

Appendix table 4-7

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

Year	Funding source:	All sources	Federal							Industry			U&C	Other nonprofit		Other government <sup>a</sup>			
	Performer:	All performers	Total	Federal	Industry <sup>b, c</sup>	FFRDCs <sup>c</sup>	U&C <sup>d</sup>	U&C	Other nonprofit <sup>e</sup>	Nonprofit FFRDCs <sup>e</sup>	Total	Industry <sup>b, f</sup>	U&C <sup>d</sup>	Other nonprofit	U&C <sup>d</sup>	Total nonprofit	U&C <sup>d</sup>	U&C <sup>d</sup>	
Current \$millions																			
1953		460	265	102	19	NA	82	36	27	NA	154	132	13	9	6	28	12	16	7
1954		509	291	96	23	NA	97	44	31	NA	169	143	15	11	8	31	13	18	10
1955		579	327	98	27	NA	117	50	36	NA	192	162	17	13	12	35	14	21	14
1956		718	393	114	37	NA	143	58	42	NA	251	216	20	15	15	41	17	24	19
1957		814	452	124	41	NA	167	72	49	NA	268	230	23	15	20	50	23	27	25
1958		944	538	149	43	NA	202	85	59	NA	292	252	24	16	24	59	28	31	31
1959		1,087	666	165	72	NA	263	95	72	NA	290	248	24	18	28	66	30	36	38
1960		1,286	794	184	79	NA	341	106	85	NA	343	297	25	21	33	71	30	41	45
1961		1,512	973	230	81	NA	432	126	105	NA	361	314	25	22	40	85	37	48	54
1962		1,824	1,218	252	143	NA	546	148	130	NA	394	345	25	24	48	101	46	55	64
1963		2,115	1,446	285	147	NA	689	175	150	NA	425	375	25	25	58	113	50	63	75
1964		2,396	1,693	339	123	42	824	200	166	NA	434	384	25	25	70	115	47	68	84
1965		2,664	1,900	375	157	29	944	218	179	NA	462	406	27	29	86	122	52	70	94
1966		2,930	2,075	410	142	31	1,066	239	188	NA	512	451	29	32	106	133	58	75	104
1967		3,168	2,280	434	168	34	1,188	263	194	NA	495	427	34	34	136	144	61	83	114
1968		3,376	2,399	482	145	35	1,265	276	196	NA	537	462	38	37	156	154	63	91	131
1969		3,491	2,457	545	123	37	1,288	272	192	NA	541	458	40	43	171	170	67	103	153
1970		3,594	2,501	562	122	36	1,323	265	195	NA	531	444	43	44	196	187	72	115	179
1971		3,720	2,559	581	101	33	1,385	252	207	NA	551	456	50	45	214	204	77	127	194
1972		3,850	2,656	603	91	39	1,437	270	216	NA	565	463	55	47	216	218	84	134	195
1973		4,099	2,847	652	96	36	1,489	343	232	NA	607	499	59	49	223	227	90	137	196
1974		4,511	3,146	715	114	49	1,609	415	245	NA	656	536	66	54	250	254	102	153	204
1975		4,875	3,415	760	104	53	1,768	476	255	NA	704	573	72	59	264	280	116	164	212
1976		5,373	3,793	850	116	69	1,924	556	278	NA	774	634	75	65	283	305	131	175	218
1977		6,008	4,235	943	135	75	2,114	667	301	NA	862	701	89	72	334	346	148	198	232
1978		6,959	4,950	1,044	156	94	2,399	906	351	NA	970	785	107	79	398	380	168	213	260
1979		7,836	5,558	1,112	161	104	2,719	1,050	413	NA	1,107	893	128	87	466	419	190	229	286
1980		8,745	6,145	1,212	170	120	3,061	1,167	416	NA	1,286	1,035	156	95	544	463	215	248	307
1981		9,658	6,591	1,343	164	137	3,331	1,284	324	9	1,600	1,313	183	105	615	512	243	269	338
1982		10,651	7,121	1,522	253	128	3,475	1,366	369	9	1,854	1,523	215	115	716	591	275	317	368
1983		11,880	7,853	1,733	346	117	3,689	1,536	426	8	2,146	1,760	260	127	816	668	311	358	396
1984		13,332	8,651	1,877	340	136	4,087	1,709	494	9	2,584	2,132	313	139	915	746	351	395	436
1985		14,748	9,407	1,947	358	131	4,606	1,793	560	13	2,915	2,373	389	153	1,075	837	397	440	514
1986		17,154	10,220	2,026	434	117	5,122	1,915	594	13	4,130	3,496	466	168	1,262	936	449	488	606

