

TABLE 2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2017

(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural ^a	FFRDCs ^b		Nonfederal government ^c	Business ^d						Higher education ^e				Other nonprofit organizations ^f					
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	ONP	Total	Federal	Business	ONP
Current \$millions																						
1953	5,160	1,146	1,015	131	131	NA	3,630	2,200	1,430	NA	NA	NA	273	149	40	21	37	27	112	58	26	28
1954	5,621	1,127	963	165	165	NA	4,070	2,320	1,750	NA	NA	NA	301	165	45	24	40	29	123	61	31	31
1955	6,185	1,292	973	319	319	NA	4,420	2,460	1,960	NA	NA	NA	342	191	50	27	42	32	132	65	35	32
1956	8,501	1,692	1,131	561	561	NA	6,272	3,277	2,995	NA	NA	NA	391	221	57	32	46	36	146	71	37	38
1957	9,908	1,985	1,297	688	688	NA	7,324	3,396	3,928	NA	NA	NA	433	242	64	37	51	40	167	79	37	51
1958	10,915	2,163	1,507	657	657	NA	8,066	3,630	4,436	NA	NA	NA	491	280	72	39	56	45	195	95	38	62
1959	12,490	2,470	1,681	789	789	NA	9,200	3,983	5,217	NA	NA	NA	586	356	81	40	61	50	234	125	42	67
1960	13,711	2,711	1,801	910	910	NA	10,032	4,428	5,604	NA	NA	NA	705	453	90	40	67	55	264	148	48	68
1961	14,564	3,074	1,987	1,087	1,087	NA	10,353	4,668	5,685	NA	NA	NA	834	557	101	40	75	62	304	169	49	86
1962	15,636	3,244	2,188	1,056	1,056	NA	11,037	5,029	6,008	NA	NA	NA	993	687	112	41	84	70	363	200	54	109
1963	17,519	3,717	2,559	1,159	1,159	NA	12,216	5,360	6,856	NA	NA	NA	1,178	839	125	41	96	78	408	234	55	119
1964	19,103	4,263	2,966	1,297	1,297	NA	13,049	5,792	7,257	NA	NA	NA	1,375	995	138	41	114	88	417	250	55	112
1965	20,253	4,374	3,157	1,218	1,218	NA	13,812	6,445	7,367	NA	NA	NA	1,595	1,167	150	42	136	101	472	286	62	124
1966	22,072	4,525	3,308	1,217	1,217	NA	15,193	7,216	7,977	NA	NA	NA	1,818	1,335	160	45	165	114	537	329	70	138
1967	23,347	4,785	3,445	1,340	1,340	NA	15,966	8,020	7,946	NA	NA	NA	2,035	1,491	168	52	200	126	561	342	74	145
1968	24,667	4,870	3,498	1,372	1,372	NA	17,014	8,869	8,145	NA	NA	NA	2,187	1,586	185	58	221	139	596	364	81	151
1969	25,996	5,230	3,790	1,440	1,440	NA	17,844	9,857	7,987	NA	NA	NA	2,280	1,624	208	61	233	155	642	388	93	161
1970	26,271	5,583	4,154	1,430	1,430	NA	17,594	10,288	7,306	NA	NA	NA	2,418	1,686	237	66	259	171	677	410	95	172
1971	26,952	5,849	4,409	1,441	1,441	NA	17,829	10,654	7,175	NA	NA	NA	2,565	1,760	262	72	290	182	709	427	98	184
1972	28,740	6,209	4,676	1,533	1,533	NA	19,004	11,535	7,469	NA	NA	NA	2,757	1,890	282	79	312	195	771	472	101	198
1973	30,952	6,413	4,837	1,576	1,576	NA	20,704	13,104	7,600	NA	NA	NA	2,954	2,009	301	90	344	210	882	566	105	211
1974	33,359	6,916	5,132	1,784	1,784	NA	22,239	14,667	7,572	NA	NA	NA	3,216	2,160	320	105	394	239	988	639	114	235
1975	35,671	7,580	5,561	2,019	2,019	NA	23,460	15,582	7,878	NA	NA	NA	3,570	2,400	348	118	432	272	1,062	675	124	262
1976	39,435	8,291	5,890	2,401	2,401	NA	26,107	17,436	8,671	NA	NA	NA	3,899	2,619	369	131	480	300	1,139	711	135	292
1977	43,338	8,916	6,211	2,704	2,704	NA	28,863	19,340	9,523	NA	NA	NA	4,346	2,893	394	155	569	337	1,213	740	147	326
1978	48,719	10,148	6,962	3,186	3,186	NA	32,222	22,115	10,107	NA	NA	NA	4,996	3,329	443	182	679	364	1,353	830	160	363
1979	55,379	11,038	7,471	3,567	3,567	NA	37,062	25,708	11,354	NA	NA	NA	5,715	3,848	482	215	785	386	1,564	985	174	405
1980	63,224	11,882	7,831	4,052	4,052	NA	43,228	30,476	12,752	NA	NA	NA	6,455	4,335	519	264	920	419	1,658	1,017	189	452
1981	72,292	12,998	8,605	4,393	4,393	NA	50,425	35,428	14,997	NA	NA	NA	7,085	4,670	581	314	1,058	463	1,784	1,075	206	504
1982	80,748	14,065	9,501	4,563	4,563	NA	57,166	40,105	17,061	NA	NA	NA	7,603	4,879	621	363	1,207	534	1,915	1,129	224	561
1983	89,949	15,840	10,830	5,011	5,011	NA	63,683	44,588	19,095	NA	NA	NA	8,251	5,210	658	432	1,357	595	2,175	1,306	244	626
1984	102,244	17,518	11,916	5,602	5,602	NA	73,061	51,404	21,657	NA	NA	NA	9,154	5,748	721	518	1,514	654	2,511	1,548	265	698
1985	114,671	19,227	13,093	6,134	6,134	NA	82,376	57,043	25,333	NA	NA	NA	10,308	6,388	834	630	1,743	713	2,761	1,694	289	778

