

Appendix table 4-6

## U.S. R&amp;D 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</sup>	FFRDCs <sup>b</sup>	U&C <sup>c</sup>	U&C	Other nonprofit <sup>d</sup>	Nonprofit FFRDCs <sup>d</sup>	Total	Industry <sup>a</sup>	U&C <sup>c</sup>	Other nonprofit	U&C <sup>c</sup>	Total	Other nonprofit	U&C <sup>c</sup>	
Current \$millions																			
1953		5,160	2,783	1,015	1,430	NA	149	131	58	NA	2,247	2,200	21	26	37	55	28	27	40
1954		5,617	3,098	963	1,750	NA	165	161	61	NA	2,375	2,320	24	31	40	60	31	29	45
1955		6,281	3,603	973	2,057	123	191	187	64	9	2,522	2,460	27	35	42	64	32	32	50
1956		8,500	4,978	1,130	2,995	333	221	217	71	11	3,346	3,277	32	37	46	74	38	36	57
1957		9,908	6,233	1,297	3,928	407	242	267	79	14	3,470	3,396	37	37	51	91	51	40	64
1958		10,915	6,974	1,507	4,436	323	280	316	95	18	3,707	3,630	39	38	56	107	62	45	72
1959		12,490	8,167	1,681	5,217	418	356	349	125	22	4,065	3,983	40	42	61	117	67	50	81
1960		13,711	8,915	1,801	5,604	477	453	385	148	48	4,516	4,428	40	48	67	123	68	55	90
1961		14,564	9,484	1,987	5,685	555	557	440	169	92	4,757	4,668	40	49	75	148	86	62	101
1962		15,636	10,138	2,188	6,008	426	687	500	200	130	5,124	5,029	41	54	84	179	109	70	112
1963		17,519	11,645	2,558	6,856	414	839	580	234	165	5,456	5,360	41	55	96	197	119	78	125
1964		19,103	12,764	2,965	7,257	463	995	629	250	205	5,888	5,792	41	55	114	200	112	88	138
1965		20,252	13,194	3,156	7,367	373	1,167	630	286	215	6,549	6,445	42	62	136	225	124	101	150
1966		22,072	14,165	3,308	7,977	355	1,335	652	329	210	7,331	7,216	45	70	165	252	138	114	160
1967		23,346	14,563	3,444	7,946	419	1,491	696	342	225	8,146	8,020	52	74	200	271	145	126	168
1968		24,666	14,964	3,497	8,145	415	1,586	722	364	235	9,008	8,869	58	81	221	290	151	139	185
1969		25,996	15,228	3,790	7,987	464	1,624	731	388	245	10,011	9,857	61	93	233	316	161	155	208
1970		26,271	14,984	4,154	7,306	473	1,686	727	410	230	10,449	10,288	66	95	259	343	172	171	237
1971		26,952	15,210	4,409	7,175	491	1,760	735	427	215	10,824	10,654	72	98	290	366	184	182	262
1972		28,740	16,039	4,676	7,469	548	1,890	785	472	200	11,715	11,535	79	101	312	393	198	195	282
1973		30,952	16,587	4,837	7,600	545	2,009	841	566	190	13,299	13,104	90	105	343	422	211	211	302
1974		33,359	17,287	5,132	7,572	648	2,160	926	639	210	14,885	14,667	104	114	393	474	235	239	320
1975		35,671	18,533	5,561	7,878	727	2,400	1,067	675	225	15,824	15,582	118	124	432	534	262	272	348
1976		39,435	20,292	5,890	8,671	890	2,619	1,266	711	245	17,702	17,436	131	135	480	592	292	300	369
1977		43,338	22,071	6,211	9,523	962	2,893	1,467	740	275	19,642	19,340	155	147	569	662	326	337	394
1978		48,719	24,414	6,962	10,107	1,082	3,329	1,772	830	333	22,457	22,115	182	160	679	727	363	364	443
1979		55,379	27,225	7,471	11,354	1,164	3,848	2,013	985	390	26,097	25,708	215	174	785	791	405	386	482
1980		63,224	29,986	7,831	12,752	1,277	4,335	2,306	1,017	469	30,929	30,476	264	189	920	871	452	419	519
1981		72,292	33,739	8,605	14,997	1,385	4,670	2,484	1,075	524	35,948	35,428	314	206	1,058	967	504	463	581
1982		80,748	37,133	9,501	17,061	1,484	4,879	2,544	1,129	536	40,692	40,105	363	224	1,207	1,095	561	534	621
1983		89,950	41,451	10,830	19,095	1,585	5,210	2,840	1,306	585	45,264	44,588	432	244	1,357	1,220	626	595	658
1984		102,244	46,470	11,916	21,657	1,739	5,748	3,243	1,548	620	52,187	51,404	518	265	1,514	1,351	698	654	721
1985		114,671	52,641	13,093	25,333	1,863	6,388	3,616	1,694	655	57,962	57,043	630	289	1,743	1,491	778	713	834
1986		120,249	54,622	13,504	26,000	1,891	7,028	3,973	1,686	541	60,991	59,932	745	314	2,019	1,647	867	780	969
1987		126,360	58,609	13,588	28,757	1,995	7,768	4,287	1,704	509	62,576	61,403	831	342	2,262	1,849	967	882	1,065
1988		133,881	60,131	14,342	28,221	2,122	8,593	4,581	1,762	510	67,977	66,672	933	372	2,527	2,081	1,078	1,003	1,165
1989		141,891	60,466	15,231	26,359	2,195	9,317	4,756	2,062	547	74,966	73,501	1,061	405	2,852	2,333	1,202	1,131	1,274
1990		151,993	61,610	15,671	25,802	2,323	9,939	4,894	2,346	636	83,208	81,602	1,166	440	3,187	2,589	1,340	1,249	1,399

