

Table 47. 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: 2024

(Millions of U.S. dollars, number of employees in thousands, and cost per employee in thousands of U.S. dollars)

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	929,809	765,082	164,727	3,298	2,130	1,168	281.9	359.2	141.0
Manufacturing industries	31–33	495,527	405,092	90,435	1,598	1,032	566	310.1	392.6	159.7
Food	311	7,810	6,288	1,523	42	29	13	187.0	218.3	117.5
Beverage and tobacco products	312	2,457	1,459	998	11	7	4	221.9	206.4	249.3
Textile, apparel, and leather products	313–16	907	788	118	6	5	1	145.5	158.1	95.1
Wood products	321	269	267	2	5	5	*	58.6	58.7	42.2
Paper	322	1,317	1,240	78	7	6	1	191.1	222.7	58.7
Printing and related support activities	323	260	255	5	3	3	*	89.1	91.1	44.3
Petroleum and coal products	324	1,205	1,006	199	6	4	2	203.0	252.3	102.1
Chemicals	325	170,685	143,745	26,941	304	227	77	560.9	632.9	348.9
Basic chemicals	3251	4,041	3,120	921	28	20	7	145.5	152.7	125.4
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,870	1,354	516	10	6	4	179.5	211.0	128.9
Pesticide, fertilizer, and other agricultural chemicals	3253	1,421	1,253	168	4	4	1	326.0	341.5	243.7
Pharmaceuticals and medicines	3254	157,749	133,627	24,122	231	176	54	683.8	758.0	443.3
Soap, cleaning compound, and toilet preparations	3256	3,905	2,956	950	17	10	7	230.9	285.4	144.9
Paint, coating, adhesive, and other chemicals	3255, 3259	1,699	1,435	264	14	10	4	119.9	144.1	62.7
Plastics and rubber products	326	3,326	2,908	418	22	18	4	151.7	161.1	108.2
Nonmetallic mineral products	327	1,804	1,578	227	11	9	1	168.6	169.8	160.5
Primary metals	331	1,352	1,174	178	10	8	2	134.5	152.2	76.2
Fabricated metal products	332	3,978	3,230	748	36	28	8	111.0	114.1	99.5
Machinery	333	28,454	22,035	6,419	166	101	64	171.7	217.2	99.9
Agricultural implement	33311	3,657	2,561	1,096	19	10	8	195.5	246.3	131.9
Semiconductor machinery	333242	8,798	6,851	1,947	31	17	14	282.4	395.6	140.7
Engine, turbine, and power transmission equipment	3336	5,485	4,230	1,255	30	17	13	182.5	242.8	99.3
Other machinery	other 333	10,515	8,394	2,121	86	56	29	122.5	149.0	71.9
Computer and electronic products	334	153,232	115,599	37,633	527	272	254	291.0	424.7	147.9
Communications equipment	3342	16,688	12,839	3,848	73	36	37	228.4	354.5	104.4
Semiconductor and other electronic components	3344	74,100	52,358	21,742	244	104	139	304.3	502.0	156.1
Navigational, measuring, electromedical, and control instruments	3345	17,442	14,083	3,359	88	60	28	197.9	235.0	119.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,793	3,245	548	11	8	3	340.5	385.7	201.0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	6,645	6,161	484	36	29	6	186.6	209.6	77.8
Other measuring and controlling devices	other 3345	7,004	4,677	2,327	41	22	19	169.3	211.4	120.9
Other computer and electronic products	other 334	45,002	36,318	8,683	122	72	50	369.1	506.0	173.2
Electrical equipment, appliances, and components	335	8,880	6,999	1,880	39	25	14	228.4	280.1	135.5
Transportation equipment	336	79,271	71,231	8,040	277	197	79	286.6	360.7	101.6
Motor vehicles, bodies, trailers, and parts	3361–63	37,737	31,812	5,925	169	111	58	223.4	286.4	102.4