TABLE 2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2017

(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural ^a	FFRDCs ^b		Nonfederal government ^c	Business ^d					Higher education ^e					Other nonprofit organizations ^f					
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	ONP	Total	Federal	Business	ONP
1986	120,249	19,909	13,505	6,405	6,405	NA	85,932	59,932	26,000	NA	NA	NA	11,540	7,028	969	745	2,019	780	2,867	1,686	314	867
1987	126,360	20,380	13,588	6,792	6,792	NA	90,160	61,403	28,757	NA	NA	NA	12,807	7,768	1,065	831	2,262	882	3,013	1,704	342	967
1988	133,881	21,555	14,342	7,212	7,212	NA	94,893	66,672	28,221	NA	NA	NA	14,221	8,593	1,165	933	2,527	1,003	3,212	1,762	372	1,078
1989	141,891	22,728	15,231	7,497	7,497	NA	99,860	73,501	26,359	NA	NA	NA	15,634	9,317	1,274	1,061	2,852	1,131	3,669	2,062	405	1,202
1990	151,993	23,524	15,671	7,853	7,853	NA	107,404	81,602	25,802	NA	NA	NA	16,939	9,939	1,399	1,166	3,187	1,249	4,126	2,346	440	1,340
1991	160,876	23,343	15,249	8,093	8,093	NA	114,675	90,580	24,095	NA	NA	NA	18,206	10,667	1,483	1,242	3,458	1,358	4,652	2,679	479	1,494
1992	165,350	24,212	15,853	8,360	8,360	NA	116,757	94,388	22,369	NA	NA	NA	19,388	11,528	1,525	1,320	3,569	1,448	4,993	2,806	521	1,666
1993	165,730	24,534	16,531	8,003	8,003	NA	115,435	94,591	20,844	NA	NA	NA	20,495	12,307	1,557	1,392	3,709	1,531	5,267	2,843	567	1,857
1994	169,207	24,610	16,355	8,254	8,254	NA	117,392	97,131	20,261	NA	NA	NA	21,607	12,996	1,623	1,456	3,938	1,595	5,599	2,911	617	2,071
1995	183,625	25,352	16,904	8,448	8,448	NA	129,830	108,652	21,178	NA	NA	NA	22,617	13,592	1,751	1,548	4,110	1,617	5,827	2,847	671	2,308
1996	197,346	25,049	16,585	8,464	8,464	NA	142,371	121,015	21,356	NA	NA	NA	23,718	14,084	1,861	1,672	4,436	1,666	6,209	2,905	730	2,574
1997	211,894	25,232	16,819	8,413	8,413	NA	155,409	133,611	21,798	NA	NA	NA	24,627	14,317	1,902	1,788	4,852	1,767	6,626	3,014	809	2,804
1998	225,759	25,843	17,362	8,480	8,480	NA	167,102	145,016	22,086	NA	NA	NA	25,583	14,699	1,920	1,898	5,193	1,871	7,232	3,281	859	3,092
1999	244,451	26,846	18,142	8,704	8,704	NA	182,090	161,594	20,496	NA	NA	NA	27,475	15,714	2,036	2,020	5,654	2,050	8,040	3,761	931	3,349
2000	267,950	28,516	19,247	9,269	9,269	NA	199,961	182,844	17,117	NA	NA	NA	29,916	17,095	2,182	2,112	6,270	2,258	9,557	4,510	1,020	4,027
2001	278,539	32,812	22,374	10,438	10,056	NA	202,017	185,118	16,899	NA	NA	NA	32,750	18,976	2,319	2,120	6,874	2,461	10,960	5,488	1,029	4,443
