

TABLE 8

U.S. applied research expenditures, by source of funds and performing sector: 1953–2021

(Millions of current and of constant 2012 dollars)

| Year | All funding sources | | Federal | | | | | | | Nonfederal government | | | | | Business | | | | | Higher education | | NPOs | | | | |
|--------------------|---------------------|-------|--------------------|-------|-----------------------|----------|------------------|-----|-------|-----------------------|-----------------------|----------|------------------|--------|----------|----------|------------------|-----|------------------|------------------|-------|----------|------------------|-----|--|--|
| | All performers | Total | Federal intramural | FFRDC | Nonfederal government | Business | Higher education | NPO | Total | FFRDC | Nonfederal government | Business | Higher education | Total | FFRDC | Business | Higher education | NPO | Higher education | Total | FFRDC | Business | Higher education | NPO | | |
| Current \$millions | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1953 | 1,289 | 756 | 347 | 48 | NA | 288 | 59 | 14 | 30 | NA | NA | NA | 30 | 456 | NA | 438 | 7 | 11 | 28 | 20 | NA | NA | 10 | 10 | | |
| 1954 | 1,378 | 785 | 330 | 59 | NA | 322 | 60 | 16 | 32 | NA | NA | NA | 32 | 513 | NA | 492 | 8 | 13 | 28 | 21 | NA | NA | 10 | 11 | | |
| 1955 | 1,502 | 838 | 333 | 86 | NA | 339 | 63 | 18 | 32 | NA | NA | NA | 32 | 583 | NA | 560 | 9 | 14 | 27 | 22 | NA | NA | 11 | 11 | | |
| 1956 | 1,929 | 1,026 | 387 | 125 | NA | 430 | 65 | 20 | 33 | NA | NA | NA | 33 | 818 | NA | 794 | 10 | 14 | 27 | 25 | NA | NA | 11 | 14 | | |
| 1957 | 2,413 | 1,304 | 446 | 149 | NA | 624 | 63 | 23 | 34 | NA | NA | NA | 34 | 1,018 | NA | 992 | 12 | 14 | 27 | 31 | NA | NA | 11 | 20 | | |
| 1958 | 2,759 | 1,497 | 516 | 156 | NA | 731 | 66 | 29 | 35 | NA | NA | NA | 35 | 1,163 | NA | 1,137 | 12 | 14 | 27 | 37 | NA | NA | 12 | 25 | | |
| 1959 | 2,940 | 1,630 | 577 | 179 | NA | 757 | 78 | 40 | 37 | NA | NA | NA | 37 | 1,206 | NA | 1,178 | 13 | 15 | 28 | 39 | NA | NA | 12 | 27 | | |
| 1960 | 3,065 | 1,732 | 615 | 201 | NA | 769 | 93 | 54 | 39 | NA | NA | NA | 39 | 1,226 | NA | 1,196 | 13 | 17 | 29 | 40 | NA | NA | 12 | 28 | | |
| 1961 | 3,123 | 1,811 | 668 | 240 | NA | 738 | 104 | 62 | 40 | NA | NA | NA | 40 | 1,195 | NA | 1,165 | 13 | 17 | 30 | 48 | NA | NA | 13 | 35 | | |
| 1962 | 3,698 | 2,098 | 709 | 249 | NA | 954 | 119 | 68 | 41 | NA | NA | NA | 41 | 1,471 | NA | 1,438 | 14 | 19 | 30 | 58 | NA | NA | 13 | 45 | | |
| 1963 | 3,864 | 2,244 | 809 | 275 | NA | 952 | 128 | 82 | 42 | NA | NA | NA | 42 | 1,483 | NA | 1,450 | 14 | 19 | 32 | 63 | NA | NA | 14 | 49 | | |
| 1964 | 4,201 | 2,462 | 947 | 313 | NA | 978 | 142 | 82 | 45 | NA | NA | NA | 45 | 1,593 | NA | 1,560 | 14 | 19 | 37 | 65 | NA | NA | 18 | 47 | | |
| 1965 | 4,374 | 2,553 | 994 | 294 | NA | 992 | 176 | 98 | 46 | NA | NA | NA | 46 | 1,654 | NA | 1,620 | 13 | 21 | 42 | 79 | NA | NA | 27 | 52 | | |
| 1966 | 4,653 | 2,625 | 1,012 | 290 | NA | 986 | 208 | 129 | 47 | NA | NA | NA | 47 | 1,842 | NA | 1,804 | 14 | 24 | 48 | 91 | NA | NA | 34 | 57 | | |
| 1967 | 4,848 | 2,763 | 1,069 | 334 | NA | 983 | 238 | 141 | 46 | NA | NA | NA | 46 | 1,890 | NA | 1,849 | 16 | 25 | 54 | 96 | NA | NA | 36 | 60 | | |
| 1968 | 5,137 | 2,811 | 1,112 | 334 | NA | 956 | 250 | 160 | 46 | NA | NA | NA | 46 | 2,125 | NA | 2,081 | 16 | 28 | 55 | 101 | NA | NA | 39 | 62 | | |
| 1969 | 5,454 | 2,924 | 1,229 | 336 | NA | 920 | 257 | 183 | 48 | NA | NA | NA | 48 | 2,320 | NA | 2,272 | 16 | 32 | 54 | 109 | NA | NA | 43 | 66 | | |
| 1970 | 5,752 | 3,100 | 1,334 | 336 | NA | 952 | 280 | 199 | 51 | NA | NA | NA | 51 | 2,429 | NA | 2,378 | 18 | 33 | 56 | 117 | NA | NA | 47 | 70 | | |
| 1971 | 5,833 | 3,091 | 1,355 | 312 | NA | 907 | 306 | 212 | 61 | NA | NA | NA | 61 | 2,494 | NA | 2,441 | 19 | 34 | 67 | 121 | NA | NA | 47 | 74 | | |
| 1972 | 6,147 | 3,243 | 1,434 | 358 | NA | 845 | 391 | 216 | 74 | NA | NA | NA | 74 | 2,618 | NA | 2,562 | 21 | 35 | 82 | 131 | NA | NA | 52 | 79 | | |
| 1973 | 6,655 | 3,429 | 1,527 | 334 | NA | 883 | 450 | 236 | 88 | NA | NA | NA | 88 | 2,894 | NA | 2,832 | 26 | 36 | 100 | 145 | NA | NA | 62 | 83 | | |
| 1974 | 7,344 | 3,634 | 1,652 | 335 | NA | 905 | 477 | 266 | 96 | NA | NA | NA | 96 | 3,333 | NA | 3,263 | 32 | 39 | 118 | 163 | NA | NA | 72 | 91 | | |
| 1975 | 8,091 | 4,125 | 1,912 | 384 | NA | 991 | 550 | 290 | 113 | NA | NA | NA | 113 | 3,520 | NA | 3,440 | 39 | 42 | 141 | 192 | NA | NA | 92 | 100 | | |
| 1976 | 8,976 | 4,464 | 2,068 | 457 | NA | 1,033 | 596 | 310 | 127 | NA | NA | NA | 127 | 4,001 | NA | 3,912 | 45 | 45 | 166 | 218 | NA | NA | 109 | 109 | | |
| 1977 | 9,662 | 4,683 | 2,081 | 540 | NA | 1,113 | 626 | 324 | 134 | NA | NA | NA | 134 | 4,410 | NA | 4,311 | 51 | 48 | 194 | 241 | NA | NA | 121 | 120 | | |
| 1978 | 10,704 | 5,080 | 2,242 | 597 | NA | 1,195 | 676 | 371 | 151 | NA | NA | NA | 151 | 4,982 | NA | 4,870 | 61 | 52 | 232 | 259 | NA | NA | 128 | 132 | | |
| 1979 | 12,097 | 5,602 | 2,415 | 654 | NA | 1,305 | 793 | 436 | 161 | NA | NA | NA | 161 | 5,797 | NA | 5,670 | 71 | 55 | 263 | 273 | NA | NA | 129 | 144 | | |
| 1980 | 13,729 | 6,252 | 2,546 | 749 | NA | 1,625 | 912 | 420 | 174 | NA | NA | NA | 174 | 6,698 | NA | 6,550 | 88 | 60 | 308 | 298 | NA | NA | 140 | 158 | | |
| 1981 | 16,329 | 6,905 | 2,731 | 788 | NA | 2,042 | 953 | 391 | 199 | NA | NA | NA | 199 | 8,531 | NA | 8,359 | 108 | 64 | 363 | 332 | NA | NA | 159 | 173 | | |
| 1982 | 18,218 | 7,689 | 2,802 | 890 | NA | 2,593 | 1,007 | 398 | 207 | NA | NA | NA | 207 | 9,553 | NA | 9,363 | 121 | 69 | 402 | 367 | NA | NA | 178 | 189 | | |
| 1983 | 20,298 | 8,738 | 2,991 | 965 | NA | 3,227 | 1,122 | 433 | 215 | NA | NA | NA | 215 | 10,501 | NA | 10,286 | 141 | 74 | 443 | 401 | NA | NA | 194 | 207 | | |
| 1984 | 22,451 | 9,499 | 2,961 | 1,176 | NA | 3,677 | 1,226 | 459 | 234 | NA | NA | NA | 234 | 11,788 | NA | 11,541 | 168 | 79 | 491 | 438 | NA | NA | 212 | 226 | | |

