

TABLE 70

Worldwide R&D paid for by the company and others and performed by the company, by industry and company size: 2008–16

(Millions of U.S. dollars)

Industry and company size	NAICS code	2008 ^a	2009	2010	2011	2012	2013	2014	2015	2016	
All industries	21–23, 31–33, 42–81	NA	336,571	338,451	359,490	374,916	396,352	416,343	429,174	451,831	
Manufacturing industries	31–33	NA	236,858	243,611	253,821	261,697	276,110	285,661	287,895	303,241	
Food	311	NA	4,916	D	5,589	5,163	6,335	6,136	6,058	i 5,821	
Beverages and tobacco products	312	NA	933	D	D	D	1,358	1,423	1,529	D	
Textiles, apparel, and leather products	313–16	NA	519	522	656	605	759	734	818	1,246	i
Wood products	321	NA	283	254	211	282	222	341	i 198	203	
Paper	322	NA	NA	1,665	769	858	1,022	880	867	929	
Printing and related support activities	323	NA	217	269	212	291	i 258	i 238	198	i 223	i
Petroleum and coal products	324	NA	NA	D	1,281	D	327	298	252	425	
Chemicals	325	NA	64,442	72,610	72,068	70,218	74,551	79,428	80,961	85,888	
Basic chemicals	3251	NA	NA	2,671	5,166	3,400	3,336	3,633	3,677	3,082	
Resins, synthetic rubber, and artificial synthetic fibers and filaments	3252	NA	NA	1,038	1,117	D	1,794	1,842	1,780	1,044	
Pesticides, fertilizers, and other agricultural chemicals	3253	NA	NA	D	2,049	D	1,966	i 2,042	i 3,405	D	
Pharmaceuticals and medicines	3254	NA	53,456	60,537	58,866	58,920	62,480	66,731	D	74,542	
Soaps, cleaning compounds, and toilet preparations	3256	NA	NA	3,285	3,386	3,212	3,358	3,501	D	3,590	
Paints, coatings, adhesives, and other chemicals	3255, 3259	NA	NA	D	1,485	D	1,617	1,679	i 1,664	D	
Plastics and rubber products	326	NA	2,982	2,515	2,640	4,446	4,576	4,519	2,906	4,583	
Nonmetallic mineral products	327	NA	1,153	i 1,596	1,428	1,588	i 1,578	1,599	1,487	1,474	
Primary metals	331	NA	993	802	763	818	700	770	711	662	
Fabricated metal products	332	NA	2,174	1,818	1,993	1,949	i 2,303	i 2,329	2,467	i 2,484	
Machinery	333	NA	11,156	12,403	18,312	17,462	15,420	15,089	16,827	15,764	
Agricultural implements	33311	NA	NA	D	1,570	2,142	2,243	D	2,152	2,189	
Semiconductor machinery	333242	NA	NA	2,469	2,727	1,357	3,645	3,434	3,812	4,138	
Engines, turbines, and power transmission equipment	3336	NA	NA	D	D	D	1,795	2,894	2,920	2,327	
Other machinery	other 333	NA	NA	6,566	D	D	7,736	D	7,943	7,109	
Computer and electronic products	334	NA	68,772	75,345	79,145	87,406	90,114	94,199	92,860	98,175	
Communications equipment	3342	NA	NA	17,069	15,197	18,877	20,392	22,048	23,049	16,075	

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Semiconductors and other electronic components	3344	NA	26,082	29,354	32,146	38,300	40,611	42,028	40,348	41,695
Navigational, measuring, electromedical, and control instruments	3345	NA	16,498	17,905	18,242	18,640	18,046	18,993	17,020	18,111
Electromedical, electrotherapeutic, and irradiation apparatuses	334510, 334517	NA	NA	4,548	4,987	4,999	2,837	5,049	3,599	3,553
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	NA	NA	8,769	8,641	8,312	8,753	8,486	8,033	8,373
Other measuring and controlling devices	other 3345	NA	NA	4,588	4,615	5,329	6,456	5,458	5,387	6,185
Other computer and electronic products	other 334	NA	NA	11,017	13,559	11,589	11,065	11,130	12,443	22,294
Electrical equipment, appliances, and components	335	NA	4,475	4,767	5,319	4,140	5,738	5,705	5,710	6,207
Transportation equipment	336	NA	56,183	51,362	49,030	50,415	51,547	56,597	57,698	60,326
Automobiles, bodies, trailers, and parts	3361–63	NA	NA	17,764	D	D	23,610	D	25,735	29,171
Aerospace products and parts	3364	NA	36,409	31,627	26,858	D	25,684	D	29,113	28,462
Aircraft, aircraft engines, and aircraft parts	336411–13	NA	NA	D	D	D	D	D	27,463	27,034
Guided missiles, space vehicles, and related parts	336414–15, 336419	NA	NA	D	D	1,425	D	D	1,649 i	1,428 i
Military armored vehicles, tanks, and tank components	336992	NA	NA	D	52	D	9 i	D	16	D
Other transportation	other 336	NA	NA	D	D	D	2,245	D	2,834	D
Furniture and related products	337	NA	433	407	347	383	401	422	477	406
Miscellaneous manufacturing	339	NA	NA	9,528	D	D	18,900	14,951	15,869	D
Medical equipment and supplies	3391	NA	NA	7,461	D	10,311	15,938	12,091	13,166	14,143
Other miscellaneous manufacturing	3399	NA	NA	2,066	D	D	2,962	2,860	2,703 i	D
Nonmanufacturing industries	21–23, 42–81	NA	99,713	94,840	105,669	113,220	120,242	130,682	141,279	148,589
Mining, extraction, and support activities	21	NA	NA	2,785	2,597	D	4,452	D	4,348	3,604
Utilities	22	NA	NA	442	396	368	317	314	483	353
Wholesale trade	42	NA	NA	1,145	1,697 i	2,165 i	459 i	D	1,723 i	465 i