2002	277,911	35,482	23,798	11,684	11,242	NA	193,868	177,467	16,401	NA	NA	NA	36,684	21,655	2,521	2,103	7,673	2,732	11,878	5,778	998	5,102
2003	291,365	37,235	24,982	12,253	11,841	NA	200,724	182,926	17,798	NA	NA	NA	40,577	24,567	2,756	2,090	8,286	2,879	12,829	5,945	1,020	5,864
2004	302,731	37,685	24,898	12,788	12,471	NA	208,301	188,035	20,266	NA	NA	NA	43,296	26,624	2,896	2,148	8,637	2,993	13,448	6,537	1,041	5,870
2005	325,288	39,568	26,322	13,246	12,894	NA	226,159	204,250	21,909	NA	NA	NA	45,490	27,743	2,945	2,279	9,353	3,170	14,072	6,545	1,107	6,420
2006	350,908	41,610	28,240	13,370	12,969	309	247,669	223,365	24,304	NA	NA	NA	47,369	28,277	3,059	2,464	10,176	3,394	13,952	6,044	1,182	6,726
2007	377,890	44,132	29,859	14,273	13,845	388	269,267	242,682	26,585	NA	NA	NA	49,430	28,725	3,308	2,697	10,933	3,767	14,674	5,980	1,257	7,438
2008	404,773	45,649	29,839	15,810	15,369	491	290,680	225,848	36,360	12,181	15,533	758	52,054	29,635	3,567	2,954	11,738	4,161	15,898	6,236	1,301	8,362
2009	402,931	47,572	30,560	17,013	16,571	606	282,393	221,104	39,573	9,567	11,464	685	54,909	31,741	3,679	3,033	12,056	4,400	17,452	7,097	1,258	9,097
2010	406,580	50,798	31,970	18,828	18,409	691	278,977	218,187	34,199	11,013	14,532	1,046	58,084	34,682	3,673	2,953	12,262	4,515	18,030	7,093	1,265	9,672
2011	426,161	53,524	34,950	18,574	18,176	694	294,092	235,426	31,309	11,124	15,351	882	60,089	35,742	3,615	2,999	13,104	4,630	17,762	6,564	1,333	9,865
2012	433,619	52,144	34,017	18,128	17,727	665	302,251	242,674	30,621	11,624	16,699	633	60,896	34,968	3,560	3,169	14,300	4,899	17,664	6,239	1,366	10,059
2013	453,964	51,086	33,406	17,680	17,296	620	322,528	259,908	29,362	13,450	18,795	1,013	61,546	33,839	3,643	3,375	15,378	5,312	18,185	5,970	1,444	10,770
2014	475,418	52,687	34,783	17,903	17,523	583	340,728	277,272	26,554	13,227	22,544	1,131	62,346	33,121	3,714	3,601	16,209	5,701	19,075	6,135	1,520	11,420
2015	493,687	52,847	34,199	18,649	18,287	608	355,821	289,892	26,990	14,595	23,102	1,242	64,642	33,554	3,772	3,842	17,320	6,154	19,769	6,219	1,572	11,979
2016 ^g	515,305	51,140	31,715	19,424	19,059	651	374,685	306,611	23,772	14,239	28,812	1,251	67,813	34,677	3,953	4,042	18,462	6,679	21,017	6,641	1,649	12,728
2017 ^h	542,222	51,326	31,168	20,159	19,786	688	397,064	323,337	23,785	16,399	32,102	1,441	70,826	35,736	4,103	4,266	19,511	7,210	22,319	7,212	1,725	13,382

