

TABLE 4. U.S. applied research expenditures, by performing sector and source of funds: 1953–2012

Year	All performers		Industry ^a				U&C ^c			Other nonprofit			Nonprofit FFRDCs ^d						
	Performer:	Federal	Industry ^a		Industry FFRDCs ^b		U&C ^c		U&C FFRDCs		Other nonprofit		Nonprofit FFRDCs ^d						
	Funding source:	All sources	Total	Federal ^b	Industry ^e	Total	Total	Federal	Other government ^f	Industry	U&C	Other nonprofit	Total	Total	Federal ^d	Industry ^g	Other nonprofit ^g	Total	
Current \$millions																			
1953		1,289	347	726	288	438	NA	134	59	30	7	28	10	48	35	14	11	10	NA
1954		1,378	330	814	322	492	NA	137	60	32	8	28	10	58	40	16	13	11	NA
1955		1,514	333	928	368	560	NA	142	63	32	9	27	11	68	43	18	14	11	NA
1956		1,928	387	1,268	474	794	NA	146	65	33	10	27	11	79	49	21	14	14	NA
1957		2,414	446	1,670	678	992	NA	147	63	34	12	27	11	94	58	24	14	20	NA
1958		2,758	516	1,911	774	1,137	NA	152	66	35	12	27	12	111	69	30	14	25	NA
1959		2,940	577	1,991	813	1,178	NA	167	78	37	13	28	12	121	85	43	15	27	NA
1960		3,065	615	2,029	833	1,196	NA	186	93	39	13	29	12	129	108	63	17	28	NA
1961		3,123	668	1,977	812	1,165	NA	199	104	40	13	30	13	145	135	83	17	35	NA
1962		3,698	709	2,449	1,011	1,438	NA	216	119	41	14	30	13	163	162	98	19	45	NA
1963		3,865	809	2,457	1,007	1,450	NA	230	128	42	14	32	14	186	183	115	19	49	NA
1964		4,201	947	2,538	978	1,560	62	256	142	45	14	37	18	203	196	130	19	47	NA
1965		4,374	994	2,612	992	1,620	46	304	176	46	13	42	27	206	213	140	21	52	NA
1966		4,653	1,012	2,790	986	1,804	53	351	208	47	14	48	34	213	234	153	24	57	NA
1967		4,848	1,069	2,832	983	1,849	83	389	238	46	16	54	36	225	251	166	25	60	NA
1968		5,137	1,112	3,037	956	2,081	87	405	250	46	16	55	39	221	276	186	28	62	NA
1969		5,454	1,229	3,192	920	2,272	95	417	257	48	16	54	43	213	308	210	32	66	NA
1970		5,752	1,334	3,330	952	2,378	97	451	280	51	18	56	47	213	328	225	33	70	NA
1971		5,833	1,355	3,348	907	2,441	67	499	306	61	19	67	47	216	349	241	34	74	NA
1972		6,147	1,434	3,407	845	2,562	107	619	391	74	21	82	52	224	357	243	35	79	NA
1973		6,655	1,527	3,715	883	2,832	110	725	450	88	26	100	62	203	376	257	36	83	NA
1974		7,344	1,652	4,168	905	3,263	120	794	477	96	32	118	72	191	420	290	39	91	NA
1975		8,091	1,912	4,431	991	3,440	139	934	550	113	39	141	92	219	456	315	42	100	NA
1976		8,976	2,068	4,945	1,033	3,912	167	1,042	596	127	45	166	109	263	492	338	45	109	NA
1977		9,662	2,081	5,424	1,113	4,311	212	1,126	626	134	51	194	121	297	523	355	48	120	NA
1978		10,704	2,242	6,065	1,195	4,870	235	1,247	676	151	61	232	128	324	592	409	52	132	NA
1979		12,097	2,415	6,975	1,305	5,670	250	1,418	793	161	71	263	129	360	680	480	55	144	NA
1980		13,714	2,546	8,175	1,625	6,550	275	1,622	912	174	88	308	140	421	675	458	60	158	NA
1981		16,329	2,731	10,401	2,042	8,359	298	1,781	953	199	108	363	159	422	628	391	64	173	68
1982		18,218	2,802	11,956	2,593	9,363	367	1,915	1,007	207	121	402	178	433	655	398	69	189	91
1983		20,298	2,991	13,513	3,227	10,286	414	2,116	1,122	215	141	443	194	473	713	433	74	207	78
1984		22,451	2,961	15,218	3,677	11,541	547	2,332	1,226	234	168	491	212	548	764	459	79	226	80
1985		25,401	3,135	17,625	4,717	12,908	630	2,527	1,296	262	198	547	224	580	822	490	85	247	82
1986		27,240	3,204	19,131	4,049	15,082	629	2,780	1,393	298	229	620	240	554	867	506	91	270	75