TABLE 8

U.S. applied research expenditures, by source of funds and performing sector: 1953–2021

(Millions of current and of constant 2012 dollars)

| Year | All funding sources | | Federal | | | | | | Nonfederal government | | | | | Business | | | | | Higher education | NPOs | | | | |
|------|---------------------|--------|--------------------|-------|-----------------------|----------|------------------|-------|-----------------------|-------|-----------------------|----------|------------------|----------|-------|----------|------------------|-----|------------------|-------|-------|----------|------------------|-------|
| | All performers | Total | Federal intramural | FFRDC | Nonfederal government | Business | Higher education | NPO | Total | FFRDC | Nonfederal government | Business | Higher education | Total | FFRDC | Business | Higher education | NPO | Higher education | Total | FFRDC | Business | Higher education | NPO |
| 1985 | 25,401 | 10,930 | 3,135 | 1,292 | NA | 4,717 | 1,296 | 490 | 262 | NA | NA | NA | 262 | 13,191 | NA | 12,908 | 198 | 85 | 547 | 471 | NA | NA | 224 | 247 |
| 1986 | 27,240 | 10,409 | 3,204 | 1,258 | NA | 4,049 | 1,393 | 506 | 298 | NA | NA | NA | 298 | 15,402 | NA | 15,082 | 229 | 91 | 620 | 510 | NA | NA | 240 | 270 |
| 1987 | 27,951 | 10,829 | 3,366 | 1,228 | NA | 4,037 | 1,643 | 555 | 333 | NA | NA | NA | 333 | 15,511 | NA | 15,153 | 260 | 98 | 707 | 571 | NA | NA | 276 | 295 |
| 1988 | 29,528 | 10,749 | 3,362 | 984 | NA | 3,846 | 1,958 | 599 | 377 | NA | NA | NA | 377 | 16,938 | NA | 16,531 | 302 | 105 | 818 | 647 | NA | NA | 325 | 322 |
| 1989 | 32,277 | 11,753 | 3,566 | 1,047 | NA | 4,324 | 2,121 | 695 | 417 | NA | NA | NA | 417 | 18,452 | NA | 17,993 | 347 | 112 | 933 | 722 | NA | NA | 370 | 352 |
| 1990 | 34,897 | 13,695 | 3,652 | 1,156 | NA | 5,967 | 2,140 | 780 | 453 | NA | NA | NA | 453 | 18,930 | NA | 18,432 | 377 | 120 | 1,031 | 788 | NA | NA | 404 | 384 |
| 1991 | 38,631 | 14,280 | 4,093 | 1,446 | NA | 5,588 | 2,232 | 921 | 468 | NA | NA | NA | 468 | 21,946 | NA | 21,425 | 392 | 129 | 1,091 | 847 | NA | NA | 428 | 419 |
| 1992 | 37,936 | 13,690 | 4,337 | 1,529 | NA | 4,476 | 2,415 | 933 | 479 | NA | NA | NA | 479 | 21,736 | NA | 21,184 | 414 | 138 | 1,120 | 911 | NA | NA | 454 | 456 |
| 1993 | 37,283 | 14,075 | 4,838 | 1,500 | NA | 4,295 | 2,542 | 900 | 496 | NA | NA | NA | 496 | 20,547 | NA | 19,956 | 443 | 148 | 1,181 | 984 | NA | NA | 487 | 497 |
| 1994 | 36,618 | 13,800 | 4,985 | 1,596 | NA | 3,616 | 2,644 | 960 | 517 | NA | NA | NA | 517 | 19,995 | NA | 19,372 | 464 | 158 | 1,256 | 1,049 | NA | NA | 509 | 541 |
| 1995 | 40,936 | 13,543 | 4,952 | 1,714 | NA | 3,164 | 2,779 | 934 | 559 | NA | NA | NA | 559 | 24,418 | NA | 23,755 | 494 | 170 | 1,311 | 1,104 | NA | NA | 516 | 589 |
| 1996 | 43,170 | 13,958 | 4,872 | 1,623 | NA | 3,640 | 2,864 | 960 | 584 | NA | NA | NA | 584 | 26,076 | NA | 25,370 | 524 | 182 | 1,390 | 1,162 | NA | NA | 522 | 640 |
| 1997 | 46,516 | 12,852 | 4,997 | 1,679 | NA | 2,648 | 2,518 | 1,011 | 548 | NA | NA | NA | 548 | 30,502 | NA | 29,782 | 515 | 205 | 1,396 | 1,219 | NA | NA | 508 | 711 |
| 1998 | 46,247 | 12,751 | 5,146 | 1,725 | NA | 2,632 | 2,189 | 1,060 | 515 | NA | NA | NA | 515 | 30,303 | NA | 29,576 | 509 | 218 | 1,393 | 1,285 | NA | NA | 502 | 784 |