Constant 2012 \$millions

TABLE 2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2017

(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural ^a	FFRDCs ^b		Nonfederal government ^c	Business ^d						Higher education ^e				Other nonprofit organizations ^f					
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	ONP	Total	Federal	Business	ONP
1953	35,738	7,937	7,030	907	907	NA	25,141	15,237	9,904	NA	NA	NA	1,887	1,032	274	142	253	187	772	398	180	194
1954	38,573	7,735	6,606	1,129	1,129	NA	27,932	15,922	12,010	NA	NA	NA	2,066	1,129	305	161	271	199	841	415	213	213
1955	41,735	8,715	6,566	2,149	2,149	NA	29,825	16,600	13,226	NA	NA	NA	2,308	1,289	337	182	283	216	887	435	236	216
1956	55,467	11,037	7,377	3,661	3,661	NA	40,926	21,383	19,543	NA	NA	NA	2,551	1,442	369	206	300	235	953	463	241	248
1957	62,586	12,535	8,193	4,343	4,343	NA	46,263	21,451	24,812	NA	NA	NA	2,735	1,525	404	231	322	253	1,052	496	234	322
1958	67,414	13,359	9,304	4,055	4,055	NA	49,817	22,420	27,398	NA	NA	NA	3,033	1,729	445	241	343	275	1,204	587	235	383
1959	76,086	15,047	10,241	4,807	4,807	NA	56,046	24,264	31,782	NA	NA	NA	3,570	2,166	490	241	372	302	1,422	758	256	408
1960	82,408	16,291	10,822	5,469	5,469	NA	60,296	26,614	33,682	NA	NA	NA	4,234	2,720	541	240	403	331	1,587	890	288	409
1961	86,615	18,279	11,817	6,462	6,462	NA	61,571	27,761	33,810	NA	NA	NA	4,957	3,310	598	238	443	369	1,808	1,005	291	511
1962	91,874	19,058	12,853	6,205	6,205	NA	64,851	29,549	35,302	NA	NA	NA	5,832	4,034	658	238	494	408	2,133	1,175	317	640
1963	101,759	21,590	14,861	6,729	6,729	NA	70,956	31,133	39,823	NA	NA	NA	6,842	4,870	726	235	558	453	2,370	1,359	319	691
1964	109,296	24,387	16,967	7,421	7,421	NA	74,659	33,138	41,520	NA	NA	NA	7,864	5,693	787	232	649	503	2,386	1,430	315	641
1965	113,794	24,576	17,736	6,841	6,841	NA	77,606	36,213	41,393	NA	NA	NA	8,959	6,557	840	233	764	565	2,652	1,607	348	697
1966	120,642	24,730	18,081	6,649	6,649	NA	83,042	39,441	43,601	NA	NA	NA	9,937	7,297	875	246	899	620	2,932	1,796	383	754
1967	124,005	25,415	18,298	7,117	7,117	NA	84,802	42,597	42,204	NA	NA	NA	10,809	7,917	892	274	1,060	667	2,980	1,816	393	770
1968	125,661	24,807	17,818	6,990	6,990	NA	86,676	45,182	41,494	NA	NA	NA	11,141	8,080	940	293	1,123	706	3,036	1,854	413	769
1969	126,251	25,401	18,407	6,994	6,994	NA	86,662	47,872	38,790	NA	NA	NA	11,073	7,885	1,010	294	1,132	753	3,116	1,882	452	782
1970	121,194	25,757	19,162	6,595	6,595	NA	81,164	47,460	33,704	NA	NA	NA	11,152	7,775	1,093	302	1,193	789	3,121	1,889	438	793
1971	118,327	25,680	19,356	6,324	6,324	NA	78,275	46,775	31,501	NA	NA	NA	11,261	7,725	1,150	316	1,271	799	3,111	1,872	430	808
1972	120,958	26,130	19,678	6,452	6,452	NA	79,981	48,547	31,434	NA	NA	NA	11,603	7,954	1,187	332	1,311	819	3,243	1,984	425	833
1973	123,495	25,585	19,297	6,288	6,288	NA	82,607	52,284	30,323	NA	NA	NA	11,784	8,014	1,201	359	1,373	838	3,519	2,258	419	842
1974	122,118	25,319	18,788	6,531	6,531	NA	81,410	53,691	27,719	NA	NA	NA	11,773	7,907	1,170	383	1,440	873	3,617	2,337	418	861
1975	119,507	25,396	18,632	6,764	6,764	NA	78,596	52,203	26,393	NA	NA	NA	11,959	8,041	1,166	395	1,446	911	3,556	2,261	416	879
1976	125,226	26,327	18,704	7,623	7,623	NA	82,903	55,368	27,535	NA	NA	NA	12,380	8,317	1,172	416	1,524	951	3,616	2,258	429	928
1977	129,570	26,656	18,571	8,085	8,085	NA	86,294	57,822	28,472	NA	NA	NA	12,994	8,648	1,178	462	1,700	1,006	3,628	2,213	440	975
1978	136,085	28,346	19,447	8,899	8,899	NA	90,004	61,773	28,231	NA	NA	NA	13,954	9,297	1,237	507	1,897	1,015	3,781	2,318	447	1,015
1979	142,839	28,470	19,271	9,200	9,200	NA	95,594	66,309	29,285	NA	NA	NA	14,739	9,925	1,242	553	2,025	994	4,035	2,541	449	1,045
1980	149,562	28,109	18,524	9,585	9,585	NA	102,260	72,094	30,166	NA	NA	NA	15,270	10,254	1,227	623	2,175	991	3,923	2,406	448	1,069
1981	156,232	28,090	18,595	9,494	9,494	NA	108,974	76,564	32,410	NA	NA	NA	15,312	10,091	1,256	679	2,285	1,001	3,856	2,322	445	1,088
1982	164,350	28,626	19,338	9,288	9,288	NA	116,353	81,628	34,725	NA	NA	NA	15,474	9,929	1,264	739	2,456	1,086	3,897	2,298	456	1,143
1983	176,179	31,025	21,211	9,814	9,814	NA	124,732	87,332	37,400	NA	NA	NA	16,161	10,205	1,289	846	2,657	1,164	4,261	2,557	478	1,226
1984	193,284	33,116	22,526	10,591	10,591	NA	138,117	97,176	40,941	NA	NA	NA	17,304	10,865	1,363	978	2,862	1,235	4,747	2,926	502	1,319
1985	210,131	35,232	23,992	11,240	11,240	NA	150,952	104,530	46,422	NA	NA	NA	18,888	11,706	1,527	1,154	3,194	1,307	5,059	3,104	529	1,426
1986	216,004	35,763	24,258	11,505	11,505	NA	154,361	107,657	46,704	NA	NA	NA	20,729	12,624	1,741	1,338	3,626	1,401	5,151	3,028	564	1,558

