

Appendix table 4-3

U.S. basic research expenditures, by performing sector and source of funds: 1953–2011

Year	Current \$millions																		
	All performers		Industry ^a		Industry FFRDCs ^b		U&C ^c					U&C FFRDCs		Other nonprofit			Nonprofit FFRDCs ^d		
	Funding source:	All sources	Federal	Total	Federal ^b	Industry ^e	Total	Total	Federal	Other government ^f	Industry	U&C	Other nonprofit	Total	Total	Federal ^d	Industry	Other nonprofit	Total
1953		460	102	151	19	132	NA	123	82	7	13	6	16	36	48	27	9	12	NA
1954		509	96	166	23	143	NA	148	97	10	15	8	18	44	55	31	11	13	NA
1955		579	98	189	27	162	NA	180	117	14	17	12	21	50	63	36	13	14	NA
1956		718	114	253	37	216	NA	220	143	19	20	15	24	58	74	42	15	17	NA
1957		814	124	271	41	230	NA	261	167	25	23	20	27	72	87	49	15	23	NA
1958		944	149	295	43	252	NA	312	202	31	24	24	31	85	103	59	16	28	NA
1959		1,087	165	320	72	248	NA	388	263	38	24	28	36	95	120	72	18	30	NA
1960		1,286	184	376	79	297	NA	485	341	45	25	33	41	106	136	85	21	30	NA
1961		1,512	230	395	81	314	NA	598	432	54	25	40	48	126	164	105	22	37	NA
1962		1,824	252	488	143	345	NA	737	546	64	25	48	55	148	200	130	24	46	NA
1963		2,115	285	522	147	375	NA	909	689	75	25	58	63	175	225	150	25	50	NA
1964		2,396	339	507	123	384	42	1,071	824	84	25	70	68	200	238	166	25	47	NA
1965		2,664	375	563	157	406	29	1,221	944	94	27	86	70	218	260	179	29	52	NA
1966		2,930	410	593	142	451	31	1,380	1,066	104	29	106	75	239	278	188	32	58	NA
1967		3,168	434	595	168	427	34	1,554	1,188	114	34	136	83	263	289	194	34	61	NA
1968		3,376	482	607	145	462	35	1,681	1,265	131	38	156	91	276	296	196	37	63	NA
1969		3,491	545	581	123	458	37	1,754	1,288	153	40	171	103	272	302	192	43	67	NA
1970		3,594	562	566	122	444	36	1,855	1,323	179	43	196	115	265	311	195	44	72	NA
1971		3,720	581	557	101	456	33	1,968	1,385	194	50	214	127	252	329	207	45	77	NA
1972		3,850	603	554	91	463	39	2,038	1,437	195	55	216	134	270	347	216	47	84	NA
1973		4,099	652	595	96	499	36	2,103	1,489	196	59	223	137	343	371	232	49	90	NA
1974		4,511	715	650	114	536	49	2,282	1,609	204	66	250	153	415	401	245	54	102	NA
1975		4,875	760	677	104	573	53	2,480	1,768	212	72	264	164	476	430	255	59	116	NA
1976		5,373	850	750	116	634	69	2,675	1,924	218	75	283	175	556	474	278	65	131	NA
1977		6,008	943	836	135	701	75	2,967	2,114	232	89	334	198	667	521	301	72	148	NA
1978		6,959	1,044	941	156	785	94	3,376	2,399	260	107	398	213	906	598	351	79	168	NA
1979		7,836	1,112	1,054	161	893	104	3,828	2,719	286	128	466	229	1,050	689	413	87	190	NA
1980		8,745	1,212	1,205	170	1,035	120	4,315	3,061	307	156	544	248	1,167	726	416	95	215	NA
1981		9,658	1,343	1,477	164	1,313	137	4,737	3,331	338	183	615	269	1,284	671	324	105	243	9
1982		10,651	1,522	1,776	253	1,523	128	5,091	3,475	368	215	716	317	1,366	759	369	115	275	9
1983		11,880	1,733	2,106	346	1,760	117	5,518	3,689	396	260	816	358	1,536	863	426	127	311	8
1984		13,332	1,877	2,472	340	2,132	136	6,145	4,087	436	313	915	395	1,709	984	494	139	351	9
1985		14,748	1,947	2,731	358	2,373	131	7,024	4,606	514	389	1,075	440	1,793	1,110	560	153	397	13
1986		17,154	2,026	3,930	434	3,496	117	7,943	5,122	606	466	1,262	488	1,915	1,210	594	168	449	13

