

TABLE 32. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, R&D employment, and R&D cost per R&D employee, by industry and company size: 2011

Industry and company size	NAICS code	Company-performed R&D (US\$millions)			R&D employment (thousands)			Company-performed R&D per R&D employee (US\$thousands per employee)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	363,323	294,093	69,231	2,025	1,471	554	179.4	200.0	124.9
Manufacturing industries	31–33	253,231	201,361	51,870	1,211	865	345	209.2	232.7	150.2
Food	311	5,597	4,399	1,197	36	29	7	156.1	153.4	166.5
Beverage and tobacco products	312	D	D	825	6	4	2	D	D	468.3
Textile, apparel, and leather products	313–316	683	634	48	8	7	1	89.7	91.1	75.1
Wood products	321	212	211	1	3	3	*	67.8	67.8	74.7
Paper	322	1,725	1,346	380	13	9	5	128.2	153.1	81.3
Printing and related support activities	323	207	175	32	3	3	*	64.2	61.2	86.8
Petroleum and coal products	324	1,271	D	D	6	5	1	216.1	D	D
Chemicals	325	71,718	55,324	16,393	225	160	65	318.1	345.1	251.6
Basic chemicals	3251	5,162	D	D	27	18	9	192.2	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,117	798	319	8	6	3	138.7	144.9	125.3
Pesticide, fertilizer, and other agricultural chemical	3253	2,049	D	D	8	6	2	270.2	D	D
Pharmaceuticals and medicines	3254	58,528	45,949	12,578	147	107	40	397.0	429.1	311.7
Soap, cleaning compound, and toilet preparation	3256	3,387	2,477	910	21	14	7	163.2	176.3	135.7
Paint, coating, adhesive, and other chemicals	3255, 3259	1,475	1,281	194	15	10	5	100.0	128.2	40.7
Plastics and rubber products	326	2,641	2,280	362	25	22	3	103.7	102.3	112.9
Nonmetallic mineral products	327	1,431	1,179	253	12	8	4	120.2	147.4	64.7
Primary metals	331	764	655	108	7	6	1	116.9	113.9	138.9
Fabricated metal products	332	1,990	1,853	137	33	31	2	61.2	60.0	83.6
Machinery	333	18,234	14,709	3,524	121	88	33	150.2	167.1	105.5
Agricultural implement	33311	1,570	1,277	293	9	7	2	165.5	174.5	135.1
Semiconductor machinery	333295	2,735	2,359	376	9	7	2	299.5	347.7	160.3
Engine, turbine, and power transmission equipment	3336	D	4,292	D	D	25	D	D	173.4	D
Other machinery	other 333	D	6,781	D	D	49	D	D	137.9	D
Computer and electronic products	334	79,998	62,704	17,294	392	258	133	204.3	242.8	129.8
Communications equipment	3342	15,549	12,655	2,894	79	52	27	196.6	241.5	108.5
Semiconductor and other electronic components	3344	32,015	24,100	7,915	153	87	66	208.9	277.3	119.2
Navigational, measuring, electromedical, and control instruments	3345	19,027	16,094	2,932	91	74	17	209.0	216.6	175.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,926	4,379	547	26	22	3	191.1	194.9	165.8
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	8,506	7,935	572	33	31	3	255.1	259.6	205.4
Other measuring and controlling device	other 3345	5,595	3,781	1,814	32	21	11	175.4	177.8	170.4
Other computer and electronic products	other 334	13,408	9,855	3,553	68	45	23	196.8	220.8	151.2
Electrical equipment, appliances, and components	335	5,299	3,595	1,704	53	29	24	100.3	123.3	71.9
Transportation equipment	336	48,813	40,880	7,933	198	145	53	246.7	281.9	150.1
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D	D	106	61	44	D	D	D
Aerospace products and parts	3364	26,825	26,054	771	80	72	7	336.9	360.8	104.1
Aircraft, aircraft engine, and aircraft parts	336411–13	D	24,808	D	74	67	7	D	370.7	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	1,246	D	5	5	*	D	235.7	D
Military armored vehicle, tank, and tank component	336992	31	30	1	*	*	0	146.4	143.5	D