Appendix table 4-6

## U.S. R&amp;D 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</sup>	Industry		U&C		Other nonprofit <sup>d</sup>	Total	Industry <sup>a</sup>		U&C <sup>c</sup>	U&C <sup>c</sup>	Total	Other		U&C <sup>c</sup>
						FFRDCs <sup>b</sup>	U&C <sup>c</sup>	FFRDCs	U&C <sup>c</sup>			Industry <sup>a</sup>	U&C <sup>c</sup>				Other nonprofit	U&C <sup>c</sup>	
1991		160,876	60,783	15,249	24,095	2,277	10,667	5,120	2,679	696	92,300	90,580	1,242	479	3,458	2,852	1,494	1,358	1,483
1992		165,350	60,915	15,853	22,369	2,353	11,528	5,259	2,806	748	96,229	94,388	1,320	521	3,569	3,113	1,666	1,448	1,525
1993		165,730	60,528	16,531	20,844	1,965	12,307	5,289	2,843	749	96,549	94,591	1,392	567	3,709	3,388	1,857	1,531	1,557
1994		169,207	60,777	16,355	20,261	2,202	12,996	5,294	2,911	758	99,204	97,131	1,456	617	3,938	3,665	2,071	1,595	1,623
1995		183,625	62,969	16,904	21,178	2,273	13,592	5,367	2,847	808	110,871	108,652	1,548	671	4,110	3,925	2,308	1,617	1,751
1996		197,346	63,394	16,585	21,356	2,297	14,084	5,395	2,906	772	123,417	121,015	1,672	730	4,436	4,239	2,574	1,666	1,861
1997		212,152	64,574	16,819	21,798	2,130	14,530	5,463	3,014	821	136,228	133,611	1,808	809	4,838	4,590	2,804	1,786	1,922
1998		226,457	66,383	17,362	22,086	2,078	15,174	5,559	3,281	843	147,825	145,016	1,950	859	5,163	5,114	3,192	1,922	1,972
1999		245,318	67,366	18,142	20,496	2,039	16,264	5,652	3,761	1,013	164,606	161,594	2,082	931	5,619	5,628	3,516	2,112	2,098
2000		268,905	67,862	19,247	17,117	2,001	17,719	5,742	4,510	1,526	186,037	182,844	2,174	1,020	6,231	6,528	4,204	2,324	2,246
2001		279,716	74,966	22,374	16,899	2,020	19,767	6,225	5,488	2,192	188,336	185,118	2,189	1,029	6,826	7,192	4,650	2,542	2,395
2002		279,387	80,315	23,798	16,401	2,263	22,654	7,102	5,778	2,319	180,643	177,467	2,178	998	7,617	8,203	5,374	2,828	2,610
2003		293,060	86,705	24,982	17,798	2,458	25,727	7,301	5,945	2,494	186,113	182,926	2,166	1,020	8,226	9,160	6,176	2,984	2,856
2004		304,547	92,360	24,898	20,266	2,485	27,872	7,659	6,537	2,644	191,307	188,035	2,231	1,041	8,562	9,310	6,201	3,109	3,008
2005		327,185	97,041	26,322	21,909	2,601	29,019	7,817	6,545	2,828	207,725	204,250	2,368	1,107	9,265	10,095	6,800	3,294	3,060
2006		352,567	101,558	28,240	24,304	3,122	29,600	7,306	6,044	2,943	227,110	223,365	2,563	1,182	10,076	10,641	7,111	3,530	3,182
