

FFRDC Research and Development Expenditures: Fiscal Year 2010

Detailed Statistical Tables | NSF 12-319 | June 2012

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General Notes

The data presented in this report were compiled from the National Science Foundation (NSF) FY 2010 FFRDC Research and Development Survey. ICF International currently conducts the survey under contract to NSF.

The reference period of this annual survey is the fiscal year of the surveyed Federally Funded Research and Development Center (FFRDC). The survey collects the separately budgeted R&D expenditures by source of funding and type of cost reported by FFRDCs. The FFRDC survey is administered in conjunction with the Higher Education Research and Development (HERD) Survey, previously the Survey of Research and Development Expenditures at Universities and Colleges (Academic R&D Survey). Prior to FY 2009 the resulting FFRDC data were published in the Academic R&D Expenditures series of detailed statistical tables. The FY 2008 FFRDC data were published both in the Academic R&D Expenditures report and separately in an FY 2008 report, establishing a new detailed statistical tables series solely for FFRDC data. Terms used are defined below.

- *Separately budgeted R&D expenditures.* All funds expended for activities specifically organized to produce research outcomes. These activities are either commissioned by an agency external to the FFRDC or are separately budgeted by the FFRDC.
- *Expenditures.* Funds actually spent by the FFRDC during its fiscal year.
- *Federally Funded Research and Development Centers.* R&D-performing organizations that range in organizational structure from traditional contractor-owned/contractor-operated or government-owned/contractor-operated to structures in which degrees of contractor/government control and ownership vary. FFRDCs are formed to achieve particular federal R&D objectives that cannot be met as effectively by existing organizations.

Data presented in trend tables were compiled from the most recently completed survey cycle. Prior-year data have been reviewed for consistency with current-year responses and, when necessary, revised in consultation with respondents. FFRDCs revise data from previous years when important changes occur in reporting practices and program classifications, and only the latest tables incorporate such changes. For accurate historical data, use only the most recently published detailed statistical tables.

Data Tables

Table

by character of work

- 1 by type of FFRDC, total and federally financed: FY 2009–10
- 2 university-administered: FY 1953–2010
- 3 nonprofit-administered: FY 2001–10
- 4 industry-administered: FY 2001–10

by FFRDC

- 5 total, by source of funds: FY 2010
- 6 total and federally financed: FY 2007–10
- 7 federally financed, by ARRA funding: FY 2010

TABLE 1. Total and federally financed R&D expenditures at federally funded research and development centers, by character of work and type of FFRDC: FY 2009–10

(Dollars in thousands)

Type of FFRDC	2009				2010			
	All R&D expenditures	Basic research	Applied research	Development	All R&D expenditures	Basic research	Applied research	Development
Total R&D, all FFRDCs	15,197,967	5,870,792	4,545,480	4,781,695	16,814,698	6,653,928	5,180,025	4,980,745
University-administered FFRDCs	4,958,944	1,804,117	1,286,651	1,868,176	5,341,437	2,206,218	1,266,483	1,868,736
Nonprofit-administered FFRDCs	3,805,148	1,521,814	1,332,936	950,398	4,190,128	1,567,147	1,653,026	969,955
Industry-administered FFRDCs	6,433,875	2,544,861	1,925,893	1,963,121	7,283,133	2,880,563	2,260,516	2,142,054
Federally financed R&D, all FFRDCs	14,757,539	5,713,503	4,345,761	4,698,275	16,367,226	6,483,469	4,996,830	4,886,927
University-administered FFRDCs	4,811,485	1,704,266	1,255,448	1,851,771	5,188,709	2,104,516	1,242,156	1,842,037
Nonprofit-administered FFRDCs	3,660,509	1,499,457	1,238,105	922,947	4,042,711	1,537,936	1,556,213	948,562
Industry-administered FFRDCs	6,285,545	2,509,780	1,852,208	1,923,557	7,135,806	2,841,017	2,198,461	2,096,328

FFRDC = federally funded research and development center.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 2. R&D expenditures at university-administered federally funded research and development centers, by character of work: FY 1953–2010

(Dollars in millions)

