



NATIONAL SCIENCE BOARD SCIENCE & ENGINEERING INDICATORS 2022



R&D

Research and Development: U.S. Trends and International Comparisons

Supplemental Tables

NSB 2022-5

April 28, 2022

This publication is part of the *Science and Engineering Indicators* suite of reports. *Indicators* is a congressionally mandated report on the state of the U.S. science and engineering enterprise. It is policy relevant and policy neutral. *Indicators* is prepared under the guidance of the National Science Board by the National Center for Science and Engineering Statistics, a federal statistical agency within the National Science Foundation. With the 2020 edition, *Indicators* is changing from a single report to a set of disaggregated and streamlined reports published on a rolling basis. Detailed data tables will continue to be available online.

Supplemental Tables

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India |
|-------------------------------------|---------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|
| GERD (billions of U.S. PPP dollars) | | | | | | | | | |
| 1981 | 72.7 | na | 11.0 | 18.8 | 11.8 | NA | 24.0 | NA | NA |
| 1982 | 81.2 | na | 12.5 | 20.5 | NA | NA | 27.4 | NA | NA |
| 1983 | 90.4 | na | 13.4 | 21.5 | 12.7 | NA | 31.1 | NA | NA |
| 1984 | 102.9 | na | 14.7 | 23.1 | NA | NA | 35.0 | NA | NA |
| 1985 | 115.2 | na | 15.9 | 25.9 | 14.7 | NA | 40.4 | NA | NA |
| 1986 | 120.6 | na | 16.5 | 27.5 | 15.5 | NA | 42.0 | NA | NA |
| 1987 | 126.7 | na | 17.7 | 29.7 | 16.1 | NA | 46.1 | NA | NA |
| 1988 | 134.2 | na | 19.1 | 31.9 | 17.1 | NA | 51.4 | NA | NA |
| 1989 | 142.2 | na | 21.1 | 34.2 | 18.2 | NA | 58.4 | NA | NA |
| 1990 | 152.4 | na | 23.3 | 35.9 | 18.9 | NA | 65.4 | NA | NA |
| 1991 | 161.4 | 108.0 | 24.4 | 40.0 | 18.6 | 9.1 | 69.2 | 7.0 | NA |
| 1992 | 165.8 | 110.3 | 25.4 | 39.7 | 18.8 | 10.7 | 70.0 | 8.0 | NA |
| 1993 | 166.1 | 111.5 | 26.3 | 39.1 | 20.0 | 11.9 | 69.8 | 9.5 | NA |
| 1994 | 169.6 | 113.7 | 26.9 | 39.4 | 20.9 | 12.5 | 70.5 | 11.5 | NA |
| 1995 | 184.1 | 118.1 | 27.7 | 41.0 | 19.6 | 12.8 | 76.6 | 13.1 | NA |
| 1996 | 197.8 | 123.1 | 28.3 | 42.2 | 20.1 | 14.1 | 83.0 | 14.8 | 10.6 |
| 1997 | 212.5 | 129.6 | 28.6 | 44.1 | 20.7 | 17.8 | 87.8 | 16.2 | 12.1 |
| 1998 | 226.2 | 136.6 | 29.4 | 46.1 | 21.4 | 19.7 | 91.1 | 14.6 | 13.3 |
| 1999 | 245.0 | 146.6 | 31.0 | 50.7 | 23.3 | 24.9 | 92.8 | 15.8 | 15.1 |
| 2000 | 268.6 | 158.9 | 33.3 | 53.9 | 25.2 | 32.9 | 98.9 | 18.5 | 16.8 |
| 2001 | 279.1 | 169.3 | 36.1 | 56.2 | 26.3 | 38.4 | 103.8 | 21.3 | 17.5 |
| 2002 | 278.4 | 178.1 | 38.3 | 58.6 | 27.9 | 47.9 | 108.2 | 22.5 | 18.1 |
| 2003 | 292.2 | 181.8 | 37.1 | 61.0 | 28.6 | 56.8 | 112.4 | 24.1 | 19.8 |
| 2004 | 303.8 | 188.6 | 38.1 | 62.9 | 29.4 | 69.7 | 117.5 | 27.9 | 23.1 |
| 2005 | 326.2 | 196.3 | 39.5 | 64.0 | 30.6 | 86.2 | 128.7 | 30.6 | 27.9 |
| 2006 | 351.7 | 216.3 | 42.3 | 69.5 | 33.3 | 104.7 | 138.7 | 35.4 | 30.4 |
| 2007 | 378.5 | 231.5 | 44.2 | 73.4 | 35.2 | 123.3 | 147.5 | 40.6 | 33.6 |
| 2008 | 405.4 | 254.2 | 46.6 | 81.2 | 36.5 | 145.1 | 148.7 | 43.9 | 37.6 |
| 2009 | 404.2 | 260.8 | 49.7 | 82.8 | 36.5 | 184.1 | 137.4 | 45.8 | 39.7 |
| 2010 | 408.5 | 270.4 | 50.9 | 87.0 | 37.6 | 212.1 | 140.6 | 52.2 | 41.2 |
| 2011 | 427.1 | 289.7 | 53.6 | 95.8 | 38.8 | 246.5 | 148.4 | 58.4 | 42.4 |
| 2012 | 434.4 | 302.4 | 55.1 | 100.5 | 38.5 | 289.2 | 152.3 | 64.9 | 45.8 |
| 2013 | 455.1 | 315.6 | 58.4 | 102.9 | 41.5 | 323.4 | 164.7 | 68.2 | 45.8 |

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India |
|---|---------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|
| 2014 | 477.0 | 329.1 | 60.6 | 109.6 | 43.8 | 346.3 | 169.6 | 73.1 | 47.6 |
| 2015 | 495.9 | 341.6 | 61.6 | 114.1 | 45.7 | 366.1 | 168.5 | 76.9 | 49.6 |
| 2016 | 522.6 | 360.1 | 63.7 | 122.5 | 48.1 | 393.0 | 160.3 | 80.8 | 51.8 |
| 2017 | 555.1 | 386.7 | 65.7 | 133.7 | 50.8 | 420.8 | 166.6 | 90.3 | 55.1 |
| 2018 | 606.2 | 413.7 | 68.6 | 142.1 | 54.2 | 465.5 | 172.8 | 99.0 | 58.7 |
| 2019 | 668.4 | 440.3 | 73.3 | 148.1 | 56.9 | 525.7 | 173.3 | 102.5 | NA |
| GERD (billions of 2012 constant U.S. PPP dollars) | | | | | | | | | |
| 1981 | 157.3 | na | 23.8 | 40.6 | 25.4 | NA | 52.0 | NA | NA |
| 1982 | 165.3 | na | 25.4 | 41.7 | NA | NA | 55.9 | NA | NA |
| 1983 | 177.2 | na | 26.3 | 42.1 | 24.9 | NA | 60.9 | NA | NA |
| 1984 | 194.6 | na | 27.9 | 43.7 | NA | NA | 66.2 | NA | NA |
| 1985 | 211.3 | na | 29.1 | 47.6 | 26.9 | NA | 74.1 | NA | NA |
| 1986 | 216.7 | na | 29.6 | 49.5 | 27.9 | NA | 75.5 | NA | NA |
| 1987 | 222.2 | na | 31.0 | 52.1 | 28.3 | NA | 80.9 | NA | NA |
| 1988 | 227.4 | na | 32.3 | 54.0 | 29.0 | NA | 87.1 | NA | NA |
| 1989 | 231.9 | na | 34.4 | 55.7 | 29.7 | NA | 95.1 | NA | NA |
| 1990 | 239.5 | na | 36.6 | 56.4 | 29.8 | NA | 102.8 | NA | NA |
| 1991 | 245.4 | 164.2 | 37.1 | 60.8 | 28.3 | 13.9 | 105.1 | 10.7 | NA |
| 1992 | 246.5 | 163.9 | 37.8 | 59.0 | 27.9 | 15.9 | 104.0 | 11.9 | NA |
| 1993 | 241.2 | 161.8 | 38.1 | 56.7 | 29.0 | 17.3 | 101.3 | 13.8 | NA |
| 1994 | 241.1 | 161.6 | 38.2 | 56.0 | 29.7 | 17.7 | 100.2 | 16.4 | NA |
| 1995 | 256.3 | 164.4 | 38.5 | 57.1 | 27.3 | 17.8 | 106.6 | 18.3 | NA |
| 1996 | 270.5 | 168.3 | 38.7 | 57.7 | 27.4 | 19.3 | 113.5 | 20.3 | 14.5 |
| 1997 | 285.6 | 174.2 | 38.5 | 59.3 | 27.8 | 24.0 | 118.0 | 21.8 | 16.2 |
| 1998 | 300.8 | 181.7 | 39.2 | 61.3 | 28.5 | 26.2 | 121.1 | 19.4 | 17.7 |
| 1999 | 321.2 | 192.2 | 40.6 | 66.4 | 30.6 | 32.7 | 121.6 | 20.7 | 19.8 |
| 2000 | 344.2 | 203.6 | 42.7 | 69.1 | 32.2 | 42.2 | 126.8 | 23.7 | 21.5 |
| 2001 | 349.6 | 212.1 | 45.2 | 70.4 | 33.0 | 48.1 | 130.1 | 26.7 | 21.9 |
| 2002 | 343.7 | 219.9 | 47.3 | 72.4 | 34.4 | 59.1 | 133.5 | 27.8 | 22.4 |
| 2003 | 353.6 | 219.9 | 44.9 | 73.8 | 34.6 | 68.8 | 136.0 | 29.1 | 23.9 |
| 2004 | 358.1 | 222.3 | 45.0 | 74.2 | 34.7 | 82.1 | 138.4 | 32.9 | 27.2 |
| 2005 | 372.9 | 224.3 | 45.2 | 73.2 | 35.0 | 98.5 | 147.1 | 35.0 | 31.9 |
| 2006 | 389.8 | 239.8 | 46.9 | 77.0 | 36.9 | 116.1 | 153.8 | 39.2 | 33.7 |
| 2007 | 408.5 | 249.9 | 47.7 | 79.2 | 38.0 | 133.1 | 159.2 | 43.8 | 36.2 |
| 2008 | 429.5 | 269.3 | 49.3 | 86.0 | 38.7 | 153.7 | 157.5 | 46.5 | 39.9 |

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India | |
|------|-----------------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|--|
| 2009 | 425.4 | 274.5 | 52.3 | 87.1 | 38.4 | 193.8 | 144.6 | 48.2 | 41.8 | |
| 2010 | 424.8 | 281.2 | 52.9 | 90.5 | 39.1 | 220.6 | 146.2 | 54.2 | 42.9 | |
| 2011 | 435.1 | 295.1 | 54.6 | 97.6 | 39.5 | 251.1 | 151.2 | 59.5 | 43.2 | |
| 2012 | 434.4 | 302.4 | 55.1 | 100.5 | 38.5 | 289.2 | 152.3 | 64.9 | 45.8 | |
| 2013 | 447.2 | 310.1 | 57.3 | 101.1 | 40.8 | 317.7 | 161.8 | 67.0 | 45.0 | |
| 2014 | 460.2 | 317.5 | 58.4 | 105.7 | 42.3 | 334.0 | 163.6 | 70.5 | 45.9 | |
| 2015 | 473.8 | 326.4 | 58.9 | 109.0 | 43.6 | 349.8 | 161.0 | 73.5 | 47.4 | |
| 2016 | 494.5 | 340.7 | 60.2 | 115.9 | 45.5 | 371.8 | 151.6 | 76.5 | 49.0 | |
| 2017 | 515.2 | 358.9 | 61.0 | 124.1 | 47.2 | 390.6 | 154.6 | 83.8 | 51.2 | |
| 2018 | 549.5 | 374.9 | 62.2 | 128.8 | 49.2 | 421.9 | 156.6 | 89.8 | 53.2 | |
| 2019 | 595.3 | 392.2 | 65.3 | 131.9 | 50.7 | 468.2 | 154.3 | 91.3 | NA | |
| | GERD-to-GDP ratio (%) | | | | | | | | | |
| 1981 | 2.27 | na | 1.87 | 2.35 | 2.24 | NA | 2.05 | NA | NA | |
| 1982 | 2.43 | na | 1.95 | 2.42 | NA | NA | 2.13 | NA | NA | |
| 1983 | 2.49 | na | 1.98 | 2.41 | 2.06 | NA | 2.24 | NA | NA | |
| 1984 | 2.55 | na | 2.07 | 2.43 | NA | NA | 2.33 | NA | NA | |
| 1985 | 2.66 | na | 2.13 | 2.59 | 2.09 | NA | 2.48 | NA | NA | |
| 1986 | 2.63 | na | 2.12 | 2.63 | 2.10 | NA | 2.44 | NA | NA | |
| 1987 | 2.61 | na | 2.16 | 2.73 | 2.02 | NA | 2.50 | NA | NA | |
| 1988 | 2.56 | na | 2.15 | 2.73 | 1.96 | NA | 2.52 | NA | NA | |
| 1989 | 2.52 | na | 2.19 | 2.71 | 1.95 | NA | 2.63 | NA | NA | |
| 1990 | 2.56 | na | 2.27 | 2.61 | 1.95 | NA | 2.71 | NA | NA | |
| 1991 | 2.62 | 1.65 | 2.28 | 2.39 | 1.87 | 0.72 | 2.68 | 1.71 | NA | |
| 1992 | 2.54 | 1.63 | 2.28 | 2.27 | 1.84 | 0.73 | 2.63 | 1.80 | NA | |
| 1993 | 2.42 | 1.62 | 2.32 | 2.21 | 1.86 | 0.70 | 2.57 | 1.95 | NA | |
| 1994 | 2.33 | 1.57 | 2.27 | 2.13 | 1.84 | 0.63 | 2.47 | 2.12 | NA | |
| 1995 | 2.41 | 1.56 | 2.24 | 2.14 | 1.65 | 0.57 | 2.56 | 2.16 | NA | |
| 1996 | 2.45 | 1.57 | 2.22 | 2.14 | 1.58 | 0.56 | 2.64 | 2.22 | 0.64 | |
| 1997 | 2.48 | 1.59 | 2.15 | 2.19 | 1.54 | 0.64 | 2.72 | 2.25 | 0.69 | |
| 1998 | 2.50 | 1.60 | 2.09 | 2.22 | 1.55 | 0.65 | 2.83 | 2.11 | 0.70 | |
| 1999 | 2.54 | 1.65 | 2.11 | 2.35 | 1.63 | 0.75 | 2.85 | 2.02 | 0.72 | |
| 2000 | 2.62 | 1.68 | 2.09 | 2.41 | 1.62 | 0.89 | 2.86 | 2.13 | 0.76 | |
| 2001 | 2.64 | 1.70 | 2.14 | 2.40 | 1.61 | 0.94 | 2.92 | 2.28 | 0.74 | |
| 2002 | 2.55 | 1.71 | 2.17 | 2.44 | 1.62 | 1.06 | 2.97 | 2.21 | 0.73 | |
| 2003 | 2.55 | 1.70 | 2.12 | 2.47 | 1.58 | 1.12 | 2.99 | 2.28 | 0.72 | |

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India |
|---|---------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|
| 2004 | 2.49 | 1.68 | 2.09 | 2.44 | 1.54 | 1.21 | 2.98 | 2.44 | 0.76 |
| 2005 | 2.50 | 1.68 | 2.05 | 2.44 | 1.56 | 1.31 | 3.13 | 2.52 | 0.82 |
| 2006 | 2.55 | 1.70 | 2.05 | 2.47 | 1.58 | 1.37 | 3.23 | 2.72 | 0.80 |
| 2007 | 2.62 | 1.70 | 2.02 | 2.46 | 1.62 | 1.37 | 3.29 | 2.87 | 0.81 |
| 2008 | 2.74 | 1.78 | 2.06 | 2.62 | 1.61 | 1.45 | 3.29 | 2.99 | 0.86 |
| 2009 | 2.79 | 1.86 | 2.21 | 2.74 | 1.67 | 1.66 | 3.20 | 3.15 | 0.83 |
| 2010 | 2.71 | 1.86 | 2.18 | 2.73 | 1.64 | 1.71 | 3.10 | 3.32 | 0.79 |
| 2011 | 2.74 | 1.91 | 2.19 | 2.81 | 1.65 | 1.78 | 3.21 | 3.59 | 0.76 |
| 2012 | 2.67 | 1.96 | 2.23 | 2.88 | 1.58 | 1.91 | 3.17 | 3.85 | 0.74 |
| 2013 | 2.70 | 1.98 | 2.24 | 2.84 | 1.62 | 2.00 | 3.28 | 3.95 | 0.71 |
| 2014 | 2.72 | 2.00 | 2.28 | 2.88 | 1.64 | 2.02 | 3.37 | 4.08 | 0.70 |
| 2015 | 2.72 | 2.01 | 2.27 | 2.93 | 1.65 | 2.06 | 3.24 | 3.98 | 0.69 |
| 2016 | 2.80 | 1.99 | 2.22 | 2.94 | 1.66 | 2.10 | 3.11 | 3.99 | 0.67 |
| 2017 | 2.85 | 2.03 | 2.20 | 3.05 | 1.68 | 2.12 | 3.17 | 4.29 | 0.67 |
| 2018 | 2.95 | 2.07 | 2.19 | 3.12 | 1.73 | 2.14 | 3.22 | 4.52 | 0.65 |
| 2019 | 3.13 | 2.12 | 2.20 | 3.19 | 1.76 | 2.23 | 3.20 | 4.64 | NA |
| GERD, annual growth rates, recent years, current and constant dollars (%) | | | | | | | | | |
| Current PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 4.3 | 5.5 | 4.3 | 4.9 | 4.1 | 20.5 | 3.6 | 10.9 | 9.4 |
| CAGR 2010–19 | 5.6 | 5.6 | 4.1 | 6.1 | 4.7 | 10.6 | 2.4 | 7.8 | 4.5 |
| Constant 2012 PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 2.1 | 3.3 | 2.2 | 2.7 | 1.9 | 18.0 | 1.4 | 8.6 | 7.2 |
| CAGR 2010–19 | 3.8 | 3.8 | 2.4 | 4.3 | 2.9 | 8.7 | 0.6 | 6.0 | 2.7 |
| GDP, annual growth rates, recent years, current and constant dollars (%) | | | | | | | | | |
| Current PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 3.9 | 4.4 | 3.9 | 3.6 | 3.9 | 12.9 | 2.7 | 6.1 | 9.0 |
| CAGR 2010–19 | 4.1 | 4.1 | 4.0 | 4.3 | 3.9 | 7.4 | 2.0 | 3.8 | 7.1 |
| Constant 2012 PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 1.7 | 2.2 | 1.8 | 2.2 | 1.8 | 10.5 | 0.6 | 3.9 | 6.7 |
| CAGR 2010–19 | 2.3 | 2.3 | 2.3 | 1.7 | 2.2 | 5.6 | 0.3 | 2.1 | 5.3 |

na = not applicable; NA = not available.

CAGR = compound average annual growth rate; EU = European Union; GDP = gross domestic product; GERD = gross domestic expenditure on R&D; PPP = purchasing power parity.

^a Data for the EU include the 27 EU member countries.

Note(s):

Table data include the top eight R&D-performing countries in 2019. R&D expenditures in constant U.S. PPP dollars are computed using the U.S. GDP implicit price deflator. Data for the United States in this table reflect international standards for calculating GERD, which vary slightly from the National Science Foundation's protocol for tallying U.S. total R&D. Data for Japan for 1996 onward may not be consistent with earlier data because of changes in methodology. Data for Germany for 1981–90 are for West Germany.

Source(s):

National Center for Science and Engineering Statistics, *National Patterns of R&D Resources* (2019–20 edition); Organisation for Economic Co-operation and Development, *Main Science and Technology Indicators* (September 2021 edition); United Nations Educational, Scientific and Cultural Organization, Institute for Statistics, Science Technology and Innovation data set (March 2021 release).

Science and Engineering Indicators

Table SRD-2

Business R&D performed in the United States, by industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Millions of dollars | | | | | | | | | | |
| All industries, 21–33, 42–81 | 278,977 | 294,093 | 302,250 | 322,528 | 340,728 | 355,821 | 374,685 | 400,100 | 441,036 | 492,956 |
| Manufacturing industries, 31–33 | 196,712 | 201,361 | 208,415 | 221,476 | 232,815 | 236,132 | 250,553 | 257,227 | 274,075 | 285,674 |
| Chemicals, 325 | 58,038 | 55,324 | 57,225 | 61,664 | 66,301 | 68,196 | 73,575 | 74,977 | 84,137 | 97,063 |
| Pharmaceuticals and medicines, 3254 | 49,415 | 45,949 | 48,146 | 52,426 | 56,612 | 58,675 | 64,628 | 66,202 | 74,592 | 87,619 |
| Other 325 | 8,623 | 9,375 | 9,079 | 9,238 | 9,689 | 9,521 | 8,947 | 8,775 | 9,545 | 9,444 |
| Machinery, 333 | 9,955 | 14,709 | 14,254 | 12,650 | 12,128 | 13,426 | 12,585 | 13,197 | 14,799 | 15,184 |
| Computer and electronic products, 334 | 59,875 | 62,704 | 65,068 | 67,205 | 73,891 | 72,110 | 77,385 | 78,575 | 83,697 | 86,729 |
| Electrical equipment, appliance, and components, 335 | 3,321 | 3,595 | 3,087 | 4,136 | 4,365 | 4,335 | 4,771 | 4,291 | 4,487 | 5,263 |
| Transportation equipment, 336 | 42,913 | 40,880 | 42,305 | 45,972 | 46,746 | 49,274 | 51,275 | 53,292 | 52,629 | 45,375 |
| Motor vehicles, bodies, trailers, and parts, 3361–63 | D | D | D | 16,729 | 18,404 | 19,078 | 22,042 | 23,881 | 25,586 | 24,117 |
| Aerospace products and parts, 3364 | 29,854 | 26,054 | 24,817 | 27,114 | 26,181 | 27,464 | 26,645 | 26,383 | 24,291 | 18,358 |
| Other 336 | D | D | D | 2,129 | 2,161 | 2,732 | 2,588 | 3,028 | 2,752 | 2,900 |
| Manufacturing nec, other 31–33 | 22,610 | 24,149 | 26,476 | 29,849 | 29,384 | 28,791 | 30,962 | 32,895 | 34,326 | 36,060 |
| Nonmanufacturing industries, 21–23, 42–81 | 82,265 | 92,731 | 93,835 | 101,052 | 107,913 | 119,690 | 124,132 | 142,874 | 166,961 | 207,283 |
| Information, 51 | 36,853 | 41,865 | 46,805 | 57,207 | 63,773 | 65,513 | 70,748 | 80,252 | 94,349 | 110,227 |
| Software publishers, 5112 | 26,982 | 27,965 | 28,745 | 35,333 | 36,052 | 33,248 | 33,495 | 34,264 | 32,639 | 32,958 |
| Other 51 | 9,871 | 13,900 | 18,060 | 21,874 | 27,721 | 32,265 | 37,253 | 45,988 | 61,710 | 77,269 |
| Finance and insurance, 52 | 2,109 | 3,457 | 3,519 | 4,308 | 4,122 | 5,366 | 7,331 | 7,616 | 7,471 | 8,917 |
| Professional, scientific, and technical services, 54 | 33,690 | 38,219 | 34,309 | 31,017 | 30,975 | 38,626 | 37,595 | 36,922 | 44,860 | 53,233 |
| Computer systems design and related services, 5415 | 11,050 | 13,259 | 11,251 | 9,268 | 11,019 | 14,333 | 15,747 | 13,327 | 15,923 | 21,046 |
| Scientific research and development services, 5417 | 12,140 | 15,301 | 16,544 | 14,201 | 12,807 | 16,329 | 14,842 | 17,321 | 20,185 | 21,669 |
| Other 54 | 10,500 | 9,659 | 6,514 | 7,548 | 7,149 | 7,964 | 7,006 | 6,274 | 8,752 | 10,518 |
| Nonmanufacturing nec, other 21–23, 42–81 | 9,613 | 9,190 | 9,202 | 8,520 | 9,043 | 10,185 | 8,458 | 18,084 | 20,281 | 34,906 |
| Percent change from preceding period | | | | | | | | | | |
| All industries, 21–33, 42–81 | | 5.4 | 2.8 | 6.7 | 5.6 | 4.4 | 5.3 | 6.8 | 10.2 | 11.8 |
| Manufacturing industries, 31–33 | | 2.4 | 3.5 | 6.3 | 5.1 | 1.4 | 6.1 | 2.7 | 6.5 | 4.2 |
| Chemicals, 325 | | -4.7 | 3.4 | 7.8 | 7.5 | 2.9 | 7.9 | 1.9 | 12.2 | 15.4 |
| Pharmaceuticals and medicines, 3254 | | -7.0 | 4.8 | 8.9 | 8.0 | 3.6 | 10.1 | 2.4 | 12.7 | 17.5 |
| Other 325 | | 8.7 | -3.2 | 1.8 | 4.9 | -1.7 | -6.0 | -1.9 | 8.8 | -1.1 |
| Machinery, 333 | | 47.8 | -3.1 | -11.3 | -4.1 | 10.7 | -6.3 | 4.9 | 12.1 | 2.6 |
| Computer and electronic products, 334 | | 4.7 | 3.8 | 3.3 | 9.9 | -2.4 | 7.3 | 1.5 | 6.5 | 3.6 |
| Electrical equipment, appliance, and components, 335 | | 8.3 | -14.1 | 34.0 | 5.5 | -0.7 | 10.1 | -10.1 | 4.6 | 17.3 |
| Transportation equipment, 336 | | -4.7 | 3.5 | 8.7 | 1.7 | 5.4 | 4.1 | 3.9 | -1.2 | -13.8 |