| 1999 | 51,853 | 13,869 | 5,530 | 1,651 | NA | 2,817 | 2,571 | 1,300 | 533 | NA | NA | NA | 533 | 34,586 | NA | 33,821 | 529 | 236 | 1,480 | 1,385 | NA | NA | 537 | 849 |
| 2000 | 56,503 | 15,450 | 6,105 | 1,750 | NA | 2,682 | 3,081 | 1,831 | 558 | NA | NA | NA | 558 | 37,293 | NA | 36,494 | 540 | 258 | 1,604 | 1,598 | NA | NA | 578 | 1,021 |
| 2001 | 64,201 | 18,781 | 7,052 | 2,564 | NA | 3,603 | 3,411 | 2,150 | 594 | 9 | NA | NA | 585 | 41,260 | 55 | 40,409 | 535 | 261 | 1,734 | 1,832 | 85 | NA | 621 | 1,126 |
| 2002 | 50,540 | 18,949 | 7,487 | 2,867 | NA | 2,452 | 3,877 | 2,267 | 649 | 12 | NA | NA | 636 | 26,917 | 52 | 26,081 | 531 | 253 | 1,937 | 2,089 | 106 | NA | 689 | 1,293 |
| 2003 | 60,983 | 22,101 | 7,672 | 3,020 | NA | 4,473 | 4,450 | 2,487 | 721 | 13 | NA | NA | 708 | 33,710 | 54 | 32,861 | 537 | 259 | 2,127 | 2,324 | 99 | NA | 739 | 1,486 |
| 2004 | 69,322 | 22,540 | 7,455 | 3,180 | NA | 4,775 | 4,682 | 2,448 | 749 | 14 | NA | NA | 735 | 41,521 | 56 | 40,657 | 545 | 264 | 2,190 | 2,322 | 75 | NA | 759 | 1,488 |
| 2005 | 69,768 | 23,376 | 7,557 | 3,288 | NA | 5,289 | 4,810 | 2,432 | 734 | 14 | NA | NA | 719 | 40,894 | 62 | 39,995 | 557 | 280 | 2,283 | 2,481 | 80 | NA | 774 | 1,627 |
| 2006 | 76,499 | 24,682 | 7,435 | 3,348 | 87 | 6,140 | 5,080 | 2,592 | 894 | 13 | 169 | NA | 712 | 45,978 | 72 | 45,033 | 573 | 300 | 2,368 | 2,579 | 84 | NA | 789 | 1,705 |
| 2007 | 83,662 | 27,788 | 7,222 | 3,643 | 111 | 8,945 | 5,284 | 2,583 | 968 | 13 | 210 | NA | 745 | 49,625 | 74 | 48,625 | 607 | 318 | 2,461 | 2,821 | 89 | NA | 848 | 1,885 |
| 2008 | 74,729 | 25,254 | 7,316 | 3,955 | 146 | 5,397 | 5,840 | 2,600 | 1,160 | 13 | 261 | 71 | 815 | 42,377 | 79 | 41,292 | 675 | 331 | 2,682 | 3,258 | 83 | 105 | 951 | 2,119 |
| 2009 | 72,634 | 30,630 | 7,874 | 4,517 | 186 | 7,797 | 7,207 | 3,049 | 1,312 | 17 | 316 | 38 | 942 | 34,279 | 79 | 33,124 | 757 | 319 | 2,913 | 3,501 | 93 | 96 | 1,006 | 2,305 |
| 2010 | 79,016 | 29,650 | 8,016 | 5,025 | 219 | 4,705 | 8,645 | 3,041 | 1,405 | 18 | 354 | 32 | 1,002 | 41,138 | 67 | 39,987 | 763 | 321 | 3,074 | 3,749 | 77 | 182 | 1,034 | 2,456 |
| 2011 | 81,891 | 29,572 | 8,024 | 5,057 | 226 | 4,404 | 9,168 | 2,693 | 1,411 | 13 | 348 | 70 | 981 | 43,791 | 80 | 42,590 | 781 | 340 | 3,333 | 3,784 | 76 | 122 | 1,073 | 2,512 |
| 2012 | 86,822 | 30,191 | 8,587 | 5,566 | 220 | 4,137 | 9,053 | 2,629 | 1,387 | 18 | 330 | 45 | 994 | 47,727 | 81 | 46,436 | 861 | 349 | 3,602 | 3,915 | 76 | 137 | 1,132 | 2,571 |
| 2013 | 88,158 | 32,424 | 8,309 | 6,639 | 213 | 6,028 | 8,771 | 2,465 | 1,420 | 22 | 300 | 47 | 1,051 | 46,121 | 94 | 44,738 | 918 | 371 | 3,854 | 4,338 | 69 | 199 | 1,268 | 2,802 |
| 2014 | 91,772 | 33,354 | 8,775 | 6,766 | 200 | 6,445 | 8,594 | 2,574 | 1,394 | 13 | 271 | 35 | 1,075 | 48,163 | 107 | 46,685 | 979 | 392 | 4,127 | 4,735 | 67 | 250 | 1,392 | 3,025 |
| 2015 | 97,249 | 34,585 | 9,347 | 7,182 | 199 | 6,102 | 8,964 | 2,791 | 1,399 | 9 | 282 | 24 | 1,085 | 51,726 | 96 | 50,137 | 1,086 | 407 | 4,457 | 5,083 | 65 | 209 | 1,579 | 3,231 |
| 2016 | 109,691 | 36,224 | 9,805 | 7,469 | 209 | 5,327 | 9,665 | 3,749 | 1,729 | 10 | 300 | 45 | 1,162 | 59,430 | 84 | 57,253 | 1,202 | 891 | 4,877 | 7,284 | 66 | 245 | 1,826 | 5,147 |
| 2017 | 113,659 | 38,453 | 10,124 | 7,868 | 208 | 5,386 | 10,144 | 4,723 | 1,769 | 15 | 279 | 33 | 1,223 | 60,782 | 91 | 58,429 | 1,270 | 979 | 5,230 | 7,235 | 72 | 193 | 1,943 | 5,019 |

