

TABLE 16

Domestic R&D paid for by the company and others and performed by the company, by business activity: 2017

(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	400,100	339,036	61,065
Oil and gas extraction	21100	738 - 2,072	739	0 - 1,333
Mining	21200	117	117	1
Support activities for mining, including oil and gas	21300	1,474	1,238	235
Utilities	22100	314	277	36
Construction	23000	587	564	23
Food manufacturing	31100	4,897	4,684	213
Beverage manufacturing	31210	722	614	107
Tobacco manufacturing	31220	170	170	*
Textile, apparel, and leather products manufacturing	31990	866	865	1
Wood products manufacturing	32100	238	232	5
Paper manufacturing	32200	1,386	1,384	2
Printing and related support activities	32300	262	251	11
Petroleum refineries	32401	395	393	3
Asphalt paving, roofing, and saturated materials manufacturing	32402	126	126	0
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	214	202	12
Basic chemicals manufacturing	32510	3,045	2,862	183
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	831	813	18
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	1,964	1,554	410
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic substances) manufacturing	32541	45,515	37,122	8,392
In vitro diagnostic substances manufacturing	32542	1,324	1,302	22
Biotechnology-based pharmaceutical and biological products (except diagnostic substances)	32543	18,330	15,892	2,439
Soap, cleaning compound, and toilet preparations manufacturing	32591	2,168 - 3,502	2,169	0 - 1,333
Paint, adhesive, and other chemical manufacturing	32592	1,663	1,640	23
Plastics and rubber products manufacturing	32600	3,275	3,158	117
Clay and glass products manufacturing	32710	1,234	1,215	19
Cement, concrete, lime, gypsum, and other nonmetallic mineral products manufacturing	32790	382	369	13
Primary metal manufacturing	33100	589	572	17
Fabricated metal products manufacturing	33200	2,616	2,319	297
Agricultural machinery and equipment manufacturing	33311	1,227	1,171	56
Construction machinery manufacturing	33312	1,190	1,180	10
Mining, oil, and gas field machinery and equipment manufacturing	33319	1,242	1,181	60
Semiconductor machinery manufacturing	33321	3,663	3,199	465
Industrial machinery manufacturing (except semiconductor machinery)	33322	1,019	943	76
Photographic and photocopying equipment manufacturing	33331	61	47	14
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	1,814	1,756	59
Digital cameras manufacturing	33333	431	414	17
Engine, turbine, and power transmission equipment manufacturing	33360	2,489	2,271	218
Metalworking and other general purpose machinery manufacturing	33390	2,066	1,925	141
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	21,276	21,120	156
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	7,918	7,914	4
Radio, television, and wireless communication equipment manufacturing	33422	4,206	1,815	2,392
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	1,551	1,379	172
Audio and video equipment manufacturing	33430	982	962	20

TABLE 16

Domestic R&D paid for by the company and others and performed by the company, by business activity: 2017

(Millions of U.S. dollars)