Table SRD-2

Business R&D performed in the United States, by industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Motor vehicles, bodies, trailers, and parts, 3361–63 | | D | D | D | 10.0 | 3.7 | 15.5 | 8.3 | 7.1 | -5.7 |
| Aerospace products and parts, 3364 | | -12.7 | -4.7 | 9.3 | -3.4 | 4.9 | -3.0 | -1.0 | -7.9 | -24.4 |
| Other 336 | | D | D | D | 1.5 | 26.4 | -5.3 | 17.0 | -9.1 | 5.4 |
| Manufacturing nec, other 31–33 | | 6.8 | 9.6 | 12.7 | -1.6 | -2.0 | 7.5 | 6.2 | 4.4 | 5.1 |
| Nonmanufacturing industries, 21–23, 42–81 | | 12.7 | 1.2 | 7.7 | 6.8 | 10.9 | 3.7 | 15.1 | 16.9 | 24.2 |
| Information, 51 | | 13.6 | 11.8 | 22.2 | 11.5 | 2.7 | 8.0 | 13.4 | 17.6 | 16.8 |
| Software publishers, 5112 | | 3.6 | 2.8 | 22.9 | 2.0 | -7.8 | 0.7 | 2.3 | -4.7 | 1.0 |
| Other 51 | | 40.8 | 29.9 | 21.1 | 26.7 | 16.4 | 15.5 | 23.4 | 34.2 | 25.2 |
| Finance and insurance, 52 | | 63.9 | 1.8 | 22.4 | -4.3 | 30.2 | 36.6 | 3.9 | -1.9 | 19.4 |
| Professional, scientific, and technical services, 54 | | 13.4 | -10.2 | -9.6 | -0.1 | 24.7 | -2.7 | -1.8 | 21.5 | 18.7 |
| Computer systems design and related services, 5415 | | 20.0 | -15.1 | -17.6 | 18.9 | 30.1 | 9.9 | -15.4 | 19.5 | 32.2 |
| Scientific research and development services, 5417 | | 26.0 | 8.1 | -14.2 | -9.8 | 27.5 | -9.1 | 16.7 | 16.5 | 7.4 |
| Other 54 | | -8.0 | -32.6 | 15.9 | -5.3 | 11.4 | -12.0 | -10.4 | 39.5 | 20.2 |
| Nonmanufacturing nec, other 21–23, 42–81 | | -4.4 | 0.1 | -7.4 | 6.1 | 12.6 | -17.0 | 113.8 | 12.1 | 72.1 |
| Industry share of business R&D (%) | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 70.5 | 68.5 | 69.0 | 68.7 | 68.3 | 66.4 | 66.9 | 64.3 | 62.1 | 58.0 |
| Chemicals, 325 | 20.8 | 18.8 | 18.9 | 19.1 | 19.5 | 19.2 | 19.6 | 18.7 | 19.1 | 19.7 |
| Pharmaceuticals and medicines, 3254 | 17.7 | 15.6 | 15.9 | 16.3 | 16.6 | 16.5 | 17.2 | 16.5 | 16.9 | 17.8 |
| Other 325 | 3.1 | 3.2 | 3.0 | 2.9 | 2.8 | 2.7 | 2.4 | 2.2 | 2.2 | 1.9 |
| Machinery, 333 | 3.6 | 5.0 | 4.7 | 3.9 | 3.6 | 3.8 | 3.4 | 3.3 | 3.4 | 3.1 |
| Computer and electronic products, 334 | 21.5 | 21.3 | 21.5 | 20.8 | 21.7 | 20.3 | 20.7 | 19.6 | 19.0 | 17.6 |
| Electrical equipment, appliance, and components, 335 | 1.2 | 1.2 | 1.0 | 1.3 | 1.3 | 1.2 | 1.3 | 1.1 | 1.0 | 1.1 |
| Transportation equipment, 336 | 15.4 | 13.9 | 14.0 | 14.3 | 13.7 | 13.8 | 13.7 | 13.3 | 11.9 | 9.2 |
| Motor vehicles, bodies, trailers, and parts, 3361–63 | D | D | D | 5.2 | 5.4 | 5.4 | 5.9 | 6.0 | 5.8 | 4.9 |
| Aerospace products and parts, 3364 | 10.7 | 8.9 | 8.2 | 8.4 | 7.7 | 7.7 | 7.1 | 6.6 | 5.5 | 3.7 |
| Other 336 | D | D | D | 0.7 | 0.6 | 0.8 | 0.7 | 0.8 | 0.6 | 0.6 |
| Manufacturing nec, other 31–33 | 8.1 | 8.2 | 8.8 | 9.3 | 8.6 | 8.1 | 8.3 | 8.2 | 7.8 | 7.3 |
| Nonmanufacturing industries, 21–23, 42–81 | 29.5 | 31.5 | 31.0 | 31.3 | 31.7 | 33.6 | 33.1 | 35.7 | 37.9 | 42.0 |
| Information, 51 | 13.2 | 14.2 | 15.5 | 17.7 | 18.7 | 18.4 | 18.9 | 20.1 | 21.4 | 22.4 |
| Software publishers, 5112 | 9.7 | 9.5 | 9.5 | 11.0 | 10.6 | 9.3 | 8.9 | 8.6 | 7.4 | 6.7 |
| Other 51 | 3.5 | 4.7 | 6.0 | 6.8 | 8.1 | 9.1 | 9.9 | 11.5 | 14.0 | 15.7 |
| Finance and insurance, 52 | 0.8 | 1.2 | 1.2 | 1.3 | 1.2 | 1.5 | 2.0 | 1.9 | 1.7 | 1.8 |
| Professional, scientific, and technical services, 54 | 12.1 | 13.0 | 11.4 | 9.6 | 9.1 | 10.9 | 10.0 | 9.2 | 10.2 | 10.8 |
| Computer systems design and related services, 5415 | 4.0 | 4.5 | 3.7 | 2.9 | 3.2 | 4.0 | 4.2 | 3.3 | 3.6 | 4.3 |

Table SRD-2

Business R&D performed in the United States, by industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|------|------|------|------|------|------|------|------|------|------|
| Scientific research and development services, 5417 | 4.4 | 5.2 | 5.5 | 4.4 | 3.8 | 4.6 | 4.0 | 4.3 | 4.6 | 4.4 |
| Other 54 | 3.8 | 3.3 | 2.2 | 2.3 | 2.1 | 2.2 | 1.9 | 1.6 | 2.0 | 2.1 |
| Nonmanufacturing nec, other 21–23, 42–81 | 3.4 | 3.1 | 3.0 | 2.6 | 2.7 | 2.9 | 2.3 | 4.5 | 4.6 | 7.1 |

D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = North American Industry Classification System; nec = not elsewhere classified.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. For survey years 2010–13, industry classification was based on the 2007 NAICS, whereas for survey years 2014–18, industry classification was based on the 2012 NAICS. The 2010–16 data come from the Business R&D and Innovation Survey and do not include companies with fewer than 5 domestic employees. Data for 2017–18 come from the Business Research and Development Survey and do not include companies with fewer than 10 domestic employees. Data for 2019 come from the Business Enterprise Research and Development Survey and also do not include companies with fewer than 10 domestic employees.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey (BRDIS), Business Research and Development Survey (BRDS), and Business Enterprise Research and Development Survey (BERD).

Science and Engineering Indicators

Table SRD-3

Funds spent for business R&D performed in the United States, by type of R&D and selected sources of funds: 2010–19

(Millions of dollars and percent share)

| Source of funds | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Millions of dollars | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All business R&D ^a | 278,977 | 294,093 | 302,250 | 322,528 | 340,728 | 355,821 | 374,685 | 400,100 | 441,036 | 492,956 |
| Paid for by the company | 221,706 | 238,768 | 247,280 | 264,913 | 282,570 | 296,677 | 317,731 | 339,036 | 377,806 | 428,968 |
| Paid for by others | 57,271 | 55,324 | 54,970 | 57,615 | 58,158 | 59,144 | 56,954 | 61,065 | 63,230 | 63,989 |
| Federal | 34,199 | 31,309 | 30,621 | 29,362 | 26,554 | 26,990 | 23,772 | 24,277 | 24,685 | 21,941 |
| All others | 23,072 | 24,015 | 24,349 | 28,253 | 31,604 | 32,154 | 33,182 | 36,788 | 38,545 | 42,048 |
| Basic research | | | | | | | | | | |
| All business R&D ^a | 16,371 | 13,020 | 13,293 | 19,508 | 21,936 | 21,792 | 24,644 | 24,829 | 28,980 | 32,239 |
| Paid for by the company | 13,453 | 10,735 | 11,163 | 15,275 | 16,107 | 16,306 | 19,143 | 18,732 | 22,312 | 25,916 |
| Paid for by others | 2,918 | 2,285 | 2,131 | 4,233 | 5,829 | 5,486 | 5,501 | 6,097 | 6,668 | 6,324 |
| Federal | 1,406 | 677 | 644 | 1,196 | 2,044 | 2,038 | 2,005 | 1,783 | 2,510 | 2,313 |
| All others | 1,512 | 1,608 | 1,487 | 3,037 | 3,785 | 3,448 | 3,496 | 4,314 | 4,158 | 4,011 |
| Applied research | | | | | | | | | | |
| All business R&D ^a | 44,906 | 47,186 | 50,755 | 51,014 | 53,415 | 56,472 | 61,020 | 62,132 | 65,222 | 74,031 |
| Paid for by the company | 35,475 | 37,573 | 39,629 | 38,105 | 39,012 | 44,344 | 48,806 | 49,149 | 53,229 | 59,697 |
| Paid for by others | 9,431 | 9,613 | 11,126 | 12,908 | 14,403 | 12,128 | 12,213 | 12,984 | 11,993 | 14,333 |
| Federal | 4,705 | 4,404 | 4,137 | 6,028 | 6,445 | 6,102 | 5,181 | 5,037 | 5,097 | 4,883 |
| All others | 4,726 | 5,209 | 6,989 | 6,880 | 7,958 | 6,026 | 7,032 | 7,947 | 6,896 | 9,450 |
| Experimental development | | | | | | | | | | |
| All business R&D ^a | 217,699 | 233,887 | 238,202 | 252,007 | 265,377 | 277,558 | 289,021 | 313,139 | 346,834 | 386,686 |
| Paid for by the company | 172,777 | 190,460 | 196,488 | 211,532 | 227,451 | 236,027 | 249,782 | 271,155 | 302,264 | 343,355 |
| Paid for by others | 44,922 | 43,426 | 41,714 | 40,475 | 37,927 | 41,530 | 39,239 | 41,984 | 44,570 | 43,332 |
| Federal | 28,089 | 26,228 | 25,840 | 22,137 | 18,065 | 18,850 | 16,586 | 17,457 | 17,078 | 14,745 |
| All others | 16,833 | 17,198 | 15,874 | 18,338 | 19,862 | 22,680 | 22,653 | 24,527 | 27,492 | 28,587 |
| Sources of funds as a percentage of business R&D, by type of R&D | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Paid for by the company | 79.5 | 81.2 | 81.8 | 82.1 | 82.9 | 83.4 | 84.8 | 84.7 | 85.7 | 87.0 |
| Paid for by others | 20.5 | 18.8 | 18.2 | 17.9 | 17.1 | 16.6 | 15.2 | 15.3 | 14.3 | 13.0 |
| Federal | 12.3 | 10.6 | 10.1 | 9.1 | 7.8 | 7.6 | 6.3 | 6.1 | 5.6 | 4.5 |
| All others | 8.3 | 8.2 | 8.1 | 8.8 | 9.3 | 9.0 | 8.9 | 9.2 | 8.7 | 8.5 |
| Basic research | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 100.0 | 100.0 | 100.0 |

Table SRD-3

Funds spent for business R&D performed in the United States, by type of R&D and selected sources of funds: 2010–19

(Millions of dollars and percent share)

| Source of funds | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Paid for by the company | 82.2 | 82.5 | 84.0 | 78.3 | 73.4 | 74.8 | 77.7 | 75.4 | 77.0 | 80.4 |
| Paid for by others | 17.8 | 17.5 | 16.0 | 21.7 | 26.6 | 25.2 | 22.3 | 24.6 | 23.0 | 19.6 |
| Federal | 8.6 | 5.2 | 4.8 | 6.1 | 9.3 | 9.4 | 8.1 | 7.2 | 8.7 | 7.2 |
| All others | 9.2 | 12.4 | 11.2 | 15.6 | 17.3 | 15.8 | 14.2 | 17.4 | 14.3 | 12.4 |
| Applied research | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Paid for by the company | 79.0 | 79.6 | 78.1 | 74.7 | 73.0 | 78.5 | 80.0 | 79.1 | 81.6 | 80.6 |
| Paid for by others | 21.0 | 20.4 | 21.9 | 25.3 | 27.0 | 21.5 | 20.0 | 20.9 | 18.4 | 19.4 |
| Federal | 10.5 | 9.3 | 8.2 | 11.8 | 12.1 | 10.8 | 8.5 | 8.1 | 7.8 | 6.6 |
| All others | 10.5 | 11.0 | 13.8 | 13.5 | 14.9 | 10.7 | 11.5 | 12.8 | 10.6 | 12.8 |
| Experimental development | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Paid for by the company | 79.4 | 81.4 | 82.5 | 83.9 | 85.7 | 85.0 | 86.4 | 86.6 | 87.1 | 88.8 |
| Paid for by others | 20.6 | 18.6 | 17.5 | 16.1 | 14.3 | 15.0 | 13.6 | 13.4 | 12.9 | 11.2 |
| Federal | 12.9 | 11.2 | 10.8 | 8.8 | 6.8 | 6.8 | 5.7 | 5.6 | 4.9 | 3.8 |
| All others | 7.7 | 7.4 | 6.7 | 7.3 | 7.5 | 8.2 | 7.8 | 7.8 | 7.9 | 7.4 |

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = North American Industry Classification System.

^a Includes companies located in the United States that performed or funded R&D. Data in this table represent an aggregate of all industries in the North American Industry Classification System codes 21–33 and 42–81.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. For survey years 2010–13, industry classification was based on the 2007 NAICS, whereas for survey years 2014–18, industry classification was based on the 2012 NAICS. The 2010–16 data come from the Business R&D and Innovation Survey and do not include companies with fewer than 5 domestic employees. Data for 2017–18 come from the Business Research and Development Survey and do not include companies with fewer than 10 domestic employees. Data for 2019 come from the Business Enterprise Research and Development Survey and do not include companies with fewer than 10 domestic employees.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey (BRDIS), Business Research and Development Survey (BRDS), and Business Enterprise Research and Development Survey (BERD).

Science and Engineering Indicators

Table SRD-4

Funds spent for business R&D performed in the United States, by type of R&D and select industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Millions of dollars | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All industries, 21–33, 42–81 | 278,977 | 294,093 | 302,250 | 322,528 | 340,728 | 355,821 | 374,685 | 400,100 | 441,036 | 492,956 |
| Manufacturing industries, 31–33 | 196,711 | 201,361 | 208,415 | 221,476 | 232,815 | 236,132 | 250,553 | 257,227 | 274,075 | 285,674 |
| Chemicals, 325 | 58,038 | 55,324 | 57,225 | 61,664 | 66,301 | 68,196 | 73,575 | 74,977 | 84,137 | 97,063 |
| Computer and electronic products, 334 | 59,875 | 62,704 | 65,068 | 67,205 | 73,891 | 72,110 | 77,385 | 78,575 | 83,697 | 86,729 |
| Transportation equipment, 336 | 42,913 | 40,880 | 42,305 | 45,972 | 46,746 | 49,274 | 51,275 | 53,292 | 52,629 | 45,375 |
| Nonmanufacturing industries, 21–23, 42–81 | 82,265 | 92,731 | 93,835 | 101,052 | 107,913 | 119,690 | 124,132 | 142,874 | 166,961 | 207,283 |
| Information, 51 | 36,852 | 41,865 | 46,805 | 57,207 | 63,773 | 65,513 | 70,748 | 80,252 | 94,349 | 110,227 |
| Professional, scientific, and technical services, 54 | 33,690 | 38,219 | 34,309 | 31,017 | 30,975 | 38,626 | 37,595 | 36,922 | 44,860 | 53,233 |
| Basic research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 16,371 | 13,020 | 13,293 | 19,508 | 21,936 | 21,792 | 24,644 | 24,829 | 28,980 | 32,239 |
| Manufacturing industries, 31–33 | 10,667 | 8,738 | 9,119 | 15,186 | 17,822 | 16,756 | 18,882 | 18,624 | 20,873 | 22,701 |
| Chemicals, 325 | 4,670 | 4,243 | 3,964 | 7,308 | 9,037 | 8,317 | 10,117 | 10,193 | 11,972 | 13,869 |
| Computer and electronic products, 334 | 2,808 | 1,438 | 1,556 | 2,684 | 2,792 | 2,338 | 2,468 | 2,543 | 2,445 | 2,175 |
| Transportation equipment, 336 | 1,097 | 955 | 952 | 1,823 | 2,911 | 3,605 | 3,112 | 2,824 | 3,062 | 3,486 |
| Nonmanufacturing industries, 21–23, 42–81 | 5,704 | 4,282 | 4,174 | 4,321 | 4,114 | 5,036 | 5,762 | 6,205 | 8,108 | 9,538 |
| Information, 51 | 2,101 | 1,518 | 1,868 | 2,178 | 2,105 | 1,627 | 2,028 | 2,243 | 3,250 | 3,816 |
| Professional, scientific, and technical services, 54 | 2,663 | 2,030 | 1,966 | 1,630 | 1,572 | 2,240 | 2,671 | 2,491 | 3,482 | 4,161 |
| Applied research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 44,906 | 47,186 | 50,755 | 51,014 | 53,415 | 56,472 | 61,020 | 62,132 | 65,222 | 74,031 |
| Manufacturing industries, 31–33 | 33,224 | 32,576 | 35,514 | 35,166 | 36,585 | 39,583 | 42,443 | 43,698 | 44,027 | 45,769 |
| Chemicals, 325 | 15,006 | 15,121 | 16,640 | 13,894 | 13,837 | 16,047 | 15,771 | 17,021 | 18,531 | 19,120 |
| Computer and electronic products, 334 | 8,426 | 7,069 | 7,120 | 8,485 | 8,740 | 8,973 | 10,298 | 11,194 | 9,947 | 11,587 |
| Transportation equipment, 336 | 3,597 | 3,563 | 4,295 | 6,022 | 7,141 | 7,165 | 7,859 | 7,490 | 7,440 | 7,332 |
| Nonmanufacturing industries, 21–23, 42–81 | 11,682 | 14,610 | 15,241 | 15,848 | 16,830 | 16,889 | 18,576 | 18,434 | 21,195 | 28,262 |
| Information, 51 | 2,764 | 3,864 | 4,033 | 5,687 | 6,137 | 6,511 | 6,805 | 7,626 | 8,979 | 8,690 |
| Professional, scientific, and technical services, 54 | 7,162 | 8,615 | 8,825 | 8,181 | 8,777 | 8,264 | 9,900 | 8,584 | 9,384 | 11,731 |
| Experimental development | | | | | | | | | | |
| All industries, 21–33, 42–81 | 217,699 | 233,887 | 238,202 | 252,007 | 265,377 | 277,558 | 289,021 | 313,139 | 346,834 | 386,686 |
| Manufacturing industries, 31–33 | 152,821 | 160,047 | 163,781 | 171,124 | 178,408 | 179,793 | 189,228 | 194,904 | 209,175 | 217,203 |
| Chemicals, 325 | 38,362 | 35,961 | 36,621 | 40,462 | 43,427 | 43,833 | 47,687 | 47,763 | 53,635 | 64,075 |
| Computer and electronic products, 334 | 48,640 | 54,197 | 56,392 | 56,036 | 62,358 | 60,799 | 64,619 | 64,837 | 71,305 | 72,967 |
| Transportation equipment, 336 | 38,219 | 36,361 | 37,058 | 38,126 | 36,693 | 38,504 | 40,305 | 42,978 | 42,128 | 34,557 |

Table SRD-4

Funds spent for business R&D performed in the United States, by type of R&D and select industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| Nonmanufacturing industries, 21–23, 42–81 | 64,878 | 73,839 | 74,421 | 80,883 | 86,970 | 97,765 | 99,794 | 118,235 | 137,658 | 169,483 |
| Information, 51 | 31,987 | 36,483 | 40,903 | 49,341 | 55,530 | 57,374 | 61,916 | 70,383 | 82,120 | 97,721 |
| Professional, scientific, and technical services, 54 | 23,866 | 27,573 | 23,517 | 21,206 | 20,626 | 28,122 | 25,024 | 25,848 | 31,994 | 37,341 |
| Industry share of each type of R&D (%) | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 70.5 | 68.5 | 69.0 | 68.7 | 68.3 | 66.4 | 66.9 | 64.3 | 62.1 | 58.0 |
| Chemicals, 325 | 20.8 | 18.8 | 18.9 | 19.1 | 19.5 | 19.2 | 19.6 | 18.7 | 19.1 | 19.7 |
| Computer and electronic products, 334 | 21.5 | 21.3 | 21.5 | 20.8 | 21.7 | 20.3 | 20.7 | 19.6 | 19.0 | 17.6 |
| Transportation equipment, 336 | 15.4 | 13.9 | 14.0 | 14.3 | 13.7 | 13.8 | 13.7 | 13.3 | 11.9 | 9.2 |
| Nonmanufacturing industries, 21–23, 42–81 | 29.5 | 31.5 | 31.0 | 31.3 | 31.7 | 33.6 | 33.1 | 35.7 | 37.9 | 42.0 |
| Information, 51 | 13.2 | 14.2 | 15.5 | 17.7 | 18.7 | 18.4 | 18.9 | 20.1 | 21.4 | 22.4 |
| Professional, scientific, and technical services, 54 | 12.1 | 13.0 | 11.4 | 9.6 | 9.1 | 10.9 | 10.0 | 9.2 | 10.2 | 10.8 |
| Basic research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 65.2 | 67.1 | 68.6 | 77.8 | 81.2 | 76.9 | 76.6 | 75.0 | 72.0 | 70.4 |
| Chemicals, 325 | 28.5 | 32.6 | 29.8 | 37.5 | 41.2 | 38.2 | 41.1 | 41.1 | 41.3 | 43.0 |
| Computer and electronic products, 334 | 17.2 | 11.0 | 11.7 | 13.8 | 12.7 | 10.7 | 10.0 | 10.2 | 8.4 | 6.7 |
| Transportation equipment, 336 | 6.7 | 7.3 | 7.2 | 9.3 | 13.3 | 16.5 | 12.6 | 11.4 | 10.6 | 10.8 |
| Nonmanufacturing industries, 21–23, 42–81 | 34.8 | 32.9 | 31.4 | 22.1 | 18.8 | 23.1 | 23.4 | 25.0 | 28.0 | 29.6 |
| Information, 51 | 12.8 | 11.7 | 14.1 | 11.2 | 9.6 | 7.5 | 8.2 | 9.0 | 11.2 | 11.8 |
| Professional, scientific, and technical services, 54 | 16.3 | 15.6 | 14.8 | 8.4 | 7.2 | 10.3 | 10.8 | 10.0 | 12.0 | 12.9 |
| Applied research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 74.0 | 69.0 | 70.0 | 68.9 | 68.5 | 70.1 | 69.6 | 70.3 | 67.5 | 61.8 |
| Chemicals, 325 | 33.4 | 32.0 | 32.8 | 27.2 | 25.9 | 28.4 | 25.8 | 27.4 | 28.4 | 25.8 |
| Computer and electronic products, 334 | 18.8 | 15.0 | 14.0 | 16.6 | 16.4 | 15.9 | 16.9 | 18.0 | 15.3 | 15.7 |
| Transportation equipment, 336 | 8.0 | 7.6 | 8.5 | 11.8 | 13.4 | 12.7 | 12.9 | 12.1 | 11.4 | 9.9 |
| Nonmanufacturing industries, 21–23, 42–81 | 26.0 | 31.0 | 30.0 | 31.1 | 31.5 | 29.9 | 30.4 | 29.7 | 32.5 | 38.2 |
| Information, 51 | 6.2 | 8.2 | 7.9 | 11.1 | 11.5 | 11.5 | 11.2 | 12.3 | 13.8 | 11.7 |
| Professional, scientific, and technical services, 54 | 15.9 | 18.3 | 17.4 | 16.0 | 16.4 | 14.6 | 16.2 | 13.8 | 14.4 | 15.8 |
| Experimental development | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 70.2 | 68.4 | 68.8 | 67.9 | 67.2 | 64.8 | 65.5 | 62.2 | 60.3 | 56.2 |
| Chemicals, 325 | 17.6 | 15.4 | 15.4 | 16.1 | 16.4 | 15.8 | 16.5 | 15.3 | 15.5 | 16.6 |

Table SRD-4

Funds spent for business R&D performed in the United States, by type of R&D and select industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|------|------|------|------|------|------|------|------|------|------|
| Computer and electronic products, 334 | 22.3 | 23.2 | 23.7 | 22.2 | 23.5 | 21.9 | 22.4 | 20.7 | 20.6 | 18.9 |
| Transportation equipment, 336 | 17.6 | 15.5 | 15.6 | 15.1 | 13.8 | 13.9 | 13.9 | 13.7 | 12.1 | 8.9 |
| Nonmanufacturing industries, 21–23, 42–81 | 29.8 | 31.6 | 31.2 | 32.1 | 32.8 | 35.2 | 34.5 | 37.8 | 39.7 | 43.8 |
| Information, 51 | 14.7 | 15.6 | 17.2 | 19.6 | 20.9 | 20.7 | 21.4 | 22.5 | 23.7 | 25.3 |
| Professional, scientific, and technical services, 54 | 11.0 | 11.8 | 9.9 | 8.4 | 7.8 | 10.1 | 8.7 | 8.3 | 9.2 | 9.7 |

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. For survey years 2010–13, industry classification was based on the 2007 NAICS, whereas for survey years 2014–18, industry classification was based on the 2012 NAICS. The 2010–16 data come from the Business R&D and Innovation Survey and do not include companies with fewer than 5 domestic employees. Data for 2017–18 come from the Business Research and Development Survey and do not include companies with fewer than 10 domestic employees. Data for 2019 come from the Business Enterprise Research and Development Survey and do not include companies with fewer than 10 domestic employees.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey (BRDIS), Business Research and Development Survey (BRDS), and Business Enterprise Research and Development Survey (BERD).

