

TABLE S6-3

Value added of high R&D intensive industries, by region, country, or economy: 2002–18

(Millions of current dollars)

| Region, country, or economy | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| World | 1,357,048 | 1,521,107 | 1,681,509 | 1,785,562 | 1,902,249 | 2,112,860 | 2,235,513 | 2,142,157 | 2,324,795 | 2,510,015 | 2,530,752 | 2,622,041 | 2,730,108 | 2,737,141 | 2,813,346 | 2,987,715 | 3,241,776 |
| North America | 580,930 | 616,705 | 647,507 | 693,620 | 720,246 | 781,137 | 793,297 | 790,602 | 812,819 | 829,181 | 838,936 | 867,005 | 897,844 | 947,202 | 977,950 | 1,026,218 | 1,101,230 |
| Canada | 17,242 | 20,740 | 23,160 | 25,879 | 29,635 | 32,029 | 32,621 | 29,401 | 32,526 | 33,731 | 34,158 | 33,391 | 33,961 | 30,279 | 28,021 | 28,489 | 29,754 |
| Mexico | 25,749 | 22,615 | 20,628 | 22,086 | 23,778 | 24,423 | 23,399 | 17,527 | 19,567 | 19,926 | 21,864 | 22,041 | 25,174 | 26,140 | 24,094 | 25,375 | 26,175 |
| United States | 537,939 | 573,351 | 603,720 | 645,655 | 666,833 | 724,685 | 737,277 | 743,673 | 760,726 | 775,523 | 782,914 | 811,572 | 838,709 | 890,784 | 925,835 | 972,354 | 1,044,722 |
| Central and South America | 21,603 | 20,799 | 26,152 | 30,938 | 37,337 | 44,650 | 53,336 | 50,584 | 60,022 | 67,928 | 69,345 | 70,888 | 67,605 | 60,218 | 54,471 | 63,581 | 61,730 |
| Argentina | 2,042 | 2,427 | 3,085 | 3,751 | 4,390 | 5,506 | 6,850 | 6,916 | 8,250 | 9,697 | 10,446 | 10,917 | 9,735 | 11,130 | 9,988 | 11,751 | 9,543 |
| Bolivia | 133 | 134 | 135 | 144 | 148 | 159 | 206 | 242 | 250 | 274 | 302 | 333 | 352 | 383 | 431 | 458 | 500 |
| Brazil | 10,923 | 10,209 | 13,372 | 16,355 | 20,434 | 23,989 | 28,450 | 24,193 | 30,773 | 34,039 | 31,130 | 30,935 | 29,494 | 20,540 | 20,497 | 24,997 | 23,454 |
| Chile | 1,943 | 1,849 | 2,481 | 2,596 | 3,289 | 3,871 | 4,310 | 4,676 | 5,494 | 6,719 | 7,573 | 8,193 | 7,824 | 7,384 | 7,271 | 7,942 | 8,625 |
| Colombia | 2,304 | 2,171 | 2,719 | 3,252 | 3,597 | 4,575 | 5,350 | 5,329 | 6,483 | 7,243 | 7,985 | 8,198 | 8,374 | 6,676 | 6,606 | 7,267 | 7,793 |
| Costa Rica | 381 | 386 | 433 | 474 | 550 | 657 | 751 | 760 | 928 | 1,066 | 1,215 | 1,333 | 1,444 | 1,689 | 1,777 | 1,838 | 1,886 |
| Ecuador | 875 | 924 | 918 | 949 | 1,008 | 1,265 | 1,389 | 1,567 | 1,745 | 1,716 | 2,290 | 2,359 | 2,336 | 2,274 | 2,194 | 2,228 | 2,324 |
| Honduras | 157 | 166 | 171 | 185 | 190 | 201 | 222 | 247 | 249 | 273 | 293 | 284 | 290 | 282 | 293 | 307 | 316 |
| Jamaica | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Panama | 311 | 329 | 357 | 375 | 414 | 445 | 503 | 576 | 637 | 695 | 770 | 867 | 908 | 974 | 1,033 | 1,117 | 1,208 |
| Peru | 817 | 795 | 839 | 927 | 1,064 | 1,244 | 1,567 | 1,623 | 1,901 | 2,141 | 2,393 | 2,479 | 2,374 | 2,167 | 2,182 | 2,341 | 2,474 |
| Uruguay | 361 | 290 | 316 | 404 | 457 | 542 | 746 | 816 | 1,037 | 1,221 | 1,400 | 1,586 | 1,615 | 1,558 | 1,617 | 1,800 | 1,840 |