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U.S. basic research expenditures, by performing sector and source of funds: 1953–2011

Year	All performers		Industry ^a				U&C ^c				U&C FFRDCs				Other nonprofit			Nonprofit FFRDCs ^d	
	Funding source:	All sources	Federal	Total		Total	Total			Other government ^f	Industry	U&C	Other nonprofit	Total		Federal ^d		Other nonprofit	Total
				Federal	Industry ^b		Federal	Industry ^b	Federal					Industry	U&C	Federal ^d	Industry		
1987		18,481	2,047	4,181	598	3,583	142	8,644	5,527	659	514	1,399	545	2,086	1,367	675	185	507	14
1988		19,787	2,116	4,163	656	3,507	337	9,344	5,937	705	565	1,530	607	2,272	1,531	756	203	573	24
1989		21,891	2,309	4,818	986	3,832	398	10,219	6,422	766	637	1,714	680	2,371	1,730	860	223	647	46
1990		23,029	2,319	4,629	869	3,760	499	11,126	6,889	847	705	1,929	756	2,470	1,922	947	245	730	65
1991		27,140	2,378	7,376	1,251	6,125	461	12,062	7,423	912	764	2,127	836	2,657	2,129	1,036	269	825	77
1992		27,604	2,419	6,528	712	5,816	474	12,910	8,058	941	814	2,203	893	2,867	2,340	1,114	295	931	67
1993		28,743	2,621	6,427	466	5,961	492	13,646	8,638	952	851	2,268	936	2,953	2,532	1,157	324	1,051	72
1994		29,651	2,547	6,514	436	6,078	503	14,401	9,139	992	890	2,406	974	2,934	2,678	1,137	356	1,186	75
1995		29,610	2,689	5,569	190	5,379	530	15,147	9,634	1,070	945	2,511	987	2,702	2,899	1,170	390	1,338	75
1996		32,799	2,680	7,498	650	6,848	708	16,042	10,092	1,149	1,032	2,740	1,028	2,606	3,187	1,248	428	1,510	79
1997		36,921	2,746	9,795	1,029	8,766	625	17,654	10,924	1,248	1,175	3,144	1,162	2,671	3,322	1,317	449	1,557	108
1998		35,372	3,003	5,853	1,002	4,851	568	19,365	11,941	1,330	1,315	3,483	1,296	2,660	3,710	1,461	477	1,773	213
1999		38,935	3,347	6,645	1,108	5,537	557	21,022	12,892	1,432	1,421	3,835	1,442	2,765	4,203	1,734	517	1,952	397
2000		42,752	3,765	7,040	925	6,115	547	22,910	13,960	1,549	1,499	4,298	1,603	2,874	5,000	2,099	566	2,334	616
2001		47,727	4,260	8,053	754	7,299	552	25,225	15,541	1,663	1,519	4,738	1,765	3,104	5,617	2,464	571	2,582	915
2002		51,902	4,511	7,547	888	6,659	534	28,505	17,930	1,812	1,512	5,287	1,963	3,714	6,113	2,575	554	2,984	979
2003		56,089	4,664	8,330	1,386	6,944	299	31,310	20,127	1,967	1,493	5,667	2,055	3,747	6,710	2,714	567	3,429	1,029
2004		57,731	4,697	7,835	1,072	6,763	175	33,415	21,702	2,083	1,545	5,930	2,154	3,730	6,809	2,788	578	3,443	1,070
2005		61,321	4,770	8,667	1,108	7,559	136	35,454	22,788	2,155	1,667	6,525	2,319	3,820	7,293	2,903	614	3,776	1,181
2006		62,996	4,716	8,384	1,444	6,940	652	37,205	23,312	2,285	1,840	7,233	2,535	3,344	7,454	2,849	656	3,948	1,242
2007		68,061	4,621	11,268	2,780	8,488	2,258	38,929	23,673	2,499	2,037	7,874	2,845	1,724	7,911	2,829	698	4,384	1,350
2008		72,105	4,957	12,368	1,475	10,893	2,423	40,582	24,149	2,679	2,218	8,412	3,124	1,672	8,697	3,073	722	4,901	1,407
2009		75,824	5,441	14,784	1,340	13,444	2,629	39,982	24,098	2,573	2,161	8,036	3,115	1,902	9,553	3,498	698	5,357	1,533
2010		77,187	5,091	16,371	1,406	14,965	2,848	39,415	24,499	2,383	1,978	7,554	3,001	2,196	9,688	3,417	702	5,568	1,578
2011		74,961	4,875	13,020	677	12,343	2,761	40,952	25,662	2,402	1,989	7,828	3,071	2,212	9,521	3,108	740	5,673	1,619
2005 constant \$millions																			
1953		2,843	628	934	118	817	NA	761	504	40	80	37	99	223	297	167	56	74	NA
1954		3,118	589	1,018	141	877	NA	904	592	59	92	52	110	270	337	190	67	80	NA
1955		3,491	588	1,140	163	977	NA	1,082	702	84	102	70	124	301	380	217	78	84	NA
1956		4,185	662	1,475	216	1,259	NA	1,282	831	111	114	90	137	338	428	242	87	99	NA
1957		4,589	699	1,529	231	1,297	NA	1,470	939	140	127	111	152	403	488	274	85	130	NA
1958		5,205	822	1,628	237	1,390	NA	1,721	1,114	171	132	132	171	469	566	323	88	154	NA
1959		5,927	897	1,745	393	1,352	NA	2,116	1,431	205	131	155	194	515	654	393	98	164	NA
1960		6,916	987	2,022	425	1,597	NA	2,606	1,831	242	132	180	220	570	731	457	113	161	NA
1961		8,037	1,220	2,100	431	1,670	NA	3,177	2,294	285	133	212	253	667	872	558	117	197	NA
1962		9,568	1,322	2,560	750	1,810	NA	3,863	2,862	334	131	251	286	774	1,049	682	126	241	NA

