

TABLE 64

Worldwide R&D paid for by the company and others and performed by the company, by industry and company size: 2008–17

(Millions of U.S. dollars)

Industry and company size	NAICS code	2008 ^a	2009	2010	2011	2012	2013	2014	2015	2016	2017
All industries	21–23, 31–33, 42–81	NA	336,571	338,451	359,490	374,916	396,352	416,343	429,174	457,591	487,628
Manufacturing industries	31–33	NA	236,858	243,611	253,821	261,697	276,110	285,661	287,895	303,044	314,496
Food	311	NA	4,916	D	5,589	5,163	6,335	6,136	6,058	i 5,824	5,563
Beverage and tobacco products	312	NA	933	D	D	D	1,358	1,423	1,529	1,076 - 1,654	1,743
Textile, apparel, and leather products	313–16	NA	519	522	656	605	759	734	818	1,247	i 1,080
Wood products	321	NA	283	254	211	282	222	341	i 198	166 - 751	176
Paper	322	NA	NA	1,665	769	858	1,022	880	867	943	1,580
Printing and related support activities	323	NA	217	269	212	291	i 258	i 238	198	i 223	i 235
Petroleum and coal products	324	NA	NA	D	1,281	D	327	298	252	312	370
Chemicals	325	NA	64,442	72,610	72,068	70,218	74,551	79,428	80,961	84,612	89,427
Basic chemicals	3251	NA	NA	2,671	5,166	3,400	3,336	3,633	3,677	536 - 5,694	3,133
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	NA	NA	1,038	1,117	D	1,794	1,842	1,780	332 - 5,490	949
Pesticide, fertilizer, and other agricultural chemicals	3253	NA	NA	D	2,049	D	1,966	i 2,042	i 3,405	0 - 5,157	1,761 - 1,875
Pharmaceuticals and medicines	3254	NA	53,456	60,537	58,866	58,920	62,480	66,731	D	73,193	78,178
Soap, cleaning compound, and toilet preparation	3256	NA	NA	3,285	3,386	3,212	3,358	3,501	D	3,589	3,383 - 3,479
Paint, coating, adhesive, and other chemicals	3255, 3259	NA	NA	D	1,485	D	1,617	1,679	i 1,664	1,806 - 1,830	1,910 - 1,927
Plastics and rubber products	326	NA	2,982	2,515	2,640	4,446	4,576	4,519	2,906	4,583	4,656
Nonmetallic mineral products	327	NA	1,153	i 1,596	1,428	1,588	i 1,578	1,599	1,487	1,474	1,515
Primary metals	331	NA	993	802	763	818	700	770	711	662	879
Fabricated metal products	332	NA	2,174	1,818	1,993	1,949	i 2,303	i 2,329	2,467	i 2,273	2,371
Machinery	333	NA	11,156	12,403	18,312	17,462	15,420	15,089	16,827	15,958	16,463
Agricultural implement	33311	NA	NA	D	1,570	2,142	2,243	D	2,152	2,189	2,137
Semiconductor machinery	333242	NA	NA	2,469	2,727	1,357	3,645	3,434	3,812	4,138	4,479
Engine, turbine, and power transmission equipment	3336	NA	NA	D	D	D	1,795	2,894	2,920	2,484	2,397 - 2,540
Other machinery	other 333	NA	NA	6,566	D	D	7,736	D	7,943	7,147	7,306 - 7,451
Computer and electronic products	334	NA	68,772	75,345	79,145	87,406	90,114	94,199	92,860	98,319	101,223
Communications equipment	3342	NA	NA	17,069	15,197	18,877	20,392	22,048	23,049	16,124	15,819
Semiconductor and other electronic components	3344	NA	26,082	29,354	32,146	38,300	40,611	42,028	40,348	41,789	41,046