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	Performer:	All performers	Total	Federal	Industry <sup>b, c</sup>	Industry FFRDCs <sup>c</sup>	U&C <sup>d</sup>	U&C FFRDCs	Other nonprofit <sup>e</sup>	Nonprofit FFRDCs <sup>e</sup>	Total	Industry <sup>b, f</sup>	U&C <sup>d</sup>	Other nonprofit	U&C <sup>d</sup>	Total nonprofit	U&C <sup>d</sup>	U&C <sup>d</sup>	
	1987		18,481	11,090	2,047	598	142	5,527	2,086	675	14	4,282	3,583	514	185	1,399	1,052	507	545
1988		19,787	12,097	2,116	656	337	5,937	2,272	756	24	4,275	3,507	565	203	1,530	1,180	573	607	705
1989		21,891	13,392	2,309	986	398	6,422	2,371	860	46	4,692	3,832	637	223	1,714	1,327	647	680	766
1990		23,029	14,057	2,319	869	499	6,889	2,470	947	65	4,710	3,760	705	245	1,929	1,486	730	756	847
1991		27,140	15,283	2,378	1,251	461	7,423	2,657	1,036	77	7,157	6,125	764	269	2,127	1,660	825	836	912
1992		27,604	15,710	2,419	712	474	8,058	2,867	1,114	67	6,925	5,816	814	295	2,203	1,824	931	893	941
1993		28,743	16,399	2,621	466	492	8,638	2,953	1,157	72	7,136	5,961	851	324	2,268	1,987	1,051	936	952
1994		29,651	16,770	2,547	436	503	9,139	2,934	1,137	75	7,323	6,078	890	356	2,406	2,160	1,186	974	992
1995		29,610	16,990	2,689	190	530	9,634	2,702	1,170	75	6,715	5,379	945	390	2,511	2,326	1,338	987	1,070
1996		32,799	18,063	2,680	650	708	10,092	2,606	1,248	79	8,309	6,848	1,032	428	2,740	2,539	1,510	1,028	1,149
1997		36,921	19,420	2,746	1,029	625	10,924	2,671	1,317	108	10,390	8,766	1,175	449	3,144	2,718	1,557	1,162	1,248
1998		35,372	20,847	3,003	1,002	568	11,941	2,660	1,461	213	6,643	4,851	1,315	477	3,483	3,069	1,773	1,296	1,330
1999		38,935	22,799	3,347	1,108	557	12,892	2,765	1,734	397	7,474	5,537	1,421	517	3,835	3,394	1,952	1,442	1,432
2000		42,752	24,786	3,765	925	547	13,960	2,874	2,099	616	8,181	6,115	1,499	566	4,298	3,938	2,334	1,603	1,549
2001		47,727	27,591	4,260	754	552	15,541	3,104	2,464	915	9,390	7,299	1,519	571	4,738	4,347	2,582	1,765	1,663