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Year	All performers		Industry ^a				U&C ^c				U&C FFRDCs			Other nonprofit			Nonprofit FFRDCs ^d		
	Funding source:	Federal	Total	Industry ^b		Total	Total	Federal	Other government ^f		U&C	Other nonprofit	Total	Total	Federal ^d		Other nonprofit	Total	
				Federal ^b	Industry ^e				Other government ^f	Industry					Federal ^d	Industry			
1963		10,978	1,477	2,709	763	1,946	NA	4,716	3,576	389	127	299	324	908	1,168	779	130	260	NA
1964		12,248	1,733	2,592	629	1,963	215	5,472	4,210	431	128	356	348	1,020	1,217	849	128	240	NA
1965		13,374	1,880	2,826	788	2,038	146	6,127	4,737	474	133	432	351	1,092	1,303	896	146	261	NA
1966		14,303	2,001	2,895	693	2,202	151	6,737	5,204	505	142	520	366	1,164	1,355	915	156	283	NA
1967		15,002	2,053	2,818	796	2,022	161	7,358	5,624	539	159	642	393	1,246	1,366	916	161	289	NA
1968		15,338	2,190	2,758	659	2,099	159	7,635	5,747	594	170	710	413	1,252	1,345	890	168	286	NA
1969		15,112	2,360	2,515	533	1,983	160	7,591	5,574	662	171	741	444	1,178	1,307	831	186	290	NA
1970		14,780	2,311	2,328	502	1,826	148	7,628	5,439	738	177	805	471	1,088	1,277	800	181	296	NA
1971		14,571	2,276	2,182	396	1,786	129	7,708	5,423	758	194	838	495	987	1,289	811	176	302	NA
1972		14,455	2,262	2,080	342	1,738	146	7,650	5,395	734	206	811	503	1,014	1,303	811	176	315	NA
1973		14,582	2,319	2,116	341	1,775	128	7,481	5,295	698	208	794	486	1,220	1,318	823	174	320	NA
1974		14,709	2,331	2,120	372	1,748	160	7,440	5,247	665	215	816	497	1,352	1,307	799	176	333	NA
1975		14,524	2,264	2,017	310	1,707	158	7,388	5,268	633	213	785	489	1,417	1,281	760	177	344	NA
1976		15,140	2,395	2,113	327	1,786	194	7,536	5,421	613	211	798	492	1,567	1,334	782	184	369	NA
1977		15,916	2,498	2,215	358	1,857	199	7,858	5,600	614	236	885	523	1,766	1,380	798	190	392	NA
1978		17,224	2,585	2,329	386	1,943	233	8,356	5,938	643	264	986	526	2,242	1,480	869	195	415	NA
1979		17,907	2,542	2,409	368	2,041	238	8,746	6,213	653	291	1,065	523	2,398	1,574	943	198	434	NA
1980		18,314	2,539	2,524	356	2,168	251	9,037	6,409	643	326	1,139	519	2,443	1,520	871	200	450	NA
1981		18,492	2,571	2,828	314	2,514	262	9,069	6,378	647	350	1,178	516	2,459	1,286	620	201	465	17
1982		19,221	2,746	3,205	457	2,748	231	9,187	6,270	664	389	1,293	572	2,466	1,370	666	208	496	16
1983		20,624	3,008	3,656	601	3,055	203	9,579	6,403	687	451	1,417	621	2,666	1,498	739	220	539	14
1984		22,306	3,140	4,136	569	3,567	228	10,281	6,837	729	523	1,531	661	2,859	1,647	827	233	588	15
1985		23,951	3,162	4,435	581	3,854	213	11,407	7,479	835	632	1,747	714	2,911	1,802	909	248	645	20
1986		27,255	3,219	6,244	690	5,555	186	12,620	8,137	962	740	2,005	775	3,043	1,923	943	267	713	21
1987		28,536	3,161	6,456	923	5,532	219	13,346	8,533	1,017	794	2,161	842	3,221	2,110	1,043	285	783	22
1988		29,538	3,159	6,215	979	5,235	503	13,948	8,862	1,053	843	2,284	906	3,391	2,286	1,129	303	855	36
1989		31,489	3,321	6,931	1,418	5,512	573	14,700	9,238	1,101	917	2,466	978	3,411	2,488	1,237	320	930	67
1990		31,896	3,212	6,411	1,204	5,208	691	15,410	9,541	1,173	977	2,672	1,047	3,421	2,662	1,312	339	1,012	89
1991		36,302	3,181	9,866	1,673	8,193	617	16,134	9,929	1,220	1,022	2,845	1,118	3,554	2,848	1,386	359	1,103	103
1992		36,068	3,160	8,530	930	7,599	619	16,868	10,529	1,230	1,064	2,878	1,167	3,746	3,058	1,456	385	1,217	87
1993		36,744	3,350	8,216	596	7,620	629	17,445	11,043	1,218	1,088	2,900	1,197	3,775	3,236	1,479	414	1,343	92
1994		37,123	3,189	8,156	546	7,610	630	18,029	11,441	1,241	1,114	3,013	1,220	3,673	3,353	1,423	445	1,485	93
1995		36,315	3,298	6,830	233	6,597	650	18,576	11,815	1,312	1,159	3,079	1,211	3,313	3,555	1,435	479	1,642	93
1996		39,475	3,225	9,024	782	8,242	852	19,306	12,146	1,383	1,242	3,297	1,238	3,136	3,836	1,502	516	1,817	95
1997		43,664	3,247	11,584	1,217	10,367	739	20,878	12,920	1,476	1,390	3,718	1,374	3,159	3,929	1,557	531	1,841	127

