

TABLE 2

## U.S. R&amp;D expenditures, by performing sector and source of funds: 1953–2021

(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural <sup>a</sup>	FFRDCs <sup>b</sup>		Nonfederal government <sup>c</sup>	Business <sup>d</sup>							Higher education <sup>e</sup>					NPOs <sup>f</sup>				
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Nonfederal government	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	NPO	Total	Federal	Business	NPO
Current \$millions																							
1953	5,160	1,146	1,015	131	131	NA	3,630	2,200	1,430	NA	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	NA	8,251	5,210	658	432	1,357	595	2,175	1,306	244	626

TABLE 2

## U.S. R&amp;D expenditures, by performing sector and source of funds: 1953–2021

(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural <sup>a</sup>	FFRDCs <sup>b</sup>		Nonfederal government <sup>c</sup>	Business <sup>d</sup>							Higher education <sup>e</sup>					NPOs <sup>f</sup>				
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Nonfederal government	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	NPO	Total	Federal	Business	NPO
1984	102,244	17,518	11,916	5,602	5,602	NA	73,061	51,404	21,657	NA	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	NA	10,308	6,388	834	630	1,743	713	2,761	1,694	289	778
1986	120,249	19,909	13,505	6,405	6,405	NA	85,932	59,932	26,000	NA	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	NA	49,430	28,725	3,308	2,697	10,933	3,767	14,674	5,980	1,257	7,438
2008	404,777	45,649	29,839	15,810	15,369	491	290,680	225,848	36,360	306	12,181	15,533	452	52,054	29,635	3,567	2,954	11,738	4,161	15,903	6,236	1,305	8,362
2009	402,932	47,572	30,560	17,013	16,571	606	282,393	221,104	39,573	195	9,567	11,464	490	54,909	31,741	3,680	3,032	12,057	4,400	17,452	7,097	1,258	9,097
2010	406,600	50,798	31,970	18,828	18,409	691	278,977	218,187	34,199	156	11,013	14,534	888	58,084	34,682	3,674	2,953	12,262	4,515	18,050	7,093	1,266	9,691
2011	426,215	53,524	34,950	18,574	18,176	694	294,092	235,426	31,309	321	11,124	15,349	563	60,088	35,742	3,616	2,999	13,103	4,629	17,817	6,564	1,340	9,913
2012	433,716	52,144	34,017	18,128	17,727	665	302,251	242,674	30,621	157	11,624	16,699	476	60,895	34,967	3,560	3,170	14,300	4,899	17,762	6,239	1,376	10,147
2013	454,271	51,086	33,406	17,680	17,296	620	322,528	259,908	29,362	194	13,450	18,796	818	61,548	33,840	3,642	3,376	15,378	5,313	18,489	5,970	1,464	11,056
2014	475,969	52,687	34,783	17,903	17,523	583	340,728	277,272	26,554	138	13,227	22,544	993	62,351	33,125	3,714	3,602	16,210	5,701	19,620	6,135	1,548	11,937
2015	494,499	52,847	34,199	18,649	18,287	595	355,821	289,892	26,990	127	14,595	23,102	1,115	64,635	33,564	3,782	3,844	17,292	6,154	20,601	6,247	1,605	12,749