2007		379,454	106,631	29,859	26,585	5,165	30,160	5,567	5,980	3,316	246,741	242,682	2,803	1,257	10,833	11,810	7,896	3,915	3,438
2008		406,610	119,423	29,839	36,360	6,346	31,178	4,766	6,236	4,698	258,691	254,321	3,069	1,301	11,640	13,151	8,827	4,324	3,706
2009		404,697	127,467	30,560	39,573	6,646	33,433	5,052	7,097	5,106	247,274	242,820	3,196	1,258	11,884	14,264	9,647	4,617	3,808
2010		406,708	126,962	31,217	34,199	7,214	36,561	5,315	7,000	5,457	249,182	244,778	3,139	1,265	11,990	14,793	10,029	4,764	3,782
2011		424,413	125,686	31,505	31,309	7,037	38,710	5,294	6,274	5,558	267,290	262,784	3,173	1,333	12,488	15,117	10,218	4,899	3,832
2005 constant \$millions																			
1953		31,931	17,219	6,281	8,849	NA	922	811	356	NA	13,902	13,614	127	161	226	340	173	167	244
1954		34,437	18,995	5,902	10,730	NA	1,009	984	371	NA	14,559	14,225	144	190	242	368	190	178	273
1955		37,871	21,725	5,865	12,402	742	1,152	1,127	386	51	15,206	14,832	163	211	253	386	193	193	301
1956		49,548	29,018	6,590	17,459	1,941	1,288	1,265	411	64	19,502	19,102	184	216	268	431	222	210	329
1957		55,893	35,159	7,318	22,158	2,296	1,362	1,503	443	79	19,572	19,157	206	209	288	513	288	226	361
1958		60,220	38,477	8,312	24,474	1,782	1,545	1,741	524	99	20,452	20,027	215	210	306	588	342	246	397
1959		68,106	44,535	9,167	28,448	2,279	1,939	1,903	679	120	22,164	21,719	215	229	333	635	365	270	439
1960		73,737	47,944	9,684	30,137	2,565	2,433	2,070	796	258	24,286	23,813	215	258	360	661	366	296	484
1961		77,444	50,431	10,567	30,229	2,951	2,959	2,340	899	487	25,295	24,821	213	261	396	787	457	330	534
1962		82,022	53,182	11,476	31,516	2,235	3,601	2,623	1,049	682	26,876	26,381	212	283	441	936	572	365	588
1963		90,932	60,446	13,280	35,586	2,149	4,352	3,008	1,215	856	28,317	27,821	210	285	498	1,023	618	405	649
1964		97,653	65,251	15,158	37,098	2,367	5,086	3,215	1,278	1,048	30,097	29,609	207	281	580	1,022	573	450	703
1965		101,672	66,236	15,845	36,985	1,873	5,859	3,160	1,436	1,079	32,875	32,356	208	311	683	1,127	623	505	751
1966		107,747	69,147	16,147	38,941	1,733	6,517	3,180	1,604	1,025	35,788	35,226	220	342	803	1,228	674	554	781
1967		110,576	68,974	16,314	37,635	1,985	7,059	3,296	1,620	1,066	38,580	37,985	244	350	945	1,281	687	594	796
1968		112,063	67,985	15,888	37,004	1,885	7,206	3,280	1,654	1,068	40,923	40,294	261	368	1,002	1,315	686	629	838
1969		112,544	65,928	16,409	34,578	2,009	7,029	3,165	1,678	1,061	43,339	42,674	262	403	1,009	1,368	697	671	901