| Venezuela | 1,355 | 1,120 | 1,324 | 1,527 | 1,797 | 2,197 | 2,993 | 3,639 | 2,274 | 2,845 | 3,549 | 3,403 | 2,859 | 5,161 | 582 | 1,536 | 1,768 |
| Europe | 360,547 | 428,996 | 490,009 | 513,275 | 548,988 | 632,734 | 682,952 | 605,509 | 626,281 | 686,998 | 654,146 | 693,506 | 705,577 | 651,698 | 665,009 | 684,088 | 754,038 |
| EU | 321,037 | 380,501 | 431,471 | 447,212 | 473,609 | 539,624 | 572,898 | 509,924 | 515,704 | 552,677 | 516,569 | 543,595 | 562,096 | 537,161 | 548,868 | 558,141 | 619,467 |
| Austria | 5,102 | 6,097 | 6,814 | 7,826 | 8,291 | 8,067 | 8,285 | 7,721 | 7,654 | 8,897 | 8,462 | 9,412 | 9,490 | 8,226 | 8,608 | 8,818 | 9,754 |
| Belgium | 7,260 | 8,749 | 9,716 | 10,591 | 10,443 | 12,283 | 13,467 | 11,910 | 12,907 | 12,814 | 12,517 | 13,833 | 14,346 | 11,921 | 13,067 | 13,687 | 16,736 |
| Bulgaria | 166 | 219 | 237 | 283 | 351 | 532 | 607 | 737 | 969 | 1,126 | 1,089 | 1,145 | 1,161 | 1,181 | 1,252 | 1,285 | 1,470 |
| Czechia | 1,934 | 2,426 | 2,791 | 3,333 | 3,909 | 4,854 | 5,600 | 4,858 | 5,199 | 5,710 | 6,025 | 6,003 | 6,374 | 5,687 | 6,131 | 6,695 | 7,504 |
| Denmark | 6,093 | 8,015 | 8,555 | 8,946 | 9,249 | 10,232 | 12,101 | 11,845 | 13,161 | 13,599 | 13,652 | 15,275 | 16,885 | 16,661 | 18,255 | 18,437 | 20,339 |
| Finland | 10,757 | 13,268 | 14,737 | 15,363 | 16,412 | 19,846 | 21,031 | 15,019 | 14,132 | 13,330 | 9,107 | 11,104 | 11,415 | 9,111 | 9,202 | 9,366 | 10,017 |
| France | 63,196 | 75,045 | 82,086 | 84,225 | 89,886 | 99,550 | 106,707 | 98,705 | 96,554 | 102,685 | 98,143 | 104,227 | 106,431 | 92,827 | 95,056 | 98,188 | 106,690 |
| Germany | 65,796 | 81,820 | 95,288 | 99,947 | 103,635 | 124,343 | 133,224 | 113,534 | 118,074 | 130,534 | 123,632 | 129,913 | 136,271 | 120,263 | 124,440 | 127,148 | 143,944 |
| Greece | 2,132 | 2,716 | 3,087 | 3,307 | 3,435 | 3,852 | 3,316 | 3,503 | 3,349 | 2,726 | 2,594 | 2,652 | 2,454 | 2,077 | 1,911 | 1,990 | 2,276 |
| Hungary | 2,422 | 3,502 | 4,509 | 5,164 | 5,272 | 5,306 | 5,826 | 4,936 | 5,280 | 6,240 | 5,289 | 5,533 | 5,558 | 4,966 | 5,106 | 5,537 | 6,054 |
| Ireland | 23,513 | 24,388 | 26,166 | 26,173 | 26,461 | 29,837 | 30,288 | 34,111 | 33,364 | 36,361 | 31,279 | 32,848 | 37,232 | 69,111 | 72,897 | 72,572 | 83,831 |
| Italy | 28,000 | 33,287 | 37,444 | 37,598 | 39,255 | 44,357 | 48,150 | 43,357 | 43,556 | 45,468 | 41,132 | 41,486 | 38,875 | 35,418 | 36,568 | 37,243 | 40,462 |
| Netherlands | 11,349 | 12,818 | 14,371 | 15,778 | 16,470 | 18,979 | 19,514 | 18,516 | 17,644 | 17,344 | 15,967 | 14,911 | 14,786 | 13,267 | 12,825 | 12,668 | 13,572 |
| Poland | 3,467 | 3,847 | 4,399 | 5,414 | 6,127 | 8,257 | 10,297 | 9,368 | 8,954 | 9,213 | 8,819 | 8,575 | 9,651 | 7,883 | 8,115 | 8,885 | 9,202 |
| Portugal | 1,494 | 1,790 | 2,088 | 2,200 | 2,347 | 2,853 | 3,022 | 2,620 | 2,615 | 2,427 | 2,157 | 2,349 | 2,410 | 2,058 | 2,171 | 2,313 | 2,557 |