Science and Engineering Indicators

Table SRD-5

Federal obligations for R&D and R&D plant, by type of R&D: FYs 1953–2021

(Millions of current and constant 2012 dollars)

| Fiscal year | Total, R&D and R&D plant | R&D | | | | R&D plant |
|-----------------------------|--------------------------|---------|--------|---------|-------------|-----------|
| | | All R&D | Basic | Applied | Development | |
| Millions of current dollars | | | | | | |
| 1953 | 2,167 | 1,920 | 116 | NA | NA | 248 |
| 1954 | 1,918 | 1,762 | 116 | NA | NA | 156 |
| 1955 | 2,252 | 2,045 | 130 | NA | NA | 207 |
| 1956 | 3,267 | 2,988 | 206 | 646 | 2,136 | 279 |
| 1957 | 4,389 | 3,932 | 262 | 662 | 3,007 | 457 |
| 1958 | 4,906 | 4,570 | 335 | 744 | 3,491 | 336 |
| 1959 | 7,123 | 6,694 | 466 | 874 | 5,353 | 429 |
| 1960 | 8,080 | 7,552 | 590 | 1,282 | 5,679 | 528 |
| 1961 | 9,607 | 9,059 | 815 | 1,663 | 6,581 | 548 |
| 1962 | 11,069 | 10,290 | 986 | 2,018 | 7,285 | 779 |
| 1963 | 13,663 | 12,495 | 1,152 | 2,356 | 8,987 | 1,168 |
| 1964 | 15,324 | 14,225 | 1,303 | 2,571 | 10,351 | 1,099 |
| 1965 | 15,746 | 14,614 | 1,435 | 2,812 | 10,367 | 1,132 |
| 1966 | 16,179 | 15,320 | 1,579 | 3,081 | 10,660 | 858 |
| 1967 | 17,149 | 16,529 | 1,846 | 2,786 | 11,898 | 620 |
| 1968 | 16,525 | 15,921 | 1,841 | 2,941 | 11,140 | 604 |
| 1969 | 16,310 | 15,641 | 1,945 | 2,700 | 10,996 | 669 |
| 1970 | 15,863 | 15,339 | 1,926 | 2,975 | 10,438 | 524 |
| 1971 | 16,154 | 15,543 | 1,980 | 3,143 | 10,419 | 611 |
| 1972 | 17,098 | 16,496 | 2,187 | 3,361 | 10,948 | 602 |
| 1973 | 17,574 | 16,800 | 2,232 | 3,349 | 11,219 | 774 |
| 1974 | 18,176 | 17,410 | 2,388 | 3,788 | 11,235 | 766 |
| 1975 | 19,860 | 19,039 | 2,588 | 4,141 | 12,309 | 821 |
| 1976 | 21,616 | 20,780 | 2,767 | 4,852 | 13,160 | 837 |
| 1977 | 24,818 | 23,450 | 3,259 | 5,255 | 14,936 | 1,367 |
| 1978 | 27,141 | 25,845 | 3,699 | 5,908 | 16,238 | 1,296 |
| 1979 | 29,621 | 28,145 | 4,193 | 6,342 | 17,610 | 1,475 |
| 1980 | 31,386 | 29,830 | 4,674 | 6,923 | 18,233 | 1,556 |
| 1981 | 34,590 | 33,104 | 5,041 | 7,171 | 20,891 | 1,486 |
| 1982 | 37,822 | 36,433 | 5,482 | 7,541 | 23,410 | 1,390 |
| 1983 | 40,009 | 38,712 | 6,260 | 7,993 | 24,458 | 1,297 |
| 1984 | 44,012 | 42,225 | 7,067 | 7,911 | 27,246 | 1,787 |
| 1985 | 50,180 | 48,360 | 7,819 | 8,315 | 32,226 | 1,821 |
| 1986 | 52,951 | 51,412 | 8,153 | 8,349 | 34,910 | 1,539 |
| 1987 | 57,100 | 55,254 | 8,942 | 8,998 | 37,313 | 1,846 |
| 1988 | 58,827 | 56,769 | 9,474 | 9,177 | 38,119 | 2,057 |
| 1989 | 63,572 | 61,406 | 10,602 | 10,164 | 40,641 | 2,165 |
| 1990 | 65,831 | 63,559 | 11,286 | 10,337 | 41,937 | 2,272 |
| 1991 | 64,148 | 61,295 | 12,171 | 11,798 | 37,327 | 2,853 |
| 1992 | 68,577 | 65,593 | 12,490 | 12,001 | 41,102 | 2,985 |
| 1993 | 70,415 | 67,314 | 13,399 | 13,491 | 40,424 | 3,101 |
| 1994 | 69,451 | 67,235 | 13,523 | 13,888 | 39,824 | 2,215 |
| 1995 | 70,443 | 68,187 | 13,877 | 14,557 | 39,752 | 2,256 |
| 1996 | 69,399 | 67,653 | 14,464 | 13,796 | 39,393 | 1,746 |
| 1997 | 71,753 | 69,827 | 14,942 | 14,423 | 40,461 | 1,927 |
| 1998 | 73,914 | 72,101 | 15,613 | 15,309 | 41,178 | 1,813 |
| 1999 | 77,386 | 75,341 | 17,444 | 16,084 | 41,813 | 2,046 |

Table SRD-5

Federal obligations for R&D and R&D plant, by type of R&D: FYs 1953–2021

(Millions of current and constant 2012 dollars)

| Fiscal year | Total, R&D and R&D plant | R&D | | | | R&D plant |
|-----------------------------------|--------------------------|---------|--------|---------|-------------|-----------|
| | | All R&D | Basic | Applied | Development | |
| 2000 | 80,403 | 75,910 | 19,570 | 18,901 | 37,440 | 4,493 |
| 2001 | 88,562 | 84,493 | 21,958 | 22,756 | 39,779 | 4,070 |
| 2002 | 98,013 | 93,709 | 23,668 | 24,338 | 45,702 | 4,305 |
| 2003 | 107,794 | 103,528 | 24,751 | 26,320 | 52,456 | 4,267 |
| 2004 | 116,069 | 112,074 | 26,121 | 27,237 | 58,717 | 3,994 |
| 2005 | 122,620 | 118,848 | 27,140 | 26,598 | 65,110 | 3,771 |
| 2006 | 123,855 | 121,730 | 26,585 | 26,951 | 68,194 | 2,125 |
| 2007 | 129,431 | 127,263 | 26,866 | 27,228 | 73,169 | 2,168 |
| 2008 | 129,050 | 127,106 | 27,154 | 26,740 | 73,212 | 1,944 |
| 2009 | 144,758 | 141,090 | 32,879 | 30,813 | 77,398 | 3,668 |
| 2010 | 146,968 | 140,355 | 31,795 | 31,933 | 76,627 | 6,613 |
| 2011 | 139,703 | 135,533 | 29,314 | 28,751 | 77,468 | 4,171 |
| 2012 | 140,670 | 138,525 | 30,959 | 31,027 | 76,538 | 2,146 |
| 2013 | 127,626 | 125,720 | 29,779 | 29,753 | 66,188 | 1,905 |
| 2014 | 132,779 | 130,561 | 31,588 | 31,604 | 67,370 | 2,218 |
| 2015 | 131,578 | 128,753 | 31,527 | 32,298 | 64,928 | 2,825 |
| 2016 | 118,274 | 115,833 | 32,293 | 34,812 | 48,728 | 2,441 |
| 2017 | 121,627 | 118,975 | 33,271 | 36,600 | 49,103 | 2,652 |
| 2018 | 133,278 | 129,425 | 36,195 | 38,392 | 54,837 | 3,853 |
| 2019 | 146,801 | 142,424 | 40,017 | 41,101 | 61,306 | 4,376 |
| 2020 | 173,553 | 167,403 | 41,547 | 43,758 | 82,098 | 6,150 |
| 2021 preliminary | 185,408 | 179,465 | 41,231 | 43,924 | 94,310 | 5,943 |
| Millions of constant 2012 dollars | | | | | | |
| 1953 | 15,010 | 13,293 | 803 | NA | NA | 1,717 |
| 1954 | 13,128 | 12,059 | 796 | NA | NA | 1,069 |
| 1955 | 15,298 | 13,890 | 878 | NA | NA | 1,408 |
| 1956 | 21,635 | 19,789 | 1,367 | 4,275 | 14,147 | 1,846 |
| 1957 | 28,028 | 25,109 | 1,675 | 4,229 | 19,205 | 2,920 |
| 1958 | 30,415 | 28,331 | 2,074 | 4,614 | 21,642 | 2,085 |
| 1959 | 43,484 | 40,864 | 2,845 | 5,337 | 32,682 | 2,620 |
| 1960 | 48,645 | 45,465 | 3,554 | 7,719 | 34,192 | 3,180 |
| 1961 | 57,083 | 53,824 | 4,840 | 9,884 | 39,101 | 3,258 |
| 1962 | 65,112 | 60,529 | 5,802 | 11,873 | 42,854 | 4,583 |
| 1963 | 79,435 | 72,643 | 6,696 | 13,699 | 52,248 | 6,792 |
| 1964 | 87,967 | 81,661 | 7,480 | 14,761 | 59,420 | 6,306 |
| 1965 | 88,859 | 82,473 | 8,101 | 15,868 | 58,505 | 6,386 |
| 1966 | 89,385 | 84,643 | 8,725 | 17,022 | 58,896 | 4,742 |
| 1967 | 91,953 | 88,628 | 9,897 | 14,936 | 63,795 | 3,325 |
| 1968 | 85,622 | 82,493 | 9,537 | 15,236 | 57,721 | 3,129 |
| 1969 | 80,822 | 77,507 | 9,637 | 13,380 | 54,490 | 3,315 |
| 1970 | 74,616 | 72,149 | 9,059 | 13,993 | 49,098 | 2,467 |
| 1971 | 72,309 | 69,573 | 8,864 | 14,069 | 46,640 | 2,736 |
| 1972 | 73,068 | 70,495 | 9,346 | 14,362 | 46,787 | 2,573 |
| 1973 | 71,968 | 68,797 | 9,140 | 13,716 | 45,941 | 3,171 |
| 1974 | 69,482 | 66,552 | 9,127 | 14,478 | 42,947 | 2,929 |
| 1975 | 68,813 | 65,970 | 8,969 | 14,350 | 42,651 | 2,844 |
| 1976 | 70,024 | 67,313 | 8,965 | 15,717 | 42,631 | 2,710 |
| 1977 | 74,978 | 70,847 | 9,845 | 15,878 | 45,125 | 4,131 |
| 1978 | 76,821 | 73,154 | 10,469 | 16,723 | 45,962 | 3,667 |

Table SRD-5

Federal obligations for R&D and R&D plant, by type of R&D: FYs 1953–2021

(Millions of current and constant 2012 dollars)

| Fiscal year | Total, R&D and R&D plant | R&D | | | | R&D plant |
|------------------|--------------------------|---------|--------|---------|-------------|-----------|
| | | All R&D | Basic | Applied | Development | |
| 1979 | 77,581 | 73,717 | 10,981 | 16,612 | 46,124 | 3,864 |
| 1980 | 75,611 | 71,863 | 11,260 | 16,678 | 43,924 | 3,748 |
| 1981 | 75,871 | 72,612 | 11,058 | 15,730 | 45,824 | 3,259 |
| 1982 | 77,568 | 74,718 | 11,242 | 15,465 | 48,011 | 2,850 |
| 1983 | 78,619 | 76,069 | 12,301 | 15,707 | 48,061 | 2,550 |
| 1984 | 83,499 | 80,108 | 13,408 | 15,009 | 51,691 | 3,391 |
| 1985 | 92,125 | 88,782 | 14,354 | 15,265 | 59,163 | 3,343 |
| 1986 | 95,082 | 92,319 | 14,640 | 14,992 | 62,687 | 2,763 |
| 1987 | 100,280 | 97,038 | 15,705 | 15,803 | 65,531 | 3,242 |
| 1988 | 100,079 | 96,579 | 16,117 | 15,612 | 64,851 | 3,500 |
| 1989 | 103,943 | 100,403 | 17,335 | 16,618 | 66,450 | 3,540 |
| 1990 | 103,835 | 100,252 | 17,801 | 16,304 | 66,147 | 3,583 |
| 1991 | 97,697 | 93,352 | 18,536 | 17,968 | 56,849 | 4,345 |
| 1992 | 101,898 | 97,463 | 18,558 | 17,832 | 61,073 | 4,435 |
| 1993 | 102,228 | 97,727 | 19,453 | 19,587 | 58,687 | 4,502 |
| 1994 | 98,680 | 95,532 | 19,215 | 19,732 | 56,585 | 3,148 |
| 1995 | 98,001 | 94,862 | 19,306 | 20,252 | 55,304 | 3,139 |
| 1996 | 94,769 | 92,384 | 19,752 | 18,839 | 53,794 | 2,384 |
| 1997 | 96,275 | 93,689 | 20,048 | 19,352 | 54,289 | 2,585 |
| 1998 | 97,951 | 95,548 | 20,690 | 20,288 | 54,570 | 2,403 |
| 1999 | 101,251 | 98,575 | 22,823 | 21,044 | 54,708 | 2,677 |
| 2000 | 103,081 | 97,321 | 25,090 | 24,232 | 48,000 | 5,760 |
| 2001 | 110,925 | 105,827 | 27,503 | 28,502 | 49,823 | 5,097 |
| 2002 | 120,825 | 115,518 | 29,177 | 30,003 | 56,339 | 5,307 |
| 2003 | 130,501 | 125,336 | 29,965 | 31,865 | 63,506 | 5,165 |
| 2004 | 137,229 | 132,507 | 30,883 | 32,203 | 69,421 | 4,722 |
| 2005 | 140,683 | 136,357 | 31,139 | 30,516 | 74,702 | 4,327 |
| 2006 | 137,693 | 135,331 | 29,555 | 29,962 | 75,814 | 2,362 |
| 2007 | 140,077 | 137,730 | 29,076 | 29,467 | 79,188 | 2,347 |
| 2008 | 136,836 | 134,775 | 28,792 | 28,353 | 77,630 | 2,061 |
| 2009 | 151,738 | 147,893 | 34,465 | 32,298 | 81,130 | 3,845 |
| 2010 | 152,741 | 145,868 | 33,044 | 33,187 | 79,637 | 6,873 |
| 2011 | 142,351 | 138,101 | 29,869 | 29,296 | 78,936 | 4,250 |
| 2012 | 140,670 | 138,525 | 30,959 | 31,027 | 76,538 | 2,146 |
| 2013 | 125,320 | 123,449 | 29,241 | 29,216 | 64,992 | 1,871 |
| 2014 | 127,918 | 125,782 | 30,432 | 30,447 | 64,904 | 2,136 |
| 2015 | 125,360 | 122,669 | 30,037 | 30,772 | 61,860 | 2,692 |
| 2016 | 111,695 | 109,390 | 30,496 | 32,876 | 46,018 | 2,305 |
| 2017 | 112,858 | 110,397 | 30,873 | 33,961 | 45,563 | 2,461 |
| 2018 | 120,876 | 117,381 | 32,827 | 34,820 | 49,734 | 3,494 |
| 2019 | 130,559 | 126,667 | 35,590 | 36,553 | 54,524 | 3,892 |
| 2020 | 152,440 | 147,038 | 36,492 | 38,435 | 72,111 | 5,402 |
| 2021 preliminary | 160,138 | 155,005 | 35,612 | 37,938 | 81,456 | 5,133 |

NA = not available; data were not collected at this level of detail.

Note(s):

Due to rounding, detail may not add to total. The data for FY 2021 are preliminary and may later be revised. FYs 2009 and 2010 obligations include additional funding provided by the American Recovery and Reinvestment Act of 2009. Beginning with FY 2016, the reported obligations for *development* reflect the Office of Management and Budget's narrowed definition for this category by more narrowly defining it to be "experimental development" (Circular A-11, Section 84). Most notably, the totals for development do not include Department of Defense (DOD) obligations for Budget Activity-7 (Operational Systems Development). Those funds, previously included in DOD's obligation totals for development, support the

efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current or subsequent fiscal year. (In FY 2016, DOD obligations for operational systems development amounted to about \$24.6 billion and to about \$26.0 billion in FY 2017.) With this revision, the data for FY 2016 and onward are not directly comparable with the totals reported in previous years. Obligations for FYs 2020 and 2021 include the additional funding provided by supplemental COVID-19 related appropriations in these years (i.e., the Coronavirus Aid, Relief, and Economic Security Act of March 2020, the American Rescue Plan Act of March 2021, and several other enacted spending authorizations in these fiscal years).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

Science and Engineering Indicators

Table SRD-6

Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020

(Millions of dollars)

| Agency | All federal obligations | Federal intramural ^a | Extramural performers | | | | | | | |
|---|-------------------------|---------------------------------|-----------------------|------------------------------------|---------------------------|-------------------|------------------|------------------|-----------------------------|---------|
| | | | Business firms | United States and U.S. territories | | | | | | Foreign |
| | | | | Industry FFRDCs | Universities and colleges | University FFRDCs | Other nonprofits | Nonprofit FFRDCs | State and local governments | |
| Total R&D and R&D plant | | | | | | | | | | |
| All agencies | 173,552.9 | 54,577.7 | 52,105.5 | 4,340.8 | 38,891.5 | 6,223.0 | 10,824.2 | 4,469.7 | 726.7 | 1,393.7 |
| Department of Agriculture | 3,433.5 | 2,479.6 | 4.6 | 0.0 | 883.7 | 0.0 | 51.9 | 0.0 | 8.6 | 5.1 |
| Department of Commerce | 1,980.9 | 1,552.2 | 50.5 | 0.0 | 313.8 | 4.2 | 31.0 | 19.9 | 5.1 | 4.4 |
| Department of Defense | 67,006.8 | 22,964.0 | 35,247.8 | 442.2 | 4,524.9 | 463.1 | 1,473.9 | 916.8 | 8.8 | 965.3 |
| Department of Education | 240.1 | 10.5 | 15.1 | 0.0 | 158.2 | 0.0 | 46.2 | 0.0 | 10.2 | 0.0 |
| Department of Energy | 15,778.0 | 914.5 | 3,343.6 | 2,993.2 | 1,877.1 | 3,225.7 | 148.4 | 3,213.6 | 61.6 | 0.3 |
| Department of Health and Human Services | 61,774.8 | 20,832.4 | 7,762.8 | 862.1 | 23,983.4 | 20.3 | 7,608.4 | 48.1 | 368.3 | 288.9 |
| Department of Homeland Security | 507.5 | 132.9 | 241.9 | 17.3 | 29.2 | 4.8 | 2.7 | 69.5 | 0.8 | 8.5 |
| Department of the Interior | 844.4 | 721.1 | 23.4 | 0.0 | 80.6 | 0.5 | 4.2 | 0.5 | 12.9 | 1.1 |
| Department of Justice | 96.4 | 10.9 | 8.7 | 0.0 | 46.3 | 0.0 | 24.7 | 0.0 | 5.9 | 0.0 |
| Department of Transportation | 1,224.5 | 227.8 | 379.3 | 0.0 | 275.8 | 0.3 | 54.5 | 70.0 | 216.5 | 0.2 |
| Department of Veterans Affairs | 1,565.1 | 1,495.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.2 | 0.0 | 0.0 |
| Agency for International Development | 194.3 | 19.7 | 22.4 | 0.0 | 51.0 | 0.0 | 50.1 | 0.0 | 0.0 | 51.1 |
| Environmental Protection Agency | 493.0 | 244.4 | 195.3 | 0.1 | 51.6 | 1.1 | 0.0 | 0.3 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 10,573.6 | 2,552.1 | 4,213.9 | 10.2 | 1,107.7 | 2,237.6 | 384.2 | 35.0 | 3.5 | 29.4 |
| National Science Foundation | 6,792.5 | 20.4 | 506.9 | 0.0 | 5,493.4 | 262.4 | 469.8 | 4.7 | 15.4 | 19.5 |
| Patient-Centered Outcomes Research Trust Fund | 469.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 469.7 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 276.0 | 276.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Social Security Administration | 69.7 | 37.2 | 20.1 | 0.0 | 9.5 | 0.0 | 2.9 | 0.0 | 0.0 | 0.1 |
| All other agencies | 232.0 | 87.0 | 69.1 | 15.7 | 5.5 | 3.0 | 1.7 | 21.0 | 9.2 | 19.9 |
| R&D | | | | | | | | | | |
| All agencies | 167,402.8 | 51,471.7 | 51,428.0 | 4,118.7 | 38,540.9 | 5,355.2 | 10,698.9 | 3,676.0 | 720.1 | 1,393.3 |
| Department of Agriculture | 2,643.6 | 1,689.8 | 4.6 | 0.0 | 883.7 | 0.0 | 51.9 | 0.0 | 8.6 | 5.1 |
| Department of Commerce | 1,621.7 | 1,193.0 | 50.5 | 0.0 | 313.8 | 4.2 | 31.0 | 19.9 | 5.1 | 4.4 |
| Department of Defense | 66,695.0 | 22,666.6 | 35,233.5 | 442.2 | 4,524.9 | 463.1 | 1,473.9 | 916.8 | 8.8 | 965.3 |

Table SRD-6

Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020

(Millions of dollars)

| Agency | All federal obligations | Federal intramural ^a | Extramural performers | | | | | | | |
|---|-------------------------|---------------------------------|-----------------------|------------------------------------|---------------------------|-------------------|------------------|------------------|-----------------------------|---------|
| | | | Business firms | United States and U.S. territories | | | | | | Foreign |
| | | | | Industry FFRDCs | Universities and colleges | University FFRDCs | Other nonprofits | Nonprofit FFRDCs | State and local governments | |
| Department of Education | 240.1 | 10.5 | 15.1 | 0.0 | 158.2 | 0.0 | 46.2 | 0.0 | 10.2 | 0.0 |
| Department of Energy | 13,453.0 | 871.8 | 2,973.7 | 2,771.1 | 1,837.1 | 2,375.1 | 148.4 | 2,419.9 | 55.6 | 0.3 |
| Department of Health and Human Services | 60,005.7 | 19,300.3 | 7,580.9 | 862.1 | 23,928.3 | 20.3 | 7,608.4 | 48.1 | 368.3 | 288.9 |
| Department of Homeland Security | 507.5 | 132.9 | 241.9 | 17.3 | 29.2 | 4.8 | 2.7 | 69.5 | 0.8 | 8.5 |
| Department of the Interior | 837.2 | 719.6 | 17.8 | 0.0 | 80.6 | 0.5 | 4.2 | 0.5 | 12.8 | 1.1 |
| Department of Justice | 96.4 | 10.9 | 8.7 | 0.0 | 46.3 | 0.0 | 24.7 | 0.0 | 5.9 | 0.0 |
| Department of Transportation | 1,184.2 | 222.0 | 344.8 | 0.0 | 275.8 | 0.3 | 54.5 | 70.0 | 216.5 | 0.2 |
| Department of Veterans Affairs | 1,565.1 | 1,495.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.2 | 0.0 | 0.0 |
| Agency for International Development | 194.3 | 19.7 | 22.4 | 0.0 | 51.0 | 0.0 | 50.1 | 0.0 | 0.0 | 51.1 |
| Environmental Protection Agency | 488.5 | 244.4 | 190.9 | 0.1 | 51.6 | 1.1 | 0.0 | 0.3 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 10,537.8 | 2,551.9 | 4,195.5 | 10.2 | 1,107.7 | 2,220.4 | 384.2 | 35.0 | 3.5 | 29.4 |
| National Science Foundation | 6,351.2 | 9.4 | 458.4 | 0.0 | 5,237.9 | 262.4 | 344.5 | 4.7 | 14.8 | 19.1 |
| Patient-Centered Outcomes Research Trust Fund | 469.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 469.7 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 209.8 | 209.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Social Security Administration | 69.7 | 37.2 | 20.1 | 0.0 | 9.5 | 0.0 | 2.9 | 0.0 | 0.0 | 0.1 |
| All other agencies | 232.0 | 87.0 | 69.1 | 15.7 | 5.5 | 3.0 | 1.7 | 21.0 | 9.2 | 19.9 |
| Basic research | | | | | | | | | | |
| All agencies | 41,546.6 | 7,688.1 | 3,146.8 | 799.9 | 20,128.2 | 3,455.5 | 4,325.6 | 1,667.7 | 114.3 | 220.6 |
| Department of Agriculture | 1,163.8 | 725.7 | 0.1 | 0.0 | 414.0 | 0.0 | 19.0 | 0.0 | 2.6 | 2.4 |
| Department of Commerce | 251.2 | 237.2 | 5.2 | 0.0 | 7.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.3 |
| Department of Defense | 2,499.1 | 401.9 | 364.5 | 17.8 | 1,490.8 | 19.8 | 102.1 | 35.6 | 0.1 | 66.4 |
| Department of Education | 53.7 | 2.8 | 0.2 | 0.0 | 41.3 | 0.0 | 7.9 | 0.0 | 1.6 | 0.0 |
| Department of Energy | 5,501.6 | 207.3 | 325.6 | 334.9 | 865.1 | 2,120.1 | 29.7 | 1,589.3 | 29.5 | 0.2 |
| Department of Health and Human Services | 21,809.0 | 4,514.8 | 1,084.5 | 439.7 | 11,841.6 | 10.4 | 3,707.3 | 18.3 | 64.2 | 128.3 |
| Department of Homeland Security | 47.4 | 5.6 | 24.3 | 0.3 | 17.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |