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(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural ^a	FFRDCs ^b		Nonfederal government ^c	Business ^d						Higher education ^e				Other nonprofit organizations ^f					
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	ONP	Total	Federal	Business	ONP
1987	221,505	35,725	23,820	11,905	11,905	NA	158,047	107,637	50,410	NA	NA	NA	22,450	13,617	1,866	1,457	3,965	1,545	5,282	2,988	599	1,695
1988	226,693	36,497	24,285	12,212	12,212	NA	160,677	112,892	47,785	NA	NA	NA	24,080	14,550	1,973	1,580	4,279	1,698	5,439	2,984	630	1,826
1989	231,189	37,032	24,816	12,216	12,216	NA	162,706	119,758	42,948	NA	NA	NA	25,473	15,180	2,076	1,728	4,647	1,843	5,978	3,360	659	1,959
1990	238,716	36,946	24,613	12,333	12,333	NA	168,686	128,162	40,524	NA	NA	NA	26,604	15,610	2,197	1,831	5,005	1,962	6,480	3,684	691	2,105
1991	244,403	35,462	23,167	12,295	12,295	NA	174,215	137,609	36,605	NA	NA	NA	27,659	16,205	2,252	1,886	5,253	2,063	7,067	4,070	728	2,270
1992	245,602	35,964	23,547	12,417	12,417	NA	173,425	140,199	33,226	NA	NA	NA	28,798	17,122	2,265	1,960	5,300	2,150	7,416	4,167	774	2,474
1993	240,467	35,597	23,985	11,612	11,612	NA	167,491	137,247	30,244	NA	NA	NA	29,737	17,857	2,259	2,019	5,381	2,221	7,643	4,125	823	2,695
1994	240,380	34,961	23,235	11,726	11,726	NA	166,770	137,987	28,783	NA	NA	NA	30,695	18,462	2,305	2,068	5,594	2,265	7,954	4,136	876	2,941
1995	255,506	35,276	23,521	11,755	11,755	NA	180,653	151,184	29,468	NA	NA	NA	31,471	18,913	2,436	2,153	5,719	2,249	8,108	3,962	934	3,212
1996	269,662	34,227	22,662	11,565	11,565	NA	194,541	165,360	29,182	NA	NA	NA	32,409	19,245	2,543	2,284	6,061	2,276	8,485	3,970	998	3,517
1997	284,628	33,894	22,592	11,301	11,301	NA	208,754	179,474	29,280	NA	NA	NA	33,080	19,232	2,555	2,402	6,517	2,374	8,901	4,049	1,086	3,766
1998	299,880	34,327	23,063	11,264	11,264	NA	221,965	192,628	29,337	NA	NA	NA	33,982	19,525	2,551	2,522	6,898	2,486	9,606	4,358	1,141	4,107
1999	320,086	35,152	23,755	11,397	11,397	NA	238,430	211,592	26,838	NA	NA	NA	35,975	20,576	2,667	2,646	7,403	2,684	10,528	4,924	1,219	4,385
2000	343,186	36,522	24,651	11,872	11,872	NA	256,107	234,184	21,923	NA	NA	NA	38,316	21,895	2,795	2,705	8,030	2,892	12,240	5,776	1,306	5,158
2001	349,091	41,123	28,042	13,081	12,603	NA	253,187	232,007	21,179	NA	NA	NA	41,045	23,783	2,906	2,657	8,615	3,085	13,736	6,878	1,290	5,569