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Year	All performers		Industry					U&C			Other nonprofit			Nonprofit					
	Performer:	Federal	Industry ^a		FFRDCs ^b	U&C ^c		FFRDCs	Other 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 ^g	Other nonprofit ^g	Total
1987		27,951	3,366	19,190	4,037	15,153	623	3,219	1,643	333	260	707	276	532	948	555	98	295	74
1988		29,528	3,362	20,377	3,846	16,531	371	3,779	1,958	377	302	818	325	547	1,026	599	105	322	66
1989		32,277	3,566	22,317	4,324	17,993	374	4,188	2,121	417	347	933	370	603	1,159	695	112	352	70
1990		34,897	3,652	24,399	5,967	18,432	386	4,406	2,140	453	377	1,031	404	689	1,284	780	120	384	81
1991		38,631	4,093	27,013	5,588	21,425	433	4,611	2,232	468	392	1,091	428	927	1,468	921	129	419	86
1992		37,936	4,337	25,660	4,476	21,184	507	4,882	2,415	479	414	1,120	454	940	1,528	933	138	456	81
1993		37,283	4,838	24,251	4,295	19,956	435	5,149	2,542	496	443	1,181	487	962	1,544	900	148	497	103
1994		36,618	4,985	22,988	3,616	19,372	503	5,390	2,644	517	464	1,256	509	982	1,659	960	158	541	111
1995		40,936	4,952	26,919	3,164	23,755	535	5,659	2,779	559	494	1,311	516	1,050	1,692	934	170	589	129
1996		43,170	4,872	29,010	3,640	25,370	231	5,885	2,864	584	524	1,390	522	1,270	1,781	960	182	640	122
1997		46,554	4,997	32,430	2,648	29,782	213	5,523	2,550	553	519	1,389	512	1,337	1,926	1,011	205	711	128
1998		46,362	5,146	32,208	2,632	29,576	230	5,197	2,260	526	520	1,378	513	1,372	2,087	1,060	218	809	123
1999		52,007	5,530	36,638	2,817	33,821	274	5,762	2,661	546	542	1,463	550	1,247	2,427	1,300	236	891	130
2000		56,681	6,105	39,176	2,682	36,494	269	6,494	3,194	571	553	1,585	591	1,291	3,155	1,831	258	1,066	190
2001		64,176	7,052	44,012	3,603	40,409	821	7,054	3,553	601	549	1,712	638	1,405	3,589	2,150	261	1,178	244
2002		50,796	7,487	28,533	2,452	26,081	1,090	7,876	4,056	654	546	1,911	709	1,663	3,882	2,267	253	1,362	266
2003		61,379	7,672	37,334	4,473	32,861	1,413	8,801	4,660	729	553	2,098	761	1,600	4,311	2,487	259	1,565	249
2004		69,469	7,455	45,432	4,775	40,657	1,459	9,164	4,902	758	562	2,158	783	1,481	4,283	2,448	264	1,572	194
2005		70,001	7,557	45,284	5,289	39,995	1,414	9,395	5,032	743	575	2,247	799	1,637	4,435	2,432	280	1,723	278
2006		76,735	7,435	51,173	6,140	45,033	1,314	9,794	5,318	736	593	2,331	816	1,827	4,694	2,592	300	1,802	500
2007		83,551	7,222	57,570	8,945	48,625	1,168	10,249	5,548	770	628	2,426	877	1,354	4,902	2,583	318	2,001	1,085
2008		74,793	7,316	46,864	5,397	41,467	1,975	11,316	6,144	843	698	2,647	983	855	5,167	2,600	330	2,237	1,300
2009		72,891	7,874	41,055	7,797	33,258	2,010	13,444	7,708	928	778	2,903	1,127	1,282	5,813	3,049	319	2,445	1,414
2010		79,526	8,016	44,906	4,705	40,201	2,249	15,517	9,407	972	807	3,106	1,225	1,274	5,907	3,041	321	2,545	1,658
2011		82,425	7,849	47,186	4,404	42,782	2,256	16,554	10,071	973	835	3,398	1,276	1,318	5,622	2,691	338	2,594	1,640
2012 (preliminary)		86,773	8,084	50,756	5,106	45,650	2,387	16,896	10,147	975	864	3,599	1,312	1,386	5,675	2,682	354	2,638	1,589
2005 constant \$millions																			
1953		7,970	2,145	4,489	1,781	2,708	NA	825	365	186	40	172	62	294	216	87	68	62	NA
1954		8,442	2,019	4,987	1,973	3,014	NA	836	365	193	46	171	61	355	245	98	80	67	NA
1955		9,117	2,006	5,590	2,217	3,374	NA	852	380	195	51	164	63	410	259	108	84	66	NA
1956		11,227	2,251	7,385	2,761	4,625	NA	850	379	193	58	157	64	457	282	119	82	82	NA
1957		13,603	2,511	9,412	3,821	5,591	NA	826	355	191	65	153	62	530	324	132	79	113	NA
1958		15,203	2,844	10,534	4,267	6,268	NA	835	361	195	66	150	63	609	380	165	77	138	NA
1959		16,015	3,141	10,848	4,429	6,418	NA	910	422	201	68	153	65	657	460	232	82	147	NA
1960		16,469	3,302	10,902	4,476	6,426	NA	997	500	208	70	155	64	690	578	336	91	150	NA
1961		16,592	3,549	10,503	4,314	6,189	NA	1,055	550	212	69	157	66	770	715	438	90	186	NA
1962		19,380	3,713	12,836	5,299	7,537	NA	1,132	621	213	71	159	68	852	846	511	100	236	NA
1963		20,042	4,196	12,742	5,222	7,520	NA	1,190	661	219	73	168	70	965	949	596	99	254	NA
1964		21,457	4,834	12,963	4,995	7,968	317	1,305	725	231	69	191	89	1,037	1,001	664	97	240	NA
1965		21,937	4,983	13,102	4,976	8,126	231	1,522	880	233	65	211	133	1,031	1,068	702	105	261	NA