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Navigational, measuring, electromedical, and control instruments	3345	NA	16,498	17,905	18,242	18,640	18,046	18,993	17,020	18,112	18,350
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	NA	NA	4,548	4,987	4,999	2,837	5,049	3,599	3,553	3,773
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	NA	NA	8,769	8,641	8,312	8,753	8,486	8,033	8,372	8,257
Other measuring and controlling device	other 3345	NA	NA	4,588	4,615	5,329	6,456	5,458	5,387	6,187	6,320
Other computer and electronic products	other 334	NA	NA	11,017	13,559	11,589	11,065	11,130	12,443	22,294	26,007
Electrical equipment, appliances, and components	335	NA	4,475	4,767	5,319	4,140	5,738	5,705	5,710	6,207	6,158
Transportation equipment	336	NA	56,183	51,362	49,030	50,415	51,547	56,597	57,698	60,161	62,114
Automobiles, bodies, trailers, and parts	3361–63	NA	NA	17,764	D	D	23,610	D	25,735	6,671 - 54,230	30,478
Aerospace products and parts	3364	NA	36,409	31,627	26,858	D	25,684	D	29,113	3,240 - 50,799	28,436
Aircraft, aircraft engine, and aircraft parts	336411–13	NA	NA	D	D	D	D	D	27,463	1,812 - 49,371	26,626
Guided missile, space vehicle, and related parts	336414–15, 336419	NA	NA	D	D	1,425	D	D	1,649 i	1,428 i	1,810
Military armored vehicle, tank, and tank component	336992	NA	NA	D	52	D	9 i	D	16	3 - 38	9
Other transportation	other 336	NA	NA	D	D	D	2,245	D	2,834	2,653 - 2,690 i	3,190
Furniture and related products	337	NA	433	407	347	383	401	422	477	381	462
Miscellaneous manufacturing	339	NA	NA	9,528	D	D	18,900	14,951	15,869	18,045	18,482
Medical equipment and supplies	3391	NA	NA	7,461	D	10,311	15,938	12,091	13,166	15,387 - 15,400	16,079
Other miscellaneous manufacturing	3399	NA	NA	2,066	D	D	2,962	2,860	2,703 i	2,646 - 2,657 i	2,403
Nonmanufacturing industries	21–23, 42–81	NA	99,713	94,840	105,669	113,220	120,242	130,682	141,279	154,547	173,132
Mining, extraction, and support activities	21	NA	NA	2,785	2,597	D	4,452	D	4,348	3,604	3,479 - 3,486
Utilities	22	NA	NA	442	396	368	317	314	483	353	327
Wholesale trade	42	NA	NA	1,145	1,697 i	2,165 i	459 i	D	1,723 i	489 i	571
Electronic shopping and electronic auctions	454111–12	NA	NA	D	D	D	1,845	D	D	0 - 14,624	11,873 - 12,096
Transportation and warehousing	48–49	NA	NA	124	159	186	D	692	416	495	1,155
Information	51	NA	43,197	45,099	52,341	56,815	68,375	78,013	77,965	84,400	94,898

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10–19	– NA	NA	NA	NA	NA	NA	NA	NA	5,750	i	5,031	i	3,447
20–49	– NA	NA	NA	NA	NA	NA	NA	NA	10,654	i	9,972		10,011
Medium companies													
50–99	– NA	NA	13,785	9,470	9,834	9,728	9,289	10,677	11,946		9,639		10,623
100–249	– NA	NA	14,365	12,989	13,354	13,665	14,980	15,081	14,964		16,160		18,596
Large companies													
250–499	– NA	NA	12,315	11,439	14,573	12,693	13,379	13,675	14,837		14,751		16,376
500–999	– NA	NA	12,124	11,794	11,388	12,955	13,663	15,422	17,442		16,601		20,387
1,000–4,999	– NA	NA	54,600	60,782	63,801	62,729	69,212	71,679	71,259		79,017		80,255
5,000–9,999	– NA	NA	27,461	34,453	32,578	41,006	43,087	51,305	48,399		49,479		54,428
10,000–24,999	– NA	NA	61,681	50,710	61,593	60,544	60,844	63,818	70,864		81,547		87,990
25,000 or more	– NA	NA	118,424	125,067	132,719	144,097	152,547	155,180	159,959		173,666		185,514

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 Research and Development Survey did not include companies with fewer than 5 domestic employees from 2008–16 and does not include fewer than 10 domestic employees beginning in 2017.

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 2017 have been revised since original publication. Revised statistics include adjustments based on information obtained after the original statistics were prepared. 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.