Fiscal year	All R&D expenditures	Basic research		Applied research and development	
		Amount	Percent	Amount	Percent
1953	121	33	27.3	88	72.7
1954	141	39	27.7	102	72.3
1955	180	49	27.2	131	72.8
1956	194	51	26.3	143	73.7
1957	240	65	27.1	175	72.9
1958	293	78	26.6	215	73.4
1959	338	92	27.2	246	72.8
1960	360	97	26.9	263	73.1
1961	410	115	28.0	295	72.0
1962	470	136	28.9	334	71.1
1963	530	159	30.0	371	70.0
1964	629	191	30.4	438	69.6
1965	629	208	33.1	421	66.9
1966	630	227	36.0	403	64.0
1967	673	250	37.1	423	62.9
1968	719	276	38.4	443	61.6
1969	725	275	37.9	450	62.1
1970	737	269	36.5	468	63.5
1971	716	260	36.3	456	63.7
1972	753	244	32.4	509	67.6
1973	817	296	36.2	521	63.8
1974	865	390	45.1	475	54.9
1975	987	439	44.5	548	55.5
1976	1,147	512	44.6	635	55.4
1977	1,384	600	43.4	784	56.6
1978	1,717	na	na	na	na
1979	1,935	1,022	52.8	913	47.2
1980	2,246	1,132	50.4	1,114	49.6
1981	2,486	1,270	51.1	1,216	48.9
1982	2,479	1,327	53.5	1,152	46.5
1983	2,737	1,484	54.2	1,253	45.8
1984	3,150	1,690	53.6	1,461	46.4
1985	3,523	1,765	50.1	1,758	49.9
1986	3,895	1,876	48.2	2,018	51.8
1987	4,206	2,033	48.3	2,173	51.7
1988	4,531	2,245	49.6	2,285	50.4
1989	4,730	2,352	49.7	2,377	50.3
1990	4,832	2,428	50.2	2,404	49.8
1991	5,078	2,595	51.1	2,484	48.9
1992	5,247	2,843	54.2	2,404	45.8
1993	5,295	2,938	55.5	2,357	44.5
1994	5,271	2,998	56.9	2,273	43.1
1995	5,363	2,742	51.1	2,622	48.9
1996	5,380	2,580	48.0	2,800	52.0
1997	5,440	2,683	49.3	2,757	50.7
1998	5,531	2,636	47.7	2,895	52.3
1999	5,644	2,732	48.4	2,912	51.6
2000	5,675	2,863	50.5	2,812	49.5
2001	5,944	2,906	48.9	3,038	51.1
2002	7,069	3,698	52.3	3,371	47.7

TABLE 2. R&D expenditures at university-administered federally funded research and development centers, by character of work: FY 1953–2010

(Dollars in millions)

Fiscal year	All R&D expenditures	Basic research		Applied research and development	
		Amount	Percent	Amount	Percent
2003	7,200	3,760	52.2	3,441	47.8
2004	7,603	3,706	48.7	3,898	51.3
2005	7,826	3,802	48.6	4,024	51.4
2006	7,790	3,873	49.7	3,918	50.3
2007 ^a	5,855	1,756	30.0	4,099	70.0
2008 ^b	4,702	1,628	34.6	3,073	65.4
2009	4,959	1,804	36.4	3,155	63.6
2010	5,341	2,206	41.3	3,135	58.7

na = not applicable; separate data for basic research and applied research and development were not collected for FY 1978.

^a Prior to FY 2007 Los Alamos National Laboratory was administered by University of California. On 1 June 2006 administration was transferred to Los Alamos National Security LLC, an industrial firm administrator.

^b Prior to FY 2008 Lawrence Livermore National Laboratory was administered by University of California. On 1 October 2007 administration was transferred to Lawrence Livermore National Security LLC, an industrial firm administrator.

NOTE: Because of rounding, detail may not add to total.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 3. R&D expenditures at nonprofit-administered federally funded research and development centers, by character of work: FY 2001–10

(Dollars in millions)

Fiscal year	All R&D expenditures	Basic research		Applied research and development	
		Amount	Percent	Amount	Percent
2001	2,165	899	41.5	1,266	58.5
2002	2,271	963	42.4	1,307	57.6
2003	2,463	1,027	41.7	1,437	58.3
2004	2,586	1,037	40.1	1,548	59.9
2005	2,817	1,170	41.5	1,647	58.5
2006	2,860	1,194	41.7	1,666	58.3
2007	3,189	1,324	41.5	1,866	58.5
2008	3,438	1,369	39.8	2,069	60.2
2009	3,805	1,522	40.0	2,283	60.0
2010	4,190	1,567	37.4	2,623	62.6

NOTE: Because of rounding, detail may not add to total.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 4. R&D expenditures at industry-administered federally funded research and development centers, by character of work: FY 2001–10
(Dollars in millions)

Fiscal year	All R&D expenditures	Basic research		Applied research and development	
		Amount	Percent	Amount	Percent
2001	1,962	70	4.0	1,892	96.0
2002	2,197	83	4.0	2,114	96.0
2003	2,463	336	14.0	2,128	86.0
2004	2,443	188	8.0	2,255	92.0
2005	2,612	137	5.0	2,474	95.0
2006	2,569	131	5.0	2,438	95.0
2007 ^a	4,781	2,217	46.0	2,564	54.0
2008 ^b	6,316	2,382	38.0	3,934	62.0
2009	6,434	2,545	40.0	3,889	60.0
2010	7,283	2,881	39.6	4,403	60.4

^a Prior to FY 2007 Los Alamos National Laboratory was administered by University of California. On 1 June 2006 administration was transferred to Los Alamos National Security LLC, an industrial firm administrator.

^b Prior to FY 2008 Lawrence Livermore National Laboratory was administered by University of California. On 1 October 2007 administration was transferred to Lawrence Livermore National Security LLC, an industrial firm administrator.

