TABLE 4

U.S. applied research expenditures, by performing sector and source of funds: 1953–2022

(Millions of current and of constant 2017 dollars)

Year	All performers	All federal	Federal intramural[a]	FFRDCs		Nonfederal government	Business							Higher education						NPOs			
	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	1,289	395	347	48	48	NA	726	438	288	NA	NA	NA	NA	134	59	30	7	28	10	35	14	11	10
1954	1,378	388	330	59	59	NA	814	492	322	NA	NA	NA	NA	137	60	32	8	28	10	40	16	13	11
1955	1,502	419	333	86	86	NA	899	560	339	NA	NA	NA	NA	142	63	32	9	27	11	43	18	14	11
1956	1,929	511	387	125	125	NA	1,224	794	430	NA	NA	NA	NA	146	65	33	10	27	11	48	20	14	14
1957	2,413	595	446	149	149	NA	1,616	992	624	NA	NA	NA	NA	147	63	34	12	27	11	57	23	14	20
1958	2,759	672	516	156	156	NA	1,868	1,137	731	NA	NA	NA	NA	152	66	35	12	27	12	68	29	14	25
1959	2,940	756	577	179	179	NA	1,935	1,178	757	NA	NA	NA	NA	167	78	37	13	28	12	82	40	15	27
1960	3,065	816	615	201	201	NA	1,965	1,196	769	NA	NA	NA	NA	186	93	39	13	29	12	99	54	17	28
1961	3,123	908	668	240	240	NA	1,903	1,165	738	NA	NA	NA	NA	199	104	40	13	30	13	114	62	17	35
1962	3,698	958	709	249	249	NA	2,392	1,438	954	NA	NA	NA	NA	216	119	41	14	30	13	132	68	19	45
1963	3,864	1,084	809	275	275	NA	2,402	1,450	952	NA	NA	NA	NA	230	128	42	14	32	14	150	82	19	49
1964	4,201	1,260	947	313	313	NA	2,538	1,560	978	NA	NA	NA	NA	256	142	45	14	37	18	148	82	19	47
1965	4,374	1,287	994	294	294	NA	2,612	1,620	992	NA	NA	NA	NA	304	176	46	13	42	27	171	98	21	52
1966	4,653	1,302	1,012	290	290	NA	2,790	1,804	986	NA	NA	NA	NA	351	208	47	14	48	34	210	129	24	57
1967	4,848	1,402	1,069	334	334	NA	2,832	1,849	983	NA	NA	NA	NA	389	238	46	16	54	36	226	141	25	60
1968	5,137	1,446	1,112	334	334	NA	3,037	2,081	956	NA	NA	NA	NA	405	250	46	16	55	39	250	160	28	62
1969	5,454	1,565	1,229	336	336	NA	3,192	2,272	920	NA	NA	NA	NA	417	257	48	16	54	43	281	183	32	66
1970	5,752	1,670	1,334	336	336	NA	3,330	2,378	952	NA	NA	NA	NA	451	280	51	18	56	47	302	199	33	70
1971	5,833	1,666	1,355	312	312	NA	3,348	2,441	907	NA	NA	NA	NA	499	306	61	19	67	47	320	212	34	74
1972	6,147	1,792	1,434	358	358	NA	3,407	2,562	845	NA	NA	NA	NA	619	391	74	21	82	52	330	216	35	79
1973	6,655	1,861	1,527	334	334	NA	3,715	2,832	883	NA	NA	NA	NA	725	450	88	26	100	62	355	236	36	83
1974	7,344	1,987	1,652	335	335	NA	4,168	3,263	905	NA	NA	NA	NA	794	477	96	32	118	72	396	266	39	91
1975	8,091	2,295	1,912	384	384	NA	4,431	3,440	991	NA	NA	NA	NA	934	550	113	39	141	92	431	290	42	100
1976	8,976	2,525	2,068	457	457	NA	4,945	3,912	1,033	NA	NA	NA	NA	1,042	596	127	45	166	109	464	310	45	109
1977	9,662	2,621	2,081	540	540	NA	5,424	4,311	1,113	NA	NA	NA	NA	1,126	626	134	51	194	121	492	324	48	120
1978	10,704	2,838	2,242	597	597	NA	6,065	4,870	1,195	NA	NA	NA	NA	1,247	676	151	61	232	128	554	371	52	132
1979	12,097	3,069	2,415	654	654	NA	6,975	5,670	1,305	NA	NA	NA	NA	1,418	793	161	71	263	129	635	436	55	144
1980	13,729	3,295	2,546	749	749	NA	8,175	6,550	1,625	NA	NA	NA	NA	1,622	912	174	88	308	140	637	420	60	158
1981	16,329	3,520	2,731	788	788	NA	10,401	8,359	2,042	NA	NA	NA	NA	1,781	953	199	108	363	159	628	391	64	173
1982	18,218	3,692	2,802	890	890	NA	11,956	9,363	2,593	NA	NA	NA	NA	1,915	1,007	207	121	402	178	655	398	69	189
1983	20,298	3,956	2,991	965	965	NA	13,513	10,286	3,227	NA	NA	NA	NA	2,116	1,122	215	141	443	194	713	433	74	207
1984	22,451	4,137	2,961	1,176	1,176	NA	15,218	11,541	3,677	NA	NA	NA	NA	2,332	1,226	234	168	491	212	764	459	79	226

