassified as coming from a nonprofit-administered FFRDC.

## Data Comparability (Changes)

Annual data are available for FYs 2001–20. When the review for consistency between each year's data and submissions in prior years reveals discrepancies, it is sometimes necessary to modify prior year data. For accurate historical data, use only the most recently released data tables. Individuals wishing to analyze trends other than those in the most recent NCSES publication are encouraged to contact the Survey Manager for more information about the comparability of data over time.

*Changes in survey coverage and population.* Most years, there are some changes to the FFRDC population that may affect trend analyses. FFRDCs have been created, decertified, renamed, or restructured, as described below:

- On 20 December 2006, the National Biodefense Analysis and Countermeasure Center was created.
- Prior to FY 2009, the Center for Enterprise Modernization was listed as the Internal Revenue Service FFRDC.
- On 5 March 2009, the Homeland Security Studies and Analysis Institute and the Homeland Security Systems Engineering and Development Institute were created. These new FFRDCs replaced the Homeland Security Institute.
- On 1 October 2009, the National Solar Observatory split from the National Optical Astronomy Observatory, with both retaining their FFRDC status.
- On 2 September 2010, the Judiciary Engineering and Modernization Center was created.
- Prior to FY 2011, the National Security Engineering Center was listed as C3I FFRDC.
- On 1 October 2011, the National Astronomy and Ionosphere Center was decertified as an FFRDC.
- Prior to FY 2012, the Frederick National Laboratory for Cancer Research was listed as the National Cancer Institute at Frederick.

- On 27 September 2012, the Centers for Medicare and Medicaid Services FFRDC was created. On 15 August 2013, its name was changed to the CMS Alliance to Modernize Healthcare.
- Prior to FY 2013, the Systems and Analyses Center was listed as the Studies and Analyses Center.
- On 19 September 2014, the National Cybersecurity Center of Excellence was created.
- On 15 September 2016, the Homeland Security Operational Analysis Center was created.
- The Homeland Security Studies and Analysis Institute was phased out on 31 October 2016.
- In June 2020, the National Optical Astronomy Observatory changed its name to NSF's National Optical-Infrared Astronomy Research Laboratory, or NSF's NOIRLab.

*Changes in questionnaire.* FFRDCs are asked to provide R&D expenditures by source of funding and type of R&D. In FY 2010, NCSSES revised the survey to include three new questions requesting expenditures funded by the American Recovery and Reinvestment Act of 2009 (ARRA), expenditures by type of cost, and total operating budget. In FY 2015, NCSSES revised the survey to exclude the question requesting expenditures funded by ARRA. In FY 2016, NCSSES added a question (Question 2) asking for R&D expenditures funded by seven specific federal agencies. In FY 2019, NCSSES added a question (Question 3) asking which federal agencies funded the expenditures reported under Other federal agencies in Question 2.

*Changes in reporting procedures or classification.* The FFRDC R&D Survey has been conducted annually for university-administered FFRDCs since FY 1953 and for all FFRDCs since FY 2001.

## Definitions

- *Expenditures by federal agency.* In Question 2, FFRDCs were asked for the amount of R&D expenditures by federal funding agency. FFRDCs were asked to report expenditures funded by seven specific agencies (Department of Defense; Department of Energy; Department of Health and Human Services, including the National Institutes of Health; Department of Homeland Security; Department of Transportation; National Aeronautics and Space Administration; and National Science Foundation). Any expenditures funded by other federal agencies were reported under Other federal agencies. In Question 3, FFRDCs were asked to list the specific agencies and corresponding expenditures included in Other federal agencies.
- *Expenditures by source.* In Question 1, FFRDCs were asked to report their total R&D expenditures by funding source, as defined below:
  - *U.S. federal government.* Any agency of the U.S. government. Federal funds that were passed through to the reporting institution from another institution were included.
  - *State and local government.* Any state, county, municipality, or other local government entity in the United States, including state health agencies.
  - *Business.* Domestic or foreign for-profit organizations. Funds from a company's nonprofit foundation were not reported here; they were reported under Nonprofit organizations.
  - *Nonprofit organizations.* Domestic or foreign nonprofit foundations and organizations.
  - *All other sources.* Sources not reported in other categories, such as funds from foreign governments.
- *Expenditures by type of cost.* In Question 5, FFRDCs were asked for expenditures by type of cost, as defined below:
  - *Salaries, wages, and fringe benefits.* Included compensation for all R&D personnel, whether full time or part time, temporary or permanent, including salaries, wages, and fringe benefits paid from institution funds and from external support.
  - *Software purchases.* Included payments for all software, both purchases of software packages and license fees for systems.