TABLE 8

U.S. applied research expenditures, by source of funds and performing sector: 1953–2021

(Millions of current and of constant 2012 dollars)

| Year | All funding sources | | | | Federal | | | | Nonfederal government | | | | | Business | | | | | Higher education | | NPOs | | | | |
|--------------------------|---------------------|--------|--------------------|-------|-----------------------|----------|------------------|-------|-----------------------|-------|-----------------------|----------|------------------|----------|-------|----------|------------------|-------|------------------|-------|-------|----------|------------------|-------|--|
| | All performers | Total | Federal intramural | FFRDC | Nonfederal government | Business | Higher education | NPO | Total | FFRDC | Nonfederal government | Business | Higher education | Total | FFRDC | Business | Higher education | NPO | Higher education | Total | FFRDC | Business | Higher education | NPO | |
| 2018 | 118,700 | 40,395 | 11,111 | 8,407 | 215 | 5,355 | 10,593 | 4,714 | 1,831 | 21 | 273 | 23 | 1,290 | 63,557 | 90 | 61,018 | 1,363 | 1,069 | 5,511 | 7,164 | 75 | 191 | 2,034 | 4,859 | |
| 2019 | 130,712 | 42,410 | 11,264 | 9,075 | 225 | 5,246 | 11,117 | 5,483 | 1,897 | 23 | 269 | 42 | 1,340 | 73,366 | 83 | 70,679 | 1,448 | 1,139 | 5,759 | 6,981 | 77 | 209 | 2,097 | 4,589 | |
| 2020 ^a | 133,326 | 43,855 | 11,494 | 9,384 | 224 | 6,140 | 11,704 | 4,908 | 1,924 | 20 | 262 | 62 | 1,363 | 74,646 | 82 | 71,934 | 1,441 | 1,174 | 5,956 | 6,590 | 76 | 234 | 2,077 | 4,193 | |
| 2021 ^b | 143,995 | 44,718 | 10,651 | 9,863 | 224 | 6,541 | 12,261 | 5,179 | 1,972 | 20 | 258 | 67 | 1,398 | 83,859 | 89 | 81,066 | 1,453 | 1,238 | 6,186 | 6,884 | 78 | 256 | 2,117 | 4,424 | |
| Constant 2012 \$millions | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1953 | 8,928 | 5,233 | 2,403 | 329 | NA | 1,995 | 409 | 97 | 209 | NA | NA | NA | 209 | 3,155 | NA | 3,034 | 45 | 76 | 193 | 139 | NA | NA | 69 | 69 | |
| 1954 | 9,457 | 5,387 | 2,261 | 401 | NA | 2,210 | 408 | 106 | 216 | NA | NA | NA | 216 | 3,517 | NA | 3,377 | 51 | 89 | 192 | 144 | NA | NA | 69 | 75 | |
| 1955 | 10,133 | 5,656 | 2,247 | 580 | NA | 2,285 | 425 | 118 | 218 | NA | NA | NA | 218 | 3,931 | NA | 3,779 | 57 | 94 | 183 | 145 | NA | NA | 71 | 74 | |
| 1956 | 12,584 | 6,692 | 2,522 | 812 | NA | 2,803 | 424 | 131 | 216 | NA | NA | NA | 216 | 5,338 | NA | 5,181 | 65 | 91 | 176 | 163 | NA | NA | 72 | 91 | |
| 1957 | 15,243 | 8,235 | 2,814 | 941 | NA | 3,940 | 398 | 142 | 214 | NA | NA | NA | 214 | 6,427 | NA | 6,266 | 73 | 88 | 171 | 196 | NA | NA | 69 | 126 | |
| 1958 | 17,040 | 9,245 | 3,187 | 963 | NA | 4,514 | 405 | 176 | 218 | NA | NA | NA | 218 | 7,183 | NA | 7,022 | 74 | 86 | 168 | 225 | NA | NA | 71 | 154 | |
| 1959 | 17,909 | 9,931 | 3,512 | 1,090 | NA | 4,613 | 472 | 244 | 225 | NA | NA | NA | 225 | 7,344 | NA | 7,176 | 76 | 91 | 171 | 238 | NA | NA | 73 | 164 | |
| 1960 | 18,424 | 10,409 | 3,693 | 1,208 | NA | 4,624 | 559 | 325 | 233 | NA | NA | NA | 233 | 7,369 | NA | 7,188 | 78 | 102 | 173 | 240 | NA | NA | 72 | 168 | |