TABLE 4

U.S. applied research expenditures, by performing sector and source of funds: 1953–2022

(Millions of current and of constant 2017 dollars)

Year	All performers	All federal	Federal intramural[a]	FFRDCs		Nonfederal government	Business							Higher education						NPOs			
	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
1985	25,401	4,427	3,135	1,292	1,292	NA	17,625	12,908	4,717	NA	NA	NA	NA	2,527	1,296	262	198	547	224	822	490	85	247
1986	27,240	4,462	3,204	1,258	1,258	NA	19,131	15,082	4,049	NA	NA	NA	NA	2,780	1,393	298	229	620	240	867	506	91	270
1987	27,951	4,594	3,366	1,228	1,228	NA	19,190	15,153	4,037	NA	NA	NA	NA	3,219	1,643	333	260	707	276	948	555	98	295
1988	29,528	4,346	3,362	984	984	NA	20,377	16,531	3,846	NA	NA	NA	NA	3,779	1,958	377	302	818	325	1,026	599	105	322
1989	32,277	4,613	3,566	1,047	1,047	NA	22,317	17,993	4,324	NA	NA	NA	NA	4,188	2,121	417	347	933	370	1,159	695	112	352
1990	34,897	4,808	3,652	1,156	1,156	NA	24,399	18,432	5,967	NA	NA	NA	NA	4,406	2,140	453	377	1,031	404	1,284	780	120	384
1991	38,631	5,539	4,093	1,446	1,446	NA	27,013	21,425	5,588	NA	NA	NA	NA	4,611	2,232	468	392	1,091	428	1,468	921	129	419
1992	37,936	5,866	4,337	1,529	1,529	NA	25,660	21,184	4,476	NA	NA	NA	NA	4,882	2,415	479	414	1,120	454	1,528	933	138	456
1993	37,283	6,338	4,838	1,500	1,500	NA	24,251	19,956	4,295	NA	NA	NA	NA	5,149	2,542	496	443	1,181	487	1,544	900	148	497
1994	36,618	6,581	4,985	1,596	1,596	NA	22,988	19,372	3,616	NA	NA	NA	NA	5,390	2,644	517	464	1,256	509	1,659	960	158	541
1995	40,936	6,666	4,952	1,714	1,714	NA	26,919	23,755	3,164	NA	NA	NA	NA	5,659	2,779	559	494	1,311	516	1,692	934	170	589
1996	43,170	6,495	4,872	1,623	1,623	NA	29,010	25,370	3,640	NA	NA	NA	NA	5,885	2,864	584	524	1,390	522	1,781	960	182	640
1997	46,516	6,675	4,997	1,679	1,679	NA	32,430	29,782	2,648	NA	NA	NA	NA	5,485	2,518	548	515	1,396	508	1,926	1,011	205	711
1998	46,247	6,871	5,146	1,725	1,725	NA	32,208	29,576	2,632	NA	NA	NA	NA	5,108	2,189	515	509	1,393	502	2,061	1,060	218	784
1999	51,853	7,181	5,530	1,651	1,651	NA	36,638	33,821	2,817	NA	NA	NA	NA	5,650	2,571	533	529	1,480	537	2,384	1,300	236	849
2000	56,503	7,856	6,105	1,750	1,750	NA	39,176	36,494	2,682	NA	NA	NA	NA	6,361	3,081	558	540	1,604	578	3,110	1,831	258	1,021