NOTE: Because of rounding, detail may not add to total.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 5. R&D expenditures at federally funded research and development centers, by source of funds and FFRDC: FY 2010
(Dollars in thousands)

FFRDC	All R&D expenditures	Federal government	State and local government	Business	Nonprofit organizations	All other sources
All FFRDCs	16,814,698	16,367,226	54,014	167,118	43,501	182,839
University-administered FFRDCs	5,341,437	5,188,709	25,623	22,212	8,968	95,925
Ames Lab.	30,836	30,289	0	405	112	30
Argonne National Lab.	650,504	603,841	888	NA	NA	45,775
Fermi National Accelerator Lab.	402,658	402,150	0	243	265	0
Jet Propulsion Lab.	1,640,341	1,640,341	0	0	0	0
Lawrence Berkeley National Lab.	759,381	703,564	5,881	13,549	785	35,602
Lincoln Lab.	789,502	785,774	0	569	0	3,159
National Astronomy and Ionosphere Ctr.	13,203	13,084	0	0	0	119
National Ctr. for Atmospheric Research	220,328	188,960	17,126	6,415	7,806	21
National Optical Astronomy Observatories	64,983	60,758	0	0	0	4,225
National Radio Astronomy Observatory	137,607	136,748	0	0	0	859
Princeton Plasma Physics Lab.	83,932	83,521	0	0	0	411
SLAC National Accelerator Lab.	354,393	350,377	0	0	0	4,016
Software Engineering Institute	99,334	96,595	0	1,031	0	1,708
Thomas Jefferson National Accelerator Facility	94,435	92,707	1,728	0	0	0
Nonprofit-administered FFRDCs	4,190,128	4,042,711	24,428	62,886	31,561	28,542
Aerospace FFRDC	44,149	12,962	0	2,848	19,836	8,503
Arroyo Ctr.	28,647	28,647	0	0	0	0
Brookhaven National Lab.	535,546	515,142	1,866	6,342	0	12,196
C3I FFRDC	43,650	43,650	0	0	0	0
Ctr. for Advanced Aviation System Development	7,617	7,617	0	0	0	0
Ctr. for Communications and Computing	71,927	71,927	0	0	0	0
Ctr. for Enterprise Modernization ^a	10,126	10,126	0	0	0	0
Ctr. for Naval Analyses	109,068	93,310	14,379	0	1,213	166
Ctr. for Nuclear Waste Regulatory Analyses	15,346	14,860	20	374	92	0
Homeland Security Studies and Analysis Institute ^b	33,402	33,402	0	0	0	0
Homeland Security Systems Engineering and Development Institute ^b	1,271	1,271	0	0	0	0
National Biodefense Analysis and Countermeasures Ctr.	50,058	50,058	0	0	0	0
National Defense Research Institute	51,652	51,652	0	0	0	0
National Renewable Energy Lab.	326,652	315,568	198	10,883	0	3
Oak Ridge National Lab.	1,538,412	1,494,690	1,355	28,448	10,420	3,499
Pacific Northwest National Lab.	1,116,648	1,091,872	6,610	13,991	0	4,175
Project Air Force	43,957	43,957	0	0	0	0
Science and Technology Policy Institute	6,000	6,000	0	0	0	0
Studies and Analyses Ctr.	156,000	156,000	0	0	0	0
Industry-administered FFRDCs	7,283,133	7,135,806	3,963	82,020	2,972	58,372
Idaho National Lab.	478,356	463,843	932	10,405	302	2,874
Lawrence Livermore National Lab.	1,370,747	1,323,623	2,603	7,634	849	36,038
Los Alamos National Lab.	2,505,913	2,470,421	0	35,492	0	0
National Cancer Institute at Frederick	643,935	643,935	0	0	0	0
Sandia National Labs.	2,157,022	2,106,824	428	28,489	1,821	19,460
Savannah River National Lab.	127,160	127,160	0	0	0	0

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

FFRDC = federally funded research and development center.

^a In prior-year tables Center for Enterprise Modernization was listed as Internal Revenue Service (IRS) FFRDC.

^b On 5 March 2009 Homeland Security Studies and Analysis Institute and Homeland Security Systems Engineering and Development Institute were created. These new FFRDCs replaced Homeland Security Institute.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2010.

TABLE 6. Total and federally financed R&D expenditures at federally funded research and development centers, by FFRDC: FY 2007–10
(Dollars in thousands)