| 1961 | 18,573 | 10,770 | 3,973 | 1,424 | NA | 4,389 | 616 | 369 | 237 | NA | NA | NA | 237 | 7,107 | NA | 6,928 | 77 | 101 | 176 | 282 | NA | NA | 74 | 208 | |
| 1962 | 21,727 | 12,328 | 4,163 | 1,463 | NA | 5,607 | 696 | 400 | 238 | NA | NA | NA | 238 | 8,640 | NA | 8,449 | 79 | 112 | 179 | 341 | NA | NA | 76 | 264 | |
| 1963 | 22,446 | 13,036 | 4,699 | 1,594 | NA | 5,528 | 741 | 473 | 245 | NA | NA | NA | 245 | 8,614 | NA | 8,422 | 81 | 110 | 188 | 363 | NA | NA | 78 | 285 | |
| 1964 | 24,036 | 14,083 | 5,415 | 1,791 | NA | 5,596 | 812 | 469 | 259 | NA | NA | NA | 259 | 9,111 | NA | 8,925 | 77 | 109 | 213 | 369 | NA | NA | 100 | 269 | |
| 1965 | 24,574 | 14,342 | 5,582 | 1,649 | NA | 5,574 | 986 | 551 | 261 | NA | NA | NA | 261 | 9,293 | NA | 9,102 | 73 | 118 | 237 | 441 | NA | NA | 149 | 292 | |
| 1966 | 25,430 | 14,345 | 5,531 | 1,585 | NA | 5,389 | 1,137 | 702 | 257 | NA | NA | NA | 257 | 10,068 | NA | 9,860 | 77 | 131 | 265 | 495 | NA | NA | 183 | 312 | |
| 1967 | 25,750 | 14,675 | 5,675 | 1,771 | NA | 5,221 | 1,261 | 746 | 242 | NA | NA | NA | 242 | 10,036 | NA | 9,821 | 82 | 133 | 286 | 510 | NA | NA | 191 | 319 | |
| 1968 | 26,170 | 14,318 | 5,662 | 1,702 | NA | 4,870 | 1,271 | 813 | 234 | NA | NA | NA | 234 | 10,826 | NA | 10,601 | 82 | 143 | 280 | 512 | NA | NA | 196 | 316 | |
| 1969 | 26,489 | 14,199 | 5,970 | 1,629 | NA | 4,468 | 1,246 | 886 | 234 | NA | NA | NA | 234 | 11,267 | NA | 11,034 | 78 | 155 | 262 | 527 | NA | NA | 206 | 321 | |
| 1970 | 26,537 | 14,303 | 6,154 | 1,550 | NA | 4,392 | 1,289 | 918 | 236 | NA | NA | NA | 236 | 11,203 | NA | 10,970 | 81 | 152 | 257 | 537 | NA | NA | 215 | 323 | |
| 1971 | 25,609 | 13,570 | 5,949 | 1,368 | NA | 3,982 | 1,343 | 929 | 266 | NA | NA | NA | 266 | 10,947 | NA | 10,717 | 81 | 149 | 294 | 531 | NA | NA | 206 | 325 | |
| 1972 | 25,870 | 13,648 | 6,035 | 1,507 | NA | 3,556 | 1,643 | 907 | 312 | NA | NA | NA | 312 | 11,016 | NA | 10,783 | 86 | 147 | 344 | 549 | NA | NA | 217 | 332 | |
| 1973 | 26,554 | 13,683 | 6,094 | 1,333 | NA | 3,523 | 1,793 | 940 | 350 | NA | NA | NA | 350 | 11,547 | NA | 11,299 | 104 | 144 | 398 | 577 | NA | NA | 245 | 331 | |
| 1974 | 26,884 | 13,304 | 6,048 | 1,225 | NA | 3,313 | 1,744 | 974 | 352 | NA | NA | NA | 352 | 12,202 | NA | 11,945 | 115 | 142 | 432 | 595 | NA | NA | 262 | 333 | |
| 1975 | 27,107 | 13,820 | 6,405 | 1,285 | NA | 3,320 | 1,841 | 970 | 380 | NA | NA | NA | 380 | 11,793 | NA | 11,525 | 129 | 139 | 471 | 643 | NA | NA | 308 | 335 | |
| 1976 | 28,505 | 14,175 | 6,568 | 1,451 | NA | 3,280 | 1,891 | 984 | 404 | NA | NA | NA | 404 | 12,706 | NA | 12,423 | 141 | 142 | 526 | 694 | NA | NA | 346 | 348 | |
| 1977 | 28,888 | 14,002 | 6,220 | 1,614 | NA | 3,328 | 1,870 | 969 | 402 | NA | NA | NA | 402 | 13,185 | NA | 12,889 | 152 | 144 | 580 | 719 | NA | NA | 360 | 359 | |
| 1978 | 29,900 | 14,190 | 6,261 | 1,666 | NA | 3,338 | 1,888 | 1,037 | 422 | NA | NA | NA | 422 | 13,916 | NA | 13,603 | 169 | 144 | 647 | 724 | NA | NA | 356 | 367 | |
| 1979 | 31,202 | 14,450 | 6,229 | 1,687 | NA | 3,366 | 2,044 | 1,124 | 417 | NA | NA | NA | 417 | 14,952 | NA | 14,625 | 184 | 143 | 679 | 704 | NA | NA | 333 | 372 | |