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(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural <sup>a</sup>	FFRDCs <sup>b</sup>		Nonfederal government <sup>c</sup>	Business <sup>d</sup>							Higher education <sup>e</sup>					NPOs <sup>f</sup>				
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Nonfederal government	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	NPO	Total	Federal	Business	NPO
2016	521,700	51,187	31,762	19,424	19,059	620	379,529	310,391	24,154	195	14,649	29,017	1,123	67,792	34,688	3,937	4,049	18,415	6,703	22,573	8,257	1,993	11,517
2017	553,768	52,553	32,231	20,322	19,943	632	405,792	324,177	24,974	142	17,729	37,913	856	71,114	36,007	4,057	4,284	19,554	7,213	23,678	9,118	2,226	11,408
2018	604,372	58,356	36,793	21,563	21,163	643	445,563	357,862	25,192	120	19,283	42,057	1,049	74,878	37,735	4,224	4,585	20,668	7,667	24,932	10,068	2,486	11,299
2019	666,153	62,802	39,870	22,932	22,538	675	498,175	405,960	22,653	169	21,673	46,809	911	78,146	39,524	4,359	4,806	21,569	7,889	26,355	11,118	2,777	11,192
2020 <sup>g</sup>	716,955	64,237	40,371	23,866	23,478	683	543,220	443,398	29,772	241	21,775	47,051	982	80,842	41,462	4,464	4,837	22,252	7,828	27,973	12,278	3,103	11,085
2021 <sup>h</sup>	791,873	65,207	40,036	25,171	24,755	674	612,444	502,538	31,805	262	24,010	52,750	1,078	84,035	43,475	4,603	4,931	23,065	7,961	29,514	12,954	3,274	11,696
Constant 2012 \$millions																							
1953	35,738	7,937	7,030	907	907	NA	25,141	15,237	9,904	NA	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	NA	12,994	8,648	1,178	462	1,700	1,006	3,628	2,213	440	975

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(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural <sup>a</sup>	FFRDCs <sup>b</sup>		Nonfederal government <sup>c</sup>	Business <sup>d</sup>							Higher education <sup>e</sup>					NPOs <sup>f</sup>				
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Nonfederal government	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	NPO	Total	Federal	Business	NPO
1978	136,085	28,346	19,447	8,899	8,899	NA	90,004	61,773	28,231	NA	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	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	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	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	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	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	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	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	NA	20,729	12,624	1,741	1,338	3,626	1,401	5,151	3,028	564	1,558
1987	221,505	35,725	23,820	11,905	11,905	NA	158,047	107,637	50,410	NA	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	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	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	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	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	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	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	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	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	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	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	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	NA	35,975	20,576	2,667	2,646	7,403	2,684	10,528	4,924	1,219	4,385
2000	343,413	36,547	24,667	11,879	11,879	NA	256,276	234,339	21,938	NA	NA	NA	NA	38,341	21,910	2,797	2,706	8,035	2,894	12,248	5,780	1,307	5,161
2001	349,122	41,127	28,044	13,083	12,604	NA	253,209	232,028	21,181	NA	NA	NA	NA	41,049	23,785	2,907	2,657	8,615	3,085	13,738	6,879	1,290	5,569
2002	342,991	43,791	29,370	14,420	13,874	NA	239,267	219,025	20,242	NA	NA	NA	NA	45,274	26,726	3,111	2,596	9,470	3,372	14,659	7,131	1,232	6,296
2003	352,632	45,065	30,235	14,830	14,331	NA	242,931	221,391	21,540	NA	NA	NA	NA	49,109	29,732	3,335	2,530	10,028	3,484	15,527	7,195	1,235	7,097
2004	356,811	44,418	29,345	15,072	14,698	NA	245,512	221,626	23,886	NA	NA	NA	NA	51,031	31,380	3,413	2,531	10,179	3,527	15,851	7,704	1,227	6,919
2005	371,742	45,218	30,081	15,137	14,735	NA	258,456	233,419	25,038	NA	NA	NA	NA	51,986	31,704	3,366	2,604	10,688	3,623	16,081	7,479	1,265	7,337
2006	389,015	46,128	31,306	14,822	14,377	342	274,565	247,621	26,943	NA	NA	NA	NA	52,513	31,347	3,391	2,731	11,281	3,762	15,467	6,700	1,310	7,457
2007	407,906	47,637	32,231	15,407	14,945	419	290,655	261,958	28,697	NA	NA	NA	NA	53,356	31,006	3,571	2,911	11,801	4,066	15,839	6,455	1,356	8,028
2008	428,705	48,347	31,603	16,744	16,277	520	307,863	239,199	38,509	324	12,901	16,451	479	55,132	31,387	3,778	3,128	12,431	4,407	16,843	6,604	1,382	8,857
2009	424,033	50,064	32,160	17,904	17,438	637	297,182	232,683	41,645	205	10,068	12,064	721	57,785	33,403	3,872	3,191	12,688	4,631	18,366	7,469	1,323	9,573