FFRDC	Total				Federally financed			
	2007	2008	2009	2010	2007	2008	2009	2010
All FFRDCs	13,824,987	14,456,299	15,197,967	16,814,698	13,401,081	14,025,449	14,757,539	16,367,226
University-administered FFRDCs	5,855,193	4,701,645	4,958,944	5,341,437	5,654,952	4,550,332	4,811,485	5,188,709
Ames Lab.	25,254	27,306	29,012	30,836	25,254	27,306	29,012	30,289
Argonne National Lab.	489,684	533,530	543,169	650,504	445,096	487,641	498,847	603,841
Fermi National Accelerator Lab.	337,306	340,486	376,791	402,658	336,927	336,123	374,668	402,150
Jet Propulsion Lab.	1,717,203	1,733,597	1,711,528	1,640,341	1,717,203	1,733,597	1,711,528	1,640,341
Lawrence Berkeley National Lab.	503,775	573,917	611,711	759,381	443,273	519,756	555,842	703,564
Lawrence Livermore National Lab. ^a	1,353,980	na	na	na	1,298,044	na	na	na
Lincoln Lab.	618,011	641,386	706,555	789,502	613,858	637,879	704,050	785,774
National Astronomy and Ionosphere Ctr.	13,591	12,586	14,738	13,203	13,375	12,418	14,032	13,084
National Ctr. for Atmospheric Research	144,293	161,130	203,627	220,328	132,375	139,667	177,877	188,960
National Optical Astronomy Observatories	53,608	55,922	56,972	64,983	46,624	50,165	52,089	60,758
National Radio Astronomy Observatory	129,000	146,098	151,396	137,607	128,158	145,953	149,960	136,748
Princeton Plasma Physics Lab.	75,720	78,154	81,113	83,932	75,488	78,039	80,985	83,521
SLAC National Accelerator Lab.	231,960	234,316	294,421	354,393	231,960	234,316	294,421	350,377
Software Engineering Institute	80,566	80,963	89,077	99,334	67,657	66,721	80,618	96,595
Thomas Jefferson National Accelerator Facility	81,242	82,254	88,834	94,435	79,660	80,751	87,556	92,707
Nonprofit-administered FFRDCs	3,189,208	3,438,319	3,805,148	4,190,128	3,052,730	3,299,297	3,660,509	4,042,711
Aerospace FFRDC	36,490	38,940	41,470	44,149	16,930	16,349	14,386	12,962
Arroyo Ctr.	25,195	23,852	27,692	28,647	25,195	23,852	27,692	28,647
Brookhaven National Lab.	510,212	480,455	569,240	535,546	491,138	459,348	545,267	515,142
C3I FFRDC	46,368	52,053	46,790	43,650	46,368	52,053	46,790	43,650
Ctr. for Advanced Aviation System Development	7,290	7,470	10,575	7,617	7,290	7,470	10,575	7,617
Ctr. for Communications and Computing	57,400	59,500	66,293	71,927	57,400	59,500	66,293	71,927
Ctr. for Enterprise Modernization ^b	7,101	9,679	7,458	10,126	7,101	9,679	7,458	10,126
Ctr. for Naval Analyses	99,993	106,967	109,694	109,068	89,721	94,552	95,128	93,310
Ctr. for Nuclear Waste Regulatory Analyses	17,007	17,960	16,614	15,346	16,519	17,169	15,715	14,860
Homeland Security Institute ^c	25,370	27,400	na	na	25,370	27,400	na	na
Homeland Security Studies and Analysis Institute ^c	na	na	32,173	33,402	na	na	32,173	33,402
Homeland Security Systems Engineering and Development Institute ^c	na	na	1,559	1,271	na	na	1,559	1,271
National Biodefense Analysis and Countermeasures Ctr.	6,320	12,979	19,934	50,058	6,320	12,979	19,934	50,058
National Defense Research Institute	38,152	40,051	42,265	51,652	38,152	40,051	42,265	51,652
National Renewable Energy Lab.	190,874	229,399	273,640	326,652	183,812	219,296	264,828	315,568
Oak Ridge National Lab.	1,083,509	1,251,336	1,259,259	1,538,412	1,031,919	1,205,784	1,217,301	1,494,690
Pacific Northwest National Lab.	851,512	885,984	1,064,230	1,116,648	823,080	859,521	1,036,883	1,091,872
Project Air Force	39,315	41,794	45,162	43,957	39,315	41,794	45,162	43,957
Science and Technology Policy Institute	5,600	6,000	5,100	6,000	5,600	6,000	5,100	6,000
Studies and Analyses Ctr.	141,500	146,500	166,000	156,000	141,500	146,500	166,000	156,000
Industry-administered FFRDCs	4,780,586	6,316,335	6,433,875	7,283,133	4,693,399	6,175,820	6,285,545	7,135,806
Idaho National Lab.	248,322	236,037	388,062	478,356	235,506	224,273	372,502	463,843
Lawrence Livermore National Lab. ^a	na	1,301,874	1,321,633	1,370,747	na	1,248,594	1,261,769	1,323,623
Los Alamos National Lab.	2,046,260	2,073,538	2,172,179	2,505,913	2,029,056	2,051,550	2,141,950	2,470,421

TABLE 6. Total and federally financed R&D expenditures at federally funded research and development centers, by FFRDC: FY 2007–10
(Dollars in thousands)

FFRDC	Total				Federally financed			
	2007	2008	2009	2010	2007	2008	2009	2010
National Cancer Institute at Frederick	339,800	509,700	378,200	643,935	339,800	509,700	378,200	643,935
Sandia National Labs.	2,031,309	2,076,786	2,043,509	2,157,022	1,974,142	2,023,303	2,000,832	2,106,824
Savannah River National Lab.	114,895	118,400	130,292	127,160	114,895	118,400	130,292	127,160

na = not applicable.

FFRDC = federally funded research and development center.

^a Prior to FY 2008 Lawrence Livermore National Laboratory was administered by University of California. On 1 October 2007 administration was transferred to Lawrence Livermore National Security LLC, an industrial firm administrator.

^b In prior-year tables Center for Enterprise Modernization was listed as Internal Revenue Service (IRS) FFRDC.