TABLE 8

U.S. applied research expenditures, by source of funds and performing sector: 1953–2021

(Millions of current and of constant 2012 dollars)

| Year | All funding sources | | Federal | | | | | | Nonfederal government | | | | | Business | | | | | Higher education | | NPOs | | | | |
|------|---------------------|--------|--------------------|-------|-----------------------|----------|------------------|-------|-----------------------|-------|-----------------------|----------|------------------|----------|-------|----------|------------------|-----|------------------|-------|-------|----------|------------------|-------|--|
| | All performers | Total | Federal intramural | FFRDC | Nonfederal government | Business | Higher education | NPO | Total | FFRDC | Nonfederal government | Business | Higher education | Total | FFRDC | Business | Higher education | NPO | Higher education | Total | FFRDC | Business | Higher education | NPO | |
| 1980 | 32,478 | 14,789 | 6,023 | 1,772 | NA | 3,844 | 2,158 | 993 | 411 | NA | NA | NA | 411 | 15,844 | NA | 15,495 | 209 | 141 | 729 | 705 | NA | NA | 332 | 373 | |
| 1981 | 35,289 | 14,923 | 5,903 | 1,703 | NA | 4,413 | 2,059 | 845 | 431 | NA | NA | NA | 431 | 18,436 | NA | 18,065 | 233 | 138 | 784 | 716 | NA | NA | 343 | 373 | |
| 1982 | 37,080 | 15,650 | 5,702 | 1,812 | NA | 5,278 | 2,049 | 810 | 422 | NA | NA | NA | 422 | 19,443 | NA | 19,057 | 246 | 140 | 818 | 747 | NA | NA | 362 | 385 | |
| 1983 | 39,756 | 17,115 | 5,859 | 1,890 | NA | 6,321 | 2,198 | 848 | 421 | NA | NA | NA | 421 | 20,567 | NA | 20,147 | 277 | 144 | 868 | 785 | NA | NA | 380 | 405 | |
| 1984 | 42,442 | 17,957 | 5,597 | 2,223 | NA | 6,951 | 2,318 | 868 | 443 | NA | NA | NA | 443 | 22,284 | NA | 21,817 | 317 | 149 | 929 | 829 | NA | NA | 401 | 428 | |
| 1985 | 46,546 | 20,028 | 5,745 | 2,367 | NA | 8,644 | 2,376 | 897 | 479 | NA | NA | NA | 479 | 24,171 | NA | 23,654 | 362 | 155 | 1,003 | 864 | NA | NA | 411 | 453 | |
| 1986 | 48,931 | 18,698 | 5,755 | 2,260 | NA | 7,273 | 2,502 | 908 | 535 | NA | NA | NA | 535 | 27,667 | NA | 27,092 | 411 | 163 | 1,114 | 916 | NA | NA | 431 | 486 | |
| 1987 | 48,997 | 18,983 | 5,900 | 2,153 | NA | 7,077 | 2,880 | 973 | 584 | NA | NA | NA | 584 | 27,189 | NA | 26,563 | 456 | 171 | 1,240 | 1,001 | NA | NA | 483 | 518 | |
| 1988 | 49,998 | 18,200 | 5,693 | 1,665 | NA | 6,512 | 3,316 | 1,014 | 638 | NA | NA | NA | 638 | 28,679 | NA | 27,991 | 511 | 177 | 1,385 | 1,096 | NA | NA | 550 | 546 | |
| 1989 | 52,590 | 19,150 | 5,811 | 1,705 | NA | 7,045 | 3,456 | 1,132 | 679 | NA | NA | NA | 679 | 30,065 | NA | 29,317 | 565 | 183 | 1,520 | 1,176 | NA | NA | 603 | 573 | |
| 1990 | 54,808 | 21,509 | 5,736 | 1,816 | NA | 9,372 | 3,362 | 1,224 | 711 | NA | NA | NA | 711 | 29,730 | NA | 28,949 | 592 | 189 | 1,619 | 1,238 | NA | NA | 635 | 603 | |
| 1991 | 58,689 | 21,694 | 6,219 | 2,196 | NA | 8,489 | 3,390 | 1,399 | 711 | NA | NA | NA | 711 | 33,340 | NA | 32,549 | 595 | 196 | 1,657 | 1,287 | NA | NA | 651 | 636 | |
| 1992 | 56,347 | 20,334 | 6,442 | 2,271 | NA | 6,648 | 3,587 | 1,387 | 711 | NA | NA | NA | 711 | 32,286 | NA | 31,466 | 615 | 205 | 1,664 | 1,353 | NA | NA | 675 | 678 | |
| 1993 | 54,095 | 20,421 | 7,020 | 2,176 | NA | 6,232 | 3,688 | 1,305 | 719 | NA | NA | NA | 719 | 29,813 | NA | 28,955 | 643 | 215 | 1,714 | 1,428 | NA | NA | 707 | 721 | |