Table SRD-6

Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020

(Millions of dollars)

| Agency | All federal obligations | Federal intramural ^a | Extramural performers | | | | | | | |
|---|-------------------------|---------------------------------|-----------------------|------------------------------------|---------------------------|-------------------|------------------|------------------|-----------------------------|---------|
| | | | Business firms | United States and U.S. territories | | | | | | Foreign |
| | | | | Industry FFRDCs | Universities and colleges | University FFRDCs | Other nonprofits | Nonprofit FFRDCs | State and local governments | |
| Department of the Interior | 83.9 | 75.6 | 0.2 | 0.0 | 6.7 | 0.0 | 0.2 | 0.0 | 1.2 | 0.0 |
| Department of Justice | 0.7 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Department of Transportation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Department of Veterans Affairs | 617.7 | 617.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Agency for International Development | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Environmental Protection Agency | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 3,839.4 | 680.3 | 1,078.8 | 7.2 | 820.1 | 1,042.8 | 185.3 | 17.9 | 2.6 | 4.3 |
| National Science Foundation | 5,461.9 | 8.3 | 259.9 | 0.0 | 4,622.6 | 262.4 | 272.6 | 4.7 | 12.6 | 18.7 |
| Patient-Centered Outcomes Research Trust Fund | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 209.8 | 209.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Social Security Administration | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All other agencies | 7.4 | 1.1 | 3.5 | 0.0 | 1.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 |
| Applied research | | | | | | | | | | |
| All agencies | 43,758.1 | 11,884.2 | 6,881.6 | 2,712.6 | 15,345.5 | 407.8 | 4,865.0 | 848.7 | 530.4 | 282.3 |
| Department of Agriculture | 1,224.6 | 733.0 | 4.5 | 0.0 | 447.6 | 0.0 | 31.2 | 0.0 | 6.0 | 2.2 |
| Department of Commerce | 1,109.6 | 784.7 | 40.3 | 0.0 | 251.1 | 0.0 | 6.1 | 19.6 | 3.7 | 4.1 |
| Department of Defense | 6,416.2 | 2,053.0 | 2,813.1 | 67.0 | 936.3 | 62.0 | 310.0 | 130.2 | 1.3 | 43.2 |
| Department of Education | 135.8 | 5.6 | 3.9 | 0.0 | 84.1 | 0.0 | 34.6 | 0.0 | 7.6 | 0.0 |
| Department of Energy | 5,023.6 | 604.7 | 805.5 | 2,193.1 | 624.5 | 167.1 | 87.9 | 525.1 | 15.6 | 0.1 |
| Department of Health and Human Services | 22,424.8 | 4,819.6 | 1,221.9 | 422.4 | 11,761.8 | 9.9 | 3,714.1 | 18.0 | 296.4 | 160.6 |
| Department of Homeland Security | 177.9 | 59.7 | 41.5 | 11.1 | 1.3 | 4.8 | 0.7 | 56.9 | 0.0 | 1.9 |
| Department of the Interior | 614.5 | 528.6 | 14.4 | 0.0 | 57.5 | 0.1 | 3.0 | 0.5 | 9.6 | 0.7 |
| Department of Justice | 83.8 | 7.7 | 8.7 | 0.0 | 42.5 | 0.0 | 24.1 | 0.0 | 0.7 | 0.0 |
| Department of Transportation | 900.2 | 174.8 | 232.9 | 0.0 | 260.9 | 0.3 | 52.1 | 1.7 | 177.2 | 0.2 |
| Department of Veterans Affairs | 918.1 | 847.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.2 | 0.0 | 0.0 |

Table SRD-6

Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020

(Millions of dollars)

| Agency | All federal obligations | Federal intramural ^a | Extramural performers | | | | | | | Foreign |
|---|-------------------------|---------------------------------|-----------------------|------------------------------------|---------------------------|-------------------|------------------|------------------|-----------------------------|---------|
| | | | Business firms | United States and U.S. territories | | | | | | |
| | | | | Industry FFRDCs | Universities and colleges | University FFRDCs | Other nonprofits | Nonprofit FFRDCs | State and local governments | |
| Agency for International Development | 134.8 | 16.7 | 12.3 | 0.0 | 37.2 | 0.0 | 32.5 | 0.0 | 0.0 | 36.1 |
| Environmental Protection Agency | 411.9 | 203.9 | 154.9 | 0.1 | 51.6 | 1.1 | 0.0 | 0.3 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 2,554.8 | 931.7 | 1,256.4 | 3.0 | 160.7 | 159.4 | 22.7 | 7.1 | 0.9 | 12.8 |
| National Science Foundation | 889.2 | 1.1 | 198.5 | 0.0 | 615.3 | 0.0 | 71.9 | 0.0 | 2.1 | 0.4 |
| Patient-Centered Outcomes Research Trust Fund | 469.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 469.7 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Social Security Administration | 69.7 | 37.2 | 20.1 | 0.0 | 9.5 | 0.0 | 2.9 | 0.0 | 0.0 | 0.1 |
| All other agencies | 199.0 | 74.3 | 52.6 | 15.7 | 3.5 | 3.0 | 1.7 | 19.2 | 9.2 | 19.9 |
| Development | | | | | | | | | | |
| All agencies | 82,098.0 | 31,899.4 | 41,399.5 | 606.2 | 3,067.3 | 1,492.0 | 1,508.2 | 1,159.5 | 75.4 | 890.5 |
| Department of Agriculture | 255.2 | 231.1 | 0.0 | 0.0 | 22.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.4 |
| Department of Commerce | 260.9 | 171.1 | 5.0 | 0.0 | 55.6 | 4.1 | 23.5 | 0.3 | 1.3 | 0.0 |
| Department of Defense | 57,779.7 | 20,211.7 | 32,055.8 | 357.3 | 2,097.8 | 381.2 | 1,061.8 | 751.0 | 7.3 | 855.8 |
| Department of Education | 50.7 | 2.1 | 11.1 | 0.0 | 32.8 | 0.0 | 3.6 | 0.0 | 1.0 | 0.0 |
| Department of Energy | 2,927.9 | 59.8 | 1,842.6 | 243.1 | 347.4 | 88.0 | 30.7 | 305.5 | 10.6 | 0.1 |
| Department of Health and Human Services | 15,772.0 | 9,966.0 | 5,274.5 | 0.0 | 324.9 | 0.0 | 187.1 | 11.9 | 7.8 | 0.0 |
| Department of Homeland Security | 282.2 | 67.6 | 176.1 | 5.8 | 10.8 | 0.0 | 2.0 | 12.6 | 0.8 | 6.6 |
| Department of the Interior | 138.9 | 115.4 | 3.2 | 0.0 | 16.4 | 0.4 | 1.0 | 0.0 | 2.1 | 0.4 |
| Department of Justice | 11.9 | 3.2 | 0.0 | 0.0 | 3.0 | 0.0 | 0.6 | 0.0 | 5.1 | 0.0 |
| Department of Transportation | 284.0 | 47.2 | 111.8 | 0.0 | 14.9 | 0.0 | 2.4 | 68.3 | 39.3 | 0.0 |
| Department of Veterans Affairs | 29.3 | 29.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Agency for International Development | 59.4 | 3.0 | 10.1 | 0.0 | 13.8 | 0.0 | 17.6 | 0.0 | 0.0 | 15.0 |
| Environmental Protection Agency | 76.6 | 40.6 | 36.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 4,143.7 | 939.9 | 1,860.4 | 0.0 | 126.9 | 1,018.2 | 176.2 | 10.0 | 0.0 | 12.2 |

FFRDC = federally funded research and development center.

^a Includes costs associated with administration of intramural and extramural programs by federal personnel and actual intramural performance.

Note(s):

Detail may not add to total because of rounding. Agencies (in general) with an annual total of R&D and R&D plant of \$100 million or more. All other agencies includes the Department of Housing and Urban Development, Department of Labor, Department of State, Department of the Treasury, Administrative Office of the U.S. Courts, Appalachian Regional Commission, Consumer Product Safety Commission, Federal Communications Commission, Federal Trade Commission, Library of Congress, National Archives and Records Commission, Nuclear Regulatory Commission, Tennessee Valley Authority, RESTORE Act Centers, U.S. Agency for Global Media, and U.S. Postal Service.

Source(s):

National Center for Science and Engineering Statistics, Federal Funds for Research and Development, Volume 70, FYs 2020–21.

Science and Engineering Indicators

Table SRD-7

Federal obligations for research, by agency and S&E field: FY 2020

(Millions of dollars and percent share)

| Agency | All federal obligations | Computer sciences and mathematics | Environmental sciences | Life sciences | Physical sciences | Psychology | Social sciences | Other sciences nec | Engineering |
|---|-------------------------|-----------------------------------|------------------------|---------------|-------------------|------------|-----------------|--------------------|-------------|
| Patient-Centered Outcomes Research Trust Fund | 470 | 0 | 0 | 470 | 0 | 0 | 0 | 0 | 0 |
| RESTORE Act Centers of Excellence Research Grants Program | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Smithsonian Institution | 210 | 0 | 22 | 82 | 2 | 0 | 0 | 104 | 0 |
| Social Security Administration | 70 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 0 |
| Tennessee Valley Authority | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| U.S. Agency for Global Media | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| U.S. Postal Service | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| Share by field (%) | | | | | | | | | |
| All agencies | 100.0 | 6.9 | 5.9 | 49.9 | 9.9 | 3.8 | 1.3 | 6.8 | 15.5 |
| Departments | | | | | | | | | |
| Department of Agriculture | 100.0 | 0.3 | 0.7 | 83.4 | 4.2 | 0.0 | 6.4 | 0.0 | 4.9 |
| Department of Commerce | 100.0 | 12.6 | 35.6 | 6.6 | 19.3 | 0.0 | 3.4 | 3.0 | 19.4 |
| Department of Defense | 100.0 | 29.1 | 4.3 | 12.2 | 7.7 | 1.1 | 1.5 | 12.4 | 31.7 |
| Department of Education | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Department of Energy | 100.0 | 14.6 | 4.1 | 4.8 | 42.5 | 0.0 | 0.0 | 3.6 | 30.2 |
| Department of Health and Human Services | 100.0 | 0.8 | 1.2 | 80.4 | 0.2 | 6.7 | 0.6 | 4.3 | 5.7 |
| Department of Homeland Security | 100.0 | 6.0 | 3.5 | 31.6 | 12.3 | 0.0 | 0.0 | 12.1 | 34.5 |
| Department of the Interior | 100.0 | 0.4 | 65.9 | 30.5 | 0.1 | 0.0 | 1.2 | 0.1 | 1.7 |
| Department of Justice | 100.0 | 6.5 | 1.0 | 14.1 | 7.6 | 1.9 | 60.8 | 5.9 | 2.1 |
| Department of Labor | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Department of State | 100.0 | 0.0 | 0.0 | 93.3 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 |
| Department of Transportation | 100.0 | 4.1 | 3.9 | 0.9 | 0.3 | 2.0 | 0.2 | 8.1 | 80.6 |
| Department of the Treasury | 100.0 | 0.0 | 0.0 | 0.0 | 99.6 | 0.0 | 0.0 | 0.0 | 0.4 |
| Department of Veterans Affairs | 100.0 | 0.0 | 0.0 | 80.1 | 0.0 | 10.9 | 0.0 | 4.6 | 4.4 |
| Other agencies | | | | | | | | | |
| Administrative Office of the U.S. Courts | 100.0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Agency for International Development | 100.0 | 0.0 | 0.0 | 92.9 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 |
| Appalachian Regional Commission | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Consumer Product Safety Commission | 100.0 | 0.0 | 95.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Environmental Protection Agency | 100.0 | 2.1 | 41.2 | 39.5 | 2.4 | 0.0 | 0.6 | 0.0 | 14.2 |

Table SRD-7

Federal obligations for research, by agency and S&E field: FY 2020

(Millions of dollars and percent share)

| Agency | All federal obligations | Computer sciences and mathematics | Environmental sciences | Life sciences | Physical sciences | Psychology | Social sciences | Other sciences nec | Engineering |
|---|-------------------------|-----------------------------------|------------------------|---------------|-------------------|------------|-----------------|--------------------|-------------|
| Federal Communications Commission | 100.0 | 16.7 | 0.0 | 0.0 | 25.0 | 0.0 | 0.0 | 0.0 | 58.3 |
| Federal Trade Commission | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Library of Congress | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 100.0 | 0.0 | 23.7 | 2.0 | 25.9 | 0.0 | 0.0 | 15.9 | 32.6 |
| National Science Foundation | 100.0 | 18.6 | 15.0 | 11.8 | 16.2 | 0.6 | 3.3 | 16.1 | 18.4 |
| Nuclear Regulatory Commission | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 98.8 |
| Patient-Centered Outcomes Research Trust Fund | 100.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| RESTORE Act Centers of Excellence Research Grants Program | 100.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 100.0 | 0.0 | 10.4 | 39.1 | 0.8 | 0.0 | 0.0 | 49.7 | 0.0 |
| Social Security Administration | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Tennessee Valley Authority | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| U.S. Agency for Global Media | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| U.S. Postal Service | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |

* = amount greater than \$0 but less than \$50.

nec = not elsewhere classified.

Note(s):

Research includes basic research and applied research. Because of rounding, detail may not add to total. Only those agencies and subdivisions that had obligations in variables represented by this table appear in the table.

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, Volume 70, FYs 2020–21.

Science and Engineering Indicators

| Table | Title |
|-------|---|
| SRD-1 | Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019 |
| SRD-2 | Business R&D performed in the United States, by industry: 2010–19 |
| SRD-3 | Funds spent for business R&D performed in the United States, by type of R&D and selected sources of funds: 2010–19 |
| SRD-4 | Funds spent for business R&D performed in the United States, by type of R&D and select industry: 2010–19 |
| SRD-5 | Federal obligations for R&D and R&D plant, by type of R&D: FYs 1953–2021 |
| SRD-6 | Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020 |
| SRD-7 | Federal obligations for research, by agency and S&E field: FY 2020 |
| SRD-8 | Federal obligations for research, by detailed S&E field: Selected years, FYs 1990–2020 |

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India |
|-------------------------------------|---------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|
| GERD (billions of U.S. PPP dollars) | | | | | | | | | |
| 1981 | 72.7 | na | 11.0 | 18.8 | 11.8 | NA | 24.0 | NA | NA |
| 1982 | 81.2 | na | 12.5 | 20.5 | NA | NA | 27.4 | NA | NA |
| 1983 | 90.4 | na | 13.4 | 21.5 | 12.7 | NA | 31.1 | NA | NA |
| 1984 | 102.9 | na | 14.7 | 23.1 | NA | NA | 35.0 | NA | NA |
| 1985 | 115.2 | na | 15.9 | 25.9 | 14.7 | NA | 40.4 | NA | NA |
| 1986 | 120.6 | na | 16.5 | 27.5 | 15.5 | NA | 42.0 | NA | NA |
| 1987 | 126.7 | na | 17.7 | 29.7 | 16.1 | NA | 46.1 | NA | NA |
| 1988 | 134.2 | na | 19.1 | 31.9 | 17.1 | NA | 51.4 | NA | NA |
| 1989 | 142.2 | na | 21.1 | 34.2 | 18.2 | NA | 58.4 | NA | NA |
| 1990 | 152.4 | na | 23.3 | 35.9 | 18.9 | NA | 65.4 | NA | NA |
| 1991 | 161.4 | 108.0 | 24.4 | 40.0 | 18.6 | 9.1 | 69.2 | 7.0 | NA |
| 1992 | 165.8 | 110.3 | 25.4 | 39.7 | 18.8 | 10.7 | 70.0 | 8.0 | NA |
| 1993 | 166.1 | 111.5 | 26.3 | 39.1 | 20.0 | 11.9 | 69.8 | 9.5 | NA |
| 1994 | 169.6 | 113.7 | 26.9 | 39.4 | 20.9 | 12.5 | 70.5 | 11.5 | NA |
| 1995 | 184.1 | 118.1 | 27.7 | 41.0 | 19.6 | 12.8 | 76.6 | 13.1 | NA |
| 1996 | 197.8 | 123.1 | 28.3 | 42.2 | 20.1 | 14.1 | 83.0 | 14.8 | 10.6 |
| 1997 | 212.5 | 129.6 | 28.6 | 44.1 | 20.7 | 17.8 | 87.8 | 16.2 | 12.1 |
| 1998 | 226.2 | 136.6 | 29.4 | 46.1 | 21.4 | 19.7 | 91.1 | 14.6 | 13.3 |
| 1999 | 245.0 | 146.6 | 31.0 | 50.7 | 23.3 | 24.9 | 92.8 | 15.8 | 15.1 |
| 2000 | 268.6 | 158.9 | 33.3 | 53.9 | 25.2 | 32.9 | 98.9 | 18.5 | 16.8 |
| 2001 | 279.1 | 169.3 | 36.1 | 56.2 | 26.3 | 38.4 | 103.8 | 21.3 | 17.5 |
| 2002 | 278.4 | 178.1 | 38.3 | 58.6 | 27.9 | 47.9 | 108.2 | 22.5 | 18.1 |
| 2003 | 292.2 | 181.8 | 37.1 | 61.0 | 28.6 | 56.8 | 112.4 | 24.1 | 19.8 |
| 2004 | 303.8 | 188.6 | 38.1 | 62.9 | 29.4 | 69.7 | 117.5 | 27.9 | 23.1 |
| 2005 | 326.2 | 196.3 | 39.5 | 64.0 | 30.6 | 86.2 | 128.7 | 30.6 | 27.9 |
| 2006 | 351.7 | 216.3 | 42.3 | 69.5 | 33.3 | 104.7 | 138.7 | 35.4 | 30.4 |
| 2007 | 378.5 | 231.5 | 44.2 | 73.4 | 35.2 | 123.3 | 147.5 | 40.6 | 33.6 |
| 2008 | 405.4 | 254.2 | 46.6 | 81.2 | 36.5 | 145.1 | 148.7 | 43.9 | 37.6 |
| 2009 | 404.2 | 260.8 | 49.7 | 82.8 | 36.5 | 184.1 | 137.4 | 45.8 | 39.7 |
| 2010 | 408.5 | 270.4 | 50.9 | 87.0 | 37.6 | 212.1 | 140.6 | 52.2 | 41.2 |
| 2011 | 427.1 | 289.7 | 53.6 | 95.8 | 38.8 | 246.5 | 148.4 | 58.4 | 42.4 |
| 2012 | 434.4 | 302.4 | 55.1 | 100.5 | 38.5 | 289.2 | 152.3 | 64.9 | 45.8 |
| 2013 | 455.1 | 315.6 | 58.4 | 102.9 | 41.5 | 323.4 | 164.7 | 68.2 | 45.8 |
| 2014 | 477.0 | 329.1 | 60.6 | 109.6 | 43.8 | 346.3 | 169.6 | 73.1 | 47.6 |

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India |
|---|---------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|
| 2015 | 495.9 | 341.6 | 61.6 | 114.1 | 45.7 | 366.1 | 168.5 | 76.9 | 49.6 |
| 2016 | 522.6 | 360.1 | 63.7 | 122.5 | 48.1 | 393.0 | 160.3 | 80.8 | 51.8 |
| 2017 | 555.1 | 386.7 | 65.7 | 133.7 | 50.8 | 420.8 | 166.6 | 90.3 | 55.1 |
| 2018 | 606.2 | 413.7 | 68.6 | 142.1 | 54.2 | 465.5 | 172.8 | 99.0 | 58.7 |
| 2019 | 668.4 | 440.3 | 73.3 | 148.1 | 56.9 | 525.7 | 173.3 | 102.5 | NA |
| GERD (billions of 2012 constant U.S. PPP dollars) | | | | | | | | | |
| 1981 | 157.3 | na | 23.8 | 40.6 | 25.4 | NA | 52.0 | NA | NA |
| 1982 | 165.3 | na | 25.4 | 41.7 | NA | NA | 55.9 | NA | NA |
| 1983 | 177.2 | na | 26.3 | 42.1 | 24.9 | NA | 60.9 | NA | NA |
| 1984 | 194.6 | na | 27.9 | 43.7 | NA | NA | 66.2 | NA | NA |
| 1985 | 211.3 | na | 29.1 | 47.6 | 26.9 | NA | 74.1 | NA | NA |
| 1986 | 216.7 | na | 29.6 | 49.5 | 27.9 | NA | 75.5 | NA | NA |
| 1987 | 222.2 | na | 31.0 | 52.1 | 28.3 | NA | 80.9 | NA | NA |
| 1988 | 227.4 | na | 32.3 | 54.0 | 29.0 | NA | 87.1 | NA | NA |
| 1989 | 231.9 | na | 34.4 | 55.7 | 29.7 | NA | 95.1 | NA | NA |
| 1990 | 239.5 | na | 36.6 | 56.4 | 29.8 | NA | 102.8 | NA | NA |
| 1991 | 245.4 | 164.2 | 37.1 | 60.8 | 28.3 | 13.9 | 105.1 | 10.7 | NA |
| 1992 | 246.5 | 163.9 | 37.8 | 59.0 | 27.9 | 15.9 | 104.0 | 11.9 | NA |
| 1993 | 241.2 | 161.8 | 38.1 | 56.7 | 29.0 | 17.3 | 101.3 | 13.8 | NA |
| 1994 | 241.1 | 161.6 | 38.2 | 56.0 | 29.7 | 17.7 | 100.2 | 16.4 | NA |
| 1995 | 256.3 | 164.4 | 38.5 | 57.1 | 27.3 | 17.8 | 106.6 | 18.3 | NA |
| 1996 | 270.5 | 168.3 | 38.7 | 57.7 | 27.4 | 19.3 | 113.5 | 20.3 | 14.5 |
| 1997 | 285.6 | 174.2 | 38.5 | 59.3 | 27.8 | 24.0 | 118.0 | 21.8 | 16.2 |
| 1998 | 300.8 | 181.7 | 39.2 | 61.3 | 28.5 | 26.2 | 121.1 | 19.4 | 17.7 |
| 1999 | 321.2 | 192.2 | 40.6 | 66.4 | 30.6 | 32.7 | 121.6 | 20.7 | 19.8 |
| 2000 | 344.2 | 203.6 | 42.7 | 69.1 | 32.2 | 42.2 | 126.8 | 23.7 | 21.5 |
| 2001 | 349.6 | 212.1 | 45.2 | 70.4 | 33.0 | 48.1 | 130.1 | 26.7 | 21.9 |
| 2002 | 343.7 | 219.9 | 47.3 | 72.4 | 34.4 | 59.1 | 133.5 | 27.8 | 22.4 |
| 2003 | 353.6 | 219.9 | 44.9 | 73.8 | 34.6 | 68.8 | 136.0 | 29.1 | 23.9 |
| 2004 | 358.1 | 222.3 | 45.0 | 74.2 | 34.7 | 82.1 | 138.4 | 32.9 | 27.2 |
| 2005 | 372.9 | 224.3 | 45.2 | 73.2 | 35.0 | 98.5 | 147.1 | 35.0 | 31.9 |
| 2006 | 389.8 | 239.8 | 46.9 | 77.0 | 36.9 | 116.1 | 153.8 | 39.2 | 33.7 |
| 2007 | 408.5 | 249.9 | 47.7 | 79.2 | 38.0 | 133.1 | 159.2 | 43.8 | 36.2 |
| 2008 | 429.5 | 269.3 | 49.3 | 86.0 | 38.7 | 153.7 | 157.5 | 46.5 | 39.9 |
| 2009 | 425.4 | 274.5 | 52.3 | 87.1 | 38.4 | 193.8 | 144.6 | 48.2 | 41.8 |