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## U.S. R&amp;D 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</sup>	Industry		U&C	Other nonprofit <sup>d</sup>	Nonprofit FFRDCs <sup>d</sup>	Total	Industry <sup>a</sup>	U&C <sup>c</sup>	Other nonprofit	U&C <sup>c</sup>	Total	Other nonprofit	U&C <sup>c</sup>	U&C <sup>c</sup>
						FFRDCs <sup>b</sup>	U&C <sup>c</sup>												
1970		108,038	61,621	17,082	30,045	1,945	6,931	2,988	1,684	946	42,968	42,308	269	391	1,063	1,411	707	703	975
1971		105,561	59,573	17,268	28,102	1,923	6,891	2,877	1,670	842	42,394	41,728	282	384	1,134	1,434	721	713	1,026
1972		107,905	60,219	17,555	28,042	2,057	7,096	2,947	1,770	751	43,984	43,308	297	379	1,170	1,474	743	730	1,059
1973		110,098	59,002	17,204	27,034	1,939	7,144	2,992	2,013	676	47,304	46,612	318	373	1,220	1,499	751	749	1,072
1974		108,784	56,373	16,737	24,692	2,113	7,044	3,020	2,082	685	48,541	47,829	339	373	1,280	1,547	767	779	1,044
1975		106,282	55,220	16,570	23,472	2,166	7,151	3,179	2,011	670	47,148	46,426	352	370	1,286	1,592	781	810	1,037
1976		111,118	57,177	16,597	24,433	2,508	7,380	3,566	2,003	690	49,881	49,131	369	381	1,353	1,668	824	844	1,040
1977		114,802	58,467	16,454	25,226	2,548	7,662	3,887	1,961	728	52,030	51,231	409	390	1,506	1,755	864	891	1,044
1978		120,589	60,429	17,233	25,017	2,678	8,239	4,385	2,054	823	55,584	54,739	449	396	1,681	1,799	900	900	1,097
1979		126,549	62,213	17,073	25,946	2,660	8,793	4,599	2,251	891	59,635	58,747	490	398	1,794	1,807	926	881	1,100
1980		132,407	62,799	16,399	26,706	2,674	9,078	4,829	2,130	982	64,773	63,825	552	397	1,926	1,824	946	877	1,086
1981		138,425	64,603	16,476	28,716	2,652	8,941	4,757	2,058	1,003	68,834	67,838	601	395	2,025	1,851	964	887	1,112
1982		145,722	67,013	17,146	30,789	2,678	8,804	4,590	2,038	967	73,435	72,376	655	405	2,177	1,976	1,013	963	1,121
1983		156,156	71,960	18,800	33,150	2,752	9,045	4,931	2,266	1,016	78,580	77,406	750	424	2,355	2,119	1,087	1,032	1,142
1984		171,072	77,753	19,937	36,236	2,910	9,617	5,427	2,590	1,038	87,318	86,008	866	444	2,533	2,261	1,168	1,093	1,206
1985		186,227	85,490	21,263	41,141	3,026	10,374	5,872	2,751	1,063	94,131	92,639	1,023	469	2,831	2,422	1,264	1,158	1,354
1986		191,059	86,788	21,457	41,311	3,005	11,166	6,312	2,678	860	96,907	95,224	1,184	499	3,207	2,618	1,378	1,239	1,540
1987		195,108	90,497	20,981	44,403	3,080	11,994	6,620	2,632	786	96,621	94,810	1,283	528	3,493	2,854	1,493	1,361	1,644
1988		199,858	89,764	21,410	42,128	3,168	12,828	6,838	2,631	761	101,476	99,528	1,393	555	3,772	3,107	1,610	1,497	1,739
1989		204,107	86,979	21,909	37,917	3,157	13,402	6,841	2,966	787	107,837	105,730	1,526	582	4,103	3,356	1,729	1,627	1,833
1990		210,515	85,332	21,705	35,737	3,217	13,766	6,778	3,249	881	115,246	113,022	1,614	610	4,413	3,586	1,856	1,730	1,938
1991		215,189	81,304	20,398	32,230	3,046	14,268	6,849	3,583	931	123,462	121,161	1,661	641	4,625	3,815	1,999	1,816	1,983
1992		216,053	79,593	20,714	29,228	3,075	15,062	6,872	3,666	977	125,736	123,331	1,724	681	4,663	4,068	2,177	1,891	1,993
1993		211,865	77,377	21,132	26,646	2,512	15,733	6,761	3,635	958	123,426	120,922	1,779	725	4,741	4,331	2,374	1,957	1,990