^c On 5 March 2009 Homeland Security Studies and Analysis Institute and Homeland Security Systems Engineering and Development Institute were created. These new FFRDCs replaced Homeland Security Institute.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

TABLE 7. Federally financed R&D expenditures at federally funded research and development centers funded by the American Recovery and Reinvestment Act of 2009, by source of funds and FFRDC: FY 2010
(Dollars in thousands)

FFRDC	All federal R&D expenditures	ARRA	Non-ARRA
All FFRDCs	16,367,226	1,072,079	14,509,373
University-administered FFRDCs	5,188,709	377,139	4,025,796
Ames Lab.	30,289	30	30,259
Argonne National Lab.	603,841	77,017	526,824
Fermi National Accelerator Lab.	402,150	19,474	382,676
Jet Propulsion Lab.	1,640,341	101,205	1,539,136
Lawrence Berkeley National Lab.	703,564	80,399	623,165
Lincoln Lab.	785,774	NA	NA
National Astronomy and Ionosphere Ctr.	13,084	0	13,084
National Ctr. for Atmospheric Research	188,960	464	188,496
National Optical Astronomy Observatories	60,758	9,125	51,633
National Radio Astronomy Observatory	136,748	2,539	134,209
Princeton Plasma Physics Lab.	83,521	6,132	77,389
SLAC National Accelerator Lab.	350,377	32,796	317,581
Software Engineering Institute	96,595	12	96,583
Thomas Jefferson National Accelerator Facility	92,707	47,946	44,761
Nonprofit-administered FFRDCs	4,042,711	333,821	3,708,890
Aerospace FFRDC	12,962	0	12,962
Arroyo Ctr.	28,647	0	28,647
Brookhaven National Lab.	515,142	49,712	465,430
C3I FFRDC	43,650	0	43,650
Ctr. for Advanced Aviation System Development	7,617	0	7,617
Ctr. for Communications and Computing	71,927	0	71,927
Ctr. for Enterprise Modernization ^a	10,126	0	10,126
Ctr. for Naval Analyses	93,310	0	93,310
Ctr. for Nuclear Waste Regulatory Analyses	14,860	0	14,860
Homeland Security Studies and Analysis Institute ^b	33,402	0	33,402
Homeland Security Systems Engineering and Development Institute ^b	1,271	0	1,271
National Biodefense Analysis and Countermeasures Ctr.	50,058	0	50,058
National Defense Research Institute	51,652	0	51,652
National Renewable Energy Lab.	315,568	36,383	279,185
Oak Ridge National Lab.	1,494,690	134,856	1,359,834
Pacific Northwest National Lab.	1,091,872	112,870	979,002
Project Air Force	43,957	0	43,957
Science and Technology Policy Institute	6,000	0	6,000
Studies and Analyses Ctr.	156,000	0	156,000
Industry-administered FFRDCs	7,135,806	361,119	6,774,687
Idaho National Lab.	463,843	3,536	460,307
Lawrence Livermore National Lab.	1,323,623	3,624	1,319,999
Los Alamos National Lab.	2,470,421	139,376	2,331,045
National Cancer Institute at Frederick	643,935	183,335	460,600
Sandia National Labs.	2,106,824	14,073	2,092,751
Savannah River National Lab.	127,160	17,175	109,985

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

ARRA = American Recovery and Reinvestment Act of 2009; FFRDC = federally funded research and development center.

^a In prior-year tables Center for Enterprise Modernization was listed as Internal Revenue Service (IRS) FFRDC.

^b On 5 March 2009 Homeland Security Studies and Analysis Institute and Homeland Security Systems Engineering and Development Institute were created. These new FFRDCs replaced Homeland Security Institute.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2010.

Appendix A. Technical Notes

The National Science Foundation (NSF) FFRDC Research and Development Survey (FFRDC R&D Survey), previously known as the Survey of Research and Development Expenditures at FFRDCs, is the primary source of information on separately budgeted R&D expenditures within Federally Funded Research and Development Centers (FFRDCs) in the United States. Conducted annually for all FFRDCs since FY 2001, the survey collects information on R&D expenditures.

Scope of the Survey

The FY 2010 FFRDC R&D Survey was sent to each of the nation's 39 FFRDCs. Of the 39 FFRDCs, 14 are administered by academic institutions, 19 are administered by nonprofit organizations, and 6 are administered by industrial organizations.

FFRDCs are engaged in basic research, applied research, development, or management of R&D activities, either upon direct request of the government or under a broad charter from the government, but in either case under the broad monitorship of the government. FFRDCs are operated, managed, and administered as separate organizational units within a parent organization or as separately incorporated organizations. They receive their major financial support (70% or more) from the federal government, usually from one agency, and are expected to have a long-term relationship with their sponsoring agency.

FFRDCs are asked to provide R&D expenditures by source of funding and character of work. In FY 2010 NSF revised the survey to include three new questions requesting expenditures funded by the American Recovery and Reinvestment Act of 2009, expenditures by type of cost, and total operating budget.

FY 2010 Survey Frame Design

The FFRDC R&D Expenditures Survey has been an annual census of the full population of eligible FFRDCs since FY 2001. Prior to FY 2001 only FFRDCs administered by academic institutions were included in 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, additions, or deletions to the list.

Survey Instrument

Prior to the administration of the FY 2010 survey, the survey instrument was revised and updated in conjunction with an effort to redesign the Higher Education Research and Development (HERD) Survey. In addition to changes in the format and general appearance of the survey, new questions were added and old questions were revised.

Question 1 is a request for total current expenditures for separately budgeted R&D expenditures by source of funds. This question is similar to Item 1 of the FY 2009 survey, but a category for nonprofit organizations was added and the category for institution funds was removed.

