

TABLE 6

**Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2020**

(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Amount
All business activities	21100–81000	612,326
Oil and gas extraction	21100	790
Mining	21200	114
Support activities for mining, including oil and gas	21300	929
Utilities	22100	424
Construction	23000	1,068
Food manufacturing	31100	6,353
Beverage manufacturing	31210	803
Tobacco manufacturing	31220	856
Textile, apparel, and leather products manufacturing	31990	918
Wood products manufacturing	32100	270
Paper manufacturing	32200	1,531
Printing and related support activities	32300	392
Petroleum refineries	32401	499 - 4,458
Asphalt paving, roofing, and saturated materials manufacturing	32402	226
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	238
Basic chemicals manufacturing	32510	3,860
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	1,801
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	1,691
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic substances) manufacturing	32541	80,828
In vitro diagnostic substances manufacturing	32542	1,868
Biotechnology-based pharmaceutical and biological products (except diagnostic substances)	32543	43,834
Soap, cleaning compound, and toilet preparations manufacturing	32591	3,052
Paint, adhesive, and other chemical manufacturing	32592	1,775
Plastics and rubber products manufacturing	32600	3,527
Clay and glass products manufacturing	32710	1,654
Cement, concrete, lime, gypsum, and other nonmetallic mineral products manufacturing	32790	438
Primary metal manufacturing	33100	986
Fabricated metal products manufacturing	33200	4,087
Agricultural machinery and equipment manufacturing	33311	2,207
Construction machinery manufacturing	33312	1,529
Mining, oil, and gas field machinery and equipment manufacturing	33319	1,312
Semiconductor machinery manufacturing	33321	5,079
Industrial machinery manufacturing (except semiconductor machinery)	33322	1,133
Photographic and photocopying equipment manufacturing	33331	171
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	1,956
Digital cameras manufacturing	33333	364
Engine, turbine, and power transmission equipment manufacturing	33360	2,944
Metalworking and other general purpose machinery manufacturing	33390	3,191
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	31,366
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	10,135
Radio, television, and wireless communication equipment manufacturing	33422	2,334
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	2,498
Audio and video equipment manufacturing	33430	1,667
Semiconductor and other electronic components manufacturing	33440	55,218
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	4,451
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing	33452	2,918
Measuring and control instruments manufacturing (not listed elsewhere)	33459	5,745
Electrical equipment, appliances, and components manufacturing	33500	6,474
Motor vehicles manufacturing	33610	20,643

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Motor vehicle body and trailer manufacturing	33620	117
Motor vehicle parts manufacturing	33630	8,511
Aircraft manufacturing	33641	4,993
Aircraft engine and engine parts manufacturing	33642	1,310
Other aircraft parts and auxiliary equipment manufacturing	33643	1,414
Guided missiles, space vehicles, and related parts manufacturing	33644	1,876
Railroad rolling stock manufacturing	33651	299
Ship and boat building	33660	154
Motorcycle, bicycle, and parts manufacturing	33691	488
Military armored vehicle, tank, and tank components manufacturing	33692	275
All other transportation equipment manufacturing	33699	545
Furniture and related products manufacturing	33700	599
Medical equipment and supplies manufacturing	33910	19,425
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	3,749
Merchant wholesalers, durable goods	42300	841
Merchant wholesalers, nondurable goods	42400	535
Wholesale electronic markets and agents and brokers (business to business)	42500	62
Retail trade (except electronic shopping and electronic auctions)	44000	215 - 4,173
Electronic shopping and electronic auctions	45411	0 - 18,774 i
Transportation	48000	4,297
Couriers, messengers, and express delivery services	49200	922 - 4,881
Warehousing and storage	49300	35
Newspaper, periodical, book, and directory publishers (except Internet)	51110	91
Software publishers (except Internet)	51120	30,457
Motion picture and sound recording (except Internet)	51200	86
Broadcasting (except Internet)	51500	0 - 18,774 i
Wired telecommunications carriers	51710	504
Wireless telecommunications carriers (except satellite)	51720	2,414
Satellite telecommunications	51740	386
Other telecommunications (not listed elsewhere)	51790	501
Data processing, hosting, and related services	51800	12,535
Cloud computing applications and Internet-based software services	51801	47,668
Other information services, including Internet publishing, broadcasting, and Web search portals	51910	60,959
Finance: banking and credit intermediation	52200	9,028
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	2,061
Insurance carriers and related activities	52400	2,968
Real estate	53100	372
Rental and leasing services	53200	2,925
Lessors of nonfinancial intangible assets, including patent licensing	53300	75
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	2,597
Architectural, engineering, and related services	54130	2,604
Specialized design services	54140	196
Computer systems design and related services	54150	17,430
Management, scientific, and technical consulting services	54160	2,001
Research and development services in the social sciences and humanities	54172	37 - 3,996
Research and development services in biotechnology	54173	1,619
Research and development services in the physical, engineering, and life sciences (except biotechnology)	54174	5,835
Research and development services in nanotechnology	54175	122 i
Advertising and related services	54180	1,277 - 5,236 i

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Professional, scientific, and technical services (not listed elsewhere)	54190	1,570
Management of companies and enterprises	55100	51
Administrative and support services	56100	3,806
Waste management and remediation services	56200	0 - 18,774
Offices of physicians	62110	195
Medical and diagnostic laboratories	62150	1,633 i
Other ambulatory health care services (ambulance, dental, home health care)	62199	83
Hospitals and nursing care facilities	62200	0 - 18,774
Social assistance services	62400	0 - 18,774
Arts, entertainment, and recreation	71000	0 - 18,774
Accommodation and food services	72000	120 - 4,079
Other services (not listed elsewhere)	81000	584
Undistributed	-	0

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

<sup>a</sup> Data are tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

<sup>b</sup> Business codes and descriptions are based on 2017 North American Industry Classification System industry definitions.

**Note(s):**

Detail may not add to total because of rounding. For companies that did not report business codes, the classification used for sampling was assigned. Statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D and are not comparable with estimates published for years prior to 2018. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2020.