1994		211,847	76,093	20,477	25,367	2,757	16,270	6,628	3,645	949	124,204	121,608	1,823	772	4,930	4,589	2,592	1,996	2,031
1995		225,206	77,228	20,731	25,974	2,788	16,670	6,583	3,492	991	135,976	133,255	1,898	823	5,041	4,814	2,831	1,983	2,148
1996		237,513	76,297	19,960	25,703	2,765	16,951	6,493	3,497	929	148,536	145,646	2,012	879	5,338	5,102	3,097	2,004	2,240
1997		250,901	76,368	19,891	25,779	2,519	17,183	6,461	3,565	971	161,109	158,015	2,138	956	5,722	5,428	3,316	2,113	2,273
1998		264,829	77,632	20,304	25,828	2,430	17,745	6,501	3,837	986	172,873	169,588	2,280	1,005	6,038	5,981	3,733	2,247	2,306
1999		282,726	77,639	20,908	23,621	2,350	18,744	6,514	4,334	1,168	189,707	186,235	2,399	1,073	6,476	6,486	4,052	2,434	2,418
2000		303,084	76,487	21,693	19,293	2,255	19,971	6,472	5,083	1,720	209,684	206,085	2,450	1,149	7,023	7,358	4,739	2,620	2,532
2001		308,304	82,628	24,661	18,626	2,227	21,787	6,862	6,049	2,416	207,585	204,038	2,413	1,134	7,523	7,927	5,125	2,802	2,640
2002		303,036	87,113	25,812	17,789	2,455	24,572	7,703	6,267	2,515	195,933	192,488	2,362	1,083	8,262	8,897	5,829	3,068	2,831
2003		311,319	92,107	26,539	18,907	2,611	27,330	7,756	6,315	2,649	197,708	194,323	2,301	1,084	8,739	9,730	6,561	3,169	3,034
2004		314,660	95,427	25,724	20,939	2,568	28,798	7,913	6,754	2,732	197,660	194,279	2,305	1,076	8,846	9,619	6,407	3,212	3,108
2005		327,185	97,041	26,322	21,909	2,601	29,019	7,817	6,545	2,828	207,725	204,250	2,368	1,107	9,265	10,095	6,800	3,294	3,060
2006		341,532	98,379	27,356	23,543	3,024	28,673	7,078	5,854	2,851	220,002	216,374	2,483	1,145	9,760	10,308	6,888	3,420	3,083
2007		357,212	100,381	28,109	25,027	4,862	28,393	5,241	5,629	3,121	232,278	228,457	2,638	1,183	10,198	11,118	7,433	3,685	3,237
2008		374,472	109,984	27,480	33,486	5,844	28,714	4,389	5,743	4,327	238,244	234,219	2,827	1,198	10,720	12,111	8,129	3,982	3,413

Appendix table 4-6

**U.S. R&D 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</sup>	FFRDCs <sup>b</sup>	U&C <sup>c</sup>	U&C	Other nonprofit <sup>d</sup>	Nonprofit FFRDCs <sup>d</sup>	Total	Industry <sup>e</sup>	U&C <sup>c</sup>	Other nonprofit	U&C <sup>c</sup>	Total	Other nonprofit	U&C <sup>c</sup>	U&C <sup>c</sup>
		2009		368,815	116,165	27,850	36,064	6,057	30,469	4,604	6,468	4,653	225,349	221,290	2,913	1,146	10,831	12,999	8,792
2010		366,434	114,390	28,126	30,812	6,499	32,941	4,789	6,307	4,916	224,506	220,539	2,828	1,140	10,802	13,328	9,036	4,292	3,408
2011		374,394	110,873	27,792	27,619	6,207	34,147	4,670	5,534	4,903	235,788	231,814	2,799	1,176	11,016	13,335	9,014	4,322	3,381

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> 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.

<sup>c</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. 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.

<sup>d</sup> 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.

<sup>e</sup> Industry sources of funding for industry R&D expenditures include all nonfederal sources of funding 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 from 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/>.