| 1994 | 52,020 | 19,605 | 7,082 | 2,267 | NA | 5,137 | 3,756 | 1,363 | 735 | NA | NA | NA | 735 | 28,405 | NA | 27,520 | 660 | 225 | 1,784 | 1,491 | NA | NA | 722 | 769 | |
| 1995 | 56,961 | 18,845 | 6,891 | 2,385 | NA | 4,403 | 3,867 | 1,299 | 777 | NA | NA | NA | 777 | 33,977 | NA | 33,054 | 687 | 236 | 1,825 | 1,537 | NA | NA | 718 | 819 | |
| 1996 | 58,989 | 19,072 | 6,657 | 2,217 | NA | 4,974 | 3,913 | 1,311 | 798 | NA | NA | NA | 798 | 35,631 | NA | 34,667 | 716 | 248 | 1,900 | 1,588 | NA | NA | 714 | 875 | |
| 1997 | 62,483 | 17,264 | 6,712 | 2,255 | NA | 3,557 | 3,382 | 1,358 | 737 | NA | NA | NA | 737 | 40,971 | NA | 40,005 | 691 | 275 | 1,875 | 1,637 | NA | NA | 683 | 954 | |
| 1998 | 61,431 | 16,938 | 6,835 | 2,291 | NA | 3,496 | 2,908 | 1,408 | 684 | NA | NA | NA | 684 | 40,252 | NA | 39,286 | 676 | 289 | 1,850 | 1,708 | NA | NA | 667 | 1,041 | |
| 1999 | 67,897 | 18,160 | 7,241 | 2,161 | NA | 3,689 | 3,367 | 1,702 | 698 | NA | NA | NA | 698 | 45,287 | NA | 44,285 | 693 | 309 | 1,938 | 1,814 | NA | NA | 703 | 1,111 | |
| 2000 | 72,415 | 19,801 | 7,825 | 2,243 | NA | 3,437 | 3,949 | 2,347 | 715 | NA | NA | NA | 715 | 47,795 | NA | 46,772 | 692 | 331 | 2,055 | 2,048 | NA | NA | 740 | 1,308 | |
| 2001 | 80,470 | 23,540 | 8,839 | 3,214 | NA | 4,516 | 4,276 | 2,695 | 744 | 11 | NA | NA | 733 | 51,716 | 70 | 50,649 | 671 | 327 | 2,173 | 2,297 | 107 | NA | 778 | 1,411 | |
| 2002 | 62,375 | 23,387 | 9,241 | 3,538 | NA | 3,026 | 4,784 | 2,797 | 800 | 15 | NA | NA | 785 | 33,220 | 65 | 32,188 | 655 | 312 | 2,390 | 2,578 | 131 | NA | 851 | 1,596 | |
| 2003 | 73,806 | 26,748 | 9,285 | 3,654 | NA | 5,414 | 5,386 | 3,010 | 872 | 16 | NA | NA | 856 | 40,799 | 65 | 39,771 | 649 | 313 | 2,574 | 2,813 | 120 | NA | 894 | 1,799 | |
| 2004 | 81,705 | 26,566 | 8,786 | 3,748 | NA | 5,628 | 5,519 | 2,885 | 882 | 16 | NA | NA | 866 | 48,939 | 66 | 47,920 | 642 | 311 | 2,582 | 2,737 | 89 | NA | 894 | 1,753 | |
| 2005 | 79,732 | 26,715 | 8,637 | 3,758 | NA | 6,044 | 5,497 | 2,779 | 838 | 16 | NA | NA | 822 | 46,734 | 71 | 45,707 | 636 | 321 | 2,609 | 2,836 | 91 | NA | 885 | 1,859 | |
| 2006 | 84,807 | 27,362 | 8,242 | 3,712 | 96 | 6,807 | 5,632 | 2,873 | 991 | 14 | 187 | NA | 789 | 50,971 | 80 | 49,923 | 635 | 332 | 2,625 | 2,859 | 94 | NA | 875 | 1,890 | |
| 2007 | 90,308 | 29,995 | 7,795 | 3,932 | 120 | 9,656 | 5,704 | 2,788 | 1,045 | 14 | 227 | NA | 804 | 53,566 | 80 | 52,487 | 655 | 344 | 2,656 | 3,045 | 96 | NA | 915 | 2,035 | |
| 2008 | 79,147 | 26,747 | 7,749 | 4,189 | 155 | 5,716 | 6,185 | 2,754 | 1,228 | 14 | 276 | 75 | 863 | 44,882 | 84 | 43,732 | 715 | 350 | 2,840 | 3,450 | 88 | 111 | 1,007 | 2,245 | |
| 2009 | 76,438 | 32,234 | 8,286 | 4,754 | 196 | 8,205 | 7,584 | 3,209 | 1,381 | 18 | 332 | 40 | 991 | 36,074 | 83 | 34,859 | 796 | 335 | 3,065 | 3,684 | 98 | 101 | 1,059 | 2,426 | |
| 2010 | 82,167 | 30,833 | 8,336 | 5,225 | 227 | 4,893 | 8,990 | 3,162 | 1,461 | 19 | 368 | 33 | 1,041 | 42,779 | 70 | 41,582 | 793 | 334 | 3,197 | 3,898 | 80 | 189 | 1,075 | 2,554 | |
| 2011 | 83,423 | 30,125 | 8,174 | 5,151 | 230 | 4,486 | 9,339 | 2,744 | 1,438 | 13 | 355 | 71 | 999 | 44,610 | 82 | 43,387 | 795 | 346 | 3,395 | 3,855 | 78 | 124 | 1,093 | 2,559 | |
| 2012 | 86,822 | 30,191 | 8,587 | 5,566 | 220 | 4,137 | 9,053 | 2,629 | 1,387 | 18 | 330 | 45 | 994 | 47,727 | 81 | 46,436 | 861 | 349 | 3,602 | 3,915 | 76 | 137 | 1,132 | 2,571 | |