2002	342,881	43,777	29,361	14,416	13,870	NA	239,190	218,955	20,235	NA	NA	NA	45,260	26,717	3,110	2,595	9,467	3,371	14,654	7,129	1,231	6,294
2003	352,925	45,102	30,260	14,842	14,343	NA	243,133	221,575	21,558	NA	NA	NA	49,150	29,757	3,338	2,532	10,036	3,487	15,540	7,201	1,236	7,103
2004	357,079	44,451	29,367	15,084	14,709	NA	245,697	221,793	23,904	NA	NA	NA	51,069	31,404	3,415	2,533	10,187	3,530	15,863	7,710	1,228	6,924
2005	372,095	45,261	30,110	15,151	14,749	NA	258,702	233,641	25,062	NA	NA	NA	52,035	31,735	3,369	2,607	10,698	3,627	16,097	7,486	1,266	7,344
2006	389,612	46,199	31,354	14,845	14,399	343	274,986	248,001	26,985	NA	NA	NA	52,593	31,396	3,397	2,735	11,298	3,768	15,491	6,710	1,312	7,468
2007	408,591	47,717	32,285	15,432	14,970	420	291,143	262,398	28,745	NA	NA	NA	53,446	31,058	3,577	2,916	11,821	4,073	15,866	6,465	1,359	8,042
2008	429,311	48,416	31,648	16,768	16,300	521	308,301	239,539	38,564	12,919	16,475	804	55,210	31,432	3,783	3,133	12,449	4,413	16,862	6,614	1,379	8,869
2009	424,122	50,074	32,167	17,907	17,442	637	297,245	232,732	41,654	10,070	12,067	721	57,796	33,410	3,873	3,192	12,690	4,632	18,370	7,470	1,324	9,575
2010	423,033	52,854	33,264	19,590	19,154	719	290,267	227,017	35,583	11,459	15,120	1,088	60,434	36,085	3,822	3,073	12,758	4,697	18,760	7,380	1,316	10,063
2011	434,334	54,551	35,621	18,930	18,524	707	299,733	239,941	31,909	11,337	15,645	899	61,241	36,428	3,684	3,056	13,355	4,719	18,103	6,690	1,358	10,054
2012	433,619	52,144	34,017	18,128	17,727	665	302,251	242,674	30,621	11,624	16,699	633	60,896	34,968	3,560	3,169	14,300	4,899	17,664	6,239	1,366	10,059
2013	446,135	50,205	32,830	17,375	16,998	609	316,965	255,425	28,856	13,218	18,471	996	60,484	33,255	3,580	3,316	15,112	5,220	17,871	5,867	1,420	10,585
2014	458,544	50,817	33,549	17,268	16,901	562	328,634	267,431	25,612	12,758	21,744	1,091	60,133	31,945	3,582	3,473	15,634	5,498	18,398	5,917	1,466	11,014
2015	471,126	50,432	32,636	17,796	17,451	580	339,560	276,644	25,757	13,928	22,046	1,185	61,688	32,021	3,600	3,666	16,528	5,873	18,866	5,934	1,500	11,431
2016 ^g	486,437	48,275	29,939	18,336	17,991	614	353,695	289,434	22,440	13,441	27,198	1,181	64,014	32,734	3,732	3,816	17,428	6,305	19,840	6,269	1,556	12,015
2017 ^h	502,299	47,547	28,873	18,674	18,329	637	367,828	299,530	22,034	15,191	29,738	1,335	65,611	33,105	3,801	3,952	18,074	6,679	20,675	6,681	1,598	12,397