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		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Other transportation equipment	other 336	D	D	D	13	11	1	D	D	D
Furniture and related products	337	347	319	28	5	4	*	75.9	71.0	350.6
Miscellaneous manufacturing	339	D	D	D	66	54	12	D	D	D
Medical equipment and supplies	3391	D	6,686	D	39	33	6	D	205.1	D
Other miscellaneous manufacturing	3399	D	D	D	27	21	6	D	D	D
Nonmanufacturing industries	21–23, 42–81	110,092	92,731	17,361	814	606	209	135.2	153.1	83.1
Mining, extraction, and support activities	21	2,965	2,733	232	14	11	3	216.6	245.7	90.4
Utilities	22	425	386	39	2	2	*	202.9	203.4	198.6
Wholesale trade	42	1,957 i	1,668 i	289 i	21 i	16 i	4 i	95.1	102.6	66.8
Electronic shopping and electronic auctions	454111–12	D	949 i	D	5	4	*	D	222.4	D
Transportation and warehousing	48–49	109	81	28 i	1	1	* i	89.9	71.6	355.0
Information	51	51,451	41,865	9,586	326	232	94	157.8	180.8	101.6
Publishing	511	36,312	28,435	7,877	229	147	83	158.4	193.9	95.3
Newspaper, periodical, book, and directory publishers	5111	499	470	29	4	4	*	122.6	125.6	88.0
Software publishers	5112	35,814	27,965	7,849	225	143	82	159.0	195.7	95.3
Telecommunications	517	2,254	2,157	97	24 i	22 i	1	95.5	96.6	76.6
Data processing, hosting, and related services	518	4,591	4,285	306	37	33	4	124.8	129.8	80.8
Other information	other 51	8,293	6,988	1,305	36	30	7	228.7	236.0	196.1
Finance and insurance	52	3,950	3,457	493	31	26	5	126.1	131.0	99.7
Real estate and rental and leasing	53	D	395	D	2	1	1	D	288.0	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	365	324	41	2	1	1	239.6	320.1	80.1
Other real estate and rental and leasing	other 53	D	71	D	*	*	*	D	197.1	D
Professional, scientific, and technical services	54	44,110	38,219	5,892	369	270	99	119.5	141.4	59.7
Architectural, engineering, and related services	5413	D	3,774	D	66	62	4	D	60.7	D
Computer systems design and related services	5415	15,530	13,259	2,272 i	156	103	53	99.6	129.3	42.5
Scientific research and development services	5417	17,651	15,301	2,350	97	73	25	181.5	210.6	95.6
Biotechnology research and development	541711	6,267	6,017	250	21	20	1	299.3	306.4	192.0
Physical, engineering, and life sciences (except biotechnology) research and development	541712	10,766	8,667	2,099	72	49	23	148.8	176.6	90.2
Social sciences and humanities research and development	541720	618	616	1	4	4	*	155.9	156.2	80.1
Other professional, scientific, and technical services	other 54	D	5,885	D	50	33	17	D	179.0	D
Health care services	621–23	D	741	D	9	9	* i	D	86.8	D
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	2,239	D	35	33	3	D	68.3	D
All companies (number of domestic employees)	–	363,323	294,093	69,231	2,025	1,471	554	179.4	200.0	124.9
Small companies ^a										
5–499	–	60,802	56,793	4,010	529	481	47	115.0	118.0	84.4
5–99	–	32,719	31,310	1,409	297	274	22	110.3	114.2	62.9
5–49	–	22,748	21,842	905	204	189	16	111.4	115.8	57.6
5–9	–	4,285	4,202	83	38	37	1	112.1	112.6	91.7
10–24	–	7,312	6,779	533	84	74	10	87.6	91.7	55.6

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25-49	-	11,150	10,861	289	83	77	5	135.0	140.4	55.3
50-99	-	9,972	9,468	504	92	86	7	108.1	110.7	75.3
100-249	-	13,594	12,528	1,066	123	113	10	110.2	110.5	105.9
250-499	-	14,489	12,955	1,534	109	94	15	133.1	138.1	102.3
Medium and large companies										
500-999	-	11,475	10,027	1,448	76	61	15	150.8	164.6	95.5
1,000-4,999	-	63,451	50,485	12,967	346	233	114	183.3	217.1	114.0
5,000-9,999	-	32,656	24,951	7,705	199	113	86	164.4	221.3	89.7
10,000-24,999	-	61,773	49,214	12,559	273	204	70	226.0	241.4	180.7
25,000 or more	-	133,166	102,623	30,543	602	379	223	221.2	270.5	137.3

* = amount < \$500,000 or 500 employees; D = data withheld to avoid disclosing operations of individual companies; i = value > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

^a Upper bound based on U.S. Small Business Administration's definition of a small business; Business R&D and Innovation Survey does not include companies with fewer than five domestic employees.

NOTES: Detail may not add to total because of rounding. Ratios were calculated using unrounded data. Industry classification based on dominant business code for domestic R&D performance where available. For companies that did not report business codes, classification used for sampling was assigned. Statistics are representative of companies located in the United States that performed or funded R&D.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2011.