TABLE 8

U.S. applied research expenditures, by source of funds and performing sector: 1953–2021

(Millions of current and of constant 2012 dollars)

| Year | All funding sources | Federal | | | | | | | Nonfederal government | | | | | Business | | | | | Higher education | NPOs | | | | |
|-------------------|---------------------|---------|--------------------|-------|-----------------------|----------|------------------|-------|-----------------------|-------|-----------------------|----------|------------------|----------|-------|----------|------------------|-------|------------------|-------|-------|----------|------------------|-------|
| | All performers | Total | Federal intramural | FFRDC | Nonfederal government | Business | Higher education | NPO | Total | FFRDC | Nonfederal government | Business | Higher education | Total | FFRDC | Business | Higher education | NPO | Higher education | Total | FFRDC | Business | Higher education | NPO |
| 2013 | 86,640 | 31,866 | 8,166 | 6,525 | 209 | 5,924 | 8,620 | 2,423 | 1,396 | 21 | 295 | 46 | 1,033 | 45,327 | 92 | 43,968 | 902 | 365 | 3,788 | 4,264 | 68 | 196 | 1,246 | 2,754 |
| 2014 | 88,537 | 32,178 | 8,466 | 6,527 | 193 | 6,218 | 8,291 | 2,483 | 1,345 | 12 | 262 | 34 | 1,037 | 46,465 | 103 | 45,040 | 944 | 378 | 3,982 | 4,568 | 65 | 241 | 1,343 | 2,919 |
| 2015 | 92,892 | 33,035 | 8,928 | 6,860 | 190 | 5,829 | 8,562 | 2,666 | 1,337 | 9 | 269 | 23 | 1,036 | 49,408 | 92 | 47,891 | 1,037 | 389 | 4,257 | 4,855 | 62 | 200 | 1,508 | 3,086 |
| 2016 | 103,737 | 34,257 | 9,273 | 7,063 | 198 | 5,038 | 9,140 | 3,545 | 1,635 | 10 | 284 | 43 | 1,098 | 56,204 | 79 | 54,146 | 1,137 | 842 | 4,612 | 6,889 | 62 | 232 | 1,727 | 4,868 |
| 2017 | 105,486 | 35,688 | 9,396 | 7,302 | 193 | 4,998 | 9,415 | 4,384 | 1,642 | 14 | 259 | 30 | 1,135 | 56,411 | 85 | 54,227 | 1,178 | 909 | 4,854 | 6,714 | 66 | 179 | 1,803 | 4,658 |
| 2018 | 107,577 | 36,610 | 10,070 | 7,619 | 195 | 4,854 | 9,600 | 4,272 | 1,659 | 19 | 247 | 21 | 1,169 | 57,602 | 81 | 55,301 | 1,235 | 969 | 4,995 | 6,493 | 68 | 173 | 1,843 | 4,403 |
| 2019 | 116,376 | 37,759 | 10,029 | 8,080 | 200 | 4,671 | 9,898 | 4,881 | 1,689 | 20 | 239 | 37 | 1,193 | 65,320 | 74 | 62,927 | 1,289 | 1,014 | 5,127 | 6,215 | 69 | 186 | 1,867 | 4,085 |
| 2020 ^a | 117,174 | 38,542 | 10,102 | 8,247 | 197 | 5,396 | 10,286 | 4,314 | 1,691 | 18 | 230 | 55 | 1,198 | 65,603 | 72 | 63,220 | 1,266 | 1,031 | 5,234 | 5,792 | 67 | 206 | 1,825 | 3,685 |
| 2021 ^b | 121,111 | 37,612 | 8,959 | 8,295 | 188 | 5,501 | 10,312 | 4,356 | 1,658 | 17 | 217 | 56 | 1,176 | 70,532 | 75 | 68,183 | 1,222 | 1,041 | 5,203 | 5,790 | 66 | 215 | 1,780 | 3,721 |

NA = not available.

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

^a Some data for 2020 are preliminary and may be revised later.^b The data for 2021 include estimates and are likely to be revised later.**Note(s):**

This table reaggregates the R&D performer data in table 4 according to major categories of R&D funding: federal government, nonfederal government (state and local), business, higher education, and NPOs. Business sources of R&D funding in this table include the own funds of domestic R&D-performing businesses, funds from other domestic businesses, and funds from foreign businesses. For further detail on the R&D performers listed, see table 2, footnotes a–f. For detail on type-of-R&D data, see table 3, footnotes b–f. Detail may not add to total because of rounding. Constant-dollar estimates are derived from unrounded data. For trend comparisons, use only the historical data reported in this table because some back-year data may have been revised. Data are based on reports by performers in the National Center for Science and Engineering Statistics annual surveys on R&D expenditures: Business Enterprise Research and Development Survey, Annual Business Survey, Higher Education Research and Development Survey, Survey of Federal Funds for Research and Development, FFRDC Research and Development Survey, and Survey of State Government Research and Development. R&D expenditures by business performers—and, before 2001, also industry-administered FFRDCs—were collected on a calendar year basis. Expenditures for other performers are calendar year approximations based on fiscal year data. (See also table 4, general notes.)

Source(s):

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