2001	64,201	9,766	7,052	2,714	2,564	NA	44,012	40,409	3,603	NA	NA	NA	NA	6,886	3,411	585	535	1,734	621	3,537	2,150	261	1,126
2002	50,540	10,525	7,487	3,038	2,867	NA	28,533	26,081	2,452	NA	NA	NA	NA	7,670	3,877	636	531	1,937	689	3,812	2,267	253	1,293
2003	60,983	10,857	7,672	3,186	3,020	NA	37,334	32,861	4,473	NA	NA	NA	NA	8,560	4,450	708	537	2,127	739	4,232	2,487	259	1,486
2004	69,322	10,779	7,455	3,325	3,180	NA	45,432	40,657	4,775	NA	NA	NA	NA	8,911	4,682	735	545	2,190	759	4,200	2,448	264	1,488
2005	69,768	11,001	7,557	3,444	3,288	NA	45,284	39,995	5,289	NA	NA	NA	NA	9,144	4,810	719	557	2,283	774	4,339	2,432	280	1,627
2006	76,499	10,952	7,435	3,518	3,348	255	51,173	45,033	6,140	NA	NA	NA	NA	9,522	5,080	712	573	2,368	789	4,596	2,592	300	1,705
2007	83,662	11,040	7,222	3,819	3,643	321	57,570	48,625	8,945	NA	NA	NA	NA	9,945	5,284	745	607	2,461	848	4,786	2,583	318	1,885
2008	74,729	11,446	7,316	4,130	3,955	407	46,864	35,382	5,397	71	2,815	3,094	105	10,962	5,840	815	675	2,682	951	5,050	2,600	331	2,119
2009	72,577	12,581	7,874	4,707	4,517	502	41,055	29,264	7,797	38	1,865	1,996	96	12,767	7,161	941	755	2,907	1,003	5,673	3,049	319	2,305
2010	78,885	13,203	8,016	5,187	5,025	572	44,906	34,912	4,705	32	2,256	2,819	182	14,387	8,539	1,000	760	3,060	1,028	5,818	3,041	321	2,456
2011	81,718	13,251	8,024	5,227	5,057	575	47,186	37,047	4,404	70	2,413	3,130	122	15,162	9,031	979	776	3,311	1,066	5,545	2,693	340	2,512
2012	86,627	14,328	8,587	5,741	5,566	550	50,755	38,891	4,137	45	3,336	4,209	137	15,446	8,909	991	856	3,570	1,120	5,549	2,629	349	2,571
2013	87,979	15,132	8,309	6,823	6,639	513	51,013	37,385	6,028	47	3,275	4,078	199	15,684	8,646	1,049	914	3,823	1,253	5,637	2,465	371	2,801
2014	91,601	15,728	8,775	6,952	6,766	471	53,415	38,281	6,445	35	3,331	5,074	250	15,996	8,477	1,073	974	4,098	1,374	5,992	2,574	392	3,026
2015	97,059	16,698	9,347	7,351	7,182	481	56,472	43,330	6,102	24	2,735	4,072	209	16,980	8,838	1,083	1,079	4,425	1,557	6,429	2,791	407	3,231
2016	109,463	17,433	9,805	7,628	7,469	509	62,871	48,543	5,327	45	3,174	5,536	245	18,503	9,520	1,158	1,192	4,836	1,797	10,147	3,749	891	5,147
2017	113,334	18,170	10,124	8,046	7,868	510	64,040	47,727	5,386	33	3,852	6,849	193	19,559	9,987	1,219	1,259	5,184	1,911	11,056	4,692	979	5,022