Question 2 is a request for expenditures funded by the American Recovery and Reinvestment Act of 2009 (ARRA). This question is new to the FY 2010 questionnaire.

Question 3 is a request for federally financed and nonfederally financed expenditures that are considered basic research, applied research, and/or development. This question is a revised version of Item 2 from the FY 2009 survey.

Question 4 is a request for total current expenditures by type of cost. Cost categories include salaries, software, equipment, other direct costs, and indirect costs. This question is new to the FY 2010 survey.

Question 5 is a request for the total operating budget of the FFRDC, excluding capital construction cost. This question is new to the FY 2010 questionnaire.

Data Collection

Most FFRDCs have incorporated the data that are needed to complete questions 1 and 3 into their record-keeping systems, thereby ensuring a consistent format from one year to the next. Such consistency yields the most useful statistics for time series. As a rule, the information needed to complete the questions new to the survey can be found in the FFRDC's year-end accounting records.

The FY 2010 survey questionnaires were sent by e-mail in January 2011. Respondents could choose to submit an Adobe Portable Document Format (PDF) 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 both the consistency and continuity of the resulting data. Questionnaires were carefully examined for completeness upon receipt. Computerized facsimiles of the survey data were then prepared for each FFRDC; these compared the current and 2 prior years of data and noted any substantive disparities. 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 data collection system, allowing respondents to view and correct their data online. The Web-based collection was also redesigned for the FY 2010 collection and closely resembled the PDF questionnaire.

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 needed. When respondents updated or amended figures from past years, NSF made corresponding changes to trend data in this report and to the underlying microdata database.

Response Rate

Forms were received from all of the 39 FFRDCs on the current NSF Master Government List of FFRDCs by May of 2011.

Data Availability

Data for FY 2008 through FY 2010 of the FFRDC R&D Survey are available at <http://www.nsf.gov/statistics/ffrdc/>. Data from FY 2008 and prior years of the FFRDC R&D Survey are included in the Academic R&D Expenditures series of detailed statistical tables, available by fiscal year at <http://www.nsf.gov/statistics/rdexpenditures/>. Information from the survey is also included in the series *Science and Engineering Indicators* and *National Patterns of R&D Resources*, both available at <http://www.nsf.gov/statistics/>.

For more information about FFRDCs see NSF's Federally Funded R&D Centers Master Government List. Data on federal obligations to FFRDCs are available in NSF's Survey of Federal Funds for Research and Development. NSF's Survey of Graduate Students and Postdoctorates in Science and Engineering collects information about postdoctorates working in FFRDCs.

Appendix B. Federally Funded Research and Development Centers (FFRDCs): FY 2010

Department of Defense

Administered by universities and colleges

- Lincoln Laboratory
(Massachusetts Institute of Technology)
- Software Engineering Institute
(Carnegie Mellon University)

Administered by other nonprofit organizations

- Aerospace FFRDC
(The Aerospace Corporation)
- Arroyo Center
(RAND Corporation)
- C3I FFRDC
(MITRE Corporation)
- Center for Communications and Computing
(Institute for Defense Analyses)
- Center for Naval Analyses
(The CNA Corporation)
- National Defense Research Institute
(RAND Corporation)
- Project Air Force
(RAND Corporation)
- Studies and Analyses Center
(Institute for Defense Analyses)

Department of Energy

Administered by universities and colleges

- Ames Laboratory
(Iowa State University of Science and Technology)
- Argonne National Laboratory
(University of Chicago)
- Fermi National Accelerator Laboratory
(Fermi Research Alliance, LLC)
- Lawrence Berkeley National Laboratory
(University of California)
- Princeton Plasma Physics Laboratory
(Princeton University)
- SLAC National Accelerator Laboratory
(Leland Stanford, Jr., University)
- Thomas Jefferson National Accelerator Facility
(Jefferson Science Associates, LLC)

Administered by industrial firms

- Idaho National Laboratory
(Battelle Energy Alliance, LLC)

- Lawrence Livermore National Laboratory[1]
(Lawrence Livermore National Security, LLC)
- Los Alamos National Laboratory[2]
(Los Alamos National Security, LLC)
- Sandia National Laboratories
(Sandia Corporation, a subsidiary of Lockheed Martin Corporation)
- Savannah River National Laboratory
(Savannah River Nuclear Solutions, LLC)

Administered by other nonprofit organizations

- Brookhaven National Laboratory
(Brookhaven Science Associates, Inc.)
- National Renewable Energy Laboratory
(Alliance for Sustainable Energy, LLC)
- Oak Ridge National Laboratory
(UT-Battelle, LLC)
- Pacific Northwest National Laboratory
(Battelle Memorial Institute)

Department of Health and Human Services

Administered by industrial firms

- National Cancer Institute at Frederick
(Science Applications International Corporation–Frederick, Inc.)