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(Millions of current dollars)

| Region, country, or economy | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|-----------|
| Romania | 550 | 835 | 1,009 | 1,272 | 2,028 | 2,868 | 4,015 | 3,403 | 3,376 | 4,214 | 4,000 | 5,970 | 6,219 | 5,990 | 6,284 | 6,490 | 7,314 |
| Slovakia | 398 | 496 | 644 | 794 | 1,139 | 1,337 | 1,930 | 1,502 | 1,722 | 1,808 | 1,657 | 1,381 | 1,521 | 1,194 | 1,319 | 1,263 | 1,384 |
| Spain | 12,652 | 16,022 | 18,239 | 20,127 | 21,862 | 25,378 | 29,313 | 27,099 | 23,966 | 25,837 | 23,654 | 26,729 | 27,591 | 24,183 | 25,225 | 25,852 | 28,369 |
| Sweden | 15,699 | 20,349 | 26,510 | 26,768 | 28,917 | 32,094 | 31,373 | 27,480 | 32,068 | 35,094 | 32,944 | 36,796 | 35,868 | 30,184 | 29,611 | 30,690 | 32,348 |
| United Kingdom | 59,057 | 64,811 | 72,782 | 72,106 | 78,120 | 84,801 | 84,832 | 69,700 | 71,161 | 77,247 | 74,450 | 73,454 | 77,557 | 74,952 | 70,824 | 69,014 | 75,643 |
| Other Europe | 39,511 | 48,495 | 58,538 | 66,063 | 75,379 | 93,110 | 110,055 | 95,585 | 110,577 | 134,321 | 137,576 | 149,911 | 143,481 | 114,537 | 116,141 | 125,947 | 134,572 |
| Norway | 4,170 | 5,177 | 5,742 | 6,091 | 6,496 | 7,867 | 8,145 | 7,267 | 7,756 | 8,029 | 8,083 | 8,281 | 7,842 | 6,800 | 6,884 | 7,330 | 7,778 |
| Russia | 9,020 | 11,468 | 15,295 | 18,407 | 23,434 | 32,186 | 38,959 | 29,467 | 38,049 | 49,481 | 52,807 | 61,271 | 54,733 | 32,251 | 31,227 | 36,301 | 37,707 |
| Switzerland | 22,687 | 27,299 | 31,743 | 33,996 | 36,993 | 41,883 | 49,261 | 46,855 | 50,857 | 61,967 | 61,148 | 63,521 | 64,784 | 61,023 | 62,956 | 64,180 | 71,153 |
| Turkey | 2,674 | 3,324 | 4,210 | 5,631 | 6,033 | 7,827 | 9,584 | 8,965 | 10,238 | 10,498 | 10,526 | 11,591 | 11,784 | 12,184 | 12,304 | 14,739 | 13,898 |
| Ukraine | 960 | 1,227 | 1,546 | 1,937 | 2,424 | 3,346 | 4,106 | 3,030 | 3,677 | 4,346 | 5,013 | 5,247 | 4,338 | 2,279 | 2,769 | 3,398 | 4,035 |
| Middle East | 16,759 | 17,965 | 20,104 | 21,580 | 24,383 | 29,642 | 33,658 | 35,514 | 39,022 | 42,857 | 42,933 | 42,013 | 45,075 | 44,883 | 47,103 | 49,894 | 49,208 |
| Bahrain | 152 | 164 | 183 | 223 | 270 | 325 | 379 | 350 | 394 | 408 | 432 | 453 | 481 | 484 | 511 | 531 | 577 |
| Iran | 2,680 | 3,187 | 3,821 | 4,408 | 5,466 | 7,374 | 8,826 | 10,307 | 11,491 | 12,846 | 10,015 | 7,631 | 8,771 | 8,863 | 9,671 | 10,339 | 7,458 |
| Israel | 10,572 | 10,899 | 11,696 | 11,989 | 12,811 | 14,548 | 15,992 | 16,689 | 18,456 | 19,996 | 21,558 | 21,869 | 22,685 | 22,004 | 22,537 | 24,214 | 25,318 |
| Jordan | 471 | 502 | 555 | 612 | 723 | 854 | 916 | 903 | 938 | 955 | 1,045 | 1,101 | 1,299 | 1,310 | 1,467 | 1,603 | 1,702 |
| Kuwait | 258 | 315 | 402 | 421 | 372 | 455 | 573 | 540 | 631 | 827 | 891 | 881 | 862 | 672 | 799 | 857 | 1,022 |