TABLE 4

U.S. applied research expenditures, by performing sector and source of funds: 1953–2022

(Millions of current and of constant 2017 dollars)

Year	All performers	All federal	Federal intramural[a]	FFRDCs		Nonfederal government	Business							Higher education						NPOs			
	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
2018	118,316	19,704	11,111	8,593	8,407	514	66,587	50,898	5,355	23	3,469	6,651	191	20,563	10,448	1,286	1,353	5,476	2,001	10,947	4,652	1,069	4,864
2019	130,225	20,523	11,264	9,258	9,075	523	76,176	57,549	5,246	42	4,907	8,223	209	21,540	10,965	1,338	1,439	5,732	2,066	11,463	5,375	1,139	4,597
2020	132,524	21,117	11,554	9,563	9,384	514	78,371	58,766	5,906	84	5,135	8,218	262	22,297	11,527	1,360	1,433	5,928	2,050	10,226	4,902	1,094	3,919
2021[b]	144,037	21,305	11,132	10,173	9,951	521	88,707	66,451	3,491	142	7,556	10,775	292	23,528	12,341	1,391	1,476	6,236	2,085	9,977	5,080	947	3,761
2022[c]	159,927	24,078	13,299	10,779	10,452	536	100,334	76,060	3,869	149	8,087	11,860	310	24,951	13,103	1,427	1,583	6,656	2,182	10,028	5,106	952	3,780
Constant 2017 $millions																							
1953	9,586	2,934	2,580	353	353	NA	5,399	3,257	2,142	NA	NA	NA	NA	993	439	224	48	207	74	260	104	82	74
1954	10,154	2,859	2,428	431	431	NA	5,998	3,625	2,373	NA	NA	NA	NA	1,006	438	232	55	206	74	291	114	96	81
1955	10,881	3,036	2,413	623	623	NA	6,512	4,058	2,454	NA	NA	NA	NA	1,025	456	234	62	197	76	308	127	101	80
1956	13,514	3,581	2,708	872	872	NA	8,574	5,564	3,010	NA	NA	NA	NA	1,023	455	232	70	189	77	336	140	98	98
1957	16,367	4,032	3,022	1,011	1,011	NA	10,958	6,728	4,230	NA	NA	NA	NA	994	427	230	78	184	75	383	153	95	136
1958	18,295	4,456	3,422	1,034	1,034	NA	12,387	7,540	4,847	NA	NA	NA	NA	1,005	434	234	80	180	76	448	189	93	166
1959	19,230	4,942	3,771	1,171	1,171	NA	12,659	7,706	4,954	NA	NA	NA	NA	1,092	507	242	82	183	78	536	262	98	177
1960	19,782	5,263	3,966	1,297	1,297	NA	12,684	7,718	4,965	NA	NA	NA	NA	1,197	600	250	84	186	77	639	348	110	181
1961	19,942	5,795	4,266	1,529	1,529	NA	12,152	7,439	4,712	NA	NA	NA	NA	1,268	661	255	83	189	80	728	396	109	223
1962	23,328	6,041	4,470	1,571	1,571	NA	15,092	9,072	6,020	NA	NA	NA	NA	1,363	748	256	85	192	82	833	429	120	284
1963	24,104	6,758	5,046	1,712	1,712	NA	14,981	9,044	5,937	NA	NA	NA	NA	1,432	795	263	87	202	84	933	508	119	306
1964	25,811	7,738	5,815	1,923	1,923	NA	15,593	9,585	6,009	NA	NA	NA	NA	1,570	872	278	83	229	108	909	504	117	289
1965	26,387	7,765	5,994	1,771	1,771	NA	15,759	9,774	5,985	NA	NA	NA	NA	1,831	1,059	280	78	254	160	1,032	591	127	314
1966	27,306	7,641	5,939	1,702	1,702	NA	16,375	10,588	5,787	NA	NA	NA	NA	2,060	1,221	276	82	284	197	1,230	754	141	335
1967	27,651	7,996	6,094	1,902	1,902	NA	16,153	10,546	5,607	NA	NA	NA	NA	2,216	1,355	260	88	307	205	1,286	801	143	342
1968	28,102	7,908	6,081	1,827	1,827	NA	16,614	11,384	5,230	NA	NA	NA	NA	2,216	1,365	252	88	301	211	1,365	873	153	339
1969	28,442	8,160	6,410	1,750	1,750	NA	16,645	11,848	4,798	NA	NA	NA	NA	2,175	1,338	251	83	281	222	1,463	952	167	344
1970	28,494	8,272	6,608	1,664	1,664	NA	16,494	11,779	4,716	NA	NA	NA	NA	2,231	1,384	254	87	276	230	1,496	986	163	347
1971	27,498	7,856	6,388	1,469	1,469	NA	15,783	11,508	4,276	NA	NA	NA	NA	2,352	1,443	285	87	316	222	1,506	997	160	349
1972	27,777	8,097	6,480	1,618	1,618	NA	15,396	11,577	3,818	NA	NA	NA	NA	2,795	1,765	335	93	370	233	1,489	974	158	357
1973	28,512	7,974	6,543	1,431	1,431	NA	15,915	12,132	3,783	NA	NA	NA	NA	3,104	1,926	375	111	428	263	1,519	1,009	154	356
1974	28,865	7,809	6,494	1,315	1,315	NA	16,382	12,825	3,557	NA	NA	NA	NA	3,119	1,873	378	124	463	281	1,555	1,045	152	358
1975	29,105	8,256	6,877	1,380	1,380	NA	15,939	12,374	3,565	NA	NA	NA	NA	3,359	1,977	408	138	505	331	1,550	1,041	150	359
1976	30,606	8,610	7,052	1,558	1,558	NA	16,860	13,338	3,522	NA	NA	NA	NA	3,552	2,030	434	152	564	372	1,583	1,057	152	373
1977	31,017	8,412	6,679	1,733	1,733	NA	17,411	13,839	3,573	NA	NA	NA	NA	3,613	2,008	432	164	623	387	1,580	1,041	154	385
1978	32,104	8,512	6,723	1,789	1,789	NA	18,190	14,606	3,584	NA	NA	NA	NA	3,739	2,027	454	181	695	382	1,663	1,113	155	394
1979	33,500	8,499	6,688	1,811	1,811	NA	19,316	15,702	3,614	NA	NA	NA	NA	3,926	2,195	447	198	729	357	1,759	1,207	153	399

