

TABLE 66

Foreign 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	2009	2010	2011	2012	2013	2014	2015	2016	2017
All industries	21–23, 31–33, 42–81	61,475	54,066	59,162	69,251	72,157	73,245	75,804	73,503	79,001	87,528
Manufacturing industries	31–33	46,572	40,417	44,464	51,458	53,120	53,392	53,955	51,725	53,045	57,270
Food	311	596	817	1,006	1,195	1,076	1,315	1,282	1,231	994	865
Beverage and tobacco products	312	123	455	783	i 599	532	531	503	523	0 - 555	667
Textile, apparel, and leather products	313–16	367	80	39	49	52	98	103	70	81	160
Wood products	321	4	2	3	1	2	2	5	i 3	0 - 555	1
Paper	322	274	257	324	93	106	103	158	102	89	259
Printing and related support activities	323	9	7	38	30	35	6	3	2	4	5
Petroleum and coal products	324	D	156	D	D	D	46	64	38	44	54
Chemicals	325	13,990	9,689	14,267	16,215	13,470	12,464	13,294	12,929	12,809	14,450
Basic chemicals	3251	1,198	797	861	D	695	716	784	636	537	560
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	224	260	255	319	D	597	688	579	333	321
Pesticide, fertilizer, and other agricultural chemicals	3253	371	D	D	D	D	275	i 299	i D	0 - 5,157	384 - 401
Pharmaceuticals and medicines	3254	10,862	7,041	11,068	12,557	11,069	9,690	10,249	D	5,688 - 10,846	11,976
Soap, cleaning compound, and toilet preparation	3256	965	873	884	910	870	924	952	D	789	778
Paint, coating, adhesive, and other chemicals	3255, 3259	370	D	D	195	210	263	321	i D	307	415 - 432
Plastics and rubber products	326	341	595	386	362	861	929	905	358	831	902
Nonmetallic mineral products	327	106	54	282	i 253	261	249	i 155	i 228	185	181
Primary metals	331	114	130	121	108	77	82	94	86	69	130
Fabricated metal products	332	188	117	91	135	122	109	222	194	179	166
Machinery	333	1,929	1,930	2,143	3,587	3,710	2,833	2,984	3,288	3,239	3,266
Agricultural implement	33311	399	391	D	293	596	646	D	621	625	567
Semiconductor machinery	333242	366	285	296	376	66	451	493	599	727	786
Engine, turbine, and power transmission equipment	3336	92	83	D	D	D	347	537	405	424	317 - 460
Other machinery	other 333	1,072	1,170	1,254	D	D	1,389	D	1,664	1,464	1,453 - 1,597
Computer and electronic products	334	15,774	12,917	13,722	16,708	21,117	21,485	20,943	20,678	20,868	22,648
Communications equipment	3342	2,951	2,862	3,194	2,863	4,525	4,730	3,702	3,625	2,967	3,132
Semiconductor and other electronic components	3344	7,075	6,058	6,343	7,909	10,082	10,434	10,360	9,896	10,377	10,898
Navigational, measuring, electromedical, and control instruments	3345	2,308	2,180	2,158	2,390	2,722	2,927	3,122	2,819	3,227	3,842