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India | |
|------|-----------------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|--|
| 2010 | 424.8 | 281.2 | 52.9 | 90.5 | 39.1 | 220.6 | 146.2 | 54.2 | 42.9 | |
| 2011 | 435.1 | 295.1 | 54.6 | 97.6 | 39.5 | 251.1 | 151.2 | 59.5 | 43.2 | |
| 2012 | 434.4 | 302.4 | 55.1 | 100.5 | 38.5 | 289.2 | 152.3 | 64.9 | 45.8 | |
| 2013 | 447.2 | 310.1 | 57.3 | 101.1 | 40.8 | 317.7 | 161.8 | 67.0 | 45.0 | |
| 2014 | 460.2 | 317.5 | 58.4 | 105.7 | 42.3 | 334.0 | 163.6 | 70.5 | 45.9 | |
| 2015 | 473.8 | 326.4 | 58.9 | 109.0 | 43.6 | 349.8 | 161.0 | 73.5 | 47.4 | |
| 2016 | 494.5 | 340.7 | 60.2 | 115.9 | 45.5 | 371.8 | 151.6 | 76.5 | 49.0 | |
| 2017 | 515.2 | 358.9 | 61.0 | 124.1 | 47.2 | 390.6 | 154.6 | 83.8 | 51.2 | |
| 2018 | 549.5 | 374.9 | 62.2 | 128.8 | 49.2 | 421.9 | 156.6 | 89.8 | 53.2 | |
| 2019 | 595.3 | 392.2 | 65.3 | 131.9 | 50.7 | 468.2 | 154.3 | 91.3 | NA | |
| | GERD-to-GDP ratio (%) | | | | | | | | | |
| 1981 | 2.27 | na | 1.87 | 2.35 | 2.24 | NA | 2.05 | NA | NA | |
| 1982 | 2.43 | na | 1.95 | 2.42 | NA | NA | 2.13 | NA | NA | |
| 1983 | 2.49 | na | 1.98 | 2.41 | 2.06 | NA | 2.24 | NA | NA | |
| 1984 | 2.55 | na | 2.07 | 2.43 | NA | NA | 2.33 | NA | NA | |
| 1985 | 2.66 | na | 2.13 | 2.59 | 2.09 | NA | 2.48 | NA | NA | |
| 1986 | 2.63 | na | 2.12 | 2.63 | 2.10 | NA | 2.44 | NA | NA | |
| 1987 | 2.61 | na | 2.16 | 2.73 | 2.02 | NA | 2.50 | NA | NA | |
| 1988 | 2.56 | na | 2.15 | 2.73 | 1.96 | NA | 2.52 | NA | NA | |
| 1989 | 2.52 | na | 2.19 | 2.71 | 1.95 | NA | 2.63 | NA | NA | |
| 1990 | 2.56 | na | 2.27 | 2.61 | 1.95 | NA | 2.71 | NA | NA | |
| 1991 | 2.62 | 1.65 | 2.28 | 2.39 | 1.87 | 0.72 | 2.68 | 1.71 | NA | |
| 1992 | 2.54 | 1.63 | 2.28 | 2.27 | 1.84 | 0.73 | 2.63 | 1.80 | NA | |
| 1993 | 2.42 | 1.62 | 2.32 | 2.21 | 1.86 | 0.70 | 2.57 | 1.95 | NA | |
| 1994 | 2.33 | 1.57 | 2.27 | 2.13 | 1.84 | 0.63 | 2.47 | 2.12 | NA | |
| 1995 | 2.41 | 1.56 | 2.24 | 2.14 | 1.65 | 0.57 | 2.56 | 2.16 | NA | |
| 1996 | 2.45 | 1.57 | 2.22 | 2.14 | 1.58 | 0.56 | 2.64 | 2.22 | 0.64 | |
| 1997 | 2.48 | 1.59 | 2.15 | 2.19 | 1.54 | 0.64 | 2.72 | 2.25 | 0.69 | |
| 1998 | 2.50 | 1.60 | 2.09 | 2.22 | 1.55 | 0.65 | 2.83 | 2.11 | 0.70 | |
| 1999 | 2.54 | 1.65 | 2.11 | 2.35 | 1.63 | 0.75 | 2.85 | 2.02 | 0.72 | |
| 2000 | 2.62 | 1.68 | 2.09 | 2.41 | 1.62 | 0.89 | 2.86 | 2.13 | 0.76 | |
| 2001 | 2.64 | 1.70 | 2.14 | 2.40 | 1.61 | 0.94 | 2.92 | 2.28 | 0.74 | |
| 2002 | 2.55 | 1.71 | 2.17 | 2.44 | 1.62 | 1.06 | 2.97 | 2.21 | 0.73 | |
| 2003 | 2.55 | 1.70 | 2.12 | 2.47 | 1.58 | 1.12 | 2.99 | 2.28 | 0.72 | |
| 2004 | 2.49 | 1.68 | 2.09 | 2.44 | 1.54 | 1.21 | 2.98 | 2.44 | 0.76 | |

Table SRD-1

Gross expenditures on R&D and expenditures for R&D as a share of gross domestic product, for selected countries or regions: 1981–2019

(Billions of current and 2012 constant U.S. PPP dollars, GERD-to-GDP ratio, and annual growth rates)

| Year | United States | EU-27 ^a | France | Germany | United Kingdom | China | Japan | South Korea | India |
|---|---------------|--------------------|--------|---------|----------------|-------|-------|-------------|-------|
| 2005 | 2.50 | 1.68 | 2.05 | 2.44 | 1.56 | 1.31 | 3.13 | 2.52 | 0.82 |
| 2006 | 2.55 | 1.70 | 2.05 | 2.47 | 1.58 | 1.37 | 3.23 | 2.72 | 0.80 |
| 2007 | 2.62 | 1.70 | 2.02 | 2.46 | 1.62 | 1.37 | 3.29 | 2.87 | 0.81 |
| 2008 | 2.74 | 1.78 | 2.06 | 2.62 | 1.61 | 1.45 | 3.29 | 2.99 | 0.86 |
| 2009 | 2.79 | 1.86 | 2.21 | 2.74 | 1.67 | 1.66 | 3.20 | 3.15 | 0.83 |
| 2010 | 2.71 | 1.86 | 2.18 | 2.73 | 1.64 | 1.71 | 3.10 | 3.32 | 0.79 |
| 2011 | 2.74 | 1.91 | 2.19 | 2.81 | 1.65 | 1.78 | 3.21 | 3.59 | 0.76 |
| 2012 | 2.67 | 1.96 | 2.23 | 2.88 | 1.58 | 1.91 | 3.17 | 3.85 | 0.74 |
| 2013 | 2.70 | 1.98 | 2.24 | 2.84 | 1.62 | 2.00 | 3.28 | 3.95 | 0.71 |
| 2014 | 2.72 | 2.00 | 2.28 | 2.88 | 1.64 | 2.02 | 3.37 | 4.08 | 0.70 |
| 2015 | 2.72 | 2.01 | 2.27 | 2.93 | 1.65 | 2.06 | 3.24 | 3.98 | 0.69 |
| 2016 | 2.80 | 1.99 | 2.22 | 2.94 | 1.66 | 2.10 | 3.11 | 3.99 | 0.67 |
| 2017 | 2.85 | 2.03 | 2.20 | 3.05 | 1.68 | 2.12 | 3.17 | 4.29 | 0.67 |
| 2018 | 2.95 | 2.07 | 2.19 | 3.12 | 1.73 | 2.14 | 3.22 | 4.52 | 0.65 |
| 2019 | 3.13 | 2.12 | 2.20 | 3.19 | 1.76 | 2.23 | 3.20 | 4.64 | NA |
| GERD, annual growth rates, recent years, current and constant dollars (%) | | | | | | | | | |
| Current PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 4.3 | 5.5 | 4.3 | 4.9 | 4.1 | 20.5 | 3.6 | 10.9 | 9.4 |
| CAGR 2010–19 | 5.6 | 5.6 | 4.1 | 6.1 | 4.7 | 10.6 | 2.4 | 7.8 | 4.5 |
| Constant 2012 PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 2.1 | 3.3 | 2.2 | 2.7 | 1.9 | 18.0 | 1.4 | 8.6 | 7.2 |
| CAGR 2010–19 | 3.8 | 3.8 | 2.4 | 4.3 | 2.9 | 8.7 | 0.6 | 6.0 | 2.7 |
| GDP, annual growth rates, recent years, current and constant dollars (%) | | | | | | | | | |
| Current PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 3.9 | 4.4 | 3.9 | 3.6 | 3.9 | 12.9 | 2.7 | 6.1 | 9.0 |
| CAGR 2010–19 | 4.1 | 4.1 | 4.0 | 4.3 | 3.9 | 7.4 | 2.0 | 3.8 | 7.1 |
| Constant 2012 PPP\$ | | | | | | | | | |
| CAGR 2000–10 | 1.7 | 2.2 | 1.8 | 2.2 | 1.8 | 10.5 | 0.6 | 3.9 | 6.7 |
| CAGR 2010–19 | 2.3 | 2.3 | 2.3 | 1.7 | 2.2 | 5.6 | 0.3 | 2.1 | 5.3 |

na = not applicable; NA = not available.

CAGR = compound average annual growth rate; EU = European Union; GDP = gross domestic product; GERD = gross domestic expenditure on R&D; PPP = purchasing power parity.

^a Data for the EU include the 27 EU member countries.

Note(s):

Table data include the top eight R&D-performing countries in 2019. R&D expenditures in constant U.S. PPP dollars are computed using the U.S. GDP implicit price deflator. Data for the United States in this table reflect international standards for calculating GERD, which vary slightly from the National Science Foundation's protocol for tallying U.S. total R&D. Data for Japan for 1996 onward may not be consistent with earlier data because of changes in methodology. Data for Germany for 1981–90 are for West Germany.

Source(s):

National Center for Science and Engineering Statistics, *National Patterns of R&D Resources* (2019–20 edition); Organisation for Economic Co-operation and Development, *Main Science and Technology Indicators* (September 2021 edition); United Nations Educational, Scientific and Cultural Organization, Institute for Statistics, Science Technology and Innovation data set (March 2021 release).

Science and Engineering Indicators

Table SRD-2

Business R&D performed in the United States, by industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Millions of dollars | | | | | | | | | | |
| All industries, 21–33, 42–81 | 278,977 | 294,093 | 302,250 | 322,528 | 340,728 | 355,821 | 374,685 | 400,100 | 441,036 | 492,956 |
| Manufacturing industries, 31–33 | 196,712 | 201,361 | 208,415 | 221,476 | 232,815 | 236,132 | 250,553 | 257,227 | 274,075 | 285,674 |
| Chemicals, 325 | 58,038 | 55,324 | 57,225 | 61,664 | 66,301 | 68,196 | 73,575 | 74,977 | 84,137 | 97,063 |
| Pharmaceuticals and medicines, 3254 | 49,415 | 45,949 | 48,146 | 52,426 | 56,612 | 58,675 | 64,628 | 66,202 | 74,592 | 87,619 |
| Other 325 | 8,623 | 9,375 | 9,079 | 9,238 | 9,689 | 9,521 | 8,947 | 8,775 | 9,545 | 9,444 |
| Machinery, 333 | 9,955 | 14,709 | 14,254 | 12,650 | 12,128 | 13,426 | 12,585 | 13,197 | 14,799 | 15,184 |
| Computer and electronic products, 334 | 59,875 | 62,704 | 65,068 | 67,205 | 73,891 | 72,110 | 77,385 | 78,575 | 83,697 | 86,729 |
| Electrical equipment, appliance, and components, 335 | 3,321 | 3,595 | 3,087 | 4,136 | 4,365 | 4,335 | 4,771 | 4,291 | 4,487 | 5,263 |
| Transportation equipment, 336 | 42,913 | 40,880 | 42,305 | 45,972 | 46,746 | 49,274 | 51,275 | 53,292 | 52,629 | 45,375 |
| Motor vehicles, bodies, trailers, and parts, 3361–63 | D | D | D | 16,729 | 18,404 | 19,078 | 22,042 | 23,881 | 25,586 | 24,117 |
| Aerospace products and parts, 3364 | 29,854 | 26,054 | 24,817 | 27,114 | 26,181 | 27,464 | 26,645 | 26,383 | 24,291 | 18,358 |
| Other 336 | D | D | D | 2,129 | 2,161 | 2,732 | 2,588 | 3,028 | 2,752 | 2,900 |
| Manufacturing nec, other 31–33 | 22,610 | 24,149 | 26,476 | 29,849 | 29,384 | 28,791 | 30,962 | 32,895 | 34,326 | 36,060 |
| Nonmanufacturing industries, 21–23, 42–81 | 82,265 | 92,731 | 93,835 | 101,052 | 107,913 | 119,690 | 124,132 | 142,874 | 166,961 | 207,283 |
| Information, 51 | 36,853 | 41,865 | 46,805 | 57,207 | 63,773 | 65,513 | 70,748 | 80,252 | 94,349 | 110,227 |
| Software publishers, 5112 | 26,982 | 27,965 | 28,745 | 35,333 | 36,052 | 33,248 | 33,495 | 34,264 | 32,639 | 32,958 |
| Other 51 | 9,871 | 13,900 | 18,060 | 21,874 | 27,721 | 32,265 | 37,253 | 45,988 | 61,710 | 77,269 |
| Finance and insurance, 52 | 2,109 | 3,457 | 3,519 | 4,308 | 4,122 | 5,366 | 7,331 | 7,616 | 7,471 | 8,917 |
| Professional, scientific, and technical services, 54 | 33,690 | 38,219 | 34,309 | 31,017 | 30,975 | 38,626 | 37,595 | 36,922 | 44,860 | 53,233 |
| Computer systems design and related services, 5415 | 11,050 | 13,259 | 11,251 | 9,268 | 11,019 | 14,333 | 15,747 | 13,327 | 15,923 | 21,046 |
| Scientific research and development services, 5417 | 12,140 | 15,301 | 16,544 | 14,201 | 12,807 | 16,329 | 14,842 | 17,321 | 20,185 | 21,669 |
| Other 54 | 10,500 | 9,659 | 6,514 | 7,548 | 7,149 | 7,964 | 7,006 | 6,274 | 8,752 | 10,518 |
| Nonmanufacturing nec, other 21–23, 42–81 | 9,613 | 9,190 | 9,202 | 8,520 | 9,043 | 10,185 | 8,458 | 18,084 | 20,281 | 34,906 |
| Percent change from preceding period | | | | | | | | | | |
| All industries, 21–33, 42–81 | | 5.4 | 2.8 | 6.7 | 5.6 | 4.4 | 5.3 | 6.8 | 10.2 | 11.8 |
| Manufacturing industries, 31–33 | | 2.4 | 3.5 | 6.3 | 5.1 | 1.4 | 6.1 | 2.7 | 6.5 | 4.2 |
| Chemicals, 325 | | -4.7 | 3.4 | 7.8 | 7.5 | 2.9 | 7.9 | 1.9 | 12.2 | 15.4 |
| Pharmaceuticals and medicines, 3254 | | -7.0 | 4.8 | 8.9 | 8.0 | 3.6 | 10.1 | 2.4 | 12.7 | 17.5 |
| Other 325 | | 8.7 | -3.2 | 1.8 | 4.9 | -1.7 | -6.0 | -1.9 | 8.8 | -1.1 |
| Machinery, 333 | | 47.8 | -3.1 | -11.3 | -4.1 | 10.7 | -6.3 | 4.9 | 12.1 | 2.6 |
| Computer and electronic products, 334 | | 4.7 | 3.8 | 3.3 | 9.9 | -2.4 | 7.3 | 1.5 | 6.5 | 3.6 |
| Electrical equipment, appliance, and components, 335 | | 8.3 | -14.1 | 34.0 | 5.5 | -0.7 | 10.1 | -10.1 | 4.6 | 17.3 |
| Transportation equipment, 336 | | -4.7 | 3.5 | 8.7 | 1.7 | 5.4 | 4.1 | 3.9 | -1.2 | -13.8 |
| Motor vehicles, bodies, trailers, and parts, 3361–63 | | D | D | D | 10.0 | 3.7 | 15.5 | 8.3 | 7.1 | -5.7 |

Table SRD-2

Business R&D performed in the United States, by industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Aerospace products and parts, 3364 | | -12.7 | -4.7 | 9.3 | -3.4 | 4.9 | -3.0 | -1.0 | -7.9 | -24.4 |
| Other 336 | | D | D | D | 1.5 | 26.4 | -5.3 | 17.0 | -9.1 | 5.4 |
| Manufacturing nec, other 31–33 | | 6.8 | 9.6 | 12.7 | -1.6 | -2.0 | 7.5 | 6.2 | 4.4 | 5.1 |
| Nonmanufacturing industries, 21–23, 42–81 | | 12.7 | 1.2 | 7.7 | 6.8 | 10.9 | 3.7 | 15.1 | 16.9 | 24.2 |
| Information, 51 | | 13.6 | 11.8 | 22.2 | 11.5 | 2.7 | 8.0 | 13.4 | 17.6 | 16.8 |
| Software publishers, 5112 | | 3.6 | 2.8 | 22.9 | 2.0 | -7.8 | 0.7 | 2.3 | -4.7 | 1.0 |
| Other 51 | | 40.8 | 29.9 | 21.1 | 26.7 | 16.4 | 15.5 | 23.4 | 34.2 | 25.2 |
| Finance and insurance, 52 | | 63.9 | 1.8 | 22.4 | -4.3 | 30.2 | 36.6 | 3.9 | -1.9 | 19.4 |
| Professional, scientific, and technical services, 54 | | 13.4 | -10.2 | -9.6 | -0.1 | 24.7 | -2.7 | -1.8 | 21.5 | 18.7 |
| Computer systems design and related services, 5415 | | 20.0 | -15.1 | -17.6 | 18.9 | 30.1 | 9.9 | -15.4 | 19.5 | 32.2 |
| Scientific research and development services, 5417 | | 26.0 | 8.1 | -14.2 | -9.8 | 27.5 | -9.1 | 16.7 | 16.5 | 7.4 |
| Other 54 | | -8.0 | -32.6 | 15.9 | -5.3 | 11.4 | -12.0 | -10.4 | 39.5 | 20.2 |
| Nonmanufacturing nec, other 21–23, 42–81 | | -4.4 | 0.1 | -7.4 | 6.1 | 12.6 | -17.0 | 113.8 | 12.1 | 72.1 |
| Industry share of business R&D (%) | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 70.5 | 68.5 | 69.0 | 68.7 | 68.3 | 66.4 | 66.9 | 64.3 | 62.1 | 58.0 |
| Chemicals, 325 | 20.8 | 18.8 | 18.9 | 19.1 | 19.5 | 19.2 | 19.6 | 18.7 | 19.1 | 19.7 |
| Pharmaceuticals and medicines, 3254 | 17.7 | 15.6 | 15.9 | 16.3 | 16.6 | 16.5 | 17.2 | 16.5 | 16.9 | 17.8 |
| Other 325 | 3.1 | 3.2 | 3.0 | 2.9 | 2.8 | 2.7 | 2.4 | 2.2 | 2.2 | 1.9 |
| Machinery, 333 | 3.6 | 5.0 | 4.7 | 3.9 | 3.6 | 3.8 | 3.4 | 3.3 | 3.4 | 3.1 |
| Computer and electronic products, 334 | 21.5 | 21.3 | 21.5 | 20.8 | 21.7 | 20.3 | 20.7 | 19.6 | 19.0 | 17.6 |
| Electrical equipment, appliance, and components, 335 | 1.2 | 1.2 | 1.0 | 1.3 | 1.3 | 1.2 | 1.3 | 1.1 | 1.0 | 1.1 |
| Transportation equipment, 336 | 15.4 | 13.9 | 14.0 | 14.3 | 13.7 | 13.8 | 13.7 | 13.3 | 11.9 | 9.2 |
| Motor vehicles, bodies, trailers, and parts, 3361–63 | D | D | D | 5.2 | 5.4 | 5.4 | 5.9 | 6.0 | 5.8 | 4.9 |
| Aerospace products and parts, 3364 | 10.7 | 8.9 | 8.2 | 8.4 | 7.7 | 7.7 | 7.1 | 6.6 | 5.5 | 3.7 |
| Other 336 | D | D | D | 0.7 | 0.6 | 0.8 | 0.7 | 0.8 | 0.6 | 0.6 |
| Manufacturing nec, other 31–33 | 8.1 | 8.2 | 8.8 | 9.3 | 8.6 | 8.1 | 8.3 | 8.2 | 7.8 | 7.3 |
| Nonmanufacturing industries, 21–23, 42–81 | 29.5 | 31.5 | 31.0 | 31.3 | 31.7 | 33.6 | 33.1 | 35.7 | 37.9 | 42.0 |
| Information, 51 | 13.2 | 14.2 | 15.5 | 17.7 | 18.7 | 18.4 | 18.9 | 20.1 | 21.4 | 22.4 |
| Software publishers, 5112 | 9.7 | 9.5 | 9.5 | 11.0 | 10.6 | 9.3 | 8.9 | 8.6 | 7.4 | 6.7 |
| Other 51 | 3.5 | 4.7 | 6.0 | 6.8 | 8.1 | 9.1 | 9.9 | 11.5 | 14.0 | 15.7 |
| Finance and insurance, 52 | 0.8 | 1.2 | 1.2 | 1.3 | 1.2 | 1.5 | 2.0 | 1.9 | 1.7 | 1.8 |
| Professional, scientific, and technical services, 54 | 12.1 | 13.0 | 11.4 | 9.6 | 9.1 | 10.9 | 10.0 | 9.2 | 10.2 | 10.8 |
| Computer systems design and related services, 5415 | 4.0 | 4.5 | 3.7 | 2.9 | 3.2 | 4.0 | 4.2 | 3.3 | 3.6 | 4.3 |
| Scientific research and development services, 5417 | 4.4 | 5.2 | 5.5 | 4.4 | 3.8 | 4.6 | 4.0 | 4.3 | 4.6 | 4.4 |

Table SRD-2

Business R&D performed in the United States, by industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|------|------|------|------|------|------|------|------|------|------|
| Other 54 | 3.8 | 3.3 | 2.2 | 2.3 | 2.1 | 2.2 | 1.9 | 1.6 | 2.0 | 2.1 |
| Nonmanufacturing nec, other 21–23, 42–81 | 3.4 | 3.1 | 3.0 | 2.6 | 2.7 | 2.9 | 2.3 | 4.5 | 4.6 | 7.1 |

D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = North American Industry Classification System; nec = not elsewhere classified.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. For survey years 2010–13, industry classification was based on the 2007 NAICS, whereas for survey years 2014–18, industry classification was based on the 2012 NAICS. The 2010–16 data come from the Business R&D and Innovation Survey and do not include companies with fewer than 5 domestic employees. Data for 2017–18 come from the Business Research and Development Survey and do not include companies with fewer than 10 domestic employees. Data for 2019 come from the Business Enterprise Research and Development Survey and also do not include companies with fewer than 10 domestic employees.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey (BRDIS), Business Research and Development Survey (BRDS), and Business Enterprise Research and Development Survey (BERD).

Science and Engineering Indicators

Table SRD-3

Funds spent for business R&D performed in the United States, by type of R&D and selected sources of funds: 2010–19

(Millions of dollars and percent share)

| Source of funds | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|----------|----------|----------|----------|----------|----------|---------|----------|---------|---------|
| Millions of dollars | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All business R&D ^a | 278,977 | 294,093 | 302,250 | 322,528 | 340,728 | 355,821 | 374,685 | 400,100 | 441,036 | 492,956 |
| Paid for by the company | 221,706 | 238,768 | 247,280 | 264,913 | 282,570 | 296,677 | 317,731 | 339,036 | 377,806 | 428,968 |
| Paid for by others | 57,271 | 55,324 | 54,970 | 57,615 | 58,158 | 59,144 | 56,954 | 61,065 | 63,230 | 63,989 |
| Federal | 34,199 i | 31,309 i | 30,621 i | 29,362 | 26,554 i | 26,990 | 23,772 | 24,277 i | 24,685 | 21,941 |
| All others | 23,072 | 24,015 | 24,349 | 28,253 | 31,604 | 32,154 | 33,182 | 36,788 | 38,545 | 42,048 |
| Basic research | | | | | | | | | | |
| All business R&D ^a | 16,371 | 13,020 | 13,293 | 19,508 | 21,936 | 21,792 | 24,644 | 24,829 | 28,980 | 32,239 |
| Paid for by the company | 13,453 | 10,735 | 11,163 | 15,275 | 16,107 | 16,306 | 19,143 | 18,732 | 22,312 | 25,916 |
| Paid for by others | 2,918 | 2,285 | 2,131 | 4,233 | 5,829 | 5,486 | 5,501 i | 6,097 | 6,668 | 6,324 |
| Federal | 1,406 | 677 | 644 i | 1,196 i | 2,044 i | 2,038 i | 2,005 i | 1,783 i | 2,510 i | 2,313 i |
| All others | 1,512 | 1,608 | 1,487 | 3,037 | 3,785 | 3,448 | 3,496 | 4,314 | 4,158 | 4,011 |
| Applied research | | | | | | | | | | |
| All business R&D ^a | 44,906 | 47,186 | 50,755 | 51,014 | 53,415 | 56,472 | 61,020 | 62,132 | 65,222 | 74,031 |
| Paid for by the company | 35,475 | 37,573 | 39,629 | 38,105 | 39,012 | 44,344 | 48,806 | 49,149 | 53,229 | 59,697 |
| Paid for by others | 9,431 | 9,613 | 11,126 i | 12,908 | 14,403 | 12,128 | 12,213 | 12,984 | 11,993 | 14,333 |
| Federal | 4,705 | 4,404 | 4,137 i | 6,028 i | 6,445 i | 6,102 i | 5,181 i | 5,037 i | 5,097 i | 4,883 |
| All others | 4,726 | 5,209 | 6,989 | 6,880 | 7,958 | 6,026 | 7,032 | 7,947 | 6,896 | 9,450 |
| Experimental development | | | | | | | | | | |
| All business R&D ^a | 217,699 | 233,887 | 238,202 | 252,007 | 265,377 | 277,558 | 289,021 | 313,139 | 346,834 | 386,686 |
| Paid for by the company | 172,777 | 190,460 | 196,488 | 211,532 | 227,451 | 236,027 | 249,782 | 271,155 | 302,264 | 343,355 |
| Paid for by others | 44,922 i | 43,426 | 41,714 i | 40,475 | 37,927 i | 41,530 | 39,239 | 41,984 | 44,570 | 43,332 |
| Federal | 28,089 i | 26,228 i | 25,840 i | 22,137 i | 18,065 i | 18,850 i | 16,586 | 17,457 i | 17,078 | 14,745 |
| All others | 16,833 | 17,198 | 15,874 | 18,338 | 19,862 | 22,680 | 22,653 | 24,527 | 27,492 | 28,587 |
| Sources of funds as a percentage of business R&D, by type of R&D | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Paid for by the company | 79.5 | 81.2 | 81.8 | 82.1 | 82.9 | 83.4 | 84.8 | 84.7 | 85.7 | 87.0 |
| Paid for by others | 20.5 | 18.8 | 18.2 | 17.9 | 17.1 | 16.6 | 15.2 | 15.3 | 14.3 | 13.0 |
| Federal | 12.3 | 10.6 | 10.1 | 9.1 | 7.8 | 7.6 | 6.3 | 6.1 | 5.6 | 4.5 |
| All others | 8.3 | 8.2 | 8.1 | 8.8 | 9.3 | 9.0 | 8.9 | 9.2 | 8.7 | 8.5 |
| Basic research | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 100.0 | 100.0 | 100.0 |
| Paid for by the company | 82.2 | 82.5 | 84.0 | 78.3 | 73.4 | 74.8 | | 77.7 | 75.4 | 80.4 |

Table SRD-3

Funds spent for business R&D performed in the United States, by type of R&D and selected sources of funds: 2010–19

(Millions of dollars and percent share)

| Source of funds | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Paid for by others | 17.8 | 17.5 | 16.0 | 21.7 | 26.6 | 25.2 | 22.3 | 24.6 | 23.0 | 19.6 |
| Federal | 8.6 | 5.2 | 4.8 | 6.1 | 9.3 | 9.4 | 8.1 | 7.2 | 8.7 | 7.2 |
| All others | 9.2 | 12.4 | 11.2 | 15.6 | 17.3 | 15.8 | 14.2 | 17.4 | 14.3 | 12.4 |
| Applied research | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Paid for by the company | 79.0 | 79.6 | 78.1 | 74.7 | 73.0 | 78.5 | 80.0 | 79.1 | 81.6 | 80.6 |
| Paid for by others | 21.0 | 20.4 | 21.9 | 25.3 | 27.0 | 21.5 | 20.0 | 20.9 | 18.4 | 19.4 |
| Federal | 10.5 | 9.3 | 8.2 | 11.8 | 12.1 | 10.8 | 8.5 | 8.1 | 7.8 | 6.6 |
| All others | 10.5 | 11.0 | 13.8 | 13.5 | 14.9 | 10.7 | 11.5 | 12.8 | 10.6 | 12.8 |
| Experimental development | | | | | | | | | | |
| All business R&D ^a | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Paid for by the company | 79.4 | 81.4 | 82.5 | 83.9 | 85.7 | 85.0 | 86.4 | 86.6 | 87.1 | 88.8 |
| Paid for by others | 20.6 | 18.6 | 17.5 | 16.1 | 14.3 | 15.0 | 13.6 | 13.4 | 12.9 | 11.2 |
| Federal | 12.9 | 11.2 | 10.8 | 8.8 | 6.8 | 6.8 | 5.7 | 5.6 | 4.9 | 3.8 |
| All others | 7.7 | 7.4 | 6.7 | 7.3 | 7.5 | 8.2 | 7.8 | 7.8 | 7.9 | 7.4 |

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = North American Industry Classification System.