TABLE 4

U.S. applied research expenditures, by performing sector and source of funds: 1953–2022

(Millions of current and of constant 2017 dollars)

Year	All performers	All federal	Federal intramural[a]	FFRDCs		Nonfederal government	Business							Higher education						NPOs			
	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
1980	34,871	8,369	6,467	1,902	1,902	NA	20,764	16,636	4,127	NA	NA	NA	NA	4,120	2,317	441	224	782	356	1,618	1,066	151	401
1981	37,890	8,167	6,338	1,829	1,829	NA	24,134	19,396	4,738	NA	NA	NA	NA	4,132	2,210	462	250	841	368	1,457	907	148	401
1982	39,813	8,068	6,123	1,946	1,946	NA	26,128	20,461	5,667	NA	NA	NA	NA	4,184	2,200	453	264	878	388	1,432	869	150	413
1983	42,686	8,319	6,290	2,029	2,029	NA	28,417	21,631	6,786	NA	NA	NA	NA	4,449	2,360	452	297	932	408	1,500	910	155	435
1984	45,569	8,397	6,010	2,387	2,387	NA	30,889	23,425	7,463	NA	NA	NA	NA	4,733	2,489	475	341	997	430	1,551	932	160	459
1985	49,976	8,709	6,168	2,541	2,541	NA	34,677	25,397	9,281	NA	NA	NA	NA	4,972	2,551	515	389	1,077	441	1,617	963	167	487
1986	52,536	8,606	6,179	2,426	2,426	NA	36,897	29,088	7,809	NA	NA	NA	NA	5,361	2,686	574	442	1,197	462	1,672	975	176	521
1987	52,605	8,646	6,334	2,312	2,312	NA	36,116	28,519	7,598	NA	NA	NA	NA	6,058	3,092	627	489	1,331	519	1,784	1,045	184	556
1988	53,679	7,900	6,112	1,788	1,788	NA	37,044	30,052	6,992	NA	NA	NA	NA	6,871	3,560	685	549	1,487	590	1,865	1,088	190	586
1989	56,463	8,070	6,239	1,831	1,831	NA	39,040	31,476	7,564	NA	NA	NA	NA	7,326	3,711	729	607	1,632	647	2,027	1,215	196	616
1990	58,843	8,108	6,158	1,949	1,949	NA	41,142	31,080	10,062	NA	NA	NA	NA	7,429	3,609	763	636	1,739	682	2,165	1,314	203	647
1991	63,010	9,035	6,677	2,358	2,358	NA	44,060	34,945	9,114	NA	NA	NA	NA	7,520	3,640	763	639	1,779	699	2,395	1,502	210	683
1992	60,496	9,354	6,916	2,438	2,438	NA	40,920	33,782	7,138	NA	NA	NA	NA	7,786	3,851	763	661	1,786	725	2,436	1,489	220	727
1993	58,078	9,874	7,537	2,336	2,336	NA	37,778	31,087	6,691	NA	NA	NA	NA	8,021	3,959	772	690	1,840	759	2,406	1,401	230	774
1994	55,850	10,037	7,604	2,434	2,434	NA	35,062	29,547	5,515	NA	NA	NA	NA	8,221	4,032	789	708	1,916	776	2,530	1,463	242	825
1995	61,154	9,959	7,398	2,560	2,560	NA	40,214	35,488	4,727	NA	NA	NA	NA	8,454	4,152	835	738	1,959	771	2,528	1,395	253	879