- *Equipment*. Included payments for movable equipment, including ancillary costs such as delivery and setup.
- *Subcontracts*. Payments to subcontractors or subrecipients for services on R&D projects.
- *Other direct costs*. Other costs that did not fit into one of the above categories, including (but not limited to) travel, computer usage fees, and supplies.
- *Indirect costs*. Included all indirect costs (overhead) associated with R&D projects.
- *Expenditures by type of R&D*. In Question 4, FFRDCs were asked for the amount of federal and nonfederal R&D expenditures by type of R&D, as defined below:
  - *Basic research*. Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.
  - *Applied research*. Original investigation undertaken to acquire new knowledge. It is directed primarily toward a specific, practical aim or objective.
  - *Experimental development*. Systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.
- *Fiscal year*. FFRDCs were asked to report data for their fiscal year (or financial year).
- *R&D*. The FFRDC R&D Survey requested data from FFRDCs on their R&D, defined as systematic study directed toward fuller knowledge or understanding of the subject studied. R&D included basic research, applied research, and experimental development (see *Expenditures by type of R&D* above for additional information). R&D did not include outreach or nonresearch training programs. Respondents were also asked to exclude capital projects (i.e., construction or renovation of research facilities) from reported expenditures.
- *R&D expenditures*. FFRDCs were asked to report all current operating expenditures for activities specifically organized to produce R&D outcomes, including those funded by external sponsors or separately budgeted and accounted for by the organization using internal funds. Expenditures included indirect costs, equipment, software, clinical trials, and subcontract expenditures.
- *Total operating budget*. Total executed operating budget for the FFRDC excluding capital construction costs.

## Acknowledgments and Suggested Citation

---

### Acknowledgments

Michael T. Gibbons of the National Center for Science and Engineering Statistics (NCSES) developed and coordinated this report under the guidance of John Jankowski, NCSES Program Director, and under the leadership of Emilda B. Rivers, NCSES Director; Vipin Arora, NCSES Deputy Director; and Matthew Williams, NCSES Acting Chief Statistician.

Under contract to NCSES, ICF conducted the survey and prepared the tables. ICF staff members who made significant contributions include Kathryn Harper, Project Director; Sherri Mamon, Deputy Project Director; Jennifer Greer, Data Management Lead; Sindhura Geda, Data Management Specialist; Bridget Beavers, Data Management Specialist; Carolyn Bennett, Data Collection Manager; Cameron Shanton, Data Collection Specialist; Melinda Scott, Data Collection Specialist; David Greene, Survey Systems Lead; Vladimer Shioshvili, Software Application Engineer. Publication processing support was provided by Devi Mishra, Catherine Corlies, and Tanya Gore (NCSES).

NCSES thanks the FFRDCs that provided information for this report.

### Suggested Citation

National Center for Science and Engineering Statistics (NCSES). 2020. *FFRDC Research and Development Expenditures: Fiscal Year 2020*. NSF 22-304. Alexandria, VA: National Science Foundation. Available at <https://ncses.nsf.gov/pubs/nsf22304/>.

## Contact Us

---

### Report Author

Michael T. Gibbons  
Survey Manager  
Research and Development Statistics Program, NCSES  
Tel: (703) 292-4590  
E-mail: [mgibbons@nsf.gov](mailto:mgibbons@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](mailto:ncsesweb@nsf.gov)