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Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	838	522	360	557	586	202	1,073	923	922	1,078
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	D	508	475	575	578	647	625	673	840	960
Other measuring and controlling device	other 3345	D	1,149	1,324	1,258	1,557	2,077	1,423	1,222	1,465	1,804
Other computer and electronic products	other 334	3,440	1,817	2,027	3,546	3,788	3,395	3,759	4,338	4,297	4,776
Electrical equipment, appliances, and components	335	1,162	1,158	1,447	1,695	1,062	1,605	1,382	1,351	1,436	1,867
Transportation equipment	336	10,267	7,974	8,422	7,936	8,075	7,899	9,621	8,412	8,592	8,822
Automobiles, bodies, trailers, and parts	3361–63	8,448	6,023	D	D	D	6,877	D	6,622	6,672	6,597
Aerospace products and parts	3364	1,816	1,846	1,770	772	D	901	D	1,672	1,817	2,053
Aircraft, aircraft engine, and aircraft parts	336411–13	1,742	1,760	D	D	D	D	D	1,670	1,813	2,050
Guided missile, space vehicle, and related parts	336414–15, 336419	74	85	D	D	5	D	D	2	4	3
Military armored vehicle, tank, and tank component	336992	0	D	D	1	0	0	D	0	0	0
Other transportation	other 336	3	D	D	D	D	121	D	118	104	173
Furniture and related products	337	27	38	33	28	23	28	45	25	22	40
Miscellaneous manufacturing	339	D	4,044	D	D	D	3,608	2,194	2,207	3,057	2,787
Medical equipment and supplies	3391	766	3,813	1,003	D	1,978	3,197	1,782	1,813	2,739	2,490
Other miscellaneous manufacturing	3399	D	231	D	D	D	411	412	394	317	297
Nonmanufacturing industries	21–23, 42–81	14,903	13,648	14,698	17,792	19,037	19,853	21,849	21,778	25,956	30,258
Mining, extraction, and support activities	21	D	D	239	232	D	452	D	336	308	329 - 337
Utilities	22	6	13	17	38	21	23	1	3	1	9
Wholesale trade	42	509	D	53	141	112	7	D	25	21	37
Electronic shopping and electronic auctions	454111–12	NA	NA	D	D	D	490	D	D	0 - 5,132	2,555 - 2,779
Transportation and warehousing	48–49	2	1	29	28	8	D	13	13	7	7
Information	51	7,657	7,243	8,011	9,644	9,915	11,767	13,736	12,508	13,454	14,646
Publishing	511	6,301	6,332	6,926	7,899	7,880	9,456	10,185	8,842	8,698	8,831
Newspaper, periodical, book, and directory publishers	5111	27	47	55	29	2	6	4	9	4	7
Software publishers	5112	6,274	6,285	6,871	7,870	7,878	9,450	10,181	8,833	8,693	8,824
Telecommunications	517	175	86	131	98	59	63	61	41	49	94
Data processing, hosting, and related services	518	1,089	266	142	339	661	631	1,294	1,245	0 - 4,710	2,272
Other information	other 51	93	559	812	1,308	1,316	1,616	2,196	2,378	0 - 4,710	3,450
Finance and insurance	52	74	518	467	496	628	587	625	950	1,136	965
Real estate and rental and leasing	53	65	28	37	D	38	11	6	13	2	191

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Lessors of nonfinancial intangible assets (except copyrighted works)	533	NA	NA	NA	41	37	D	3	D	*	173 i
Other real estate and rental and leasing	other 53	NA	NA	NA	D	* i	D	3	D	2	18 i
Professional, scientific, and technical services	54	6,150	5,328	5,309	6,424	6,723	6,418	6,534	7,653	5,744 - 10,877	11,064
Architectural, engineering, and related services	5413	200	126	148 i	D	57	41	65	58	57 i	53
Computer systems design and related services	5415	2,164	1,959	2,099	2,243 i	2,398 i	1,293	1,525 i	2,893	0 - 5,132	3,498
Scientific research and development services	5417	3,544	2,905	2,696	3,581	3,810	4,259	4,546	4,380	5,416	7,124
Biotechnology research and development	541711	NA	683	729	942	977	1,398	1,438	1,520	1,616	1,996
Physical, engineering, and life sciences (except biotechnology) research and development	541712	NA	2,213	1,962	2,638	2,830	2,859	3,103	2,858	3,796	5,125
Social sciences and humanities research and development	541720	NA	9	5	1	2	3	4 i	3	4	4
Other professional, scientific, and technical services	other 54	241	338	366	D	458	825	398 i	322	273	390
Health care services	621–23	1	10	D	D	36	7	*	12 i	154	224 - 231
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	NA	NA	NA	D	D	D	D	D	0 - 5,132	0 - 217
All companies (number of domestic employees)	–	61,475	54,066	59,162	69,251	72,157	73,245	75,804	73,503	79,001	87,528
Micro companies ^a											
5–9	–	NA	NA	178	83	99 i	52 i	95 i	118 i	145	NA
Small companies											
10–19	–	NA	NA	NA	NA	NA	NA	NA	76	101	136
20–49	–	NA	NA	NA	NA	NA	NA	NA	373	337	577
Medium companies											
50–99	–	976	509	688 i	539	628	351	547	407	364	482
100–249	–	1,735	1,574	1,358 i	1,051	1,212	1,276	1,475	1,378	1,300	1,380
Large companies											
250–499	–	1,178	985	1,245	1,561	1,306	1,359	1,446	1,151	1,773	2,272
500–999	–	1,753	1,992	1,741	1,396	1,455	1,650	2,293	2,437	2,159	2,516
1,000–4,999	–	11,350	10,403	11,674	12,691	12,419	13,238	14,343	13,261	15,587	15,143
5,000–9,999	–	7,000	5,692	6,907	8,126	10,298	11,430	12,979	9,541	8,949	14,230
10,000–24,999	–	11,785	10,442	8,856	12,485	10,317	9,741	9,366	11,534	15,515	14,505
25,000 or more	–	24,671	21,368	25,777	30,497	34,056	33,054	32,647	33,226	32,771	36,287

* = 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; NA = not available.

NAICS = 2012 North American Industry Classification System.

^a 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.