^a Includes companies located in the United States that performed or funded R&D. Data in this table represent an aggregate of all industries in the North American Industry Classification System codes 21–33 and 42–81.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. For survey years 2010–13, industry classification was based on the 2007 NAICS, whereas for survey years 2014–18, industry classification was based on the 2012 NAICS. The 2010–16 data come from the Business R&D and Innovation Survey and do not include companies with fewer than 5 domestic employees. Data for 2017–18 come from the Business Research and Development Survey and do not include companies with fewer than 10 domestic employees. Data for 2019 come from the Business Enterprise Research and Development Survey and do not include companies with fewer than 10 domestic employees.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey (BRDIS), Business Research and Development Survey (BRDS), and Business Enterprise Research and Development Survey (BERD).

Science and Engineering Indicators

Table SRD-4

Funds spent for business R&D performed in the United States, by type of R&D and select industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Millions of dollars | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All industries, 21–33, 42–81 | 278,977 | 294,093 | 302,250 | 322,528 | 340,728 | 355,821 | 374,685 | 400,100 | 441,036 | 492,956 |
| Manufacturing industries, 31–33 | 196,711 | 201,361 | 208,415 | 221,476 | 232,815 | 236,132 | 250,553 | 257,227 | 274,075 | 285,674 |
| Chemicals, 325 | 58,038 | 55,324 | 57,225 | 61,664 | 66,301 | 68,196 | 73,575 | 74,977 | 84,137 | 97,063 |
| Computer and electronic products, 334 | 59,875 | 62,704 | 65,068 | 67,205 | 73,891 | 72,110 | 77,385 | 78,575 | 83,697 | 86,729 |
| Transportation equipment, 336 | 42,913 | 40,880 | 42,305 | 45,972 | 46,746 | 49,274 | 51,275 | 53,292 | 52,629 | 45,375 |
| Nonmanufacturing industries, 21–23, 42–81 | 82,265 | 92,731 | 93,835 | 101,052 | 107,913 | 119,690 | 124,132 | 142,874 | 166,961 | 207,283 |
| Information, 51 | 36,852 | 41,865 | 46,805 | 57,207 | 63,773 | 65,513 | 70,748 | 80,252 | 94,349 | 110,227 |
| Professional, scientific, and technical services, 54 | 33,690 | 38,219 | 34,309 | 31,017 | 30,975 | 38,626 | 37,595 | 36,922 | 44,860 | 53,233 |
| Basic research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 16,371 | 13,020 | 13,293 | 19,508 | 21,936 | 21,792 | 24,644 | 24,829 | 28,980 | 32,239 |
| Manufacturing industries, 31–33 | 10,667 | 8,738 | 9,119 | 15,186 | 17,822 | 16,756 | 18,882 | 18,624 | 20,873 | 22,701 |
| Chemicals, 325 | 4,670 | 4,243 | 3,964 | 7,308 | 9,037 | 8,317 | 10,117 | 10,193 | 11,972 | 13,869 |
| Computer and electronic products, 334 | 2,808 | 1,438 | 1,556 | 2,684 | 2,792 | 2,338 | 2,468 | 2,543 | 2,445 | 2,175 |
| Transportation equipment, 336 | 1,097 | 955 | 952 | 1,823 | 2,911 | 3,605 | 3,112 | 2,824 | 3,062 | 3,486 |
| Nonmanufacturing industries, 21–23, 42–81 | 5,704 | 4,282 | 4,174 | 4,321 | 4,114 | 5,036 | 5,762 | 6,205 | 8,108 | 9,538 |
| Information, 51 | 2,101 | 1,518 | 1,868 | 2,178 | 2,105 | 1,627 | 2,028 | 2,243 | 3,250 | 3,816 |
| Professional, scientific, and technical services, 54 | 2,663 | 2,030 | 1,966 | 1,630 | 1,572 | 2,240 | 2,671 | 2,491 | 3,482 | 4,161 |
| Applied research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 44,906 | 47,186 | 50,755 | 51,014 | 53,415 | 56,472 | 61,020 | 62,132 | 65,222 | 74,031 |
| Manufacturing industries, 31–33 | 33,224 | 32,576 | 35,514 | 35,166 | 36,585 | 39,583 | 42,443 | 43,698 | 44,027 | 45,769 |
| Chemicals, 325 | 15,006 | 15,121 | 16,640 | 13,894 | 13,837 | 16,047 | 15,771 | 17,021 | 18,531 | 19,120 |
| Computer and electronic products, 334 | 8,426 | 7,069 | 7,120 | 8,485 | 8,740 | 8,973 | 10,298 | 11,194 | 9,947 | 11,587 |
| Transportation equipment, 336 | 3,597 | 3,563 | 4,295 | 6,022 | 7,141 | 7,165 | 7,859 | 7,490 | 7,440 | 7,332 |
| Nonmanufacturing industries, 21–23, 42–81 | 11,682 | 14,610 | 15,241 | 15,848 | 16,830 | 16,889 | 18,576 | 18,434 | 21,195 | 28,262 |
| Information, 51 | 2,764 | 3,864 | 4,033 | 5,687 | 6,137 | 6,511 | 6,805 | 7,626 | 8,979 | 8,690 |
| Professional, scientific, and technical services, 54 | 7,162 | 8,615 | 8,825 | 8,181 | 8,777 | 8,264 | 9,900 | 8,584 | 9,384 | 11,731 |
| Experimental development | | | | | | | | | | |
| All industries, 21–33, 42–81 | 217,699 | 233,887 | 238,202 | 252,007 | 265,377 | 277,558 | 289,021 | 313,139 | 346,834 | 386,686 |
| Manufacturing industries, 31–33 | 152,821 | 160,047 | 163,781 | 171,124 | 178,408 | 179,793 | 189,228 | 194,904 | 209,175 | 217,203 |
| Chemicals, 325 | 38,362 | 35,961 | 36,621 | 40,462 | 43,427 | 43,833 | 47,687 | 47,763 | 53,635 | 64,075 |
| Computer and electronic products, 334 | 48,640 | 54,197 | 56,392 | 56,036 | 62,358 | 60,799 | 64,619 | 64,837 | 71,305 | 72,967 |
| Transportation equipment, 336 | 38,219 | 36,361 | 37,058 | 38,126 | 36,693 | 38,504 | 40,305 | 42,978 | 42,128 | 34,557 |
| Nonmanufacturing industries, 21–23, 42–81 | 64,878 | 73,839 | 74,421 | 80,883 | 86,970 | 97,765 | 99,794 | 118,235 | 137,658 | 169,483 |

Table SRD-4

Funds spent for business R&D performed in the United States, by type of R&D and select industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Information, 51 | 31,987 | 36,483 | 40,903 | 49,341 | 55,530 | 57,374 | 61,916 | 70,383 | 82,120 | 97,721 |
| Professional, scientific, and technical services, 54 | 23,866 | 27,573 | 23,517 | 21,206 | 20,626 | 28,122 | 25,024 | 25,848 | 31,994 | 37,341 |
| Industry share of each type of R&D (%) | | | | | | | | | | |
| All business R&D | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 70.5 | 68.5 | 69.0 | 68.7 | 68.3 | 66.4 | 66.9 | 64.3 | 62.1 | 58.0 |
| Chemicals, 325 | 20.8 | 18.8 | 18.9 | 19.1 | 19.5 | 19.2 | 19.6 | 18.7 | 19.1 | 19.7 |
| Computer and electronic products, 334 | 21.5 | 21.3 | 21.5 | 20.8 | 21.7 | 20.3 | 20.7 | 19.6 | 19.0 | 17.6 |
| Transportation equipment, 336 | 15.4 | 13.9 | 14.0 | 14.3 | 13.7 | 13.8 | 13.7 | 13.3 | 11.9 | 9.2 |
| Nonmanufacturing industries, 21–23, 42–81 | 29.5 | 31.5 | 31.0 | 31.3 | 31.7 | 33.6 | 33.1 | 35.7 | 37.9 | 42.0 |
| Information, 51 | 13.2 | 14.2 | 15.5 | 17.7 | 18.7 | 18.4 | 18.9 | 20.1 | 21.4 | 22.4 |
| Professional, scientific, and technical services, 54 | 12.1 | 13.0 | 11.4 | 9.6 | 9.1 | 10.9 | 10.0 | 9.2 | 10.2 | 10.8 |
| Basic research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 65.2 | 67.1 | 68.6 | 77.8 | 81.2 | 76.9 | 76.6 | 75.0 | 72.0 | 70.4 |
| Chemicals, 325 | 28.5 | 32.6 | 29.8 | 37.5 | 41.2 | 38.2 | 41.1 | 41.1 | 41.3 | 43.0 |
| Computer and electronic products, 334 | 17.2 | 11.0 | 11.7 | 13.8 | 12.7 | 10.7 | 10.0 | 10.2 | 8.4 | 6.7 |
| Transportation equipment, 336 | 6.7 | 7.3 | 7.2 | 9.3 | 13.3 | 16.5 | 12.6 | 11.4 | 10.6 | 10.8 |
| Nonmanufacturing industries, 21–23, 42–81 | 34.8 | 32.9 | 31.4 | 22.1 | 18.8 | 23.1 | 23.4 | 25.0 | 28.0 | 29.6 |
| Information, 51 | 12.8 | 11.7 | 14.1 | 11.2 | 9.6 | 7.5 | 8.2 | 9.0 | 11.2 | 11.8 |
| Professional, scientific, and technical services, 54 | 16.3 | 15.6 | 14.8 | 8.4 | 7.2 | 10.3 | 10.8 | 10.0 | 12.0 | 12.9 |
| Applied research | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 74.0 | 69.0 | 70.0 | 68.9 | 68.5 | 70.1 | 69.6 | 70.3 | 67.5 | 61.8 |
| Chemicals, 325 | 33.4 | 32.0 | 32.8 | 27.2 | 25.9 | 28.4 | 25.8 | 27.4 | 28.4 | 25.8 |
| Computer and electronic products, 334 | 18.8 | 15.0 | 14.0 | 16.6 | 16.4 | 15.9 | 16.9 | 18.0 | 15.3 | 15.7 |
| Transportation equipment, 336 | 8.0 | 7.6 | 8.5 | 11.8 | 13.4 | 12.7 | 12.9 | 12.1 | 11.4 | 9.9 |
| Nonmanufacturing industries, 21–23, 42–81 | 26.0 | 31.0 | 30.0 | 31.1 | 31.5 | 29.9 | 30.4 | 29.7 | 32.5 | 38.2 |
| Information, 51 | 6.2 | 8.2 | 7.9 | 11.1 | 11.5 | 11.5 | 11.2 | 12.3 | 13.8 | 11.7 |
| Professional, scientific, and technical services, 54 | 15.9 | 18.3 | 17.4 | 16.0 | 16.4 | 14.6 | 16.2 | 13.8 | 14.4 | 15.8 |
| Experimental development | | | | | | | | | | |
| All industries, 21–33, 42–81 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Manufacturing industries, 31–33 | 70.2 | 68.4 | 68.8 | 67.9 | 67.2 | 64.8 | 65.5 | 62.2 | 60.3 | 56.2 |
| Chemicals, 325 | 17.6 | 15.4 | 15.4 | 16.1 | 16.4 | 15.8 | 16.5 | 15.3 | 15.5 | 16.6 |
| Computer and electronic products, 334 | 22.3 | 23.2 | 23.7 | 22.2 | 23.5 | 21.9 | 22.4 | 20.7 | 20.6 | 18.9 |

Table SRD-4

Funds spent for business R&D performed in the United States, by type of R&D and select industry: 2010–19

(Millions of dollars and percent)

| Industry and NAICS code | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|------|------|------|------|------|------|------|------|------|------|
| Transportation equipment, 336 | 17.6 | 15.5 | 15.6 | 15.1 | 13.8 | 13.9 | 13.9 | 13.7 | 12.1 | 8.9 |
| Nonmanufacturing industries, 21–23, 42–81 | 29.8 | 31.6 | 31.2 | 32.1 | 32.8 | 35.2 | 34.5 | 37.8 | 39.7 | 43.8 |
| Information, 51 | 14.7 | 15.6 | 17.2 | 19.6 | 20.9 | 20.7 | 21.4 | 22.5 | 23.7 | 25.3 |
| Professional, scientific, and technical services, 54 | 11.0 | 11.8 | 9.9 | 8.4 | 7.8 | 10.1 | 8.7 | 8.3 | 9.2 | 9.7 |

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. For survey years 2010–13, industry classification was based on the 2007 NAICS, whereas for survey years 2014–18, industry classification was based on the 2012 NAICS. The 2010–16 data come from the Business R&D and Innovation Survey and do not include companies with fewer than 5 domestic employees. Data for 2017–18 come from the Business Research and Development Survey and do not include companies with fewer than 10 domestic employees. Data for 2019 come from the Business Enterprise Research and Development Survey and do not include companies with fewer than 10 domestic employees.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey (BRDIS), Business Research and Development Survey (BRDS), and Business Enterprise Research and Development Survey (BERD).

Science and Engineering Indicators

Table SRD-5

Federal obligations for R&D and R&D plant, by type of R&D: FYs 1953–2021

(Millions of current and constant 2012 dollars)

| Fiscal year | Total, R&D and R&D plant | R&D | | | | R&D plant |
|-----------------------------|--------------------------|---------|--------|---------|-------------|-----------|
| | | All R&D | Basic | Applied | Development | |
| Millions of current dollars | | | | | | |
| 1953 | 2,167 | 1,920 | 116 | NA | NA | 248 |
| 1954 | 1,918 | 1,762 | 116 | NA | NA | 156 |
| 1955 | 2,252 | 2,045 | 130 | NA | NA | 207 |
| 1956 | 3,267 | 2,988 | 206 | 646 | 2,136 | 279 |
| 1957 | 4,389 | 3,932 | 262 | 662 | 3,007 | 457 |
| 1958 | 4,906 | 4,570 | 335 | 744 | 3,491 | 336 |
| 1959 | 7,123 | 6,694 | 466 | 874 | 5,353 | 429 |
| 1960 | 8,080 | 7,552 | 590 | 1,282 | 5,679 | 528 |
| 1961 | 9,607 | 9,059 | 815 | 1,663 | 6,581 | 548 |
| 1962 | 11,069 | 10,290 | 986 | 2,018 | 7,285 | 779 |
| 1963 | 13,663 | 12,495 | 1,152 | 2,356 | 8,987 | 1,168 |
| 1964 | 15,324 | 14,225 | 1,303 | 2,571 | 10,351 | 1,099 |
| 1965 | 15,746 | 14,614 | 1,435 | 2,812 | 10,367 | 1,132 |
| 1966 | 16,179 | 15,320 | 1,579 | 3,081 | 10,660 | 858 |
| 1967 | 17,149 | 16,529 | 1,846 | 2,786 | 11,898 | 620 |
| 1968 | 16,525 | 15,921 | 1,841 | 2,941 | 11,140 | 604 |
| 1969 | 16,310 | 15,641 | 1,945 | 2,700 | 10,996 | 669 |
| 1970 | 15,863 | 15,339 | 1,926 | 2,975 | 10,438 | 524 |
| 1971 | 16,154 | 15,543 | 1,980 | 3,143 | 10,419 | 611 |
| 1972 | 17,098 | 16,496 | 2,187 | 3,361 | 10,948 | 602 |
| 1973 | 17,574 | 16,800 | 2,232 | 3,349 | 11,219 | 774 |
| 1974 | 18,176 | 17,410 | 2,388 | 3,788 | 11,235 | 766 |
| 1975 | 19,860 | 19,039 | 2,588 | 4,141 | 12,309 | 821 |
| 1976 | 21,616 | 20,780 | 2,767 | 4,852 | 13,160 | 837 |
| 1977 | 24,818 | 23,450 | 3,259 | 5,255 | 14,936 | 1,367 |
| 1978 | 27,141 | 25,845 | 3,699 | 5,908 | 16,238 | 1,296 |
| 1979 | 29,621 | 28,145 | 4,193 | 6,342 | 17,610 | 1,475 |
| 1980 | 31,386 | 29,830 | 4,674 | 6,923 | 18,233 | 1,556 |
| 1981 | 34,590 | 33,104 | 5,041 | 7,171 | 20,891 | 1,486 |
| 1982 | 37,822 | 36,433 | 5,482 | 7,541 | 23,410 | 1,390 |
| 1983 | 40,009 | 38,712 | 6,260 | 7,993 | 24,458 | 1,297 |
| 1984 | 44,012 | 42,225 | 7,067 | 7,911 | 27,246 | 1,787 |
| 1985 | 50,180 | 48,360 | 7,819 | 8,315 | 32,226 | 1,821 |
| 1986 | 52,951 | 51,412 | 8,153 | 8,349 | 34,910 | 1,539 |
| 1987 | 57,100 | 55,254 | 8,942 | 8,998 | 37,313 | 1,846 |
| 1988 | 58,827 | 56,769 | 9,474 | 9,177 | 38,119 | 2,057 |
| 1989 | 63,572 | 61,406 | 10,602 | 10,164 | 40,641 | 2,165 |
| 1990 | 65,831 | 63,559 | 11,286 | 10,337 | 41,937 | 2,272 |
| 1991 | 64,148 | 61,295 | 12,171 | 11,798 | 37,327 | 2,853 |
| 1992 | 68,577 | 65,593 | 12,490 | 12,001 | 41,102 | 2,985 |
| 1993 | 70,415 | 67,314 | 13,399 | 13,491 | 40,424 | 3,101 |
| 1994 | 69,451 | 67,235 | 13,523 | 13,888 | 39,824 | 2,215 |
| 1995 | 70,443 | 68,187 | 13,877 | 14,557 | 39,752 | 2,256 |
| 1996 | 69,399 | 67,653 | 14,464 | 13,796 | 39,393 | 1,746 |
| 1997 | 71,753 | 69,827 | 14,942 | 14,423 | 40,461 | 1,927 |
| 1998 | 73,914 | 72,101 | 15,613 | 15,309 | 41,178 | 1,813 |
| 1999 | 77,386 | 75,341 | 17,444 | 16,084 | 41,813 | 2,046 |
| 2000 | 80,403 | 75,910 | 19,570 | 18,901 | 37,440 | 4,493 |

Table SRD-5

Federal obligations for R&D and R&D plant, by type of R&D: FYs 1953–2021

(Millions of current and constant 2012 dollars)

| Fiscal year | Total, R&D and R&D plant | R&D | | | | R&D plant |
|-----------------------------------|--------------------------|---------|--------|---------|-------------|-----------|
| | | All R&D | Basic | Applied | Development | |
| 2001 | 88,562 | 84,493 | 21,958 | 22,756 | 39,779 | 4,070 |
| 2002 | 98,013 | 93,709 | 23,668 | 24,338 | 45,702 | 4,305 |
| 2003 | 107,794 | 103,528 | 24,751 | 26,320 | 52,456 | 4,267 |
| 2004 | 116,069 | 112,074 | 26,121 | 27,237 | 58,717 | 3,994 |
| 2005 | 122,620 | 118,848 | 27,140 | 26,598 | 65,110 | 3,771 |
| 2006 | 123,855 | 121,730 | 26,585 | 26,951 | 68,194 | 2,125 |
| 2007 | 129,431 | 127,263 | 26,866 | 27,228 | 73,169 | 2,168 |
| 2008 | 129,050 | 127,106 | 27,154 | 26,740 | 73,212 | 1,944 |
| 2009 | 144,758 | 141,090 | 32,879 | 30,813 | 77,398 | 3,668 |
| 2010 | 146,968 | 140,355 | 31,795 | 31,933 | 76,627 | 6,613 |
| 2011 | 139,703 | 135,533 | 29,314 | 28,751 | 77,468 | 4,171 |
| 2012 | 140,670 | 138,525 | 30,959 | 31,027 | 76,538 | 2,146 |
| 2013 | 127,626 | 125,720 | 29,779 | 29,753 | 66,188 | 1,905 |
| 2014 | 132,779 | 130,561 | 31,588 | 31,604 | 67,370 | 2,218 |
| 2015 | 131,578 | 128,753 | 31,527 | 32,298 | 64,928 | 2,825 |
| 2016 | 118,274 | 115,833 | 32,293 | 34,812 | 48,728 | 2,441 |
| 2017 | 121,627 | 118,975 | 33,271 | 36,600 | 49,103 | 2,652 |
| 2018 | 133,278 | 129,425 | 36,195 | 38,392 | 54,837 | 3,853 |
| 2019 | 146,801 | 142,424 | 40,017 | 41,101 | 61,306 | 4,376 |
| 2020 | 173,553 | 167,403 | 41,547 | 43,758 | 82,098 | 6,150 |
| 2021 preliminary | 185,408 | 179,465 | 41,231 | 43,924 | 94,310 | 5,943 |
| Millions of constant 2012 dollars | | | | | | |
| 1953 | 15,010 | 13,293 | 803 | NA | NA | 1,717 |
| 1954 | 13,128 | 12,059 | 796 | NA | NA | 1,069 |
| 1955 | 15,298 | 13,890 | 878 | NA | NA | 1,408 |
| 1956 | 21,635 | 19,789 | 1,367 | 4,275 | 14,147 | 1,846 |
| 1957 | 28,028 | 25,109 | 1,675 | 4,229 | 19,205 | 2,920 |
| 1958 | 30,415 | 28,331 | 2,074 | 4,614 | 21,642 | 2,085 |
| 1959 | 43,484 | 40,864 | 2,845 | 5,337 | 32,682 | 2,620 |
| 1960 | 48,645 | 45,465 | 3,554 | 7,719 | 34,192 | 3,180 |
| 1961 | 57,083 | 53,824 | 4,840 | 9,884 | 39,101 | 3,258 |
| 1962 | 65,112 | 60,529 | 5,802 | 11,873 | 42,854 | 4,583 |
| 1963 | 79,435 | 72,643 | 6,696 | 13,699 | 52,248 | 6,792 |
| 1964 | 87,967 | 81,661 | 7,480 | 14,761 | 59,420 | 6,306 |
| 1965 | 88,859 | 82,473 | 8,101 | 15,868 | 58,505 | 6,386 |
| 1966 | 89,385 | 84,643 | 8,725 | 17,022 | 58,896 | 4,742 |
| 1967 | 91,953 | 88,628 | 9,897 | 14,936 | 63,795 | 3,325 |
| 1968 | 85,622 | 82,493 | 9,537 | 15,236 | 57,721 | 3,129 |
| 1969 | 80,822 | 77,507 | 9,637 | 13,380 | 54,490 | 3,315 |
| 1970 | 74,616 | 72,149 | 9,059 | 13,993 | 49,098 | 2,467 |
| 1971 | 72,309 | 69,573 | 8,864 | 14,069 | 46,640 | 2,736 |
| 1972 | 73,068 | 70,495 | 9,346 | 14,362 | 46,787 | 2,573 |
| 1973 | 71,968 | 68,797 | 9,140 | 13,716 | 45,941 | 3,171 |
| 1974 | 69,482 | 66,552 | 9,127 | 14,478 | 42,947 | 2,929 |
| 1975 | 68,813 | 65,970 | 8,969 | 14,350 | 42,651 | 2,844 |
| 1976 | 70,024 | 67,313 | 8,965 | 15,717 | 42,631 | 2,710 |
| 1977 | 74,978 | 70,847 | 9,845 | 15,878 | 45,125 | 4,131 |
| 1978 | 76,821 | 73,154 | 10,469 | 16,723 | 45,962 | 3,667 |
| 1979 | 77,581 | 73,717 | 10,981 | 16,612 | 46,124 | 3,864 |