| Qatar | 67 | 70 | 122 | 155 | 343 | 528 | 620 | 675 | 657 | 902 | 1,060 | 1,244 | 1,340 | 1,474 | 1,600 | 1,438 | 1,584 |
| Saudi Arabia | 982 | 1,030 | 1,154 | 1,272 | 1,413 | 1,621 | 1,833 | 2,122 | 2,369 | 2,573 | 3,140 | 3,601 | 3,891 | 4,005 | 4,130 | 4,320 | 4,618 |
| United Arab Emirates | 1,577 | 1,798 | 2,171 | 2,501 | 2,986 | 3,938 | 4,518 | 3,927 | 4,085 | 4,351 | 4,793 | 5,233 | 5,745 | 6,070 | 6,387 | 6,592 | 6,929 |
| Africa | 6,649 | 8,294 | 10,012 | 11,552 | 13,458 | 14,750 | 15,743 | 15,932 | 18,563 | 21,812 | 23,466 | 24,501 | 26,124 | 24,217 | 23,055 | 22,462 | 24,607 |
| Cameroon | 152 | 185 | 212 | 231 | 255 | 284 | 331 | 346 | 352 | 397 | 399 | 444 | 460 | 403 | 444 | 462 | 514 |
| Egypt | 698 | 573 | 667 | 827 | 952 | 1,172 | 1,441 | 1,642 | 1,925 | 2,829 | 3,822 | 3,515 | 3,562 | 3,756 | 3,512 | 2,926 | 3,725 |
| Kenya | 116 | 139 | 146 | 165 | 177 | 222 | 237 | 246 | 256 | 241 | 300 | 312 | 309 | 298 | 318 | 326 | 354 |
| Morocco | 1,021 | 1,247 | 1,429 | 1,727 | 1,867 | 2,101 | 2,209 | 2,368 | 2,464 | 2,567 | 2,518 | 2,780 | 2,928 | 2,530 | 2,680 | 2,947 | 3,190 |
| Nigeria | 1,905 | 2,124 | 2,584 | 3,188 | 4,563 | 5,096 | 5,823 | 4,977 | 5,784 | 7,371 | 8,595 | 10,001 | 11,477 | 10,534 | 9,447 | 8,388 | 9,143 |
| Senegal | 117 | 145 | 171 | 180 | 199 | 242 | 288 | 289 | 291 | 327 | 316 | 334 | 346 | 246 | 317 | 354 | 392 |
| South Africa | 2,104 | 3,218 | 4,087 | 4,490 | 4,630 | 4,989 | 4,679 | 5,303 | 6,690 | 7,206 | 6,673 | 6,205 | 6,102 | 5,599 | 5,471 | 6,179 | 6,396 |
| Tunisia | 537 | 664 | 716 | 744 | 815 | 643 | 734 | 761 | 801 | 874 | 843 | 911 | 941 | 851 | 866 | 880 | 891 |
| Zimbabwe | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Asia | 356,274 | 410,145 | 465,910 | 490,590 | 531,787 | 578,726 | 623,604 | 612,026 | 728,795 | 814,386 | 853,350 | 879,618 | 946,365 | 972,780 | 1,007,124 | 1,097,273 | 1,205,674 |
| Bangladesh | 1,130 | 1,219 | 1,293 | 1,363 | 1,497 | 1,615 | 1,800 | 2,197 | 2,385 | 2,441 | 2,513 | 2,979 | 3,456 | 3,918 | 4,793 | 5,482 | 6,329 |
| China | 75,984 | 92,146 | 104,303 | 123,212 | 146,792 | 172,230 | 210,921 | 220,532 | 261,773 | 315,267 | 368,056 | 414,249 | 463,482 | 499,950 | 517,359 | 583,723 | 669,410 |
| India | 8,505 | 9,881 | 11,723 | 14,257 | 16,132 | 20,558 | 22,180 | 23,013 | 28,149 | 34,317 | 33,136 | 36,650 | 40,461 | 44,887 | 50,216 | 56,050 | 60,995 |
| Indonesia | 3,989 | 4,784 | 4,492 | 4,805 | 5,874 | 7,681 | 9,173 | 9,079 | 10,556 | 10,564 | 8,720 | 9,015 | 8,508 | 8,469 | 9,197 | 9,835 | 9,393 |
| Japan | 167,322 | 190,061 | 207,030 | 197,351 | 189,590 | 186,855 | 197,780 | 191,127 | 215,785 | 220,387 | 198,962 | 161,607 | 151,047 | 146,769 | 158,985 | 140,999 | 146,178 |

