

Appendix table 4-2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2011

Year	All performers		Industry				U&C ^b				U&C FFRDCs			Other nonprofit			Nonprofit FFRDCs ^c		
	Performer:	Federal	Industry		Industry FFRDCs ^a	U&C			U&C FFRDCs	Other nonprofit		Nonprofit FFRDCs ^c							
	Funding source:	All sources	Federal	Total	Federal ^a	Industry ^d	Total	Total	Federal	Other government ^a	Industry	U&C	Other nonprofit	Total	Total	Federal ^c	Industry	Other nonprofit	Total
Current \$millions																			
1953		5,160	1,015	3,630	1,430	2,200	NA	273	149	40	21	37	27	131	112	58	26	28	NA
1954		5,617	963	4,070	1,750	2,320	NA	301	165	45	24	40	29	161	123	61	31	31	NA
1955		6,281	973	4,517	2,057	2,460	123	342	191	50	27	42	32	187	131	64	35	32	9
1956		8,500	1,130	6,272	2,995	3,277	333	391	221	57	32	46	36	217	146	71	37	38	11
1957		9,908	1,297	7,324	3,928	3,396	407	433	242	64	37	51	40	267	167	79	37	51	14
1958		10,915	1,507	8,066	4,436	3,630	323	491	280	72	39	56	45	316	195	95	38	62	18
1959		12,490	1,681	9,200	5,217	3,983	418	586	356	81	40	61	50	349	234	125	42	67	22
1960		13,711	1,801	10,032	5,604	4,428	477	705	453	90	40	67	55	385	264	148	48	68	48
1961		14,564	1,987	10,353	5,685	4,668	555	834	557	101	40	75	62	440	304	169	49	86	92
1962		15,636	2,188	11,037	6,008	5,029	426	993	687	112	41	84	70	500	363	200	54	109	130
1963		17,519	2,558	12,216	6,856	5,360	414	1,178	839	125	41	96	78	580	408	234	55	119	165
1964		19,103	2,965	13,049	7,257	5,792	463	1,375	995	138	41	114	88	629	417	250	55	112	205
1965		20,252	3,156	13,812	7,367	6,445	373	1,595	1,167	150	42	136	101	630	472	286	62	124	215
1966		22,072	3,308	15,193	7,977	7,216	355	1,818	1,335	160	45	165	114	652	537	329	70	138	210
1967		23,346	3,444	15,966	7,946	8,020	419	2,035	1,491	168	52	200	126	696	561	342	74	145	225
1968		24,666	3,497	17,014	8,145	8,869	415	2,187	1,586	185	58	221	139	722	596	364	81	151	235
1969		25,996	3,790	17,844	7,987	9,857	464	2,280	1,624	208	61	233	155	731	642	388	93	161	245
1970		26,271	4,154	17,594	7,306	10,288	473	2,418	1,686	237	66	259	171	727	677	410	95	172	230
1971		26,952	4,409	17,829	7,175	10,654	491	2,565	1,760	262	72	290	182	735	709	427	98	184	215
1972		28,740	4,676	19,004	7,469	11,535	548	2,757	1,890	282	79	312	195	785	771	472	101	198	200
1973		30,952	4,837	20,704	7,600	13,104	545	2,953	2,009	302	90	343	211	841	882	566	105	211	190
1974		33,359	5,132	22,239	7,572	14,667	648	3,216	2,160	320	104	393	239	926	988	639	114	235	210
1975		35,671	5,561	23,460	7,878	15,582	727	3,570	2,400	348	118	432	272	1,067	1,062	675	124	262	225
1976		39,435	5,890	26,107	8,671	17,436	890	3,899	2,619	369	131	480	300	1,266	1,139	711	135	292	245
1977		43,338	6,211	28,863	9,523	19,340	962	4,346	2,893	394	155	569	337	1,467	1,213	740	147	326	275
1978		48,719	6,962	32,222	10,107	22,115	1,082	4,996	3,329	443	182	679	364	1,772	1,353	830	160	363	333
1979		55,379	7,471	37,062	11,354	25,708	1,164	5,715	3,848	482	215	785	386	2,013	1,564	985	174	405	390
1980		63,224	7,831	43,228	12,752	30,476	1,277	6,455	4,335	519	264	920	419	2,306	1,658	1,017	189	452	469
1981		72,292	8,605	50,425	14,997	35,428	1,385	7,085	4,670	581	314	1,058	463	2,484	1,784	1,075	206	504	524
1982		80,748	9,501	57,166	17,061	40,105	1,484	7,603	4,879	621	363	1,207	534	2,544	1,915	1,129	224	561	536
1983		89,950	10,830	63,683	19,095	44,588	1,585	8,251	5,210	658	432	1,357	595	2,840	2,176	1,306	244	626	585
1984		102,244	11,916	73,061	21,657	51,404	1,739	9,154	5,748	721	518	1,514	654	3,243	2,511	1,548	265	698	620
1985		114,671	13,093	82,376	25,333	57,043	1,863	10,308	6,388	834	630	1,743	713	3,616	2,761	1,694	289	778	655
1986		120,249	13,504	85,932	26,000	59,932	1,891	11,540	7,028	969	745	2,019	780	3,973	2,867	1,686	314	867	541