Table SRD-5

Federal obligations for R&D and R&D plant, by type of R&D: FYs 1953–2021

(Millions of current and constant 2012 dollars)

| Fiscal year | Total, R&D and R&D plant | R&D | | | | R&D plant |
|------------------|--------------------------|---------|--------|---------|-------------|-----------|
| | | All R&D | Basic | Applied | Development | |
| 1980 | 75,611 | 71,863 | 11,260 | 16,678 | 43,924 | 3,748 |
| 1981 | 75,871 | 72,612 | 11,058 | 15,730 | 45,824 | 3,259 |
| 1982 | 77,568 | 74,718 | 11,242 | 15,465 | 48,011 | 2,850 |
| 1983 | 78,619 | 76,069 | 12,301 | 15,707 | 48,061 | 2,550 |
| 1984 | 83,499 | 80,108 | 13,408 | 15,009 | 51,691 | 3,391 |
| 1985 | 92,125 | 88,782 | 14,354 | 15,265 | 59,163 | 3,343 |
| 1986 | 95,082 | 92,319 | 14,640 | 14,992 | 62,687 | 2,763 |
| 1987 | 100,280 | 97,038 | 15,705 | 15,803 | 65,531 | 3,242 |
| 1988 | 100,079 | 96,579 | 16,117 | 15,612 | 64,851 | 3,500 |
| 1989 | 103,943 | 100,403 | 17,335 | 16,618 | 66,450 | 3,540 |
| 1990 | 103,835 | 100,252 | 17,801 | 16,304 | 66,147 | 3,583 |
| 1991 | 97,697 | 93,352 | 18,536 | 17,968 | 56,849 | 4,345 |
| 1992 | 101,898 | 97,463 | 18,558 | 17,832 | 61,073 | 4,435 |
| 1993 | 102,228 | 97,727 | 19,453 | 19,587 | 58,687 | 4,502 |
| 1994 | 98,680 | 95,532 | 19,215 | 19,732 | 56,585 | 3,148 |
| 1995 | 98,001 | 94,862 | 19,306 | 20,252 | 55,304 | 3,139 |
| 1996 | 94,769 | 92,384 | 19,752 | 18,839 | 53,794 | 2,384 |
| 1997 | 96,275 | 93,689 | 20,048 | 19,352 | 54,289 | 2,585 |
| 1998 | 97,951 | 95,548 | 20,690 | 20,288 | 54,570 | 2,403 |
| 1999 | 101,251 | 98,575 | 22,823 | 21,044 | 54,708 | 2,677 |
| 2000 | 103,081 | 97,321 | 25,090 | 24,232 | 48,000 | 5,760 |
| 2001 | 110,925 | 105,827 | 27,503 | 28,502 | 49,823 | 5,097 |
| 2002 | 120,825 | 115,518 | 29,177 | 30,003 | 56,339 | 5,307 |
| 2003 | 130,501 | 125,336 | 29,965 | 31,865 | 63,506 | 5,165 |
| 2004 | 137,229 | 132,507 | 30,883 | 32,203 | 69,421 | 4,722 |
| 2005 | 140,683 | 136,357 | 31,139 | 30,516 | 74,702 | 4,327 |
| 2006 | 137,693 | 135,331 | 29,555 | 29,962 | 75,814 | 2,362 |
| 2007 | 140,077 | 137,730 | 29,076 | 29,467 | 79,188 | 2,347 |
| 2008 | 136,836 | 134,775 | 28,792 | 28,353 | 77,630 | 2,061 |
| 2009 | 151,738 | 147,893 | 34,465 | 32,298 | 81,130 | 3,845 |
| 2010 | 152,741 | 145,868 | 33,044 | 33,187 | 79,637 | 6,873 |
| 2011 | 142,351 | 138,101 | 29,869 | 29,296 | 78,936 | 4,250 |
| 2012 | 140,670 | 138,525 | 30,959 | 31,027 | 76,538 | 2,146 |
| 2013 | 125,320 | 123,449 | 29,241 | 29,216 | 64,992 | 1,871 |
| 2014 | 127,918 | 125,782 | 30,432 | 30,447 | 64,904 | 2,136 |
| 2015 | 125,360 | 122,669 | 30,037 | 30,772 | 61,860 | 2,692 |
| 2016 | 111,695 | 109,390 | 30,496 | 32,876 | 46,018 | 2,305 |
| 2017 | 112,858 | 110,397 | 30,873 | 33,961 | 45,563 | 2,461 |
| 2018 | 120,876 | 117,381 | 32,827 | 34,820 | 49,734 | 3,494 |
| 2019 | 130,559 | 126,667 | 35,590 | 36,553 | 54,524 | 3,892 |
| 2020 | 152,440 | 147,038 | 36,492 | 38,435 | 72,111 | 5,402 |
| 2021 preliminary | 160,138 | 155,005 | 35,612 | 37,938 | 81,456 | 5,133 |

NA = not available; data were not collected at this level of detail.

Note(s):

Due to rounding, detail may not add to total. The data for FY 2021 are preliminary and may later be revised. FYs 2009 and 2010 obligations include additional funding provided by the American Recovery and Reinvestment Act of 2009. Beginning with FY 2016, the reported obligations for *development* reflect the Office of Management and Budget's narrowed definition for this category by more narrowly defining it to be "experimental development" (Circular A-11, Section 84). Most notably, the totals for development do not include Department of Defense (DOD) obligations for Budget Activity-7 (Operational Systems Development). Those funds, previously included in DOD's obligation totals for development, support the efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current

or subsequent fiscal year. (In FY 2016, DOD obligations for operational systems development amounted to about \$24.6 billion and to about \$26.0 billion in FY 2017.) With this revision, the data for FY 2016 and onward are not directly comparable with the totals reported in previous years. Obligations for FYs 2020 and 2021 include the additional funding provided by supplemental COVID-19 related appropriations in these years (i.e., the Coronavirus Aid, Relief, and Economic Security Act of March 2020, the American Rescue Plan Act of March 2021, and several other enacted spending authorizations in these fiscal years).

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development.

Science and Engineering Indicators

Table SRD-6

Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020

(Millions of dollars)

| Agency | All federal obligations | Federal intramural ^a | Extramural performers | | | | | | | Foreign |
|---|-------------------------|---------------------------------|-----------------------|------------------------------------|---------------------------|-------------------|------------------|------------------|-----------------------------|---------|
| | | | Business firms | United States and U.S. territories | | | | | | |
| | | | | Industry FFRDCs | Universities and colleges | University FFRDCs | Other nonprofits | Nonprofit FFRDCs | State and local governments | |
| Total R&D and R&D plant | | | | | | | | | | |
| All agencies | 173,552.9 | 54,577.7 | 52,105.5 | 4,340.8 | 38,891.5 | 6,223.0 | 10,824.2 | 4,469.7 | 726.7 | 1,393.7 |
| Department of Agriculture | 3,433.5 | 2,479.6 | 4.6 | 0.0 | 883.7 | 0.0 | 51.9 | 0.0 | 8.6 | 5.1 |
| Department of Commerce | 1,980.9 | 1,552.2 | 50.5 | 0.0 | 313.8 | 4.2 | 31.0 | 19.9 | 5.1 | 4.4 |
| Department of Defense | 67,006.8 | 22,964.0 | 35,247.8 | 442.2 | 4,524.9 | 463.1 | 1,473.9 | 916.8 | 8.8 | 965.3 |
| Department of Education | 240.1 | 10.5 | 15.1 | 0.0 | 158.2 | 0.0 | 46.2 | 0.0 | 10.2 | 0.0 |
| Department of Energy | 15,778.0 | 914.5 | 3,343.6 | 2,993.2 | 1,877.1 | 3,225.7 | 148.4 | 3,213.6 | 61.6 | 0.3 |
| Department of Health and Human Services | 61,774.8 | 20,832.4 | 7,762.8 | 862.1 | 23,983.4 | 20.3 | 7,608.4 | 48.1 | 368.3 | 288.9 |
| Department of Homeland Security | 507.5 | 132.9 | 241.9 | 17.3 | 29.2 | 4.8 | 2.7 | 69.5 | 0.8 | 8.5 |
| Department of the Interior | 844.4 | 721.1 | 23.4 | 0.0 | 80.6 | 0.5 | 4.2 | 0.5 | 12.9 | 1.1 |
| Department of Justice | 96.4 | 10.9 | 8.7 | 0.0 | 46.3 | 0.0 | 24.7 | 0.0 | 5.9 | 0.0 |
| Department of Transportation | 1,224.5 | 227.8 | 379.3 | 0.0 | 275.8 | 0.3 | 54.5 | 70.0 | 216.5 | 0.2 |
| Department of Veterans Affairs | 1,565.1 | 1,495.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.2 | 0.0 | 0.0 |
| Agency for International Development | 194.3 | 19.7 | 22.4 | 0.0 | 51.0 | 0.0 | 50.1 | 0.0 | 0.0 | 51.1 |
| Environmental Protection Agency | 493.0 | 244.4 | 195.3 | 0.1 | 51.6 | 1.1 | 0.0 | 0.3 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 10,573.6 | 2,552.1 | 4,213.9 | 10.2 | 1,107.7 | 2,237.6 | 384.2 | 35.0 | 3.5 | 29.4 |
| National Science Foundation | 6,792.5 | 20.4 | 506.9 | 0.0 | 5,493.4 | 262.4 | 469.8 | 4.7 | 15.4 | 19.5 |
| Patient-Centered Outcomes Research Trust Fund | 469.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 469.7 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 276.0 | 276.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Social Security Administration | 69.7 | 37.2 | 20.1 | 0.0 | 9.5 | 0.0 | 2.9 | 0.0 | 0.0 | 0.1 |
| All other agencies | 232.0 | 87.0 | 69.1 | 15.7 | 5.5 | 3.0 | 1.7 | 21.0 | 9.2 | 19.9 |
| R&D | | | | | | | | | | |
| All agencies | 167,402.8 | 51,471.7 | 51,428.0 | 4,118.7 | 38,540.9 | 5,355.2 | 10,698.9 | 3,676.0 | 720.1 | 1,393.3 |
| Department of Agriculture | 2,643.6 | 1,689.8 | 4.6 | 0.0 | 883.7 | 0.0 | 51.9 | 0.0 | 8.6 | 5.1 |
| Department of Commerce | 1,621.7 | 1,193.0 | 50.5 | 0.0 | 313.8 | 4.2 | 31.0 | 19.9 | 5.1 | 4.4 |
| Department of Defense | 66,695.0 | 22,666.6 | 35,233.5 | 442.2 | 4,524.9 | 463.1 | 1,473.9 | 916.8 | 8.8 | 965.3 |
| Department of Education | 240.1 | 10.5 | 15.1 | 0.0 | 158.2 | 0.0 | 46.2 | 0.0 | 10.2 | 0.0 |

Table SRD-6

Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020

(Millions of dollars)

| Agency | All federal obligations | Federal intramural ^a | Extramural performers | | | | | | | Foreign |
|---|-------------------------|---------------------------------|-----------------------|------------------------------------|---------------------------|-------------------|------------------|------------------|-----------------------------|---------|
| | | | Business firms | United States and U.S. territories | | | | | State and local governments | |
| | | | | Industry FFRDCs | Universities and colleges | University FFRDCs | Other nonprofits | Nonprofit FFRDCs | | |
| Department of Energy | 13,453.0 | 871.8 | 2,973.7 | 2,771.1 | 1,837.1 | 2,375.1 | 148.4 | 2,419.9 | 55.6 | 0.3 |
| Department of Health and Human Services | 60,005.7 | 19,300.3 | 7,580.9 | 862.1 | 23,928.3 | 20.3 | 7,608.4 | 48.1 | 368.3 | 288.9 |
| Department of Homeland Security | 507.5 | 132.9 | 241.9 | 17.3 | 29.2 | 4.8 | 2.7 | 69.5 | 0.8 | 8.5 |
| Department of the Interior | 837.2 | 719.6 | 17.8 | 0.0 | 80.6 | 0.5 | 4.2 | 0.5 | 12.8 | 1.1 |
| Department of Justice | 96.4 | 10.9 | 8.7 | 0.0 | 46.3 | 0.0 | 24.7 | 0.0 | 5.9 | 0.0 |
| Department of Transportation | 1,184.2 | 222.0 | 344.8 | 0.0 | 275.8 | 0.3 | 54.5 | 70.0 | 216.5 | 0.2 |
| Department of Veterans Affairs | 1,565.1 | 1,495.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.2 | 0.0 | 0.0 |
| Agency for International Development | 194.3 | 19.7 | 22.4 | 0.0 | 51.0 | 0.0 | 50.1 | 0.0 | 0.0 | 51.1 |
| Environmental Protection Agency | 488.5 | 244.4 | 190.9 | 0.1 | 51.6 | 1.1 | 0.0 | 0.3 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 10,537.8 | 2,551.9 | 4,195.5 | 10.2 | 1,107.7 | 2,220.4 | 384.2 | 35.0 | 3.5 | 29.4 |
| National Science Foundation | 6,351.2 | 9.4 | 458.4 | 0.0 | 5,237.9 | 262.4 | 344.5 | 4.7 | 14.8 | 19.1 |
| Patient-Centered Outcomes Research Trust Fund | 469.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 469.7 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 209.8 | 209.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Social Security Administration | 69.7 | 37.2 | 20.1 | 0.0 | 9.5 | 0.0 | 2.9 | 0.0 | 0.0 | 0.1 |
| All other agencies | 232.0 | 87.0 | 69.1 | 15.7 | 5.5 | 3.0 | 1.7 | 21.0 | 9.2 | 19.9 |
| Basic research | | | | | | | | | | |
| All agencies | 41,546.6 | 7,688.1 | 3,146.8 | 799.9 | 20,128.2 | 3,455.5 | 4,325.6 | 1,667.7 | 114.3 | 220.6 |
| Department of Agriculture | 1,163.8 | 725.7 | 0.1 | 0.0 | 414.0 | 0.0 | 19.0 | 0.0 | 2.6 | 2.4 |
| Department of Commerce | 251.2 | 237.2 | 5.2 | 0.0 | 7.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.3 |
| Department of Defense | 2,499.1 | 401.9 | 364.5 | 17.8 | 1,490.8 | 19.8 | 102.1 | 35.6 | 0.1 | 66.4 |
| Department of Education | 53.7 | 2.8 | 0.2 | 0.0 | 41.3 | 0.0 | 7.9 | 0.0 | 1.6 | 0.0 |
| Department of Energy | 5,501.6 | 207.3 | 325.6 | 334.9 | 865.1 | 2,120.1 | 29.7 | 1,589.3 | 29.5 | 0.2 |
| Department of Health and Human Services | 21,809.0 | 4,514.8 | 1,084.5 | 439.7 | 11,841.6 | 10.4 | 3,707.3 | 18.3 | 64.2 | 128.3 |
| Department of Homeland Security | 47.4 | 5.6 | 24.3 | 0.3 | 17.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Department of the Interior | 83.9 | 75.6 | 0.2 | 0.0 | 6.7 | 0.0 | 0.2 | 0.0 | 1.2 | 0.0 |

Table SRD-6

Federal obligations for R&D and R&D plant, by agency, performer, and type of R&D: FY 2020

(Millions of dollars)

| Agency | All federal obligations | Federal intramural ^a | Extramural performers | | | | | | | |
|---|-------------------------|---------------------------------|-----------------------|------------------------------------|---------------------------|-------------------|------------------|------------------|---------|-----------------------------|
| | | | Business firms | United States and U.S. territories | | | | | Foreign | |
| | | | | Industry FFRDCs | Universities and colleges | University FFRDCs | Other nonprofits | Nonprofit FFRDCs | | State and local governments |
| Department of Justice | 0.7 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Department of Transportation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Department of Veterans Affairs | 617.7 | 617.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Agency for International Development | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Environmental Protection Agency | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 3,839.4 | 680.3 | 1,078.8 | 7.2 | 820.1 | 1,042.8 | 185.3 | 17.9 | 2.6 | 4.3 |
| National Science Foundation | 5,461.9 | 8.3 | 259.9 | 0.0 | 4,622.6 | 262.4 | 272.6 | 4.7 | 12.6 | 18.7 |
| Patient-Centered Outcomes Research Trust Fund | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 209.8 | 209.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Social Security Administration | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All other agencies | 7.4 | 1.1 | 3.5 | 0.0 | 1.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 |
| Applied research | | | | | | | | | | |
| All agencies | 43,758.1 | 11,884.2 | 6,881.6 | 2,712.6 | 15,345.5 | 407.8 | 4,865.0 | 848.7 | 530.4 | 282.3 |
| Department of Agriculture | 1,224.6 | 733.0 | 4.5 | 0.0 | 447.6 | 0.0 | 31.2 | 0.0 | 6.0 | 2.2 |
| Department of Commerce | 1,109.6 | 784.7 | 40.3 | 0.0 | 251.1 | 0.0 | 6.1 | 19.6 | 3.7 | 4.1 |
| Department of Defense | 6,416.2 | 2,053.0 | 2,813.1 | 67.0 | 936.3 | 62.0 | 310.0 | 130.2 | 1.3 | 43.2 |
| Department of Education | 135.8 | 5.6 | 3.9 | 0.0 | 84.1 | 0.0 | 34.6 | 0.0 | 7.6 | 0.0 |
| Department of Energy | 5,023.6 | 604.7 | 805.5 | 2,193.1 | 624.5 | 167.1 | 87.9 | 525.1 | 15.6 | 0.1 |
| Department of Health and Human Services | 22,424.8 | 4,819.6 | 1,221.9 | 422.4 | 11,761.8 | 9.9 | 3,714.1 | 18.0 | 296.4 | 160.6 |
| Department of Homeland Security | 177.9 | 59.7 | 41.5 | 11.1 | 1.3 | 4.8 | 0.7 | 56.9 | 0.0 | 1.9 |
| Department of the Interior | 614.5 | 528.6 | 14.4 | 0.0 | 57.5 | 0.1 | 3.0 | 0.5 | 9.6 | 0.7 |
| Department of Justice | 83.8 | 7.7 | 8.7 | 0.0 | 42.5 | 0.0 | 24.1 | 0.0 | 0.7 | 0.0 |
| Department of Transportation | 900.2 | 174.8 | 232.9 | 0.0 | 260.9 | 0.3 | 52.1 | 1.7 | 177.2 | 0.2 |
| Department of Veterans Affairs | 918.1 | 847.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.2 | 0.0 | 0.0 |
| Agency for International Development | 134.8 | 16.7 | 12.3 | 0.0 | 37.2 | 0.0 | 32.5 | 0.0 | 0.0 | 36.1 |

FFRDC = federally funded research and development center.

^a Includes costs associated with administration of intramural and extramural programs by federal personnel and actual intramural performance.

Note(s):

Detail may not add to total because of rounding. Agencies (in general) with an annual total of R&D and R&D plant of \$100 million or more. All other agencies includes the Department of Housing and Urban Development, Department of Labor, Department of State, Department of the Treasury, Administrative Office of the U.S. Courts, Appalachian Regional Commission, Consumer Product Safety Commission, Federal Communications Commission, Federal Trade Commission, Library of Congress, National Archives and Records Commission, Nuclear Regulatory Commission, Tennessee Valley Authority, RESTORE Act Centers, U.S. Agency for Global Media, and U.S. Postal Service.

Source(s):

National Center for Science and Engineering Statistics, Federal Funds for Research and Development, Volume 70, FYs 2020–21.

Science and Engineering Indicators

Table SRD-7

Federal obligations for research, by agency and S&E field: FY 2020

(Millions of dollars and percent share)

| Agency | All federal obligations | Computer sciences and mathematics | Environmental sciences | Life sciences | Physical sciences | Psychology | Social sciences | Other sciences nec | Engineering |
|---|-------------------------|-----------------------------------|------------------------|---------------|-------------------|------------|-----------------|--------------------|-------------|
| Patient-Centered Outcomes Research Trust Fund | 470 | 0 | 0 | 470 | 0 | 0 | 0 | 0 | 0 |
| RESTORE Act Centers of Excellence Research Grants Program | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Smithsonian Institution | 210 | 0 | 22 | 82 | 2 | 0 | 0 | 104 | 0 |
| Social Security Administration | 70 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 0 |
| Tennessee Valley Authority | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| U.S. Agency for Global Media | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| U.S. Postal Service | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| Share by field (%) | | | | | | | | | |
| All agencies | 100.0 | 6.9 | 5.9 | 49.9 | 9.9 | 3.8 | 1.3 | 6.8 | 15.5 |
| Departments | | | | | | | | | |
| Department of Agriculture | 100.0 | 0.3 | 0.7 | 83.4 | 4.2 | 0.0 | 6.4 | 0.0 | 4.9 |
| Department of Commerce | 100.0 | 12.6 | 35.6 | 6.6 | 19.3 | 0.0 | 3.4 | 3.0 | 19.4 |
| Department of Defense | 100.0 | 29.1 | 4.3 | 12.2 | 7.7 | 1.1 | 1.5 | 12.4 | 31.7 |
| Department of Education | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Department of Energy | 100.0 | 14.6 | 4.1 | 4.8 | 42.5 | 0.0 | 0.0 | 3.6 | 30.2 |
| Department of Health and Human Services | 100.0 | 0.8 | 1.2 | 80.4 | 0.2 | 6.7 | 0.6 | 4.3 | 5.7 |
| Department of Homeland Security | 100.0 | 6.0 | 3.5 | 31.6 | 12.3 | 0.0 | 0.0 | 12.1 | 34.5 |
| Department of the Interior | 100.0 | 0.4 | 65.9 | 30.5 | 0.1 | 0.0 | 1.2 | 0.1 | 1.7 |
| Department of Justice | 100.0 | 6.5 | 1.0 | 14.1 | 7.6 | 1.9 | 60.8 | 5.9 | 2.1 |
| Department of Labor | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Department of State | 100.0 | 0.0 | 0.0 | 93.3 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 |
| Department of Transportation | 100.0 | 4.1 | 3.9 | 0.9 | 0.3 | 2.0 | 0.2 | 8.1 | 80.6 |
| Department of the Treasury | 100.0 | 0.0 | 0.0 | 0.0 | 99.6 | 0.0 | 0.0 | 0.0 | 0.4 |
| Department of Veterans Affairs | 100.0 | 0.0 | 0.0 | 80.1 | 0.0 | 10.9 | 0.0 | 4.6 | 4.4 |
| Other agencies | | | | | | | | | |
| Administrative Office of the U.S. Courts | 100.0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Agency for International Development | 100.0 | 0.0 | 0.0 | 92.9 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 |
| Appalachian Regional Commission | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Consumer Product Safety Commission | 100.0 | 0.0 | 95.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Environmental Protection Agency | 100.0 | 2.1 | 41.2 | 39.5 | 2.4 | 0.0 | 0.6 | 0.0 | 14.2 |

Table SRD-7

Federal obligations for research, by agency and S&E field: FY 2020

(Millions of dollars and percent share)

| Agency | All federal obligations | Computer sciences and mathematics | Environmental sciences | Life sciences | Physical sciences | Psychology | Social sciences | Other sciences nec | Engineering |
|---|-------------------------|-----------------------------------|------------------------|---------------|-------------------|------------|-----------------|--------------------|-------------|
| Federal Communications Commission | 100.0 | 16.7 | 0.0 | 0.0 | 25.0 | 0.0 | 0.0 | 0.0 | 58.3 |
| Federal Trade Commission | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Library of Congress | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| National Aeronautics and Space Administration | 100.0 | 0.0 | 23.7 | 2.0 | 25.9 | 0.0 | 0.0 | 15.9 | 32.6 |
| National Science Foundation | 100.0 | 18.6 | 15.0 | 11.8 | 16.2 | 0.6 | 3.3 | 16.1 | 18.4 |
| Nuclear Regulatory Commission | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 98.8 |
| Patient-Centered Outcomes Research Trust Fund | 100.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| RESTORE Act Centers of Excellence Research Grants Program | 100.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Smithsonian Institution | 100.0 | 0.0 | 10.4 | 39.1 | 0.8 | 0.0 | 0.0 | 49.7 | 0.0 |
| Social Security Administration | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Tennessee Valley Authority | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| U.S. Agency for Global Media | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| U.S. Postal Service | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |

* = amount greater than \$0 but less than \$50.

nec = not elsewhere classified.

Note(s):

Research includes basic research and applied research. Because of rounding, detail may not add to total. Only those agencies and subdivisions that had obligations in variables represented by this table appear in the table.

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, Volume 70, FYs 2020–21.