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Year	All performers		Industry ^a				Industry FFRDCs ^b			U&C ^c			U&C FFRDCs			Other nonprofit			Nonprofit FFRDCs ^d
	Funding source:	All sources	Federal	Total		Total	Total	Federal	Other government ^f		Total	Total	Federal ^d	Total		Total	Other nonprofit	Total	
				Federal	Industry ^a				Industry ^a	U&C				Industry	U&C				Industry
1998		41,366	3,511	6,845	1,172	5,673	664	22,647	13,964	1,556	1,538	4,073	1,516	3,111	4,339	1,708	558	2,073	249
1999		44,872	3,857	7,658	1,276	6,381	642	24,228	14,858	1,650	1,637	4,420	1,662	3,186	4,843	1,998	596	2,250	457
2000		48,186	4,243	7,935	1,043	6,892	616	25,823	15,734	1,746	1,690	4,845	1,807	3,239	5,636	2,366	638	2,631	694
2001		52,605	4,696	8,876	831	8,045	609	27,803	17,129	1,832	1,675	5,222	1,945	3,421	6,192	2,716	630	2,846	1,009
2002		56,295	4,892	8,186	963	7,223	580	30,917	19,448	1,965	1,640	5,735	2,130	4,028	6,630	2,793	601	3,237	1,062
2003		59,584	4,955	8,849	1,472	7,377	318	33,260	21,381	2,090	1,586	6,020	2,184	3,980	7,128	2,884	602	3,643	1,093
2004		59,648	4,853	8,095	1,108	6,988	181	34,524	22,423	2,152	1,597	6,127	2,225	3,854	7,035	2,881	597	3,557	1,106
2005		61,321	4,770	8,667	1,108	7,559	136	35,454	22,788	2,155	1,667	6,525	2,319	3,820	7,293	2,903	614	3,776	1,181
2006		61,024	4,568	8,122	1,399	6,723	632	36,040	22,582	2,213	1,783	7,007	2,455	3,239	7,220	2,760	636	3,825	1,203
2007		64,072	4,350	10,608	2,617	7,990	2,126	36,647	22,285	2,353	1,918	7,413	2,679	1,623	7,447	2,663	657	4,127	1,271
2008		66,406	4,565	11,390	1,358	10,032	2,231	37,374	22,241	2,467	2,042	7,747	2,877	1,540	8,009	2,830	665	4,514	1,296
2009		69,101	4,958	13,473	1,221	12,252	2,396	36,437	21,961	2,345	1,969	7,323	2,839	1,733	8,706	3,188	636	4,882	1,397
2010		69,543	4,587	14,750	1,267	13,483	2,566	35,512	22,073	2,147	1,782	6,806	2,704	1,979	8,729	3,079	633	5,017	1,422
2011		66,126	4,300	11,486	597	10,888	2,436	36,126	22,637	2,119	1,755	6,906	2,709	1,952	8,399	2,742	653	5,005	1,428

