

TABLE 18

Domestic R&D paid for by the company and others and performed by the company and others as a percentage of domestic net sales, by industry and company size: 2022

(Millions of U.S. dollars and percent)

Industry and company size	NAICS code	Domestic R&D (US\$millions)	Percentage of domestic sales of R&D performers or funders ^a	Percentage of domestic sales of R&D performers only ^b
All industries	21-23, 31-33, 42-81	745,699	5.3	5.3
Manufacturing industries	31-33	417,640	5.7	5.7
Food	311	7,367	0.8	0.8
Beverage and tobacco products	312	898	0.7	0.7
Textile, apparel, and leather products	313-16	D	D	D
Wood products	321	281	0.5	0.5
Paper	322	1,011	1.0	1.0
Printing and related support activities	323	169	0.6	0.6
Petroleum and coal products	324	1,055	0.3	0.3
Chemicals	325	158,025	10.6	10.6
Basic chemicals	3251	D	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	D	D	D
Pesticide, fertilizer, and other agricultural chemicals	3253	1,293	1.3	1.3
Pharmaceuticals and medicines	3254	147,804	21.6	D
Soap, cleaning compound, and toilet preparations	3256	D	D	D
Paint, coating, adhesive, and other chemicals	3255, 3259	D	D	D
Plastics and rubber products	326	3,515	1.4	1.4
Nonmetallic mineral products	327	1,491	2.2	2.7
Primary metals	331	1,147	0.7	0.7
Fabricated metal products	332	3,571	1.9	1.9
Machinery	333	19,932	3.8	3.8
Agricultural implement	33311	D	D	D
Semiconductor machinery	333242	5,452	16.6	16.6
Engine, turbine, and power transmission equipment	3336	D	D	D
Other machinery	other 333	8,869	2.8	2.8
Computer and electronic products	334	108,994	14.8	14.8
Communications equipment	3342	12,859	13.7	13.7
Semiconductor and other electronic components	3344	49,708	23.7	23.7
Navigational, measuring, electromedical, and control instruments	3345	D	D	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,709	13.6	13.6
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	4,244	16.8	16.8
Other measuring and controlling devices	other 3345	D	D	D
Other computer and electronic products	other 334	D	D	D

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Electrical equipment, appliances, and components	335	7,178	3.8	3.8
Transportation equipment	336	77,498	5.6	5.6
Motor vehicles, bodies, trailers, and parts	3361-63	37,052	4.0	4.0
Aerospace products and parts	3364	37,361	10.5	10.5
Aircraft, aircraft engine, and aircraft parts	336411-13	26,423	10.4	10.4
Guided missile, space vehicle, and related parts	336414-15, 336419	10,938	10.7	10.7
Military armored vehicle, tank, and tank components	336992	31	2.4	2.4
Other transportation	other 336	3,054	3.6	3.6
Furniture and related products	337	417	1.1	1.2
Miscellaneous	339	D	D	D
Medical equipment and supplies	3391	21,365	4.9	4.9
Other miscellaneous manufacturing	3399	D	D	D
Nonmanufacturing industries	21-23, 42-81	328,059	4.8	4.8
Mining, quarrying, oil and gas extraction, and support activities	21	D	D	D
Utilities	22	D	D	D
Wholesale trade	42	D	D	0.3
Electronic shopping and electronic auctions	454111-12	D	D	D
Transportation and warehousing	48-49	9,435	3.1	3.2
Information	51	185,531	10.0	10.0
Publishing	511	51,678	13.9	D
Newspaper, periodical, book, and directory publishers	5111	92	3.3	D
Software publishers	5112	51,586	14.0	14.0
Telecommunications	517	4,212	0.9	0.9
Data processing, hosting, and related services	518	50,343	7.9	7.9
Other information	other 51	79,298	21.1	D
Finance and insurance	52	17,569	1.4	1.4
Real estate and rental and leasing	53	2,399	3.2	3.2
Lessors of nonfinancial intangible assets (except copyrighted works)	533	6	1.2	1.2
Other real estate and rental and leasing	other 53	2,394	3.3	3.3
Professional, scientific, and technical services	54	78,876	14.1	14.2
Architectural, engineering, and related services	5413	4,197	4.0	3.9
Computer systems design and related services	5415	23,063	12.4	12.7
Scientific research and development services	5417	42,671	31.2	31.3

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Research and development in nanotechnology	541713	311	33.3	40.5
Research and development in biotechnology (except nanobiotechnology)	541714	10,566	38.3	38.3
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	31,095	29.2	29.2
Research and development in the social sciences and humanities	541720	699	45.0	49.2
Other professional, scientific, and technical services	other 54	8,945	6.7	6.8
Health care services	621-23	3,059	3.2	3.2
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	3,491	0.4	0.4
All companies (number of domestic employees)	-	745,699	5.3	5.3
Small companies				
10-19 ^c	-	6,119	14.7	15.4
20-49	-	16,418	14.5	14.7
Medium companies				
50-99	-	17,527	9.8	10.0
100-249	-	31,648	8.2	8.5
Large companies				
250-499	-	33,241	9.1	9.3
500-999	-	34,194	6.0	6.0
1,000-4,999	-	111,113	5.4	5.4
5,000-9,999	-	62,306	3.9	4.0
10,000-24,999	-	135,372	4.7	4.8
25,000 or more	-	297,762	5.0	5.0

D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2017 North American Industry Classification System.

^a Statistics used for both the numerator and denominator in the calculation of these percentages are representative of companies located in the United States that performed or funded R&D.^b Statistics used for both the numerator and denominator in the calculation of these percentages are representative of companies located in the United States that performed R&D. The calculation of percentages in this column excludes R&D and sales of companies that fund R&D but do not perform R&D.^c The Business Enterprise Research and Development Survey does not include companies with fewer than 10 domestic employees.**Note(s):**

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. 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.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2022.