TABLE 1

U.S. gross domestic product, R&D, and ratio of R&D to gross domestic product (and components): 1953–2022

(Billions of current and of constant 2017 dollars and R&D as a percentage of GDP)

Year	GDP			Total R&D		R&D/GDP (%)							
							R&D, by performer				R&D, by source of funding		
	Current $billions	Constant 2017 $billions	Deflator[a] (2017 = 1.00000)	Current $billions	Constant 2017 $billions	Total	Business	Federal[b]	Higher education	Other[c]	Business	Federal	Other[d]
1953	389.2	2,894.4	0.13447	5.2	38.4	1.33	0.93	0.29	0.07	0.03	0.58	0.71	0.03
1954	390.5	2,877.7	0.13572	5.6	41.4	1.44	1.04	0.29	0.08	0.03	0.61	0.79	0.04
1955	425.5	3,083.0	0.13801	6.2	44.8	1.45	1.04	0.30	0.08	0.03	0.59	0.82	0.04
1956	449.4	3,148.8	0.14271	8.5	59.6	1.89	1.40	0.38	0.09	0.03	0.74	1.11	0.04
1957	474.0	3,215.1	0.14744	9.9	67.2	2.09	1.55	0.42	0.09	0.04	0.73	1.31	0.04
1958	481.2	3,191.2	0.15080	10.9	72.4	2.27	1.68	0.45	0.10	0.04	0.77	1.45	0.05
1959	521.7	3,412.4	0.15287	12.5	81.7	2.39	1.76	0.47	0.11	0.04	0.78	1.57	0.05
1960	542.4	3,500.3	0.15495	13.7	88.5	2.53	1.85	0.50	0.13	0.05	0.83	1.64	0.05
1961	562.2	3,590.1	0.15660	14.6	93.0	2.59	1.84	0.55	0.15	0.05	0.85	1.69	0.06
1962	603.9	3,810.1	0.15850	15.6	98.6	2.59	1.83	0.54	0.16	0.06	0.85	1.68	0.06
1963	637.5	3,976.1	0.16032	17.5	109.3	2.75	1.92	0.58	0.18	0.06	0.86	1.83	0.07
1964	684.5	4,205.3	0.16276	19.1	117.4	2.79	1.91	0.62	0.20	0.06	0.86	1.86	0.07
1965	742.3	4,478.6	0.16574	20.3	122.2	2.73	1.86	0.59	0.21	0.06	0.88	1.78	0.07
1966	813.4	4,773.9	0.17039	22.1	129.5	2.71	1.87	0.56	0.22	0.07	0.90	1.74	0.07
1967	860.0	4,904.9	0.17533	23.3	133.2	2.71	1.86	0.56	0.24	0.07	0.95	1.69	0.07
1968	940.7	5,145.9	0.18280	24.7	134.9	2.62	1.81	0.52	0.23	0.06	0.96	1.59	0.07
1969	1,017.6	5,306.6	0.19176	26.0	135.6	2.55	1.75	0.51	0.22	0.06	0.98	1.50	0.07
1970	1,073.3	5,316.4	0.20189	26.3	130.1	2.45	1.64	0.52	0.23	0.06	0.97	1.40	0.08
1971	1,164.9	5,491.4	0.21212	27.0	127.1	2.31	1.53	0.50	0.22	0.06	0.93	1.31	0.08
1972	1,279.1	5,780.0	0.22130	28.7	129.9	2.25	1.49	0.49	0.22	0.06	0.92	1.25	0.08
1973	1,425.4	6,106.4	0.23342	31.0	132.6	2.17	1.45	0.45	0.21	0.06	0.93	1.16	0.07
1974	1,545.2	6,073.4	0.25443	33.4	131.1	2.16	1.44	0.45	0.21	0.06	0.96	1.12	0.08
1975	1,684.9	6,060.9	0.27800	35.7	128.3	2.12	1.39	0.45	0.21	0.06	0.94	1.10	0.08
1976	1,873.4	6,387.4	0.29330	39.4	134.5	2.10	1.39	0.44	0.21	0.06	0.94	1.08	0.08
1977	2,081.8	6,682.8	0.31152	43.3	139.1	2.08	1.39	0.43	0.21	0.06	0.94	1.06	0.08
1978	2,351.6	7,052.7	0.33343	48.7	146.1	2.07	1.37	0.43	0.21	0.06	0.95	1.04	0.08
1979	2,627.3	7,276.0	0.36110	55.4	153.4	2.11	1.41	0.42	0.22	0.06	0.99	1.04	0.08
1980	2,857.3	7,257.3	0.39371	63.2	160.6	2.21	1.51	0.42	0.23	0.06	1.08	1.05	0.08
1981	3,207.0	7,441.5	0.43097	72.3	167.7	2.25	1.57	0.41	0.22	0.06	1.12	1.05	0.08
1982	3,343.8	7,307.3	0.45759	80.7	176.5	2.41	1.71	0.42	0.23	0.06	1.22	1.11	0.09
1983	3,634.0	7,642.3	0.47552	89.9	189.2	2.48	1.75	0.44	0.23	0.06	1.25	1.14	0.09
1984	4,037.6	8,195.3	0.49267	102.2	207.5	2.53	1.81	0.43	0.23	0.06	1.29	1.15	0.09
1985	4,339.0	8,537.0	0.50826	114.7	225.6	2.64	1.90	0.44	0.24	0.06	1.34	1.21	0.09
1986	4,579.6	8,832.6	0.51849	120.2	231.9	2.63	1.88	0.43	0.25	0.06	1.33	1.19	0.10