Department of Homeland Security

Administered by nonprofit institutions

- Homeland Security Studies and Analysis Institute[3]
(Analytic Services, Inc.)
- Homeland Security Systems Engineering and Development Institute[3]
(MITRE Corporation)
- National Biodefense Analysis and Countermeasures Center
(Battelle National Biodefense Institute)

Department of Transportation

Administered by nonprofit institutions

- Center for Advanced Aviation System Development
(MITRE Corporation)

Department of the Treasury and Department of Veterans Affairs

Administered by nonprofit institutions

- Center for Enterprise Modernization[4]
(MITRE Corporation)

National Aeronautics and Space Administration

Administered by universities and colleges

- Jet Propulsion Laboratory
(California Institute of Technology)

National Science Foundation

Administered by universities and colleges

- National Astronomy and Ionosphere Center
(Cornell University)
- National Center for Atmospheric Research
(University Corporation for Atmospheric Research)
- National Optical Astronomy Observatory
(Association of Universities for Research in Astronomy, Inc.)
- National Radio Astronomy Observatory
(Associated Universities, Inc.)

Administered by other nonprofit institutions

- Science and Technology Policy Institute
(Institute for Defense Analyses)

Nuclear Regulatory Commission

Administered by nonprofit institutions

- Center for Nuclear Waste Regulatory Analyses
(Southwest Research Institute)

[1] On 1 October 2007 Lawrence Livermore National Laboratory acquired a new industrial firm administrator (Lawrence Livermore National Security, LLC). The previous administrator was the University of California.

[2] On 1 June 2006 Los Alamos National Laboratory acquired a new industrial firm administrator (Los Alamos National Security, LLC). The previous administrator was the University of California.

[3] On 5 March 2009 the Homeland Security Studies and Analysis Institute and the Homeland Security Systems Engineering and Development Institute were created. Together these new FFRDC's replaced the Homeland Security Institute.

[4] In August 2001 the Internal Revenue Service (IRS) Federally Funded Research and Development Center was renamed the Center for Enterprise Modernization. On 1 October 2008 the Department of Veterans Affairs was designated a co-sponsor of the Center for Enterprise Modernization.

Appendix C. Survey Instrument



FORM APPROVED
OMB No. 3145-0100
Expiration Date: 10/31/13

NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230
FFRDC RESEARCH AND DEVELOPMENT SURVEY
FY 2010

Please submit your survey data by March 11, 2011.

This survey collects data on research and development (R&D) expenditures at Federally Funded R&D Centers (FFRDCs). Please report R&D activities and expenditures for your organization's **2010** fiscal year.

The survey was previously known as the Survey of Research and Development Expenditures at FFRDCs. The instructions and definitions have been updated and three new questions have been added.

Your participation in this survey provides important information on the national level of R&D activity. NSF is authorized to collect this information under the National Science Foundation Act of 1950, as amended. Your organization's response is entirely voluntary.

Questions?

Ronda Britt
Division of Science Resources Statistics
National Science Foundation
rbritt@nsf.gov
(703) 292-7765

Response to this survey is estimated to require 6 hours. Please report your actual completion time at the end of the questionnaire. If you wish to comment on the time required to complete this survey, please contact Suzanne H. Plimpton of NSF at (703) 292-7556, or e-mail splimpto@nsf.gov.

The web address for submitting your data:

<http://www.ffrdcsurvey.org>

Or mail this form to:

ICF International
7315 Wisconsin Avenue, Suite 400W
Bethesda, MD 20814-3202

Thank you for your participation.

What's New

Changes to definition of R&D

Clinical trials and research training grants are now explicitly included in the definition of R&D.

Changes to Question 1

A separate category has been created for nonprofit organizations.

The "Institution funds" category has been deleted.

The "Industry" category has been renamed "Business".

New questions

Question 2. R&D funded by the American Recovery and Reinvestment Act (ARRA)

Question 4. Cost elements of R&D

Question 5. Total operating budget

Survey Definitions and Instructions

Fiscal year (FY)

Please report data for your organization's 2010 fiscal year.

Research and development (R&D) expenditures

Please include all current operating expenditures for activities specifically organized to produce R&D outcomes. This includes basic research, applied research, and development funded by external sponsors or separately budgeted and accounted for by your organization using internal funds.

Research is systematic study directed toward fuller knowledge or understanding of the subject studied.

Basic research is undertaken primarily to acquire new knowledge without any particular application or use in mind.

Applied research is conducted to gain the knowledge or understanding to meet a specific, recognized need.

Development is the systematic use of the knowledge or understanding gained from research and practical experience directed toward the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes.

R&D <i>includes</i> :	R&D does <i>not</i> include:
<ul style="list-style-type: none">• Sponsored research (including federal and nonfederal sponsors)• Indirect costs associated with R&D projects• R&D equipment and software• R&D subcontract expenditures• Clinical trials• Research training grants	<ul style="list-style-type: none">• Outreach or training programs• R&D conducted by staff at outside institutions that is not accounted for in your financial records• Capital projects (i.e., construction or renovation of research facilities)

Question 1. How much of your total expenditures for separately budgeted research and development (R&D) came from the following sources in FY 2010? (See definition of R&D on the previous page.)

Report the **original source** of funds, when possible. For example, if you received **federal** funds from another organization, report that amount under "U.S. federal government."