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Year	All performers		Federal	Industry			U&C ^c			U&C FFRDCs			Other nonprofit			Nonprofit FFRDCs ^d			
	Funding source:	All sources		Total	Federal ^b	Industry ^e	Total	Total	Federal	Other government ^f	Industry	U&C	Other nonprofit	Total	Total	Federal ^d	Industry ^g	Other nonprofit ^g	Total
	1966		22,693	4,936	13,609	4,809	8,799	259	1,712	1,015	230	68	236	163	1,039	1,139	744	117	278
1967		22,942	5,057	13,402	4,652	8,750	393	1,839	1,124	216	73	255	170	1,065	1,188	786	118	284	NA
1968		23,319	5,045	13,786	4,340	9,446	395	1,838	1,133	209	73	250	175	1,001	1,253	844	127	281	NA
1969		23,593	5,317	13,808	3,980	9,828	411	1,804	1,110	208	69	233	184	921	1,332	908	138	285	NA
1970		23,637	5,481	13,683	3,912	9,771	399	1,851	1,148	210	72	229	191	875	1,348	925	136	288	NA
1971		22,826	5,302	13,102	3,549	9,552	262	1,953	1,197	237	72	262	184	843	1,364	941	133	290	NA
1972		23,059	5,379	12,781	3,170	9,611	401	2,320	1,465	278	77	307	193	840	1,337	910	131	296	NA
1973		23,654	5,428	13,203	3,138	10,065	391	2,575	1,598	311	92	355	219	720	1,336	913	128	295	NA
1974		23,928	5,383	13,580	2,949	10,632	391	2,585	1,553	313	103	384	233	621	1,368	945	126	297	NA
1975		24,087	5,691	13,191	2,950	10,241	414	2,780	1,636	338	115	418	274	652	1,359	938	124	297	NA
1976		25,272	5,823	13,922	2,908	11,014	470	2,933	1,677	359	125	466	307	739	1,384	950	126	308	NA
1977		25,574	5,507	14,356	2,946	11,410	561	2,979	1,656	356	135	514	319	787	1,384	940	127	318	NA
1978		26,473	5,544	14,999	2,955	12,044	581	3,083	1,671	374	150	573	315	802	1,464	1,011	128	325	NA
1979		27,620	5,514	15,926	2,980	12,946	571	3,237	1,810	369	163	601	294	822	1,552	1,096	127	329	NA
1980		28,697	5,327	17,106	3,400	13,706	575	3,395	1,909	363	185	644	293	881	1,413	958	125	330	NA
1981		31,241	5,226	19,899	3,907	15,992	570	3,407	1,823	381	206	694	304	808	1,201	748	122	331	130
1982		32,849	5,052	21,558	4,675	16,883	662	3,452	1,815	374	218	725	321	780	1,182	717	124	341	163
1983		35,208	5,188	23,439	5,597	17,841	718	3,670	1,947	373	245	769	337	821	1,237	751	128	359	135
1984		37,532	4,950	25,441	6,147	19,294	914	3,898	2,050	391	281	821	355	917	1,278	767	132	378	135
1985		41,216	5,087	28,599	7,654	20,945	1,022	4,101	2,104	425	321	888	364	940	1,334	795	138	401	133
1986		43,243	5,086	30,371	6,428	23,943	999	4,413	2,211	473	364	985	381	879	1,376	803	144	429	120
1987		43,121	5,192	29,605	6,228	23,377	961	4,966	2,534	514	401	1,091	425	820	1,463	856	151	456	114
1988		44,042	5,014	30,393	5,736	24,656	553	5,637	2,921	562	450	1,220	484	816	1,530	893	156	481	98
1989		46,390	5,126	32,075	6,215	25,861	538	6,019	3,049	599	499	1,341	532	866	1,666	999	161	506	101
1990		48,292	5,054	33,765	8,258	25,507	534	6,097	2,962	626	522	1,427	559	953	1,776	1,079	166	531	113
1991		51,630	5,471	36,102	7,468	28,634	579	6,162	2,983	625	523	1,458	573	1,238	1,963	1,231	172	559	115
1992		49,526	5,662	33,500	5,844	27,656	662	6,374	3,153	625	541	1,462	593	1,228	1,995	1,219	180	596	106
1993		47,621	6,180	30,976	5,486	25,490	556	6,577	3,247	633	566	1,508	623	1,229	1,973	1,149	189	635	131
1994		45,806	6,236	28,756	4,523	24,233	629	6,742	3,307	647	581	1,571	636	1,228	2,075	1,200	198	677	139
1995		50,163	6,069	32,987	3,877	29,109	656	6,934	3,405	685	605	1,607	632	1,287	2,074	1,144	208	721	158
1996		51,912	5,859	34,885	4,377	30,507	278	7,076	3,444	702	630	1,672	628	1,527	2,142	1,154	218	770	147
1997		55,011	5,904	38,321	3,129	35,192	252	6,526	3,013	653	613	1,641	605	1,580	2,276	1,195	242	840	152
1998		54,171	6,012	37,633	3,075	34,558	269	6,072	2,640	615	608	1,610	599	1,603	2,438	1,238	254	945	144
1999		59,887	6,368	42,189	3,244	38,945	316	6,635	3,064	629	624	1,685	633	1,436	2,794	1,497	272	1,026	149
2000		63,885	6,881	44,156	3,023	41,133	303	7,319	3,600	644	623	1,786	666	1,456	3,556	2,064	291	1,201	214