1996	63,332	9,528	7,147	2,380	2,380	NA	42,559	37,219	5,340	NA	NA	NA	NA	8,633	4,201	856	769	2,040	766	2,613	1,408	266	939
1997	67,085	9,627	7,206	2,421	2,421	NA	46,770	42,951	3,819	NA	NA	NA	NA	7,910	3,631	791	742	2,013	733	2,778	1,458	296	1,025
1998	65,955	9,798	7,338	2,460	2,460	NA	45,933	42,180	3,754	NA	NA	NA	NA	7,284	3,122	735	726	1,986	716	2,940	1,512	310	1,118
1999	72,918	10,098	7,776	2,321	2,321	NA	51,522	47,561	3,961	NA	NA	NA	NA	7,946	3,616	750	744	2,081	755	3,353	1,828	332	1,194
2000	77,696	10,802	8,395	2,407	2,407	NA	53,871	50,183	3,688	NA	NA	NA	NA	8,747	4,237	768	743	2,205	794	4,277	2,518	355	1,403
2001	86,338	13,133	9,484	3,649	3,448	NA	59,188	54,343	4,845	NA	NA	NA	NA	9,260	4,588	787	719	2,332	835	4,756	2,891	351	1,514
2002	66,927	13,938	9,915	4,023	3,796	NA	37,784	34,537	3,247	NA	NA	NA	NA	10,156	5,134	842	703	2,565	913	5,049	3,002	335	1,712
2003	79,192	14,099	9,962	4,137	3,921	NA	48,482	42,673	5,809	NA	NA	NA	NA	11,116	5,779	919	697	2,762	960	5,495	3,230	336	1,930
2004	87,664	13,631	9,427	4,205	4,021	NA	57,453	51,414	6,038	NA	NA	NA	NA	11,268	5,921	929	689	2,770	960	5,311	3,096	334	1,881
2005	85,546	13,489	9,266	4,223	4,032	NA	55,525	49,040	6,485	NA	NA	NA	NA	11,212	5,898	882	682	2,799	949	5,320	2,981	344	1,995
2006	90,993	13,027	8,843	4,184	3,983	304	60,868	53,565	7,303	NA	NA	NA	NA	11,327	6,042	847	682	2,816	939	5,467	3,083	356	2,028
2007	96,888	12,786	8,363	4,422	4,219	372	66,671	56,312	10,359	NA	NA	NA	NA	11,517	6,120	862	703	2,850	982	5,543	2,991	369	2,183
2008	84,907	13,005	8,313	4,693	4,494	462	53,247	40,201	6,132	80	3,199	3,516	119	12,455	6,635	926	767	3,047	1,080	5,738	2,954	376	2,408
2009	81,956	14,206	8,892	5,315	5,101	566	46,361	33,046	8,805	43	2,106	2,254	108	14,416	8,086	1,062	853	3,282	1,133	6,406	3,443	360	2,603
2010	88,011	14,730	8,943	5,787	5,606	638	50,100	38,950	5,249	36	2,517	3,146	203	16,051	9,527	1,116	847	3,414	1,147	6,491	3,393	358	2,740
2011	89,328	14,485	8,771	5,713	5,528	628	51,580	40,497	4,814	76	2,638	3,422	133	16,574	9,872	1,070	848	3,619	1,165	6,061	2,944	371	2,746
2012	92,963	15,375	9,215	6,161	5,973	591	54,467	41,735	4,440	48	3,580	4,517	147	16,575	9,561	1,063	918	3,831	1,202	5,955	2,821	374	2,760