2002		51,902	31,130	4,511	888	534	17,930	3,714	2,575	979	8,725	6,659	1,512	554	5,287	4,947	2,984	1,963	1,812
2003		56,089	33,967	4,664	1,386	299	20,127	3,747	2,714	1,029	9,003	6,944	1,493	567	5,667	5,485	3,429	2,055	1,967
2004		57,731	35,235	4,697	1,072	175	21,702	3,730	2,788	1,070	8,887	6,763	1,545	578	5,930	5,596	3,443	2,154	2,083
2005		61,321	36,705	4,770	1,108	136	22,788	3,820	2,903	1,181	9,841	7,559	1,667	614	6,525	6,095	3,776	2,319	2,155
2006		62,996	37,558	4,716	1,444	652	23,312	3,344	2,849	1,242	9,437	6,940	1,840	656	7,233	6,483	3,948	2,535	2,285
2007		68,061	39,235	4,621	2,780	2,258	23,673	1,724	2,829	1,350	11,223	8,488	2,037	698	7,874	7,230	4,384	2,845	2,499
2008		72,105	39,156	4,957	1,475	2,423	24,149	1,672	3,073	1,407	13,833	10,893	2,218	722	8,412	8,025	4,901	3,124	2,679
2009		75,824	40,440	5,441	1,340	2,629	24,098	1,902	3,498	1,533	16,303	13,444	2,161	698	8,036	8,471	5,357	3,115	2,573
2010		77,187	41,035	5,091	1,406	2,848	24,499	2,196	3,417	1,578	17,645	14,965	1,978	702	7,554	8,570	5,568	3,001	2,383
2011		74,961	40,913	4,875	677	2,761	25,662	2,212	3,108	1,619	15,072	12,343	1,989	740	7,828	8,744	5,673	3,071	2,402
2005 constant \$millions																			
1953		2,843	1,640	628	118	NA	504	223	167	NA	953	817	80	56	37	173	74	99	40
1954		3,118	1,781	589	141	NA	592	270	190	NA	1,036	877	92	67	52	190	80	110	59
1955		3,491	1,972	588	163	NA	702	301	217	NA	1,158	977	102	78	70	208	84	124	84
1956		4,185	2,288	662	216	NA	831	338	242	NA	1,460	1,259	114	87	90	236	99	137	111
1957		4,589	2,547	699	231	NA	939	403	274	NA	1,509	1,297	127	85	111	282	130	152	140
1958		5,205	2,965	822	237	NA	1,114	469	323	NA	1,611	1,390	132	88	132	326	154	171	171
1959		5,927	3,629	897	393	NA	1,431	515	393	NA	1,581	1,352	131	98	155	357	164	194	205
1960		6,916	4,270	987	425	NA	1,831	570	457	NA	1,842	1,597	132	113	180	382	161	220	242
1961		8,037	5,171	1,220	431	NA	2,294	667	558	NA	1,920	1,670	133	117	212	449	197	253	285
1962		9,568	6,389	1,322	750	NA	2,862	774	682	NA	2,067	1,810	131	126	251	527	241	286	334

