

TABLE 16

Domestic R&D paid for by the company and others and performed by the company, by business activity: 2016

(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	374,685	317,731	56,954
Oil and gas extraction	21100	867	841	25 i
Mining	21200	58	57	2
Support activities for mining, including oil and gas	21300	1,544	1,185	359
Utilities	22100	349	323	26
Construction	23000	255 i	254 i	1
Food manufacturing	31100	4,893	4,700	193
Beverages manufacturing	31210	D	601 i	D
Tobacco manufacturing	31220	153	152	1
Textiles, apparel, and leather products manufacturing	31990	1,244 i	1,235 i	9
Wood products manufacturing	32100	241	234	7 i
Paper manufacturing	32200	1,168	1,168	*
Printing and related support activities	32300	304	303	* i
Petroleum refineries	32401	441	437	4
Asphalt paving, roofing, and saturated materials manufacturing	32402	75	75	0
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	316	304	12
Basic chemicals manufacturing	32510	2,839	2,589	250
Resins, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	932	909	23
Pesticides, fertilizers, and other agricultural chemicals manufacturing	32530	1,883 i	1,529 i	354
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic substances) manufacturing	32541	45,271	38,589	6,682
In vitro diagnostic substances manufacturing	32542	1,013	962	51 i
Biotechnology-based pharmaceutical and biological products (except diagnostic substances) manufacturing	32543	16,421	14,613	1,808
Soaps, cleaning compounds, and toilet preparations manufacturing	32591	2,551	2,387	164
Paints, adhesives, and other chemical manufacturing	32592	D	1,639	D
Plastics and rubber products manufacturing	32600	3,402	3,230	173
Clay and glass products manufacturing	32710	991	983	7
Cement, concrete, lime, gypsum, and other nonmetallic mineral products manufacturing	32790	382	374	8
Primary metal manufacturing	33100	601	596	4
Fabricated metal products manufacturing	33200	2,356	2,248	108 i
Agricultural machinery and equipment manufacturing	33311	1,194	1,184	10
Construction machinery manufacturing	33312	1,211	1,202	9
Mining, oil, and gas field machinery and equipment manufacturing	33319	1,107	1,076	32
Semiconductor machinery manufacturing	33321	3,374	2,990	383
Industrial machinery manufacturing (except semiconductor machinery)	33322	901	718	183
Photographic and photocopying equipment manufacturing	33331	83	56	28
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	1,686	1,612	74
Digital cameras manufacturing	33333	421 i	421 i	0
Engine, turbine, and power transmission equipment manufacturing	33360	2,367	2,143	224
Metalworking and other general purpose machinery manufacturing	33390	2,123	1,897	225
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	18,324	18,246	78
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	8,184	8,180	3 i
Radio, television, and wireless communication equipment manufacturing	33422	D	1,880	D
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	1,799	1,487	312
Audio and video equipment manufacturing	33430	972	966	7
Semiconductor and other electronic components manufacturing	33440	31,413	29,530	1,883
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,485 i	3,305 i	180

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Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments manufacturing	33452	8,276	2,435	5,841
Measuring and control instruments manufacturing (not listed elsewhere)	33459	4,223	4,068	155
Electrical equipment, appliances, and components manufacturing	33500	4,816	4,337	478 i
Motor vehicles manufacturing	33610	14,810	13,184	1,627
Motor vehicle body and trailer manufacturing	33620	114	114	0
Motor vehicle parts manufacturing	33630	6,613	5,619	994 i
Aircraft manufacturing	33641	11,989 i	5,501	6,488 i
Aircraft engine and engine parts manufacturing	33642	1,738	1,196	542
Other aircraft parts and auxiliary equipment manufacturing	33643	3,817	2,398	1,420
Guided missiles, space vehicles, and related parts manufacturing	33644	3,063 i	810	2,253 i
Railroad rolling stock manufacturing	33651	D	186	D
Ship and boat building	33660	D	574 i	D
Motorcycle, bicycle, and parts manufacturing	33691	286	285	1
Military armored vehicles, tanks, and tank components manufacturing	33692	392	111	281
All other transportation equipment manufacturing	33699	368	365	3
Furniture and related products manufacturing	33700	405	405	*
Medical equipment and supplies manufacturing	33910	11,727	11,254	474
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,600 i	2,558 i	42
Merchant wholesalers, durable goods	42300	559 i	540 i	19
Merchant wholesalers, nondurable goods	42400	153 i	148 i	6
Wholesale electronic markets and agents and brokers (business to business)	42500	23	23	*
Retail trade (except electronic shopping and electronic auctions)	44000	153	69	83
Electronic shopping and electronic auctions	45411	1,587 i	1,587 i	0
Transportation	48000	100	97	3
Couriers, messengers, and express delivery services	49200	394	394	0
Warehousing and storage	49300	0	0	0
Newspaper, periodical, book, and directory publishers (except Internet)	51110	80 i	77 i	3 i
Software publishers (except Internet)	51120	26,811	26,571	239
Motion picture and sound recording (except Internet)	51200	16	16	0
Broadcasting (except Internet)	51500	D	149 i	D
Wired telecommunications carriers	51710	1,067 i	1,060 i	8
Wireless telecommunications carriers (except satellite)	51720	1,477 i	1,417 i	60
Satellite telecommunications	51740	699 i	698 i	1
Other telecommunications (not listed elsewhere)	51790	448	321	126
Data processing, hosting, and related services	51800	6,130	5,951	179 i
Cloud computing applications and Internet-based software services	51801	9,798	9,706	92
Other information services, including Internet publishing, broadcasting, and Web search portals	51910	D	23,910	D
Finance: banking and credit intermediation	52200	4,474	4,380	94
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	1,516	1,516	0
Insurance carriers and related activities	52400	1,216	1,216	0
Real estate	53100	438	438	0
Rental and leasing services	53200	22	22	0
Lessors of nonfinancial intangible assets, including patent licensing	53300	40	40	*
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	891	887	4
Architectural, engineering, and related services	54130	3,424	1,823	1,601
Specialized design services	54140	78	26	52
Computer systems design and related services	54150	14,431	12,008	2,424

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Management, scientific, and technical consulting services	54160	2,137 i	1,602	535 i
Research and development services in social sciences and humanities	54172	D	D	D
Research and development services in biotechnology	54173	3,939 i	835 i	3,104 i
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	10,667	2,296	8,371 i
Advertising and related services	54180	344	344	0
Professional, scientific, and technical services (not listed elsewhere)	54190	885	558	326
Management of companies and enterprises	55100	28	19	10
Administrative and support services	56100	419	416	2 i
Waste management and remediation services	56200	25	8 i	17
Offices of physicians	62110	106 i	70 i	36 i
Medical and diagnostic laboratories	62150	1,280 i	729	550 i
Other ambulatory health care services (ambulance, dental, home health care)	62199	23 i	19 i	4 i
Hospitals and nursing care facilities	62200	9	6 i	3
Social assistance services	62400	2	2	0
Arts, entertainment, and recreation	71000	44	44	0
Accommodation and food services	72000	61	61	0
Other services (not listed elsewhere)	81000	D	D	D
Undistributed	-	0	0	0

* = amount < \$500,000; D = data withheld to avoid disclosing operations of individual companies; 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.

Source(s)

National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2016.