NA = not available.

TABLE 2

U.S. R&D expenditures, by performing sector and source of funds: 1953–2017

(Millions of current and of constant 2012 dollars)

FFRDC = federally funded research and development center; ONP = other nonprofit organization.

^a Includes expenditures for federal intramural R&D as well as costs associated with administering extramural R&D. Beginning in 2016, the data on federal intramural R&D explicitly excludes expenditures for preproduction development. (Preproduction development is nonexperimental work on a product or system before it goes into full production. For example, activities and programs that are categorized as "Operational Systems Development" in the Department of Defense's Research, Development, Test and Evaluation [RDT&E] budget activity structure.) This change aligns the federal intramural data with a recent change introduced in the definition of R&D by the U.S. Office of Management and Budget. In 2016 and 2017, preproduction development totaled about \$5.5 billion each year.

^b The R&D expenditures of FFRDCs are chiefly federally funded; the small remainder (\$366 million of the \$19.4 billion total in 2016) reflects funding from state or local government, businesses, ONPs, and other sources. Prior to 2001, the data did not distinguish federal and nonfederal funding for FFRDC R&D and are reported as all federal funding; in 2001 and forward, the data provide detail on federal and nonfederal sources of funding (see table 6). The data for 1953–54 reflect the R&D performance of only university-administered FFRDCs. In 1953–54, the R&D performance and funding of industry-administered FFRDCs were not separately reported but are included instead in the business R&D data for these years. Similarly, in 1953–54, the R&D performance and funding for nonprofit-administered FFRDCs were not separately reported but are included instead in the ONP R&D data for these years.