Business activity ^a	Business code ^b	Total	Paid for by the company	Paid for by others
Semiconductor and other electronic components manufacturing	33440	30,629	28,371	2,258
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,137	2,952	185
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing	33452	7,271	2,180	5,092 i
Measuring and control instruments manufacturing (not listed elsewhere)	33459	4,016	3,860	156
Electrical equipment, appliances, and components manufacturing	33500	4,504	4,301	203
Motor vehicles manufacturing	33610	16,546	15,039	1,507
Motor vehicle body and trailer manufacturing	33620	44	42	1
Motor vehicle parts manufacturing	33630	7,066	5,978	1,088
Aircraft manufacturing	33641	10,511 i	4,344	6,167 i
Aircraft engine and engine parts manufacturing	33642	1,840	1,212	628
Other aircraft parts and auxiliary equipment manufacturing	33643	4,378	2,538	1,840
Guided missiles, space vehicles, and related parts manufacturing	33644	3,529	957	2,572
Railroad rolling stock manufacturing	33651	169 - 1,503	170	0 - 1,333
Ship and boat building	33660	1,299	151	1,147
Motorcycle, bicycle, and parts manufacturing	33691	298 - 1,632	299	0 - 1,333
Military armored vehicle, tank, and tank components manufacturing	33692	652 i	300 i	352 i
All other transportation equipment manufacturing	33699	568	466	101
Furniture and related products manufacturing	33700	430	428	2
Medical equipment and supplies manufacturing	33910	12,981	12,764	218
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,243	2,172	71
Merchant wholesalers, durable goods	42300	460	438	22
Merchant wholesalers, nondurable goods	42400	256	251	5
Wholesale electronic markets and agents and brokers (business to business)	42500	40 i	25 i	15
Retail trade (except electronic shopping and electronic auctions)	44000	73	73	0
Electronic shopping and electronic auctions	45411	9,337	9,337	0
Transportation	48000	784	764	20
Couriers, messengers, and express delivery services	49200	264	264	0
Warehousing and storage	49300	98	88	10
Newspaper, periodical, book, and directory publishers (except Internet)	51110	91	91	0
Software publishers (except Internet)	51120	24,775	24,114	661
Motion picture and sound recording (except Internet)	51200	25 i	25 i	0
Broadcasting (except Internet)	51500	213 - 1,547	214	0 - 1,333
Wired telecommunications carriers	51710	908 - 2,242	909	0 - 1,333
Wireless telecommunications carriers (except satellite)	51720	1,901	1,821	80
Satellite telecommunications	51740	590	585	4
Other telecommunications (not listed elsewhere)	51790	408	305	103
Data processing, hosting, and related services	51800	6,060	5,874	187 i
Cloud computing applications and Internet-based software services	51801	16,515	16,403	112
Other information services, including Internet publishing, broadcasting, and Web search portals	51910	28,514 - 29,848	28,515	0 - 1,333
Finance: banking and credit intermediation	52200	4,812	4,760	51
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	1,601	1,601	*
Insurance carriers and related activities	52400	1,125	1,125	0
Real estate	53100	386	386	0

TABLE 16

Domestic R&D paid for by the company and others and performed by the company, by business activity: 2017

(Millions of U.S. dollars)

Business activity ^a	Business code ^b	Total	Paid for by the company	Paid for by others
Rental and leasing services	53200	204 i	194 i	10
Lessors of nonfinancial intangible assets, including patent licensing	53300	154 i	154 i	*
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	802	802	0
Architectural, engineering, and related services	54130	2,844	1,679	1,165
Specialized design services	54140	195 i	131	64 i
Computer systems design and related services	54150	12,221	10,660	1,561
Management, scientific, and technical consulting services	54160	1,907	1,520	387
Research and development services in social sciences and humanities	54172	0 - 1,631	0 - 359	0 - 1,333
Research and development services in biotechnology	54173	3,786	710	3,075
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	12,958	2,061	10,897
Advertising and related services	54180	353	353	0
Professional, scientific, and technical services (not listed elsewhere)	54190	1,049	577	473
Management of companies and enterprises	55100	91	76	15
Administrative and support services	56100	1,548	1,540	9
Waste management and remediation services	56200	24	0 - 25	0 - 25
Offices of physicians	62110	195	105 i	90
Medical and diagnostic laboratories	62150	1,395	816 i	579
Other ambulatory health care services (ambulance, dental, home health care)	62199	79 i	75 i	3
Hospitals and nursing care facilities	62200	17 - 1,351	18	0 - 1,333
Social assistance services	62400	0 - 359	0 - 359	0
Arts, entertainment, and recreation	71000	59	52	7
Accommodation and food services	72000	60	60	0
Other services (not listed elsewhere)	81000	645	529	116 i
Undistributed	-	0	0	0

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

NAICS = 2012 North American Industry Classification System.

^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 2012 NAICS 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 R&D. 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 U.S. Census Bureau, Business Research and Development Survey, 2017.