Appendix table 4-2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2011

Year	All performers		Industry FFRDCs ^a				U&C ^b				U&C FFRDCs			Other nonprofit			Nonprofit FFRDCs ^c		
	Funding source:	All sources	Federal	Industry		U&C		Other		Total	Other nonprofit		Total	Other nonprofit		Total			
				Federal ^g	Industry ^d	Total	Total	Federal	Other government ^a	Industry	U&C	Other nonprofit	Total	Total	Federal ^c	Industry	Other nonprofit	Total	
1987		126,360	13,588	90,160	28,757	61,403	1,995	12,807	7,768	1,065	831	2,262	882	4,287	3,013	1,704	342	967	509
1988		133,881	14,342	94,893	28,221	66,672	2,122	14,221	8,593	1,165	933	2,527	1,003	4,581	3,213	1,762	372	1,078	510
1989		141,891	15,231	99,860	26,359	73,501	2,195	15,634	9,317	1,274	1,061	2,852	1,131	4,756	3,669	2,062	405	1,202	547
1990		151,993	15,671	107,404	25,802	81,602	2,323	16,939	9,939	1,399	1,166	3,187	1,249	4,894	4,126	2,346	440	1,340	636
1991		160,876	15,249	114,675	24,095	90,580	2,277	18,206	10,667	1,483	1,242	3,458	1,358	5,120	4,652	2,679	479	1,494	696
1992		165,350	15,853	116,757	22,369	94,388	2,353	19,388	11,528	1,525	1,320	3,569	1,448	5,259	4,993	2,806	521	1,666	748
1993		165,730	16,531	115,435	20,844	94,591	1,965	20,495	12,307	1,557	1,392	3,709	1,531	5,289	5,267	2,843	567	1,857	749
1994		169,207	16,355	117,392	20,261	97,131	2,202	21,607	12,996	1,623	1,456	3,938	1,595	5,294	5,599	2,911	617	2,071	758
1995		183,625	16,904	129,830	21,178	108,652	2,273	22,617	13,592	1,751	1,548	4,110	1,617	5,367	5,827	2,847	671	2,308	808
1996		197,346	16,585	142,371	21,356	121,015	2,297	23,718	14,084	1,861	1,672	4,436	1,666	5,395	6,209	2,906	730	2,574	772
1997		212,152	16,819	155,409	21,798	133,611	2,130	24,884	14,530	1,922	1,808	4,838	1,786	5,463	6,626	3,014	809	2,804	821
1998		226,457	17,362	167,102	22,086	145,016	2,078	26,181	15,174	1,972	1,950	5,163	1,922	5,559	7,332	3,281	859	3,192	843
1999		245,318	18,142	182,090	20,496	161,594	2,039	28,176	16,264	2,098	2,082	5,619	2,112	5,652	8,207	3,761	931	3,516	1,013
2000		268,905	19,247	199,961	17,117	182,844	2,001	30,693	17,719	2,246	2,174	6,231	2,324	5,742	9,734	4,510	1,020	4,204	1,526
2001		279,716	22,374	202,017	16,899	185,118	2,020	33,720	19,767	2,395	2,189	6,826	2,542	6,225	11,167	5,488	1,029	4,650	2,192