^c State intramural R&D performance includes state agency and department employees and services performed by others in support of internal R&D projects. Data on state government intramural R&D became available starting in 2006. Funding for this R&D is mainly states' own funds or from the federal government, but other sources include other nonfederal governments, businesses, higher education, or nonprofit organizations (see table 6 for further detail).

^d R&D performed in the domestic United States by all companies with five or more employees, publicly or privately held. In 2008 and later years, the data on business R&D comes from the National Science Foundation's (NSF's) annual Business Research and Development and Innovation Survey (BRDIS). BRDIS distinguishes R&D performed and paid for by the company from R&D performed by the company but paid for by one or more others (i.e., the federal government, state or local government, domestic companies, foreign companies, foreign governments, other organizations inside or outside the United States). Prior to 2008, the data distinguished only federally and nonfederally funded business R&D; for these years, the own-funding data column includes all nonfederal sources of funding. Business R&D performance in the United States paid for by foreign business includes funding from parent or unaffiliated businesses outside the United States (\$17.7 billion in 2016) and funding from U.S. businesses' foreign subsidiaries (\$11.1 billion in 2016). Business R&D performance funded by other sources includes state government, foreign government, and all other sources in the United States and abroad.

^e Before 2003, higher education R&D covered only science and engineering (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 \$4.2 billion in 2016.) In 1998 and later years, the higher education R&D data have been adjusted to eliminate double counting of R&D funds passed through from academic institutions to other academic and nonacademic (business, nonprofit organization, other) subrecipients. (In FY 1998, the total of pass-through funds reported was \$994 million, with \$479 million to other academic recipients and \$337 million nonacademic recipients. In FY 2016, total pass-through was \$5.734 billion, with \$3.150 billion to other academic recipients and \$2.584 billion to nonacademic recipients.) The nonfederal government funding category includes support from state and local government. The other nonprofit funding category includes support from nonprofit organizations and other sources not elsewhere classified (in 2016, \$4.548 billion was from nonprofit organizations, and \$2.131 billion was from these unclassified other sources).

^f The data on other nonprofit R&D funded by the federal government come from NSF's annual Survey of Federal Funds for Research and Development. The other nonprofit R&D funded by nonfederal government is included in the ONP category. The 1998–2017 data for other components funded by businesses and by the nonprofit sector itself are estimated, based on parameters from the 1996–97 Survey of Research and Development Funding and Performance by Nonprofit Organizations.

^g Some data for 2016 are preliminary and may later be revised.

^h The data for 2017 are estimates and will later be revised.

Note(s)

Detail may not add to total because of rounding. Constant-dollar estimates are derived from unrounded data. For trend comparisons, use only the historical data reported in this table because some back-year data may have been revised. Except for the nonprofit sector, data are based on annual reports by performers in NSF's annual R&D expenditure surveys: BRDIS, Higher Education Research and Development Survey, Survey of Federal Funds for Research and Development, FFRDC Research and Development Expenditures Survey, and Survey of State Government Research and Development. R&D expenditures by business performers—and, before 2001, also industry-administered FFRDCs—are collected on a calendar year basis. Expenditures for other performers are calendar year approximations based on fiscal year data. For federal performers in 1977 and afterward, the approximation equals 75% of the amount reported in the same fiscal year plus 25% of the amount reported in the subsequent fiscal year. Prior to 1977, the federal fiscal year began on 1 July, not 1 October, and the approximation is 50% of the amount reported in the same fiscal year plus 50% of the amount reported in the subsequent fiscal year. The fiscal year for higher education performers and state government performers generally begins 1 July, and the calendar year approximation is 50% of the amount reported in the same fiscal year plus 50% of the amount reported in the subsequent fiscal year.

Source(s)

National Science Foundation, National Center for Science and Engineering Statistics, National Patterns of R&D Resources (annual series).