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	Performer:	Federal	Industry ^a		FFRDCs ^b		U&C ^c			FFRDCs		Other 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 ^g	Other nonprofit ^g	Total
2001		70,735	7,773	48,510	3,971	44,539	905	7,774	3,917	662	606	1,887	703	1,548	3,956	2,370	287	1,299	268
2002		55,096	8,121	30,948	2,660	28,289	1,183	8,542	4,399	710	592	2,072	769	1,804	4,210	2,458	274	1,477	288
2003		65,203	8,149	39,660	4,752	34,908	1,501	9,349	4,950	774	587	2,229	808	1,700	4,579	2,642	275	1,663	264
2004		71,775	7,702	46,941	4,934	42,007	1,508	9,468	5,065	784	581	2,229	809	1,531	4,426	2,529	273	1,624	201
2005		70,001	7,557	45,284	5,289	39,995	1,414	9,395	5,032	743	575	2,247	799	1,637	4,435	2,432	280	1,723	278
2006		74,333	7,202	49,571	5,948	43,623	1,272	9,487	5,151	713	574	2,258	791	1,770	4,547	2,511	290	1,746	484
2007		78,653	6,798	54,196	8,421	45,775	1,100	9,648	5,223	725	591	2,284	825	1,275	4,615	2,431	300	1,884	1,021
2008		68,881	6,738	43,160	4,970	38,189	1,819	10,421	5,658	776	643	2,438	906	787	4,758	2,395	304	2,060	1,198
2009		66,549	7,189	37,483	7,119	30,364	1,835	12,274	7,038	847	710	2,650	1,029	1,170	5,307	2,784	291	2,232	1,291
2010		71,650	7,222	40,459	4,239	36,220	2,026	13,980	8,476	876	727	2,798	1,103	1,148	5,322	2,740	289	2,293	1,494
2011		72,712	6,924	41,625	3,885	37,740	1,990	14,603	8,884	859	737	2,997	1,126	1,163	4,960	2,374	298	2,288	1,447
2012 (preliminary)		75,202	7,006	43,988	4,425	39,562	2,068	14,643	8,794	845	749	3,119	1,137	1,201	4,918	2,325	307	2,286	1,377