2002		279,387	23,798	193,868	16,401	177,467	2,263	37,888	22,654	2,610	2,178	7,617	2,828	7,102	12,150	5,778	998	5,374	2,319
2003		293,060	24,982	200,724	17,798	182,926	2,458	41,959	25,727	2,856	2,166	8,226	2,984	7,301	13,141	5,945	1,020	6,176	2,494
2004		304,547	24,898	208,301	20,266	188,035	2,485	44,782	27,872	3,008	2,231	8,562	3,109	7,659	13,779	6,537	1,041	6,201	2,644
2005		327,185	26,322	226,159	21,909	204,250	2,601	47,006	29,019	3,060	2,368	9,265	3,294	7,817	14,452	6,545	1,107	6,800	2,828
2006		352,567	28,240	247,669	24,304	223,365	3,122	48,951	29,600	3,182	2,563	10,076	3,530	7,306	14,336	6,044	1,182	7,111	2,943
2007		379,454	29,859	269,267	26,585	242,682	5,165	51,149	30,160	3,438	2,803	10,833	3,915	5,567	15,132	5,980	1,257	7,896	3,316
2008		406,610	29,839	290,681	36,360	254,321	6,346	53,917	31,178	3,706	3,069	11,640	4,324	4,766	16,363	6,236	1,301	8,827	4,698
2009		404,697	30,560	282,393	39,573	242,820	6,646	56,939	33,433	3,808	3,196	11,884	4,617	5,052	18,002	7,097	1,258	9,647	5,106
2010		406,708	31,217	278,977	34,199	244,778	7,214	60,235	36,561	3,782	3,139	11,990	4,764	5,315	18,294	7,000	1,265	10,029	5,457
2011		424,413	31,505	294,093	31,309	262,784	7,037	63,102	38,710	3,832	3,173	12,488	4,899	5,294	17,825	6,274	1,333	10,218	5,558
2005 constant \$millions																			
1953		31,931	6,281	22,463	8,849	13,614	NA	1,686	922	244	127	226	167	811	690	356	161	173	NA
1954		34,437	5,902	24,955	10,730	14,225	NA	1,846	1,009	273	144	242	178	984	751	371	190	190	NA
1955		37,871	5,865	27,234	12,402	14,832	742	2,062	1,152	301	163	253	193	1,127	790	386	211	193	51
1956		49,548	6,590	36,561	17,459	19,102	1,941	2,279	1,288	329	184	268	210	1,265	848	411	216	222	64
1957		55,893	7,318	41,315	22,158	19,157	2,296	2,443	1,362	361	206	288	226	1,503	939	443	209	288	79
1958		60,220	8,312	44,501	24,474	20,027	1,782	2,709	1,545	397	215	306	246	1,741	1,076	524	210	342	99
1959		68,106	9,167	50,168	28,448	21,719	2,279	3,195	1,939	439	215	333	270	1,903	1,273	679	229	365	120
1960		73,737	9,684	53,951	30,137	23,813	2,565	3,789	2,433	484	215	360	296	2,070	1,420	796	258	366	258
1961		77,444	10,567	55,051	30,229	24,821	2,951	4,432	2,959	534	213	396	330	2,340	1,616	899	261	457	487
1962		82,022	11,476	57,897	31,516	26,381	2,235	5,206	3,601	588	212	441	365	2,623	1,904	1,049	283	572	682

