

TABLE 3

Worldwide R&D paid for by the company and others and performed by the company, by industry, company size, and worldwide R&D program size: 2019

(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D program size					
		All companies	Less than \$1 million	\$1 million–\$9.999 million	\$10 million–\$49.999 million	\$50 million–\$99.999 million	\$100 million or more
All industries	21–23, 31–33, 42–81	597,420	4,942	33,242	42,216	29,813	487,208
Manufacturing industries	31–33	350,024	2,764	15,855	22,465	18,557	290,383
Food	311	5,015	172	621	762	441	3,019 i
Beverage and tobacco products	312	1,755	42	84	65	188 i	1,376
Textile, apparel, and leather products	313–16	1,061	51	208	273	297	232
Wood products	321	193	19	93	81	0	0
Paper	322	1,165	11	137	132	0	884
Printing and related support activities	323	429 i	26	285	118 i	0	0
Petroleum and coal products	324	1,477 - 1,481	13	67	10 - 581	273	542 - 1,120
Chemicals	325	115,631	361	2,946	7,344	6,937	98,044
Basic chemicals	3251	3,102	46	383	638	535	1,501
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,695	46	157	167	50 - 256	1,067 - 1,277
Pesticide, fertilizer, and other agricultural chemicals	3253	2,272 - 2,297	0 - 24	86	90	0	2,098
Pharmaceuticals and medicines	3254	103,487	77	1,903	5,921	6,038	89,548
Soap, cleaning compound, and toilet preparation	3256	3,517	76	188	134	60	3,059
Paint, coating, adhesive, and other chemicals	3255, 3259	1,532 - 1,560	89 - 119	229	394	50 - 256	559 - 774
Plastics and rubber products	326	3,359	165	772	907	607	908
Nonmetallic mineral products	327	1,701 i	36	146	287	86	1,146 i
Primary metals	331	740	33	230	385	92	0
Fabricated metal products	332	3,163	456	1,136	730	652	189
Machinery	333	19,435	426	2,228	2,202	1,379	13,201
Agricultural implement	33311	2,778	46	128	174	86	2,344
Semiconductor machinery	333242	5,374	0 - 106	128	211	50 - 156	4,881
Engine, turbine, and power transmission equipment	3336	1,931	19 i	126	195	71	1,519
Other machinery	other 333	9,353	255 - 363	1,845	1,621	1,066 - 1,174	4,456
Computer and electronic products	334	112,180	363	2,802	3,754	2,843	102,418
Communications equipment	3342	15,907 - 15,912	45 - 54	338	644	746	14,132
Semiconductor and other electronic components	3344	48,189 i	59	917	1,450	1,182	44,580 i
Navigational, measuring, electromedical, and control instruments	3345	21,512	218	1,245	1,364	538	18,148
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,621 i	36	312	576	270	3,428 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	10,541	33	187	314	55	9,952
Other measuring and controlling device	other 3345	6,350	149	747	473	213	4,768
Other computer and electronic products	other 334	26,567 - 26,571	33 - 41	301	296	377	25,558

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Electrical equipment, appliances, and components	335	7,006	209	588	987	977	4,246
Transportation equipment	336	53,187	108	1,698	2,401	2,198	46,782
Motor vehicles, bodies, trailers, and parts	3361–63	31,110	0 - 95	748	1,587	1,292 - 1,390	27,387
Aerospace products and parts	3364	18,943	i 13	703	548	716	16,963
Aircraft, aircraft engine, and aircraft parts	336411–13	17,476	i 10	429	351	716	15,970
Guided missile, space vehicle, and related parts	336414–15, 336419	1,467	4	273	i 197	0	993
Military armored vehicle, tank, and tank component	336992	35	1	34	0	0	0
Other transportation	other 336	3,099	0 - 95	214	266	91 - 189	2,432
Furniture and related products	337	444	32	129	219	64	0
Miscellaneous	339	22,077 - 22,084	240	1,685	1,245 - 1,817	1,524	16,812 - 17,391
Medical equipment and supplies	3391	19,083	118	1,185	1,236	1,290	15,254
Other miscellaneous manufacturing	3399	2,995 - 3,002	121	500	10 - 581	235	1,558 - 2,137
Nonmanufacturing industries	21–23, 42–81	247,396	2,178	17,387	19,751	11,256	196,824
Mining, quarrying, oil and gas extraction, and support activities	21	3,307	26	i 363	10 - 1,817	0	1,100 - 2,909
Utilities	22	284	0 - 32	73	131	50 - 82	0
Wholesale trade	42	1,304	423	882	0	0	0
Electronic shopping and electronic auctions	454111–12	3,200 - 20,013	i 14	71	10 - 1,817	50 - 231	1,067 - 19,785
Transportation and warehousing	48–49	9,952	i 19	125	514	101	9,193
Information	51	129,277	377	5,198	6,973	6,945	109,785
Publishing	511	39,968	186	1,734	1,598	1,239	35,211
Newspaper, periodical, book, and directory publishers	5111	61	5	18	38	0	0
Software publishers	5112	39,907	180	1,716	1,560	1,239	35,211
Telecommunications	517	3,856	38	154	530	180	2,954
Data processing, hosting, and related services	518	36,449	119	2,778	4,297	5,040	24,214
Other information	other 51	49,004	34	531	548	485	47,406
Finance and insurance	52	10,092	14	350	1,257	387	8,085
Real estate and rental and leasing	53	1,476	9	27	64	0	1,376
Lessors of nonfinancial intangible assets (except copyrighted works)	533	48	4	i 10	35	0	0
Other real estate and rental and leasing	other 53	1,427	5	17	30	0	1,376
Professional, scientific, and technical services	54	68,023	1,180	8,018	8,369	3,282	47,173
Architectural, engineering, and related services	5413	4,244	288	1,548	993	517	899
Computer systems design and related services	5415	26,416	650	3,003	2,640	841	19,283
Scientific research and development services	5417	30,675	116	2,566	3,172	1,466	23,354

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		All companies	Less than \$1 million	\$1 million–\$9.999 million	\$10 million–\$49.999 million	\$50 million–\$99.999 million	\$100 million or more
Research and development in biotechnology	541711	9,250	26	660	786	382	7,396
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	20,651	89	1,868	2,307	1,084	15,304
Research and development in the social sciences and humanities	541720	774	2	38	80	0	654
Other professional, scientific, and technical services	other 54	6,688	126	901	1,565	458	3,637
Health care services	621–23	2,289	43	1,192	610	213	231
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,382 - 18,191	37 - 78	1,089	10 - 1,817	50 - 231	100 - 17,005
All companies (number of domestic employees)	–	597,420	4,942	33,242	42,216	29,813	487,208
Small companies							
10–19 ^a	–	5,639	1,093	4,009	392	146	0
20–49	–	12,875	1,729	7,997	2,914	235	0
Medium companies							
50–99	–	14,758	960	5,765	6,240	1,315	478
100–249	–	21,986	697	7,259	8,110	3,580	2,340
Large companies							
250–499	–	21,592	288	3,404	6,240	5,223	6,437
500–999	–	26,922	95	2,083	6,026	6,718	12,000
1,000–4,999	–	92,224	73	2,203	8,714	8,680	72,554
5,000–9,999	–	62,775	3	164	1,850	2,281	58,477
10,000–24,999	–	111,876	2	245	1,120	1,166	109,343
25,000 or more	–	226,773	1	115	609	468	225,580

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

NAICS = 2012 North American Industry Classification System.

^a 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. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. This change has affected the comparability of these estimates with estimates published for years prior to 2018. R&D program size classifications are based on R&D performance. 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, 2019.