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Year	GDP			Total R&D		R&D/GDP (%)							
							R&D, by performer				R&D, by source of funding		
	Current $billions	Constant 2017 $billions	Deflator[a] (2017 = 1.00000)	Current $billions	Constant 2017 $billions	Total	Business	Federal[b]	Higher education	Other[c]	Business	Federal	Other[d]
1987	4,855.2	9,137.7	0.53134	126.4	237.8	2.60	1.86	0.42	0.26	0.06	1.29	1.21	0.11
1988	5,236.4	9,519.4	0.55008	133.9	243.4	2.56	1.81	0.41	0.27	0.06	1.30	1.15	0.11
1989	5,641.6	9,869.0	0.57165	141.9	248.2	2.52	1.77	0.40	0.28	0.07	1.33	1.07	0.11
1990	5,963.1	10,055.1	0.59305	152.0	256.3	2.55	1.80	0.39	0.28	0.07	1.40	1.03	0.12
1991	6,158.1	10,044.2	0.61310	160.9	262.4	2.61	1.86	0.38	0.30	0.08	1.50	0.99	0.13
1992	6,520.3	10,398.0	0.62707	165.4	263.7	2.54	1.79	0.37	0.30	0.08	1.48	0.93	0.13
1993	6,858.6	10,684.2	0.64194	165.7	258.2	2.42	1.68	0.36	0.30	0.08	1.41	0.88	0.13
1994	7,287.2	11,114.6	0.65564	169.2	258.1	2.32	1.61	0.34	0.30	0.08	1.36	0.83	0.13
1995	7,639.7	11,413.0	0.66939	183.6	274.3	2.40	1.70	0.33	0.30	0.08	1.45	0.82	0.13
1996	8,073.1	11,843.6	0.68164	197.3	289.5	2.44	1.76	0.31	0.29	0.08	1.53	0.79	0.13
1997	8,577.6	12,370.3	0.69340	211.9	305.6	2.47	1.81	0.29	0.29	0.08	1.59	0.75	0.13
1998	9,062.8	12,924.9	0.70119	225.8	322.0	2.49	1.84	0.29	0.28	0.08	1.63	0.73	0.13
1999	9,631.2	13,543.8	0.71111	244.5	343.8	2.54	1.89	0.28	0.29	0.08	1.71	0.69	0.14
2000	10,251.0	14,096.0	0.72722	267.9	368.5	2.61	1.95	0.28	0.29	0.09	1.81	0.66	0.14
2001	10,581.9	14,230.7	0.74360	278.5	374.6	2.63	1.91	0.31	0.31	0.10	1.78	0.70	0.15
2002	10,929.1	14,472.7	0.75515	277.9	368.0	2.54	1.77	0.32	0.34	0.11	1.65	0.72	0.17
2003	11,456.5	14,877.3	0.77006	291.4	378.4	2.54	1.75	0.33	0.35	0.11	1.63	0.74	0.18
2004	12,217.2	15,449.8	0.79077	302.7	382.8	2.48	1.70	0.31	0.35	0.11	1.57	0.74	0.17
2005	13,039.2	15,988.0	0.81556	325.3	398.9	2.49	1.73	0.30	0.35	0.11	1.59	0.73	0.17
2006	13,815.6	16,433.1	0.84071	350.9	417.4	2.54	1.79	0.30	0.34	0.10	1.64	0.72	0.17
2007	14,474.2	16,762.4	0.86349	377.9	437.6	2.61	1.86	0.30	0.34	0.10	1.71	0.73	0.18
2008	14,769.9	16,781.5	0.88013	404.8	459.9	2.74	1.97	0.31	0.35	0.11	1.75	0.80	0.20
2009	14,478.1	16,349.1	0.88556	402.9	455.0	2.78	1.95	0.33	0.38	0.12	1.70	0.87	0.21