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

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

^a Character-of-work estimates for industry were revised in 1998 and for later years; hence, the data for 1997 and earlier years are not directly comparable.

^b Character-of-work estimates for industry-administered FFRDCs in 1953–63 are not separate from the federal funding to industry; the data on federal funding to industry in those years include the funding to these FFRDCs.

^c The data for U&C R&D before 2003 covers only science and engineering (S&E) fields; in 2003 and later years, the 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 the double counting of funds passed through from one academic institution to another. The character-of-work estimation procedure for academic R&D was revised in 1998 and again in 2010; hence, these data are not directly comparable with data reported for earlier years.

^d Character-of-work estimates for nonprofit-administered FFRDCs in 1953–80 are not separate from federal funding for other nonprofit institutions; thus, the data for federal funding to other nonprofit institutions includes the funding to these FFRDCs in those years.

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

^f Due to survey limitations, data on R&D funded by other (nonfederal) government are separately available only for U&C; nonetheless, other government funded R&D is included in the own performance of these other sectors (e.g., other government funding to other nonprofits is included in other nonprofit funding for their own R&D).

^g The 1998–2012 data for other nonprofit R&D are not based on a dedicated nonprofit survey and may later be revised.

NOTES: The R&D data for 2012 are preliminary and may later be revised. Some back-year data may have been revised, accordingly, for trend comparisons, use only the historical data reported here; do not use data published earlier. Detail may not add to total due to rounding. Constant-dollar estimates are derived from unrounded data. Data are based on annual reports by performers, except for the nonprofit sector. The R&D expenditures of FFRDCs are chiefly from federal funding, but any nonfederal funds are included in the totals. 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 1 July, not 1 October; also, prior to 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 amount reported in the subsequent fiscal year. Los Alamos National Laboratory became industry administered in June 2006—previously, it was U&C administered. Lawrence Livermore National Laboratory became industry administered in October 2007—previously, it was U&C administered.

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), FFRDC R&D Survey (annual series), R&D Funding and Performance by Nonprofit Organizations (FYs 1996–97). All NSF/NCSES reports available at <http://www.nsf.gov/statistics/>.