Appendix table 4-2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2011

Year	All performers		Industry FFRDCs ^a				U&C ^b				U&C FFRDCs			Other nonprofit			Nonprofit FFRDCs ^c		
	Funding source:	All sources	Federal	Industry		Total	U&C			Other nonprofit	Total	Other nonprofit		Total					
				Federal	Total		Total	Federal	Other government ^a			Industry	U&C		Federal ^c	Industry	Other nonprofit		
1963		90,932	13,280	63,407	35,586	27,821	2,149	6,114	4,352	649	210	498	405	3,008	2,118	1,215	285	618	856
1964		97,653	15,158	66,706	37,098	29,609	2,367	7,026	5,086	703	207	580	450	3,215	2,132	1,278	281	573	1,048
1965		101,672	15,845	69,340	36,985	32,356	1,873	8,005	5,859	751	208	683	505	3,160	2,370	1,436	311	623	1,079
1966		107,747	16,147	74,167	38,941	35,226	1,733	8,875	6,517	781	220	803	554	3,180	2,619	1,604	342	674	1,025
1967		110,576	16,314	75,620	37,635	37,985	1,985	9,638	7,059	796	244	945	594	3,296	2,657	1,620	350	687	1,066
1968		112,063	15,888	77,298	37,004	40,294	1,885	9,936	7,206	838	261	1,002	629	3,280	2,708	1,654	368	686	1,068
1969		112,544	16,409	77,253	34,578	42,674	2,009	9,871	7,029	901	262	1,009	671	3,165	2,777	1,678	403	697	1,061
1970		108,038	17,082	72,353	30,045	42,308	1,945	9,942	6,931	975	269	1,063	703	2,988	2,782	1,684	391	707	946
1971		105,561	17,268	69,830	28,102	41,728	1,923	10,046	6,891	1,026	282	1,134	713	2,877	2,775	1,670	384	721	842
1972		107,905	17,555	71,351	28,042	43,308	2,057	10,351	7,096	1,059	297	1,170	730	2,947	2,893	1,770	379	743	751
1973		110,098	17,204	73,647	27,034	46,612	1,939	10,504	7,144	1,072	318	1,220	749	2,992	3,137	2,013	373	751	676
1974		108,784	16,737	72,522	24,692	47,829	2,113	10,486	7,044	1,044	339	1,280	779	3,020	3,222	2,082	373	767	685
1975		106,282	16,570	69,899	23,472	46,426	2,166	10,635	7,151	1,037	352	1,286	810	3,179	3,163	2,011	370	781	670
1976		111,118	16,597	73,563	24,433	49,131	2,508	10,985	7,380	1,040	369	1,353	844	3,566	3,208	2,003	381	824	690
1977		114,802	16,454	76,458	25,226	51,231	2,548	11,512	7,662	1,044	409	1,506	891	3,887	3,214	1,961	390	864	728
1978		120,589	17,233	79,756	25,017	54,739	2,678	12,365	8,239	1,097	449	1,681	900	4,385	3,350	2,054	396	900	823
1979		126,549	17,073	84,692	25,946	58,747	2,660	13,058	8,793	1,100	490	1,794	881	4,599	3,575	2,251	398	926	891
1980		132,407	16,399	90,531	26,706	63,825	2,674	13,518	9,078	1,086	552	1,926	877	4,829	3,473	2,130	397	946	982
1981		138,425	16,476	96,554	28,716	67,838	2,652	13,566	8,941	1,112	601	2,025	887	4,757	3,417	2,058	395	964	1,003
1982		145,722	17,146	103,165	30,789	72,376	2,678	13,720	8,804	1,121	655	2,177	963	4,590	3,456	2,038	405	1,013	967
1983		156,156	18,800	110,556	33,150	77,406	2,752	14,324	9,045	1,142	750	2,355	1,032	4,931	3,777	2,266	424	1,087	1,016
1984		171,072	19,937	122,244	36,236	86,008	2,910	15,315	9,617	1,206	866	2,533	1,093	5,427	4,202	2,590	444	1,168	1,038
1985		186,227	21,263	133,780	41,141	92,639	3,026	16,740	10,374	1,354	1,023	2,831	1,158	5,872	4,483	2,751	469	1,264	1,063
1986		191,059	21,457	136,534	41,311	95,224	3,005	18,336	11,166	1,540	1,184	3,207	1,239	6,312	4,556	2,678	499	1,378	860
1987		195,108	20,981	139,213	44,403	94,810	3,080	19,775	11,994	1,644	1,283	3,493	1,361	6,620	4,653	2,632	528	1,493	786
1988		199,858	21,410	141,657	42,128	99,528	3,168	21,229	12,828	1,739	1,393	3,772	1,497	6,838	4,796	2,631	555	1,610	761
1989		204,107	21,909	143,647	37,917	105,730	3,157	22,489	13,402	1,833	1,526	4,103	1,627	6,841	5,277	2,966	582	1,729	787
1990		210,515	21,705	148,758	35,737	113,022	3,217	23,461	13,766	1,938	1,614	4,413	1,730	6,778	5,715	3,249	610	1,856	881
1991		215,189	20,398	153,391	32,230	121,161	3,046	24,353	14,268	1,983	1,661	4,625	1,816	6,849	6,223	3,583	641	1,999	931
1992		216,053	20,714	152,559	29,228	123,331	3,075	25,333	15,062	1,993	1,724	4,663	1,891	6,872	6,524	3,666	681	2,177	977
1993		211,865	21,132	147,569	26,646	120,922	2,512	26,200	15,733	1,990	1,779	4,741	1,957	6,761	6,734	3,635	725	2,374	958
1994		211,847	20,477	146,975	25,367	121,608	2,757	27,051	16,270	2,031	1,823	4,930	1,996	6,628	7,009	3,645	772	2,592	949
1995		225,206	20,731	159,229	25,974	133,255	2,788	27,738	16,670	2,148	1,898	5,041	1,983	6,583	7,146	3,492	823	2,831	991
1996		237,513	19,960	171,348	25,703	145,646	2,765	28,545	16,951	2,240	2,012	5,338	2,004	6,493	7,473	3,497	879	3,097	929
1997		250,901	19,891	183,794	25,779	158,015	2,519	29,429	17,183	2,273	2,138	5,722	2,113	6,461	7,837	3,565	956	3,316	971