2010	15,049.0	16,789.8	0.89632	406.6	453.6	2.70	1.85	0.34	0.39	0.12	1.65	0.84	0.21
2011	15,599.7	17,052.4	0.91481	426.2	465.9	2.73	1.89	0.34	0.39	0.12	1.71	0.81	0.21
2012	16,254.0	17,442.8	0.93185	433.7	465.4	2.67	1.86	0.32	0.37	0.11	1.70	0.76	0.21
2013	16,880.7	17,812.2	0.94771	454.2	479.3	2.69	1.91	0.30	0.36	0.11	1.76	0.71	0.22
2014	17,608.1	18,261.7	0.96421	475.9	493.6	2.70	1.94	0.30	0.35	0.11	1.81	0.67	0.22
2015	18,295.0	18,799.6	0.97316	494.5	508.1	2.70	1.94	0.29	0.35	0.12	1.82	0.65	0.23
2016	18,804.9	19,141.7	0.98241	521.7	531.0	2.77	2.02	0.27	0.36	0.12	1.92	0.63	0.23
2017	19,612.1	19,612.1	1.00000	553.6	553.6	2.82	2.07	0.27	0.36	0.12	1.97	0.62	0.23
2018	20,656.5	20,193.9	1.02291	604.0	590.5	2.92	2.16	0.28	0.36	0.12	2.06	0.63	0.22
2019	21,521.4	20,692.1	1.04008	665.6	639.9	3.09	2.31	0.29	0.36	0.12	2.24	0.63	0.22
2020	21,323.0	20,234.1	1.05381	716.9	680.3	3.36	2.55	0.31	0.38	0.13	2.44	0.69	0.23

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2021[e]	23,594.0	21,407.7	1.10213	789.1	716.0	3.34	2.58	0.28	0.36	0.12	2.50	0.63	0.21
2022[f]	25,744.1	21,822.0	1.17973	885.6	750.6	3.44	2.69	0.28	0.36	0.11	2.61	0.62	0.21

GDP = gross domestic product.

[a] 2017 = 1.00000 is the implicit price deflator for GDP.
[b] Federal includes federal intramural R&D and R&D by federally funded R&D centers.
[c] Other R&D performer includes R&D in the United States performed by nonfederal government and nonprofit organizations.
[d] Other R&D funding source includes funding for U.S. R&D by nonfederal government, higher education, and nonprofit organizations.
[e] Some data for 2021 are preliminary and may be revised later.
[f] Data for 2022 include estimates and are likely to be revised later.

Note(s):
Detail may not add to total because of rounding. For trend comparisons, use only the historical data reported in this table because some back-year data may have been revised.

Source(s):
GDP data from Bureau of Economic Analysis, National Economic Accounts, Gross Domestic Product, https://www.bea.gov/national/, accessed 27 October 2023; R&D data from National Center for Science and Engineering Statistics, National Patterns of R&D Resources (annual series).