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	Performer:	All performers	Total	Federal	Industry <sup>b, c</sup>	FFRDCs <sup>c</sup>	U&C <sup>d</sup>	U&C	Other nonprofit <sup>e</sup>	Nonprofit FFRDCs <sup>e</sup>	Total	Industry <sup>b, f</sup>	U&C <sup>d</sup>	Other nonprofit	U&C <sup>d</sup>	Total	Other nonprofit	U&C <sup>d</sup>	U&C <sup>d</sup>
	1963		10,978	7,503	1,477	763	NA	3,576	908	779	NA	2,203	1,946	127	130	299	584	260	324
1964		12,248	8,655	1,733	629	215	4,210	1,020	849	NA	2,219	1,963	128	128	356	588	240	348	431
1965		13,374	9,539	1,880	788	146	4,737	1,092	896	NA	2,317	2,038	133	146	432	612	261	351	474
1966		14,303	10,129	2,001	693	151	5,204	1,164	915	NA	2,499	2,202	142	156	520	649	283	366	505
1967		15,002	10,796	2,053	796	161	5,624	1,246	916	NA	2,342	2,022	159	161	642	682	289	393	539
1968		15,338	10,897	2,190	659	159	5,747	1,252	890	NA	2,437	2,099	170	168	710	700	286	413	594
1969		15,112	10,636	2,360	533	160	5,574	1,178	831	NA	2,340	1,983	171	186	741	734	290	444	662
1970		14,780	10,287	2,311	502	148	5,439	1,088	800	NA	2,184	1,826	177	181	805	767	296	471	738
1971		14,571	10,022	2,276	396	129	5,423	987	811	NA	2,156	1,786	194	176	838	797	302	495	758
1972		14,455	9,970	2,262	342	146	5,395	1,014	811	NA	2,121	1,738	206	176	811	818	315	503	734
1973		14,582	10,127	2,319	341	128	5,295	1,220	823	NA	2,157	1,775	208	174	794	806	320	486	698
1974		14,709	10,260	2,331	372	160	5,247	1,352	799	NA	2,139	1,748	215	176	816	830	333	497	665
1975		14,524	10,176	2,264	310	158	5,268	1,417	760	NA	2,097	1,707	213	177	785	833	344	489	633
1976		15,140	10,687	2,395	327	194	5,421	1,567	782	NA	2,182	1,786	211	184	798	860	369	492	613
1977		15,916	11,218	2,498	358	199	5,600	1,766	798	NA	2,283	1,857	236	190	885	916	392	523	614
1978		17,224	12,253	2,585	386	233	5,938	2,242	869	NA	2,402	1,943	264	195	986	941	415	526	643
1979		17,907	12,702	2,542	368	238	6,213	2,398	943	NA	2,530	2,041	291	198	1,065	957	434	523	653
1980		18,314	12,869	2,539	356	251	6,409	2,443	871	NA	2,694	2,168	326	200	1,139	969	450	519	643
1981		18,492	12,621	2,571	314	262	6,378	2,459	620	17	3,065	2,514	350	201	1,178	981	465	516	647
1982		19,221	12,851	2,746	457	231	6,270	2,466	666	16	3,345	2,748	389	208	1,293	1,067	496	572	664
1983		20,624	13,634	3,008	601	203	6,403	2,666	739	14	3,726	3,055	451	220	1,417	1,160	539	621	687
1984		22,306	14,475	3,140	569	228	6,837	2,859	827	15	4,323	3,567	523	233	1,531	1,248	588	661	729
1985		23,951	15,277	3,162	581	213	7,479	2,911	909	20	4,734	3,854	632	248	1,747	1,359	645	714	835
1986		27,255	16,238	3,219	690	186	8,137	3,043	943	21	6,562	5,555	740	267	2,005	1,487	713	775	962
1987		28,536	17,123	3,161	923	219	8,533	3,221	1,043	22	6,611	5,532	794	285	2,161	1,624	783	842	1,017
1988		29,538	18,059	3,159	979	503	8,862	3,391	1,129	36	6,381	5,235	843	303	2,284	1,761	855	906	1,053
1989		31,489	19,265	3,321	1,418	573	9,238	3,411	1,237	67	6,749	5,512	917	320	2,466	1,908	930	978	1,101
1990		31,896	19,469	3,212	1,204	691	9,541	3,421	1,312	89	6,524	5,208	977	339	2,672	2,059	1,012	1,047	1,173
1991		36,302	20,443	3,181	1,673	617	9,929	3,554	1,386	103	9,574	8,193	1,022	359	2,845	2,221	1,103	1,118	1,220
1992		36,068	20,528	3,160	930	619	10,529	3,746	1,456	87	9,049	7,599	1,064	385	2,878	2,384	1,217	1,167	1,230
1993		36,744	20,964	3,350	596	629	11,043	3,775	1,479	92	9,122	7,620	1,088	414	2,900	2,540	1,343	1,197	1,218
1994		37,123	20,996	3,189	546	630	11,441	3,673	1,423	93	9,169	7,610	1,114	445	3,013	2,705	1,485	1,220	1,241
1995		36,315	20,837	3,298	233	650	11,815	3,313	1,435	93	8,235	6,597	1,159	479	3,079	2,853	1,642	1,211	1,312
1996		39,475	21,739	3,225	782	852	12,146	3,136	1,502	95	10,000	8,242	1,242	516	3,297	3,055	1,817	1,238	1,383
1997		43,664	22,967	3,247	1,217	739	12,920	3,159	1,557	127	12,288	10,367	1,390	531	3,718	3,215	1,841	1,374	1,476

