

TABLE 16

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

(Millions of U.S. dollars)

Business activity ^a	Business code ^b	Total	Paid for by the company	Paid for by others
All business activities	21100–81000	537,619	466,162	71,457
Oil and gas extraction	21100	681	648	33 i
Mining	21200	104	104	0
Support activities for mining, including oil and gas	21300	723	702	20
Utilities	22100	275	234	40
Construction	23000	1,070	1,045	25
Food manufacturing	31100	5,112	4,852	260
Beverage manufacturing	31210	647	596	51
Tobacco manufacturing	31220	226	207	19
Textile, apparel, and leather products manufacturing	31990	768	759	9
Wood products manufacturing	32100	233	229	3
Paper manufacturing	32200	1,244	1,243	1
Printing and related support activities	32300	349	347	1
Petroleum refineries	32401	499 - 735	500	0 - 235
Asphalt paving, roofing, and saturated materials manufacturing	32402	199	199	0
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	120	119	1
Basic chemicals manufacturing	32510	3,036	2,872	164
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	1,339	1,258	81 i
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	1,507	1,182	325
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic substances) manufacturing	32541	56,612	49,547	7,065
In vitro diagnostic substances manufacturing	32542	1,552	1,515	37
Biotechnology-based pharmaceutical and biological products (except diagnostic substances)	32543	32,436	28,742	3,695
Soap, cleaning compound, and toilet preparations manufacturing	32591	2,404	2,190	214
Paint, adhesive, and other chemical manufacturing	32592	1,473	1,423	50
Plastics and rubber products manufacturing	32600	2,941	2,911	29
Clay and glass products manufacturing	32710	1,385 i	1,351 i	34 i
Cement, concrete, lime, gypsum, and other nonmetallic mineral products manufacturing	32790	383	328	55 i
Primary metal manufacturing	33100	914	882	32
Fabricated metal products manufacturing	33200	3,901	3,617	284
Agricultural machinery and equipment manufacturing	33311	1,397 - 1,633	1,398	0 - 235
Construction machinery manufacturing	33312	1,257	1,246	11
Mining, oil, and gas field machinery and equipment manufacturing	33319	1,032	993	39
Semiconductor machinery manufacturing	33321	4,750	4,064	686
Industrial machinery manufacturing (except semiconductor machinery)	33322	1,044	910	133
Photographic and photocopying equipment manufacturing	33331	163	162	1
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	1,444	1,414	30
Digital cameras manufacturing	33333	313 i	310 i	3
Engine, turbine, and power transmission equipment manufacturing	33360	2,467	2,120	347
Metalworking and other general purpose machinery manufacturing	33390	2,851	2,601	249
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	22,850	22,751	99
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	7,562	7,552	10
Radio, television, and wireless communication equipment manufacturing	33422	2,291	1,463	828 i
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	1,643	1,532	111

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Audio and video equipment manufacturing	33430	1,285	1,278	7
Semiconductor and other electronic components manufacturing	33440	44,105	41,476	2,630
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,885	3,637	248
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing	33452	8,836 i	2,813	6,023 i
Measuring and control instruments manufacturing (not listed elsewhere)	33459	4,375	4,173	202 i
Electrical equipment, appliances, and components manufacturing	33500	5,273	4,739	534
Motor vehicles manufacturing	33610	15,572	13,342	2,231
Motor vehicle body and trailer manufacturing	33620	82	82	0
Motor vehicle parts manufacturing	33630	7,384	6,160	1,224
Aircraft manufacturing	33641	15,641	4,883	10,759
Aircraft engine and engine parts manufacturing	33642	2,038	982	1,056
Other aircraft parts and auxiliary equipment manufacturing	33643	1,742	1,190	552
Guided missiles, space vehicles, and related parts manufacturing	33644	3,327	1,673	1,654
Railroad rolling stock manufacturing	33651	239	195 i	45
Ship and boat building	33660	964	151	814
Motorcycle, bicycle, and parts manufacturing	33691	417	416	*
Military armored vehicle, tank, and tank components manufacturing	33692	468	194	273
All other transportation equipment manufacturing	33699	552	516	36
Furniture and related products manufacturing	33700	539	531	8
Medical equipment and supplies manufacturing	33910	14,680	14,515	165
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	3,033	2,956	77
Merchant wholesalers, durable goods	42300	860	795	65
Merchant wholesalers, nondurable goods	42400	390	376	13
Wholesale electronic markets and agents and brokers (business to business)	42500	36 i	34 i	3
Retail trade (except electronic shopping and electronic auctions)	44000	216	215	*
Electronic shopping and electronic auctions	45411	0 - 15,222 i	0 - 15,028 i	0 - 235
Transportation	48000	4,078 i	4,078 i	*
Couriers, messengers, and express delivery services	49200	923	923	0
Warehousing and storage	49300	33	29	3
Newspaper, periodical, book, and directory publishers (except Internet)	51110	87	87	0
Software publishers (except Internet)	51120	23,520	22,866	654
Motion picture and sound recording (except Internet)	51200	81	81	0
Broadcasting (except Internet)	51500	0 - 15,222 i	0 - 15,028 i	0 - 235
Wired telecommunications carriers	51710	505	500	5
Wireless telecommunications carriers (except satellite)	51720	2,022	1,966	56
Satellite telecommunications	51740	385	373	12
Other telecommunications (not listed elsewhere)	51790	427	402	25
Data processing, hosting, and related services	51800	11,083	11,076	7
Cloud computing applications and Internet-based software services	51801	39,367	38,913	453
Other information services, including Internet publishing, broadcasting, and Web search portals	51910	53,214	53,120	94
Finance: banking and credit intermediation	52200	7,932	7,891	41
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	1,815	1,810	5
Insurance carriers and related activities	52400	2,543	2,497	45
Real estate	53100	368	368	0
Rental and leasing services	53200	2,766	2,766	0

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Lessors of nonfinancial intangible assets, including patent licensing	53300	0 - 76	0 - 76	*
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	2,478	2,478	0
Architectural, engineering, and related services	54130	4,358	2,479	1,879
Specialized design services	54140	212	174	38
Computer systems design and related services	54150	16,759	13,776	2,983
Management, scientific, and technical consulting services	54160	2,676	1,914	763
Research and development services in the social sciences and humanities	54172	691	38	653
Research and development services in biotechnology	54173	5,541	1,215	4,326
Research and development services in the physical, engineering, and life sciences (except biotechnology)	54174	19,456 i	5,417 i	14,039 i
Research and development services in nanotechnology	54175	180 i	121 i	59 i
Advertising and related services	54180	1,283 i	1,278 i	5
Professional, scientific, and technical services (not listed elsewhere)	54190	1,877	1,336	540
Management of companies and enterprises	55100	3 - 56	0 - 52	4
Administrative and support services	56100	3,521	3,498	23
Waste management and remediation services	56200	0 - 15,222	0 - 15,028	0 - 235
Offices of physicians	62110	235	194	41
Medical and diagnostic laboratories	62150	2,087	1,410 i	677
Other ambulatory health care services (ambulance, dental, home health care)	62199	93	81	11
Hospitals and nursing care facilities	62200	13 - 15,042	0 - 15,028	0 - 14
Social assistance services	62400	0 - 15,028	0 - 15,028	0
Arts, entertainment, and recreation	71000	0 - 15,028	0 - 15,028	0
Accommodation and food services	72000	121	121	*
Other services (not listed elsewhere)	81000	573	462	111
Undistributed	-	0	0	0

* = amount < \$500,000; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

^a 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.

^b 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.