TABLE 2

**U.S. R&D expenditures, by performing sector and source of funds: 1953–2021**

(Millions of current and of constant 2012 dollars)

Year	All performers	All federal	Federal intramural <sup>a</sup>	FFRDCs <sup>b</sup>		Nonfederal government <sup>c</sup>	Business <sup>d</sup>							Higher education <sup>e</sup>					NPOs <sup>f</sup>				
	All funding sources	Total	Federal	Total	Federal	Total	Total	Own domestic	Federal	Nonfederal government	Other domestic business	Foreign business	Other	Total	Federal	Nonfederal government	Business	Higher education	NPO	Total	Federal	Business	NPO
2010	422,811	52,824	33,245	19,579	19,143	719	290,100	226,886	35,563	162	11,452	15,113	1,086	60,400	36,064	3,820	3,070	12,750	4,694	18,769	7,376	1,316	10,077
2011	434,187	54,525	35,604	18,921	18,516	707	299,593	239,830	31,895	327	11,332	15,636	901	61,211	36,410	3,683	3,055	13,348	4,716	18,150	6,687	1,365	10,098
2012	433,716	52,144	34,017	18,128	17,727	665	302,251	242,674	30,621	157	11,624	16,699	633	60,895	34,967	3,560	3,170	14,300	4,899	17,762	6,239	1,376	10,147
2013	446,452	50,207	32,831	17,376	16,999	609	316,977	255,435	28,857	191	13,219	18,472	995	60,488	33,258	3,579	3,317	15,113	5,221	18,171	5,867	1,438	10,865
2014	459,193	50,830	33,557	17,272	16,905	563	328,719	267,499	25,618	133	12,761	21,749	1,091	60,153	31,957	3,583	3,475	15,639	5,500	18,928	5,919	1,493	11,516
2015	472,344	50,480	32,666	17,813	17,467	568	339,879	276,904	25,781	121	13,941	22,067	1,186	61,739	32,060	3,613	3,672	16,517	5,878	19,678	5,967	1,533	12,178
2016	493,381	48,408	30,038	18,370	18,024	586	358,928	293,542	22,843	184	13,854	27,442	1,246	64,112	32,805	3,723	3,829	17,415	6,339	21,347	7,809	1,884	10,892
2017	513,947	48,774	29,913	18,860	18,509	587	376,612	300,866	23,178	132	16,455	35,187	926	66,000	33,417	3,765	3,975	18,147	6,694	21,975	8,462	2,066	10,587
2018	547,740	52,888	33,346	19,543	19,180	583	403,813	324,329	22,831	109	17,476	38,116	1,060	67,861	34,199	3,828	4,155	18,731	6,948	22,596	9,125	2,253	10,240
2019	593,094	55,914	35,497	20,417	20,066	601	443,539	361,438	20,169	150	19,296	41,675	962	69,576	35,189	3,881	4,278	19,203	7,024	23,465	9,899	2,473	9,964
2020 <sup>g</sup>	630,098	56,455	35,480	20,975	20,633	600	477,411	389,682	26,165	212	19,137	41,351	863	71,048	36,439	3,923	4,251	19,556	6,879	24,584	10,790	2,727	9,743
2021 <sup>h</sup>	666,027	54,844	33,673	21,170	20,821	567	515,112	422,673	26,750	220	20,195	44,367	907	70,680	36,566	3,871	4,147	19,399	6,696	24,824	10,895	2,753	9,837

NA = not available.