Appendix table 4-2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2011

Year	All performers		Industry				U&C ^b				Other nonprofit			Nonprofit					
	Funding source:	All sources	Federal	Total	Federal ^a	Industry ^d	Total	Total	Federal	Other government ^a	Industry	U&C	Other nonprofit	Total	Federal ^c	Industry	Other nonprofit	Total	
1998		264,829	20,304	195,416	25,828	169,588	2,430	30,617	17,745	2,306	2,280	6,038	2,247	6,501	8,574	3,837	1,005	3,733	986
1999		282,726	20,908	209,856	23,621	186,235	2,350	32,472	18,744	2,418	2,399	6,476	2,434	6,514	9,458	4,334	1,073	4,052	1,168
2000		303,084	21,693	225,378	19,293	206,085	2,255	34,595	19,971	2,532	2,450	7,023	2,620	6,472	10,971	5,083	1,149	4,739	1,720
2001		308,304	24,661	222,664	18,626	204,038	2,227	37,166	21,787	2,640	2,413	7,523	2,802	6,862	12,308	6,049	1,134	5,125	2,416
2002		303,036	25,812	210,278	17,789	192,488	2,455	41,094	24,572	2,831	2,362	8,262	3,068	7,703	13,179	6,267	1,083	5,829	2,515
2003		311,319	26,539	213,230	18,907	194,323	2,611	44,573	27,330	3,034	2,301	8,739	3,169	7,756	13,960	6,315	1,084	6,561	2,649
2004		314,660	25,724	215,218	20,939	194,279	2,568	46,269	28,798	3,108	2,305	8,846	3,212	7,913	14,236	6,754	1,076	6,407	2,732
2005		327,185	26,322	226,159	21,909	204,250	2,601	47,006	29,019	3,060	2,368	9,265	3,294	7,817	14,452	6,545	1,107	6,800	2,828
2006		341,532	27,356	239,917	23,543	216,374	3,024	47,419	28,673	3,083	2,483	9,760	3,420	7,078	13,888	5,854	1,145	6,888	2,851
2007		357,212	28,109	253,484	25,027	228,457	4,862	48,151	28,393	3,237	2,638	10,198	3,685	5,241	14,245	5,629	1,183	7,433	3,121
2008		374,472	27,480	267,706	33,486	234,219	5,844	49,656	28,714	3,413	2,827	10,720	3,982	4,389	15,070	5,743	1,198	8,129	4,327
2009		368,815	27,850	257,355	36,064	221,290	6,057	51,891	30,469	3,471	2,913	10,831	4,207	4,604	16,406	6,468	1,146	8,792	4,653
2010		366,434	28,126	251,351	30,812	220,539	6,499	54,270	32,941	3,408	2,828	10,802	4,292	4,789	16,482	6,307	1,140	9,036	4,916
2011		374,394	27,792	259,433	27,619	231,814	6,207	55,665	34,147	3,381	2,799	11,016	4,322	4,670	15,724	5,534	1,176	9,014	4,903

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 Federal support for industry in 1953–54 did not separate federal support for industry and for industry-administered FFRDCs; thus, the data for federal support to industry include support to FFRDCs for those years.

^b 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. Non-S&E R&D was \$1.4 billion in 2003 and \$3.2 billion in 2011. Also, adjustments have been made to U&C R&D for 1998 and later years to eliminate double counting of (since 1998) S&E R&D and (since 2010) non-S&E funds passed through from one academic institution to another. For FY 1998, \$479 million in total pass-through funds and \$421 million in federal pass-through funds were reported. For FY 2011, total pass-through was an estimated \$3,065 million and federal pass-through was an estimated \$2,726 million.

^c Federal support for nonprofit-administered FFRDCs in 1953–54 did not separate federal support for other nonprofits and for nonprofit-administered FFRDCs; thus, the data for federal support to other nonprofit institutions include support to FFRDCs for those years.

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

^e 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 nonprofit sector. R&D expenditures of FFRDCs are chiefly from federal funds, but any nonfederal funds are also 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/NCSSES), 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), Survey of Federally Funded R&D Centers (annual series), R&D Funding and Performance by Nonprofit Organizations (FYs 1996–97). All NSF/NCSSES reports are available at <http://www.nsf.gov/statistics/>.