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|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|---------|---------|
| Malaysia | 8,481 | 9,853 | 11,208 | 10,582 | 11,623 | 13,132 | 13,012 | 9,726 | 13,211 | 15,495 | 17,320 | 18,235 | 19,244 | 16,970 | 16,901 | 18,054 | 19,783 |
| Pakistan | 1,116 | 1,374 | 1,751 | 2,188 | 2,832 | 3,194 | 3,394 | 3,333 | 3,898 | 4,814 | 5,231 | 5,516 | 6,333 | 6,766 | 7,316 | 8,102 | 7,619 |
| Philippines | 3,427 | 2,966 | 3,408 | 3,731 | 4,477 | 6,113 | 4,940 | 5,608 | 5,701 | 6,503 | 7,463 | 5,927 | 5,911 | 6,249 | 6,664 | 6,988 | 7,006 |
| Singapore | 11,928 | 12,458 | 16,505 | 18,012 | 22,407 | 23,455 | 20,921 | 20,341 | 27,087 | 29,671 | 31,842 | 28,352 | 28,892 | 28,378 | 26,622 | 32,951 | 35,669 |
| South Korea | 37,936 | 41,873 | 54,769 | 61,181 | 68,889 | 77,758 | 69,088 | 63,332 | 82,430 | 91,269 | 92,725 | 102,478 | 107,035 | 103,607 | 99,543 | 112,230 | 118,449 |
| Sri Lanka | 150 | 157 | 158 | 186 | 194 | 247 | 272 | 293 | 315 | 381 | 424 | 447 | 462 | 453 | 419 | 458 | 455 |
| Taiwan | 30,847 | 37,008 | 42,290 | 46,118 | 53,125 | 55,732 | 58,954 | 52,522 | 63,769 | 69,586 | 72,004 | 76,798 | 87,092 | 84,708 | 85,777 | 94,535 | 95,094 |
| Thailand | 4,813 | 5,676 | 6,164 | 6,718 | 7,354 | 8,883 | 9,592 | 9,184 | 11,525 | 10,910 | 10,746 | 11,163 | 11,126 | 9,625 | 9,396 | 9,549 | 10,117 |
| Vietnam | 646 | 691 | 817 | 886 | 1,002 | 1,272 | 1,576 | 1,740 | 2,211 | 2,782 | 4,208 | 6,203 | 13,318 | 12,032 | 13,936 | 18,316 | 19,177 |
| Oceania | 14,286 | 18,203 | 21,814 | 24,006 | 26,050 | 31,220 | 32,923 | 31,990 | 39,294 | 46,852 | 48,576 | 44,510 | 41,518 | 36,143 | 38,634 | 44,197 | 45,289 |
| Australia | 13,536 | 17,214 | 20,613 | 22,689 | 24,855 | 29,665 | 31,551 | 30,721 | 37,836 | 45,289 | 46,926 | 42,737 | 39,760 | 34,622 | 37,150 | 42,560 | 43,631 |
| New Zealand | 750 | 989 | 1,201 | 1,317 | 1,195 | 1,555 | 1,372 | 1,269 | 1,457 | 1,563 | 1,649 | 1,773 | 1,759 | 1,521 | 1,484 | 1,637 | 1,658 |

EU = European Union.

Note(s):

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. High R&D intensive industries include aircraft; pharmaceuticals; computer, electronic, and optical products; scientific research and development services; and software publishing classified by the Organisation for Economic Co-operation and Development. Data on the software publishing are not available; data on the publishing industry, which includes software publishing, are used as a proxy for this industry. Detail may not add to total because of rounding or minor discrepancies. World total does not include all countries and economies due to limitations in data availability. See Table S6-1 for a full list of countries and economies in each region.

Source(s):

IHS Markit, special tabulations (2019) of Comparative Industry Service.

Science and Engineering Indicators