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

<sup>a</sup> Includes expenditures for federal intramural R&D as well as costs associated with administering extramural R&D procurements. Beginning in 2016, the data on federal intramural R&D explicitly exclude 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 [RDTE] budget activity structure.) This change aligns the federal intramural R&D data with the U.S. Office of Management and Budget's recent clarification of its definition of R&D. In 2016–18, this intramural preproduction development totaled in the range of \$5 billion to \$7 billion each year.

<sup>b</sup> The R&D expenditures of FFRDCs are chiefly federally funded; the small remainder (\$389 million of the \$23.9 billion total in 2020) reflects funding from state or local government, businesses, NPOs, 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 NPO R&D data for these years.

<sup>c</sup> 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 (\$341 million of the \$683 million total in 2020) or from the federal government (\$298 million in 2020), but other sources include other nonfederal governments (\$7 million), businesses (\$20 million), higher education (\$3 million), or NPOs (\$13 million).

<sup>d</sup> R&D performed by companies in the domestic United States. Business R&D data for 2017–20 come from the NCSES annual Business Enterprise Research and Development (BERD) Survey and its predecessor, the Business Research and Development Survey (BRDS), which cover all publicly or privately held companies with 10 or more employees, plus the Annual Business Survey (ABS), which covers the R&D activities of businesses with 1–9 employees. Data for 2021 are estimates, based on the 2020 data from these surveys. Data for 2008–15 come from the NCSES annual Business Research and Development and Innovation Survey (BRDIS), which covered all publicly or privately held companies with 5 or more employees. Data for 2016 included the BRDIS data for that year plus the data from the 2016 Business R&D and Innovation Survey–Microbusiness (BRDI-M), which collected statistics on the R&D activities of companies with 1–4 employees. BERD, ABS, BRDIS, BRDS, and BRDI-M distinguish 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 governments, other organizations inside or outside the United States). Prior to 2008, the data collected by the Survey of Industrial Research and Development distinguished only federally and nonfederally funded business R&D, and, for these years, the own-funding data column includes all nonfederal sources of funding. Some business R&D performance in the United States paid for by foreign businesses includes funding from both parent or unaffiliated businesses outside the United States (\$20.0 billion in 2020) and funding from U.S. businesses' foreign subsidiaries (\$27.0 billion in 2020). Business R&D performance funded by other sources includes state government, foreign government, domestic and foreign academic institutions, and all other sources in the United States and abroad.

<sup>e</sup> 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 FY 2003 and \$5.1 billion in FY 2021.) 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, NPO, 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 2020, total pass-through was \$7.056 billion, with \$3.868 billion to other academic recipients and \$3.187 billion to nonacademic recipients.) The nonfederal government funding category includes support from state and local government. The other nonprofit funding category includes support from NPOs and other sources not elsewhere classified (in FY20, \$5.348 billion was from NPOs, and \$2.540 was from these unclassified other sources).

<sup>f</sup> The most recent data on NPO R&D come from two sources: the 2020 Nonprofit Research Activities (NPRA) module of the Annual Business Survey and the 2016 NPRA Survey. Data for 2021 are estimated based on the 2020 survey. Data for 2017–2019 are estimated based on the 2016 and 2020 surveys. The 1998–2015 data for NPO R&D funded by the federal government come from the NCSSES annual Survey of Federal Funds for Research and Development; NPO R&D funded by businesses and by the nonprofit sector itself for that period are estimated, based on parameters from the 1996–97 Survey of Research and Development Funding and Performance by Nonprofit Organizations.

<sup>g</sup> Some data for 2020 are preliminary and may be revised later.

<sup>h</sup> The data for 2021 include estimates and are likely to be revised later.

**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. Data are based on reports by performers in the NCSSES annual surveys on R&D expenditures: BERD, ABS (which includes modules on micro-BERD and NPRA), Higher Education Research and Development Survey, Survey of Federal Funds for Research and Development, FFRDC Research and Development Survey, and Survey of State Government Research and Development. R&D expenditures by business performers—and, before 2001, also industry-administered FFRDCs—were 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 Center for Science and Engineering Statistics, National Patterns of R&D Resources (annual series).