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Electronic shopping and electronic auctions	454111–12	NA	NA	D	D	D	1,845	D	D	D
Transportation and warehousing	48–49	NA	NA	124	159	186	D	692	416	495
Information	51	NA	43,197	45,099	52,341	56,815	68,375	78,013	77,965	84,133
Publishing	511	NA	33,171	33,883	36,310	36,947	43,821	46,806	42,190	42,272
Newspaper, periodical, book, and directory publishers	5111	NA	NA	826	401	221	i 348	i 92	i 107	i 84
Software publishers	5112	NA	NA	33,058	35,910	36,726	43,473	46,714	42,083	42,188
Telecommunications	517	NA	1,609	2,043	2,267	2,787	i 3,112	3,830	3,648	D
Data processing, hosting, and related services	518	NA	3,008	2,895	5,450	5,574	7,787	10,356	10,600	13,666
Other information	other 51	NA	5,410	6,278	8,313	11,506	13,654	17,022	21,526	D
Finance and insurance	52	NA	NA	2,568	3,943	4,159	4,999	4,748	6,359	8,468
Real estate and rental and leasing	53	NA	NA	367	D	400	202	268	313	477
Lessors of nonfinancial intangible assets (except copyrighted works)	533	NA	NA	NA	365	379	D	58	D	27
Other real estate and rental and leasing	other 53	NA	NA	NA	D	21	i D	210	D	450
Professional, scientific, and technical services	54	NA	47,709	37,108	39,731	40,843	37,345	37,995	i 46,255	46,771
Architectural, engineering, and related services	5413	NA	3,384	4,156	D	2,541	i 3,173	3,374	4,158	i 3,475
Computer systems design and related services	5415	NA	15,310	12,458	13,181	13,404	i 10,535	i 12,579	i 17,227	19,168
Scientific research and development services	5417	NA	19,307	16,408	19,295	20,225	18,478	17,870	20,630	20,254
Biotechnology research and development	541711	NA	8,492	6,266	7,985	8,364	5,889	4,898	7,114	i 6,079
Physical, engineering, and life sciences (except biotechnology) research and development	541712	NA	10,129	9,591	10,697	11,261	11,794	12,291	12,807	13,452
Social sciences and humanities research and development	541720	NA	686	551	613	600	795	682	709	723
Other professional, scientific, and technical services	other 54	NA	9,708	4,086	D	4,674	5,158	4,172	i 4,240	3,874
Health care services	621–23	NA	NA	D	D	708	i 535	i 501	i 771	i 1,002

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Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	NA	NA	NA	D	D	D	D	D	D
All companies (number of domestic employees)	–	NA	336,571	338,451	359,490	374,916	396,352	416,343	429,174	451,831
Micro companies ^b										
5–9	–	NA	NA	3,792	4,143	3,025 i	3,442 i	3,409 i	3,101 i	1,726 i
Small companies										
10–19	–	NA	NA	NA	NA	NA	NA	NA	5,750 i	5,059 i
20–49	–	NA	NA	NA	NA	NA	NA	NA	10,654 i	10,000 i
Medium companies										
50–99	–	NA	13,785	9,470	9,834	9,728	9,289	10,677	11,946	9,662
100–249	–	NA	14,365	12,989	13,354	13,665	14,980	15,081	14,964	16,194
Large companies										
250–499	–	NA	12,315	11,439	14,573	12,693	13,379	13,675	14,837	14,866
500–999	–	NA	12,124	11,794	11,388	12,955	13,663	15,422	17,442	16,609
1,000–4,999	–	NA	54,600	60,782	63,801	62,729	69,212	71,679	71,259	79,597
5,000–9,999	–	NA	27,461	34,453	32,578	41,006	43,087	51,305	48,399	49,620
10,000–24,999	–	NA	61,681	50,710	61,593	60,544	60,844	63,818	70,864	80,255
25,000 or more	–	NA	118,424	125,067	132,719	144,097	152,547	155,180	159,959	168,243

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; NA = not available.

NAICS = 2012 North American Industry Classification System.

^a Worldwide R&D paid for by the company and others and performed by the company was not published in 2008.

^b Business R&D and Innovation Survey does not include companies with fewer than five 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 R&D. For survey year 2008, industry classification was based on the 2002 NAICS. For survey years 2009–13, industry classification was based on the 2007 NAICS. Beginning with survey year 2011, the composition of the other nonmanufacturing industry changed. Most statistics for years prior to 2016 have been revised since original publication. Revised statistics include adjustments based on information obtained after the original statistics were prepared.

Source(s)

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