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	Performer:	All performers	Total	Federal	Industry <sup>b, c</sup>	FFRDCs <sup>c</sup>	U&C <sup>d</sup>	U&C	Other nonprofit <sup>e</sup>	Nonprofit FFRDCs <sup>e</sup>	Total	Industry <sup>b, f</sup>	U&C <sup>d</sup>	Other nonprofit	U&C <sup>d</sup>	Total	Other nonprofit	U&C <sup>d</sup>	U&C <sup>d</sup>
1998		41,366	24,380	3,511	1,172	664	13,964	3,111	1,708	249	7,769	5,673	1,538	558	4,073	3,589	2,073	1,516	1,556
1999		44,872	26,276	3,857	1,276	642	14,858	3,186	1,998	457	8,614	6,381	1,637	596	4,420	3,911	2,250	1,662	1,650
2000		48,186	27,936	4,243	1,043	616	15,734	3,239	2,366	694	9,220	6,892	1,690	638	4,845	4,438	2,631	1,807	1,746
2001		52,605	30,411	4,696	831	609	17,129	3,421	2,716	1,009	10,349	8,045	1,675	630	5,222	4,791	2,846	1,945	1,832
2002		56,295	33,765	4,892	963	580	19,448	4,028	2,793	1,062	9,464	7,223	1,640	601	5,735	5,366	3,237	2,130	1,965
2003		59,584	36,083	4,955	1,472	318	21,381	3,980	2,884	1,093	9,564	7,377	1,586	602	6,020	5,826	3,643	2,184	2,090
2004		59,648	36,405	4,853	1,108	181	22,423	3,854	2,881	1,106	9,182	6,988	1,597	597	6,127	5,782	3,557	2,225	2,152
2005		61,321	36,705	4,770	1,108	136	22,788	3,820	2,903	1,181	9,841	7,559	1,667	614	6,525	6,095	3,776	2,319	2,155
2006		61,024	36,383	4,568	1,399	632	22,582	3,239	2,760	1,203	9,141	6,723	1,783	636	7,007	6,280	3,825	2,455	2,213
2007		64,072	36,935	4,350	2,617	2,126	22,285	1,623	2,663	1,271	10,565	7,990	1,918	657	7,413	6,806	4,127	2,679	2,353
2008		66,406	36,061	4,565	1,358	2,231	22,241	1,540	2,830	1,296	12,739	10,032	2,042	665	7,747	7,391	4,514	2,877	2,467
2009		69,101	36,855	4,958	1,221	2,396	21,961	1,733	3,188	1,397	14,857	12,252	1,969	636	7,323	7,720	4,882	2,839	2,345
2010		69,543	36,972	4,587	1,267	2,566	22,073	1,979	3,079	1,422	15,898	13,483	1,782	633	6,806	7,721	5,017	2,704	2,147
2011		66,126	36,092	4,300	597	2,436	22,637	1,952	2,742	1,428	13,296	10,888	1,755	653	6,906	7,714	5,005	2,709	2,119

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.

<sup>a</sup> 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).

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> 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.

<sup>e</sup> 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.

<sup>f</sup> Industry sources of funds for industry R&D expenditures include all nonfederal sources of funds for industry R&D expenditures.

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 included in 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, 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/>.