TABLE 4

U.S. applied research expenditures, by performing sector and source of funds: 1953–2022

(Millions of current and of constant 2017 dollars)

Year	All performers	All federal	Federal intramural[a]	FFRDCs		Nonfederal government	Business							Higher education						NPOs			
	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
2013	92,834	15,967	8,767	7,200	7,005	541	53,828	39,448	6,361	50	3,456	4,303	210	16,549	9,123	1,106	964	4,034	1,322	5,949	2,601	391	2,956
2014	95,001	16,311	9,101	7,210	7,017	489	55,398	39,701	6,684	36	3,454	5,262	259	16,589	8,792	1,113	1,010	4,250	1,425	6,214	2,669	407	3,138
2015	99,736	17,159	9,605	7,553	7,380	494	58,030	44,525	6,270	24	2,811	4,184	215	17,448	9,081	1,112	1,108	4,547	1,599	6,607	2,868	418	3,321
2016	111,423	17,745	9,981	7,765	7,603	518	63,997	49,413	5,422	46	3,231	5,635	250	18,834	9,690	1,179	1,213	4,922	1,829	10,329	3,816	906	5,240
2017	113,334	18,170	10,124	8,046	7,868	510	64,040	47,727	5,386	33	3,852	6,849	193	19,559	9,987	1,219	1,259	5,184	1,911	11,056	4,692	979	5,022
2018	115,666	19,263	10,862	8,401	8,219	502	65,096	49,758	5,236	23	3,392	6,502	186	20,102	10,214	1,257	1,323	5,353	1,956	10,702	4,548	1,045	4,755
2019	125,207	19,732	10,830	8,901	8,725	503	73,241	55,331	5,044	40	4,718	7,906	201	20,709	10,542	1,286	1,384	5,511	1,986	11,022	5,168	1,095	4,420
2020	125,756	20,039	10,964	9,074	8,905	488	74,369	55,765	5,604	79	4,873	7,798	249	21,158	10,938	1,290	1,359	5,625	1,945	9,703	4,652	1,038	3,719
2021[b]	130,690	19,330	10,100	9,230	9,029	472	80,487	60,293	3,168	129	6,856	9,776	265	21,347	11,197	1,262	1,339	5,658	1,891	9,053	4,609	859	3,413
2022[c]	135,563	20,410	11,273	9,137	8,860	454	85,049	64,473	3,279	126	6,855	10,053	263	21,150	11,107	1,210	1,342	5,642	1,850	8,500	4,328	807	3,204

NA = not available.

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

[a] See table 2, footnotes a–f, for details on sectoral R&D.

[b] Some data for 2021 are preliminary and may be revised later.

[c] The data for 2022 include estimates and are likely to be revised later.

Note(s):
For detail on type-of-R&D data, see table 3, footnotes b–f. 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 National Center for Science and Engineering Statistics annual surveys on R&D expenditures: Business Enterprise Research and Development Survey, Annual Business Survey, 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 amount reported in the subsequent fiscal year.

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