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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
Aerospace products and parts	3364	37,835	35,904	1,931	91	73	19	414.0	494.2	103.1
Aircraft, aircraft engine, and aircraft parts	336411–13	26,748	D	D	D	53	D	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	11,087	D	D	D	20	D	D	D	D
Military armored vehicle, tank, and tank components	336992	33	33	0	*	*	0	83.6	83.6	NA
Other transportation	other 336	3,665	3,481	184	16	13	3 i	231.3	260.9	73.5
Furniture and related products	337	498	450	47	4	4	1	111.1	113.8	90.7
Miscellaneous	339	29,822	24,840	4,981	124	84	40	241.4	297.4	124.5
Medical equipment and supplies	3391	26,707	22,126	4,582	105	69	36	253.9	319.0	127.9
Other miscellaneous manufacturing	3399	3,114	2,715	399	18	14	4	169.6	191.7	95.2
Nonmanufacturing industries	21–23, 42–81	434,282	359,990	74,292	1,700	1,098	602	255.4	327.7	123.4
Mining, quarrying, oil and gas extraction, and support activities	21	2,217	1,862	355	D	5	D	D	401.5	D
Utilities	22	623	613	10	7	7	*	87.8	90.0	35.4
Wholesale trade	42	1,802 i	1,692 i	110 i	24 i	22 i	2 i	74.9	75.9	61.4
Electronic shopping and electronic auctions	454111–12	10,188 i	7,898 i	2,291 i	D	28 i	D	D	285.9	D
Transportation and warehousing	48–49	11,610	11,341	270	36	35	1	320.1 r	325.0 r	195.5
Information	51	274,536	228,174	46,361	839	502	337	327.3	454.9	137.4
Publishing	511	80,509	63,596	16,913	300	153	146	268.7	414.4	115.7
Newspaper, periodical, book, and directory publishers	5111	497 i	489 i	9 i	5 i	5 i	* i	94.7	94.1	150.6
Software publishers	5112	80,012	63,108	16,904	294	148	146	271.8	425.6	115.7
Telecommunications	517	3,547	3,323	224	17	15	1	214.8	220.1	158.1
Data processing, hosting, and related services	518	72,547	58,772	13,775	310	174	136	233.8	338.0	101.0
Other information	other 51	117,933	102,484	15,449	212	159	53	555.2	644.0	290.0
Finance and insurance	52	29,593	25,463	4,129	130	90	40	227.6	284.1	102.2
Real estate and rental and leasing	53	2,856	2,750	106	6	6	1	454.3	478.8	194.9
Lessors of nonfinancial intangible assets (except copyrighted works)	533	23	23	0	*	*	0	354.4	354.4	NA
Other real estate and rental and leasing	other 53	2,833	2,727	106	6	6	1	455.3	480.2	194.9
Professional, scientific, and technical services	54	94,925	74,548	20,377	554	354	200	171.4	210.6	102.0
Architectural, engineering, and related services	5413	3,931	3,893	37	71	70	1	55.6	56.0	31.7
Computer systems design and related services	5415	32,634	26,764	5,870	175	111	63	186.9	240.2	92.9
Scientific research and development services	5417	47,162	33,942	13,219	248	124	124	190.2	273.8	106.6
Research and development in nanotechnology	541713	568	548	19	2	2	*	261.0	279.4	91.1
Research and development in biotechnology (except nanobiotechnology)	541714	9,580	6,751	2,830	61	30	31	157.1	228.4	90.1
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	36,299	25,931	10,368	177 i	85 i	92 i	205.1	306.0	112.4
Research and development in the social sciences and humanities	541720	714	712	2	8	8	*	91.2	92.4	16.6
Other professional, scientific, and technical services	other 54	11,199 i	9,949 i	1,250 i	61	49	11	185.0	202.4	109.9
Health care services	621–23	2,118	2,020	98 i	9	8	1	229.2	241.1	113.3

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		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	3,814	3,628	186	45	43	2	84.9	84.8	85.8
All companies (number of domestic employees)	–	929,809	765,082	164,727	3,298	2,130	1,168	281.9	359.2	141.0
Small companies										
10–19 ^a	–	5,434	4,790	644	36	26	9	152.2	181.5	69.1
20–49	–	17,384	16,179	1,205	86	74	12	201.1	217.3	100.6
Medium companies										
50–99	–	18,251	17,078	1,173	103	87	16	176.9	195.9	73.2
100–249	–	32,183	29,325	2,858	158	130	27	204.1	225.0	104.6
Large companies										
250–499	–	33,288	28,852	4,436	154	112	42	215.9	257.0	105.8
500–999	–	49,792	44,697	5,095	166	122	44	299.1	366.2	114.7
1,000–4,999	–	152,811	123,813	28,998	611	381	231	250.0	325.3	125.8
5,000–9,999	–	76,317	62,950	13,367	307	203	105	248.2	310.7	127.5
10,000–24,999	–	177,871	140,348	37,522	599	323	276	297.0	434.4	136.0
25,000 or more	–	366,479	297,050	69,429	1,077	671	406	340.3	442.5	171.1

* = amount < 500 employees; D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error is more than 50%; NA = not available.

NAICS = 2017 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. Ratios were calculated using unrounded data. 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 \$50,000 or more of R&D.

Source(s):
National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2024.