NA = not available; included in data for federal support to industry and federal support to nonprofit institutions.

FFRDC = federally funded R&D center; U&C = universities and colleges.

^a Character-of-work estimates for industry have been revised for 1998 and later years; data are not directly comparable with data for 1997 and earlier years.

^b Character-of-work estimates for industry-administered FFRDCs for 1953–63 are not separated from federal support for industry; thus, the data for federal support to industry include support to FFRDCs for those years.

^c Data for U&C R&D before 2003 cover only S&E fields; in 2003 and later years, R&D in non-S&E fields is also included. Adjustments have been made to U&C R&D for 1998 and later years to eliminate double counting of funds passed through from one academic institution to another. The character-of-work estimation procedure was revised in 1998 and again in 2010; hence, these data are not directly comparable with data reported in earlier years.

^d Character-of-work estimates for nonprofit-administered FFRDCs for 1953–80 are not separated from federal support for other nonprofits; thus, the data for federal support to other nonprofit institutions include support to FFRDCs for those years.

^e Industry sources of funds for industry R&D expenditures include all nonfederal sources of industry funds for R&D expenditures.

^f Because of limitations in survey information, data on other government funding to performers other than U&C were not available and consequently are included in other sectors' support for their own R&D performance (e.g., other government support to other nonprofits is included in other nonprofit support for their own R&D).

NOTES: Technical notes explaining methodological issues of measurement are available on request. Data are based on annual reports by performers, except for the nonprofit sector. R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds are also included in the totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, before 2001, for industry-administered FFRDCs are collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of the amount reported in the same fiscal year plus 25% of the amount reported in the subsequent fiscal year. However, the fiscal year for academic performers generally begins on 1 July, not 1 October; also, before 1977, the federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers before 1977 equal 50% of the amount reported in the same fiscal year plus 50% of the amount reported in the subsequent fiscal year. Detail may not add to total due to rounding. Constant-dollar estimates are derived from unrounded data. Los Alamos National Laboratory (some \$2 billion in annual R&D expenditures in recent years) became industry administered in June 2006—previously, it was U&C administered. Lawrence Livermore National Laboratory (more than \$1 billion in annual R&D expenditures in recent years) became industry administered in October 2007—previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series), Business R&D and Innovation Survey (annual series), Higher Education R&D Survey (annual series), Survey of Federal Funds for R&D (annual series), Federally Funded Research and Development Centers R&D Survey (annual series), R&D Funding and Performance by Nonprofit Organizations (FYs 1996–97). All NSF/NCSES reports are available at <http://www.nsf.gov/statistics/>.