Science and Engineering Indicators

Table SRD-8

Federal obligations for research, by detailed S&E field: Selected years, FYs 1990–2020

(Millions of current and constant 2012 dollars, percent share by field, and annual growth rates)

| S&E field | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Average annual growth rate | | |
|---|-----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------------------------|---------|---------|
| | | | | | | | | | | | | 1990–2000 | 2000–10 | 2010–20 |
| | Millions of current dollars | | | | | | | | | | | Percent | | |
| Total, all fields | 21,622.4 | 28,434.4 | 38,470.6 | 53,738.2 | 63,728.0 | 63,825.4 | 67,104.6 | 69,871.3 | 74,587.6 | 81,117.8 | 85,304.8 | 5.9 | 5.2 | 3.0 |
| Computer sciences and mathematics | 840.7 | 1,579.1 | 2,205.6 | 2,983.4 | 3,411.8 | 3,862.7 | 4,222.8 | 3,894.2 | 4,206.9 | 4,330.0 | 5,912.4 | 10.1 | 4.5 | 5.7 |
| Computer sciences | 562.1 | 1,013.9 | 1,659.6 | 2,157.1 | 2,362.0 | 2,645.6 | 2,815.4 | 2,734.7 | 2,887.9 | 2,896.8 | 4,280.5 | - | - | - |
| Mathematics | 241.3 | 258.6 | 432.9 | 686.6 | 835.5 | 1,005.9 | 1,160.0 | 941.7 | 1,055.2 | 1,156.9 | 681.4 | - | - | - |
| Other computer sciences and mathematics | 37.3 | 306.6 | 113.1 | 139.7 | 214.4 | 211.2 | 247.3 | 217.8 | 263.8 | 276.3 | 950.4 | - | - | - |
| Environmental sciences | 2,174.1 | 2,854.4 | 3,328.8 | 3,502.6 | 3,338.9 | 4,413.7 | 4,450.4 | 4,469.6 | 4,567.6 | 5,074.7 | 5,039.5 | 4.4 | 0.0 | 4.2 |
| Atmospheric sciences | 773.4 | 1,135.6 | 1,104.3 | 1,185.1 | 953.8 | 1,567.9 | 1,597.0 | 1,651.3 | 796.3 | 824.2 | 908.1 | - | - | - |
| Geological sciences | 661.1 | 848.3 | 639.2 | 673.5 | 530.4 | 643.3 | 562.4 | 580.3 | 227.1 | 239.1 | 306.0 | - | - | - |
| Oceanography | 520.1 | 407.3 | 673.0 | 771.5 | 743.7 | 726.0 | 773.0 | 774.3 | 777.7 | 819.2 | 946.2 | - | - | - |
| Other environmental sciences | 219.5 | 463.3 | 912.2 | 872.5 | 1,111.0 | 1,476.5 | 1,518.0 | 1,463.8 | 2,766.4 | 3,192.1 | 2,879.2 | - | - | - |
| Life sciences | 8,829.8 | 11,811.0 | 17,964.7 | 28,127.8 | 33,909.1 | 30,625.1 | 32,045.4 | 34,089.6 | 36,994.4 | 38,303.7 | 42,524.8 | 7.4 | 6.6 | 2.3 |
| Agricultural sciences | 691.4 | 670.3 | 895.0 | 1,094.2 | 1,131.9 | 1,320.3 | 1,283.1 | 1,353.4 | 1,325.0 | 1,445.5 | 1,412.6 | - | - | - |
| Biological sciences (excluding environmental biology) | 4,144.6 | 4,925.4 | 10,740.0 | 13,351.6 | 17,213.9 | 14,839.7 | 15,922.6 | 16,555.7 | 17,828.5 | 18,910.4 | 20,165.4 | - | - | - |
| Environmental biology | 342.3 | 806.9 | 740.0 | 699.0 | 816.4 | 819.1 | 788.1 | 783.4 | 922.4 | 924.2 | 901.9 | - | - | - |
| Medical sciences | 3,382.4 | 4,972.2 | 4,463.8 | 10,862.1 | 11,677.0 | 11,086.8 | 11,358.6 | 12,648.7 | 13,564.5 | 13,774.8 | 16,182.2 | - | - | - |
| Other life sciences | 269.1 | 436.3 | 1,125.9 | 2,120.9 | 3,070.0 | 2,559.2 | 2,693.0 | 2,748.4 | 3,353.9 | 3,248.8 | 3,862.7 | - | - | - |
| Physical sciences | 3,808.7 | 4,278.3 | 4,788.0 | 5,493.7 | 5,870.8 | 6,510.3 | 6,705.6 | 6,581.5 | 7,881.4 | 9,816.1 | 8,419.9 | 2.3 | 2.1 | 3.7 |
| Astronomy | 597.2 | 764.5 | 880.3 | 884.9 | 559.9 | 1,230.2 | 1,246.7 | 1,292.4 | 887.3 | 1,583.4 | 871.3 | - | - | - |
| Chemistry | 761.7 | 863.5 | 1,225.6 | 1,197.5 | 1,310.6 | 967.7 | 998.9 | 969.2 | 1,121.2 | 1,125.5 | 1,143.8 | - | - | - |
| Physics | 2,254.9 | 2,451.2 | 2,405.4 | 3,041.3 | 3,470.1 | 3,040.2 | 3,731.9 | 3,675.9 | 3,541.1 | 3,446.0 | 3,577.1 | - | - | - |
| Other physical sciences | 195.0 | 199.2 | 276.7 | 370.0 | 530.2 | 1,272.2 | 728.1 | 643.9 | 2,331.7 | 3,661.3 | 2,827.6 | - | - | - |
| Psychology | 448.6 | 622.6 | 1,626.7 | 1,891.8 | 2,155.6 | 1,994.9 | 2,021.4 | 2,081.2 | 2,326.9 | 2,753.6 | 3,275.8 | 13.7 | 2.9 | 4.3 |
| Biological aspects | 130.6 | 58.8 | 8.2 | 2.3 | 13.6 | 19.1 | 19.8 | 10.4 | 19.9 | 17.5 | 13.5 | - | - | - |
| Social aspects | 177.5 | 156.3 | 56.0 | 46.6 | 74.5 | 58.5 | 56.0 | 56.4 | 48.4 | 52.7 | 41.8 | - | - | - |
| Other psychological sciences | 140.5 | 407.5 | 1,562.5 | 1,842.8 | 2,067.4 | 1,917.2 | 1,945.6 | 2,014.4 | 2,258.5 | 2,683.3 | 3,220.5 | - | - | - |
| Social sciences | 630.0 | 678.7 | 1,050.4 | 1,097.1 | 1,197.3 | 1,136.3 | 1,226.7 | 1,027.2 | 1,039.4 | 1,155.7 | 1,137.4 | 5.2 | 1.3 | -0.5 |
| Anthropology | 14.4 | 21.7 | 15.9 | 18.0 | 24.7 | 29.9 | 31.5 | 32.1 | 34.7 | 34.9 | 19.3 | - | - | - |
| Economics | 197.2 | 206.5 | 249.5 | 215.9 | 274.0 | 336.8 | 370.9 | 294.1 | 282.4 | 294.9 | 202.7 | - | - | - |
| Political science | 13.1 | 22.3 | 22.6 | 32.7 | 14.2 | 16.0 | 14.6 | 17.6 | 10.8 | 14.2 | 12.5 | - | - | - |
| Sociology | 116.2 | 47.8 | 90.6 | 70.2 | 132.3 | 128.2 | 197.4 | 178.0 | 143.2 | 224.0 | 152.4 | - | - | - |
| Other social sciences | 289.1 | 380.3 | 671.8 | 760.4 | 752.0 | 625.3 | 612.2 | 505.4 | 568.2 | 587.6 | 750.5 | - | - | - |

Table SRD-8

Federal obligations for research, by detailed S&E field: Selected years, FYs 1990–2020

(Millions of current and constant 2012 dollars, percent share by field, and annual growth rates)

| S&E field | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Average annual growth rate | | |
|---|-----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------------------------|---------|---------|
| | | | | | | | | | | | | 1990–2000 | 2000–10 | 2010–20 |
| Other sciences nec | 663.7 | 901.8 | 1,160.2 | 2,088.9 | 2,763.2 | 3,298.8 | 3,460.8 | 4,520.6 | 3,812.4 | 4,404.8 | 5,772.9 | 5.7 | 9.1 | 7.6 |
| Engineering | 4,226.6 | 5,708.4 | 6,346.4 | 8,552.9 | 11,081.2 | 11,983.6 | 12,971.5 | 13,207.4 | 13,758.6 | 15,279.3 | 13,222.0 | 4.1 | 5.7 | 1.8 |
| Aeronautical engineering | 927.1 | 1,248.3 | 1,463.9 | 1,276.3 | 830.1 | 1,825.1 | 1,836.1 | 1,892.1 | 1,118.0 | 1,199.2 | 1,093.5 | - | - | - |
| Astronautical engineering | 580.8 | 546.5 | 515.0 | 494.1 | 389.9 | 660.6 | 650.7 | 651.4 | 795.8 | 829.7 | 915.9 | - | - | - |
| Chemical engineering | 241.9 | 246.1 | 196.5 | 283.8 | 509.7 | 374.6 | 373.0 | 302.3 | 692.3 | 454.1 | 788.2 | - | - | - |
| Civil engineering | 317.7 | 339.4 | 239.2 | 279.2 | 699.8 | 457.6 | 461.9 | 605.9 | 476.3 | 566.3 | 475.7 | - | - | - |
| Electrical engineering | 640.0 | 756.3 | 744.8 | 1,033.5 | 1,360.9 | 897.3 | 1,062.9 | 1,102.7 | 1,009.8 | 970.6 | 880.6 | - | - | - |
| Mechanical engineering | 268.3 | 412.5 | 289.3 | 323.7 | 363.6 | 323.6 | 374.2 | 449.8 | 498.2 | 630.1 | 522.8 | - | - | - |
| Metallurgy and materials engineering | 554.5 | 815.3 | 918.1 | 1,184.1 | 1,758.8 | 1,756.9 | 1,975.4 | 1,941.1 | 1,915.0 | 1,842.8 | 704.5 | - | - | - |
| Other engineering | 696.3 | 1,344.0 | 1,979.6 | 3,678.3 | 5,168.4 | 5,688.0 | 6,237.3 | 6,262.1 | 7,253.1 | 8,786.5 | 7,840.8 | - | - | - |
| | Millions of constant 2012 dollars | | | | | | | | | | | Percent | | |
| Total, all fields | 34,104.7 | 39,558.2 | 49,321.3 | 61,654.7 | 66,231.6 | 60,809.3 | 63,372.0 | 64,833.7 | 67,647.0 | 72,143.2 | 74,927.4 | 3.8 | 3.0 | 1.2 |
| Computer sciences and mathematics | 1,326.1 | 2,196.9 | 2,827.7 | 3,422.9 | 3,545.8 | 3,680.2 | 3,987.9 | 3,613.4 | 3,815.4 | 3,850.9 | 5,193.1 | 7.9 | 2.3 | 3.9 |
| Computer sciences | 886.6 | 1,410.5 | 2,127.7 | 2,474.9 | 2,454.8 | 2,520.6 | 2,658.8 | 2,537.5 | 2,619.2 | 2,576.3 | 3,759.8 | - | - | - |
| Mathematics | 380.7 | 359.8 | 555.0 | 787.7 | 868.3 | 958.4 | 1,095.5 | 873.8 | 957.0 | 1,028.9 | 598.5 | - | - | - |
| Other computer sciences and mathematics | 58.8 | 426.5 | 145.0 | 160.3 | 222.8 | 201.2 | 233.5 | 202.1 | 239.3 | 245.7 | 834.8 | - | - | - |
| Environmental sciences | 3,429.2 | 3,971.1 | 4,267.7 | 4,018.6 | 3,470.1 | 4,205.1 | 4,202.9 | 4,147.4 | 4,142.6 | 4,513.3 | 4,426.4 | 2.2 | -2.0 | 2.5 |
| Atmospheric sciences | 1,219.9 | 1,579.9 | 1,415.8 | 1,359.7 | 991.3 | 1,493.8 | 1,508.2 | 1,532.2 | 722.2 | 733.0 | 797.6 | - | - | - |
| Geological sciences | 1,042.8 | 1,180.2 | 819.5 | 772.7 | 551.2 | 612.9 | 531.1 | 538.5 | 206.0 | 212.6 | 268.8 | - | - | - |
| Oceanography | 820.4 | 566.6 | 862.8 | 885.2 | 772.9 | 691.7 | 730.0 | 718.5 | 705.3 | 728.6 | 831.1 | - | - | - |
| Other environmental sciences | 346.1 | 644.5 | 1,169.5 | 1,001.0 | 1,154.6 | 1,406.7 | 1,433.6 | 1,358.3 | 2,509.0 | 2,838.9 | 2,528.9 | - | - | - |
| Life sciences | 13,927.2 | 16,431.6 | 23,031.7 | 32,271.5 | 35,241.2 | 29,177.9 | 30,262.9 | 31,631.8 | 33,552.0 | 34,065.9 | 37,351.6 | 5.2 | 4.3 | 0.6 |
| Agricultural sciences | 1,090.6 | 932.5 | 1,147.4 | 1,255.4 | 1,176.4 | 1,257.9 | 1,211.7 | 1,255.8 | 1,201.7 | 1,285.6 | 1,240.8 | - | - | - |
| Biological sciences (excluding environmental biology) | 6,537.3 | 6,852.3 | 13,769.2 | 15,318.5 | 17,890.1 | 14,138.4 | 15,036.9 | 15,362.1 | 16,169.5 | 16,818.2 | 17,712.3 | - | - | - |
| Environmental biology | 540.0 | 1,122.6 | 948.7 | 802.0 | 848.5 | 780.4 | 744.3 | 726.9 | 836.6 | 821.9 | 792.2 | - | - | - |
| Medical sciences | 5,334.9 | 6,917.4 | 5,722.8 | 12,462.3 | 12,135.7 | 10,562.9 | 10,726.8 | 11,736.8 | 12,302.3 | 12,250.8 | 14,213.6 | - | - | - |
| Other life sciences | 424.5 | 607.0 | 1,443.5 | 2,433.3 | 3,190.6 | 2,438.3 | 2,543.2 | 2,550.2 | 3,041.8 | 2,889.4 | 3,392.8 | - | - | - |
| Physical sciences | 6,007.4 | 5,952.0 | 6,138.5 | 6,303.0 | 6,101.4 | 6,202.6 | 6,332.6 | 6,107.0 | 7,148.0 | 8,730.1 | 7,395.6 | 0.2 | -0.1 | 1.9 |
| Astronomy | 941.9 | 1,063.6 | 1,128.6 | 1,015.3 | 581.9 | 1,172.1 | 1,177.4 | 1,199.2 | 804.7 | 1,408.2 | 765.3 | - | - | - |
| Chemistry | 1,201.4 | 1,201.3 | 1,571.3 | 1,373.9 | 1,362.1 | 922.0 | 943.3 | 899.3 | 1,016.9 | 1,001.0 | 1,004.7 | - | - | - |
| Physics | 3,556.7 | 3,410.1 | 3,083.8 | 3,489.3 | 3,606.4 | 2,896.5 | 3,524.3 | 3,410.9 | 3,211.6 | 3,064.7 | 3,141.9 | - | - | - |
| Other physical sciences | 307.5 | 277.1 | 354.7 | 424.5 | 551.0 | 1,212.1 | 687.6 | 597.5 | 2,114.7 | 3,256.2 | 2,483.6 | - | - | - |

Table SRD-8

Federal obligations for research, by detailed S&E field: Selected years, FYs 1990–2020

(Millions of current and constant 2012 dollars, percent share by field, and annual growth rates)

| S&E field | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Average annual growth rate | | |
|---|--------------------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------------------------|---------|---------|
| | | | | | | | | | | | | 1990–2000 | 2000–10 | 2010–20 |
| Psychology | 707.6 | 866.2 | 2,085.5 | 2,170.5 | 2,240.3 | 1,900.6 | 1,909.0 | 1,931.1 | 2,110.4 | 2,449.0 | 2,877.3 | 11.4 | 0.7 | 2.5 |
| Biological aspects | 206.1 | 81.8 | 10.5 | 2.6 | 14.1 | 18.2 | 18.7 | 9.7 | 18.0 | 15.6 | 11.9 | - | - | - |
| Social aspects | 279.9 | 217.4 | 71.8 | 53.5 | 77.4 | 55.7 | 52.9 | 52.3 | 43.9 | 46.9 | 36.7 | - | - | - |
| Other psychological sciences | 221.6 | 566.9 | 2,003.2 | 2,114.3 | 2,148.6 | 1,826.6 | 1,837.4 | 1,869.2 | 2,048.3 | 2,386.4 | 2,828.7 | - | - | - |
| Social sciences | 993.7 | 944.2 | 1,346.7 | 1,258.7 | 1,244.3 | 1,082.6 | 1,158.5 | 953.1 | 942.7 | 1,027.8 | 999.0 | 3.1 | -0.8 | -2.2 |
| Anthropology | 22.7 | 30.2 | 20.4 | 20.7 | 25.7 | 28.5 | 29.7 | 29.8 | 31.5 | 31.0 | 17.0 | - | - | - |
| Economics | 311.0 | 287.3 | 319.9 | 247.7 | 284.8 | 320.9 | 350.3 | 272.9 | 256.1 | 262.3 | 178.0 | - | - | - |
| Political science | 20.7 | 31.0 | 29.0 | 37.5 | 14.8 | 15.2 | 13.8 | 16.3 | 9.8 | 12.6 | 11.0 | - | - | - |
| Sociology | 183.2 | 66.5 | 116.2 | 80.5 | 137.5 | 122.1 | 186.4 | 165.2 | 129.9 | 199.2 | 133.9 | - | - | - |
| Other social sciences | 456.1 | 529.1 | 861.3 | 872.4 | 781.5 | 595.8 | 578.1 | 469.0 | 515.3 | 522.6 | 659.2 | - | - | - |
| Other sciences nec | 1,046.9 | 1,254.6 | 1,487.4 | 2,396.6 | 2,871.8 | 3,142.9 | 3,268.3 | 4,194.7 | 3,457.6 | 3,917.5 | 5,070.6 | 3.6 | 6.8 | 5.9 |
| Engineering | 6,666.6 | 7,941.6 | 8,136.4 | 9,812.9 | 11,516.5 | 11,417.3 | 12,250.0 | 12,255.2 | 12,478.3 | 13,588.8 | 11,613.5 | 2.0 | 3.5 | 0.1 |
| Aeronautical engineering | 1,462.3 | 1,736.6 | 1,876.8 | 1,464.3 | 862.7 | 1,738.9 | 1,734.0 | 1,755.7 | 1,014.0 | 1,066.5 | 960.5 | - | - | - |
| Astronautical engineering | 916.1 | 760.3 | 660.3 | 566.9 | 405.2 | 629.4 | 614.5 | 604.4 | 721.7 | 737.9 | 804.5 | - | - | - |
| Chemical engineering | 381.5 | 342.4 | 251.9 | 325.6 | 529.7 | 356.9 | 352.3 | 280.5 | 627.9 | 403.9 | 692.3 | - | - | - |
| Civil engineering | 501.1 | 472.2 | 306.7 | 320.3 | 727.3 | 436.0 | 436.2 | 562.2 | 432.0 | 503.6 | 417.8 | - | - | - |
| Electrical engineering | 1,009.5 | 1,052.2 | 954.9 | 1,185.8 | 1,414.4 | 854.9 | 1,003.8 | 1,023.2 | 915.8 | 863.2 | 773.5 | - | - | - |
| Mechanical engineering | 423.2 | 573.9 | 370.9 | 371.4 | 377.9 | 308.3 | 353.4 | 417.4 | 451.8 | 560.4 | 459.2 | - | - | - |
| Metallurgy and materials engineering | 874.6 | 1,134.3 | 1,177.1 | 1,358.5 | 1,827.9 | 1,673.9 | 1,865.5 | 1,801.2 | 1,736.8 | 1,638.9 | 618.8 | - | - | - |
| Other engineering | 1,098.3 | 1,869.8 | 2,537.9 | 4,220.2 | 5,371.4 | 5,419.2 | 5,890.4 | 5,810.6 | 6,578.2 | 7,814.4 | 6,887.0 | - | - | - |
| | Share by field (%) | | | | | | | | | | | Percent | | |
| Total, all fields | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | - | - | - |
| Computer sciences and mathematics | 3.9 | 5.6 | 5.7 | 5.6 | 5.4 | 6.1 | 6.3 | 5.6 | 5.6 | 5.3 | 6.9 | - | - | - |
| Computer sciences | 2.6 | 3.6 | 4.3 | 4.0 | 3.7 | 4.1 | 4.2 | 3.9 | 3.9 | 3.6 | 5.0 | - | - | - |
| Mathematics | 1.1 | 0.9 | 1.1 | 1.3 | 1.3 | 1.6 | 1.7 | 1.3 | 1.4 | 1.4 | 0.8 | - | - | - |
| Other computer sciences and mathematics | 0.2 | 1.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 | 1.1 | - | - | - |
| Environmental sciences | 10.1 | 10.0 | 8.7 | 6.5 | 5.2 | 6.9 | 6.6 | 6.4 | 6.1 | 6.3 | 5.9 | - | - | - |
| Atmospheric sciences | 3.6 | 4.0 | 2.9 | 2.2 | 1.5 | 2.5 | 2.4 | 2.4 | 1.1 | 1.0 | 1.1 | - | - | - |
| Geological sciences | 3.1 | 3.0 | 1.7 | 1.3 | 0.8 | 1.0 | 0.8 | 0.8 | 0.3 | 0.3 | 0.4 | - | - | - |
| Oceanography | 2.4 | 1.4 | 1.7 | 1.4 | 1.2 | 1.1 | 1.2 | 1.1 | 1.0 | 1.0 | 1.1 | - | - | - |
| Other environmental sciences | 1.0 | 1.6 | 2.4 | 1.6 | 1.7 | 2.3 | 2.3 | 2.1 | 3.7 | 3.9 | 3.4 | - | - | - |
| Life sciences | 40.8 | 41.5 | 46.7 | 52.3 | 53.2 | 48.0 | 47.8 | 48.8 | 49.6 | 47.2 | 49.9 | - | - | - |
| Agricultural sciences | 3.2 | 2.4 | 2.3 | 2.0 | 1.8 | 2.1 | 1.9 | 1.9 | 1.8 | 1.8 | 1.7 | - | - | - |

Table SRD-8

Federal obligations for research, by detailed S&E field: Selected years, FYs 1990–2020

(Millions of current and constant 2012 dollars, percent share by field, and annual growth rates)

| S&E field | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Average annual growth rate | | |
|---|------|------|------|------|------|------|------|------|------|------|------|----------------------------|---------|---------|
| | | | | | | | | | | | | 1990–2000 | 2000–10 | 2010–20 |
| Biological sciences (excluding environmental biology) | 19.2 | 17.3 | 27.9 | 24.8 | 27.0 | 23.3 | 23.7 | 23.7 | 23.9 | 23.3 | 23.6 | - | - | - |
| Environmental biology | 1.6 | 2.8 | 1.9 | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 | 1.2 | 1.1 | 1.1 | - | - | - |
| Medical sciences | 15.6 | 17.5 | 11.6 | 20.2 | 18.3 | 17.4 | 16.9 | 18.1 | 18.2 | 17.0 | 19.0 | - | - | - |
| Other life sciences | 1.2 | 1.5 | 2.9 | 3.9 | 4.8 | 4.0 | 4.0 | 3.9 | 4.5 | 4.0 | 4.5 | - | - | - |
| Physical sciences | 17.6 | 15.0 | 12.4 | 10.2 | 9.2 | 10.2 | 10.0 | 9.4 | 10.6 | 12.1 | 9.9 | - | - | - |
| Astronomy | 2.8 | 2.7 | 2.3 | 1.6 | 0.9 | 1.9 | 1.9 | 1.8 | 1.2 | 2.0 | 1.0 | - | - | - |
| Chemistry | 3.5 | 3.0 | 3.2 | 2.2 | 2.1 | 1.5 | 1.5 | 1.4 | 1.5 | 1.4 | 1.3 | - | - | - |
| Physics | 10.4 | 8.6 | 6.3 | 5.7 | 5.4 | 4.8 | 5.6 | 5.3 | 4.7 | 4.2 | 4.2 | - | - | - |
| Other physical sciences | 0.9 | 0.7 | 0.7 | 0.7 | 0.8 | 2.0 | 1.1 | 0.9 | 3.1 | 4.5 | 3.3 | - | - | - |
| Psychology | 2.1 | 2.2 | 4.2 | 3.5 | 3.4 | 3.1 | 3.0 | 3.0 | 3.1 | 3.4 | 3.8 | - | - | - |
| Biological aspects | 0.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - |
| Social aspects | 0.8 | 0.5 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | - | - | - |
| Other psychological sciences | 0.6 | 1.4 | 4.1 | 3.4 | 3.2 | 3.0 | 2.9 | 2.9 | 3.0 | 3.3 | 3.8 | - | - | - |
| Social sciences | 2.9 | 2.4 | 2.7 | 2.0 | 1.9 | 1.8 | 1.8 | 1.5 | 1.4 | 1.4 | 1.3 | - | - | - |
| Anthropology | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - |
| Economics | 0.9 | 0.7 | 0.6 | 0.4 | 0.4 | 0.5 | 0.6 | 0.4 | 0.4 | 0.4 | 0.2 | - | - | - |
| Political science | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - |
| Sociology | 0.5 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | - | - | - |
| Other social sciences | 1.3 | 1.3 | 1.7 | 1.4 | 1.2 | 1.0 | 0.9 | 0.7 | 0.8 | 0.7 | 0.9 | - | - | - |
| Other sciences nec | 3.1 | 3.2 | 3.0 | 3.9 | 4.3 | 5.2 | 5.2 | 6.5 | 5.1 | 5.4 | 6.8 | - | - | - |
| Engineering | 19.5 | 20.1 | 16.5 | 15.9 | 17.4 | 18.8 | 19.3 | 18.9 | 18.4 | 18.8 | 15.5 | - | - | - |
| Aeronautical engineering | 4.3 | 4.4 | 3.8 | 2.4 | 1.3 | 2.9 | 2.7 | 2.7 | 1.5 | 1.5 | 1.3 | - | - | - |
| Astronautical engineering | 2.7 | 1.9 | 1.3 | 0.9 | 0.6 | 1.0 | 1.0 | 0.9 | 1.1 | 1.0 | 1.1 | - | - | - |
| Chemical engineering | 1.1 | 0.9 | 0.5 | 0.5 | 0.8 | 0.6 | 0.6 | 0.4 | 0.9 | 0.6 | 0.9 | - | - | - |
| Civil engineering | 1.5 | 1.2 | 0.6 | 0.5 | 1.1 | 0.7 | 0.7 | 0.9 | 0.6 | 0.7 | 0.6 | - | - | - |
| Electrical engineering | 3.0 | 2.7 | 1.9 | 1.9 | 2.1 | 1.4 | 1.6 | 1.6 | 1.4 | 1.2 | 1.0 | - | - | - |
| Mechanical engineering | 1.2 | 1.5 | 0.8 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.6 | - | - | - |
| Metallurgy and materials engineering | 2.6 | 2.9 | 2.4 | 2.2 | 2.8 | 2.8 | 2.9 | 2.8 | 2.6 | 2.3 | 0.8 | - | - | - |
| Other engineering | 3.2 | 4.7 | 5.1 | 6.8 | 8.1 | 8.9 | 9.3 | 9.0 | 9.7 | 10.8 | 9.2 | - | - | - |

nec = not elsewhere classified.

Note(s):

Because of rounding, detail may not add to total.

Source(s):

National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, Volume 70, FYs 2020–21.

Science and Engineering Indicators