Source of funds	R&D expenditures (Dollars in thousands) (for example, report \$25,342 as \$25)
<p>a. U.S. federal government Any agency of the United States government. Include federal funds passed through from another organization.</p>	\$ <input style="width: 100px;" type="text"/>
<p>b. State and local government Any state, county, municipality, or other local government entity in the United States, including state health agencies.</p>	\$ <input style="width: 100px;" type="text"/>
<p>c. Business Domestic or foreign for-profit organizations. (Report funds from a company's nonprofit foundation in row d.)</p>	\$ <input style="width: 100px;" type="text"/>
<p>d. Nonprofit organizations Domestic or foreign nonprofit foundations and organizations.</p>	\$ <input style="width: 100px;" type="text"/>
<p>e. All other sources Other sources not reported above, such as funds from foreign governments.</p>	\$ <input style="width: 100px;" type="text"/>
<p>f. Total¹</p>	\$ <u>TOTAL</u>

¹ Column totals are automatically generated on the web survey.

Question 2. How much of the federal R&D expenditures reported in Question 1, row a, was funded by the American Recovery and Reinvestment Act (ARRA)?

Total R&D expenditures from ARRA funds	R&D expenditures (Dollars in thousands)
	\$ <input style="width: 100px;" type="text"/>

Question 3. What amounts of your FY 2010 R&D expenditures were for basic research, applied research, and development?

If possible, these categories defining the character of work should be coded at the individual project level by the principal investigator or project director. Estimates are acceptable if necessary.

See the box below this question for examples.

	R&D expenditures (Dollars in thousands)		
	(1) Federal	(2) Nonfederal	(3) Total¹
a. Basic research Research undertaken primarily to acquire new knowledge without any particular application or use in mind.	\$ _____	\$ _____	\$ <u>TOTAL</u>
b. Applied research Research conducted to gain the knowledge or understanding to meet a specific, recognized need.	\$ _____	\$ _____	\$ <u>TOTAL</u>
c. Development The systematic use of the knowledge or understanding gained from research and practical experience directed toward the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes.	\$ _____	\$ _____	\$ <u>TOTAL</u>
d. Total¹ Column 1 total should match Question 1, row a. Column 3 total should match Question 1, row f.	\$ <u>TOTAL</u>	\$ <u>TOTAL</u>	\$ <u>TOTAL</u>

¹ Row and column totals are automatically generated on the web survey.

Examples		
Basic research	Applied research	Development
A researcher is studying the properties of human blood to determine what affects coagulation.	A researcher is conducting research on how a new chicken pox vaccine affects blood coagulation.	A researcher is conducting clinical trials to test a newly developed chicken pox vaccine for young children.
A researcher is studying the properties of molecules under various heat and cold conditions.	A researcher is investigating the properties of particular substances under various heat and cold conditions with the objective of finding longer-lasting components for highway pavement.	A researcher is working with state transportation officials to conduct tests of a newly developed highway pavement under various types of heat and cold conditions.
A researcher is studying the heart chambers of various fish species.	A researcher is examining various levels of a toxic substance to determine the maximum safe level for fish in a stream.	A researcher has a contract with the U.S. government to design a new stream monitoring system that will incorporate the latest research findings on toxicity levels for fish.

Question 4. Of the total R&D expenditures reported in Question 1, what were the amounts for the following types of costs?

Please report only **direct costs** in rows a–e. **Indirect costs** should be reported in row f.

DIRECT COSTS FROM ALL SOURCES	R&D expenditures (Dollars in thousands)
a. Salaries, wages, and fringe benefits Include compensation for all R&D personnel whether full-time or part-time, temporary or permanent. Include salaries, wages, and fringe benefits paid from internal funds and from external support.	\$ _____
b. Software purchases All payments for software. Include both purchases of software packages and license fees for systems.	\$ _____
c. Equipment Payments for movable equipment. Include ancillary costs such as delivery and set-up.	\$ _____
d. Subcontracts Payments to subcontractors or subrecipients for services on R&D projects.	\$ _____
e. Other direct costs Other costs that do not fit into one of the above categories, including (but not limited to) travel, computer usage fees, and supplies.	\$ _____
INDIRECT COSTS	
f. Indirect costs Include all indirect costs (overhead) associated with R&D projects.	\$ _____
g. Total¹ (should match total from Question 1, row f)	\$ <u>TOTAL</u>

¹ Column totals are automatically generated on the web survey.

Question 5. What was the total operating budget of your FFRDC in FY 2010, excluding capital construction costs?

	(Dollars in thousands)
Total operating budget	\$ _____

Question 6.

A. Contact information: Please complete the contact information for the person responsible for the survey and an alternate contact.

	Primary contact	Alternate contact
Name	<input type="text"/>	<input type="text"/>
Title	<input type="text"/>	<input type="text"/>
Organization name	<input type="text"/>	<input type="text"/>
Street address (line 1)	<input type="text"/>	<input type="text"/>
Street address (line 2)	<input type="text"/>	<input type="text"/>
City, state, and zip code	<input type="text"/>	<input type="text"/>
Phone number	<input type="text"/>	<input type="text"/>
Fax number	<input type="text"/>	<input type="text"/>
Email address	<input type="text"/>	<input type="text"/>

B. Fiscal year: In what month did your organization's 2010 fiscal year end?

C. Survey completion time: Considering all offices involved, approximately how long did it take to complete this survey?

hours

D. Additional comments:

Suggested Citation, Acknowledgments

National Science Foundation, National Center for Science and Engineering Statistics (NCSES). 2012. *FFRDC Research and Development Expenditures: Fiscal Year 2010*. Detailed Statistical Tables NSF 12-319. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf12319/>.

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