

TABLE 51

## Worldwide, domestic, and foreign R&amp;D paid for by the company and others and performed by the company, R&amp;D employment, and R&amp;D cost per R&amp;D employee, by industry and company size: 2015

(Millions of U.S. dollars 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	429,512	355,821	73,691	2,178	1,543	635	197	231	116
Manufacturing industries	31-33	288,051	236,132	51,919	1,308	916	392	220	258	133
Food	311	6,070	4,838	1,232	40	24	15	153	199	80
Beverages and tobacco products	312	1,525	1,002	523	7	4	3	204	229	169
Textiles, apparel, and leather products	313-16	819	748	71	8	7	1	101	100	112
Wood products	321	198	195	3	2	2	*	95	97	39
Paper	322	867	766	102	7	5	2	125	144	64
Printing and related support activities	323	198	196	2	4	3	*	57	58	12
Petroleum and coal products	324	252	214	38	2	2	*	124	137	79
Chemicals	325	81,342	68,196	13,146	231	167	64	352	407	206
Basic chemicals	3251	3,677	3,042	636	20	14	6	184	212	114
Resins, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,780	1,201	579	11	7	4	157	173	132
Pesticides, fertilizers, and other agricultural chemicals	3253	3,405	D	D	14	9	5	242	D	D
Pharmaceuticals and medicines	3254	69,266	58,675	10,591	161	120	41	430	490	255
Soaps, cleaning compounds, and toilet preparations	3256	1,549	1,398	150	9	7	2	169	188	88
Paints, coatings, adhesives, and other chemicals	3255, 3259	1,665	D	D	16	10	6	107	D	D
Plastics and rubber products	326	2,899	2,541	358	27	24	3	105	105	111
Nonmetallic mineral products	327	1,487	1,259	228	8	7	1	177	170	224
Primary metals	331	715	628	87	7	6	1	101	102	94
Fabricated metal products	332	2,454	2,261	193	39	36	2	63	62	86
Machinery	333	16,718	13,426	3,292	114	82	31	147	163	105
Agricultural implements	33311	2,152	1,531	621	15	9	5	146	165	114
Semiconductor machinery	333242	3,812	3,214	599	13	9	3	302	341	187
Engines, turbines, and power transmission equipment	3336	2,945	2,535	410	15	10	5	200	259	83
Other machinery	other 333	7,809	6,146	1,663	72	54	18	109	114	93
Computer and electronic products	334	92,783	72,110	20,674	415	263	152	223	274	136
Communications equipment	3342	23,049	19,424	3,625	90	58	32	257	336	113
Semiconductors and other electronic components	3344	40,348	30,451	9,896	157	97	60	258	315	166
Navigational, measuring, electromedical, and control instruments	3345	16,943	14,128	2,814	92	66	26	184	213	109
Electromedical, electrotherapeutic, and irradiation apparatuses	334510, 334517	3,681	2,758	923	20	14	6	182	199	144
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	8,033	7,360	673	33	29	4	244	252	178
Other measuring and controlling devices	other 3345	5,228	4,011	1,218	39	23	16	134	171	78
Other computer and electronic products	other 334	12,444	8,106	4,338	77	42	34	162	192	126
Electrical equipment, appliances, and components	335	5,687	4,335	1,351	53	28	24	107	152	55

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		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Transportation equipment	336	57,687	49,274	8,413	255	185	70	226	267	120
Automobiles, bodies, trailers, and parts	3361-63	25,698	19,078	6,621	148	101	46	174	188	143
Aerospace products and parts	3364	29,139	27,464	1,674	93	70	23	314	391	74
Aircraft, aircraft engines, and aircraft parts	336411-13	27,489	25,817	1,672	81	58	23	340	443	74
Guided missiles, space vehicles, and related parts	336414-15, 336419	1,649	1,647	2	12	12	*	138	137	265
Military armored vehicles, tanks, and tank components	336992	16	16	0	*	*	0	205	205	0
Other transportation	other 336	2,834	2,716	118	14	13	1	196	208	85
Furniture and related products	337	477	452	25	5	5	*	92	90	156
Miscellaneous manufacturing	339	15,873	13,690	2,183	83	62	21	191	220	105
Medical equipment and supplies	3391	13,170	11,382	1,788	62	47	15	212	241	120
Other miscellaneous manufacturing	3399	2,703	2,309	394	21	15	6	129	154	67
Nonmanufacturing industries	21-23, 42-81	141,461	119,690	21,771	871	627	243	162	191	89
Mining, extraction, and support activities	21	4,348	4,012	336	17	15	2	258	271	161
Utilities	22	483	480	3	3	3	*	174	184	18
Wholesale trade	42	1,793	1,768	25	26	25	1	69	70	27
Electronic shopping and electronic auctions	454111-12	D	1,533	D	7	6	1	D	263	D
Transportation and warehousing	48-49	416	403	13	2	2	*	231	230	271
Information	51	78,035	65,513	12,523	409	279	130	191	235	96
Publishing	511	42,187	33,346	8,841	247	146	100	171	228	88
Newspaper, periodical, book, and directory publishers	5111	107	98	9	1	1	*	122	121	131
Software publishers	5112	42,080	33,248	8,832	246	145	100	171	229	88
Telecommunications	517	3,648	3,607	41	25	24	1	146	151	36
Data processing, hosting, and related services	518	10,677	9,416	1,261	72	56	16	149	169	80
Other information	other 51	21,523	19,144	2,379	66	53	13	325	360	184
Finance and insurance	52	6,292	5,366	926	40	32	8	157	168	113
Real estate and rental and leasing	53	314	301	13	2	2	*	173	177	109
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	68	D	*	*	*	D	191	D
Other real estate and rental and leasing	other 53	D	233	D	1	1	*	D	174	D
Professional, scientific, and technical services	54	46,276	38,626	7,650	344	246	98	135	157	78
Architectural, engineering, and related services	5413	4,187	4,128	58	52	44	8	80	94	7
Computer systems design and related services	5415	17,225	14,333	2,892	136	92	44	127	156	66
Scientific research and development services	5417	20,707	16,329	4,378	122	82	40	170	198	111
Biotechnology research and development	541711	7,211	5,693	1,518	31	22	9	231	259	165
Physical, engineering, and life sciences (except biotechnology) research and development	541712	12,787	9,931	2,856	84	54	30	152	185	94

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		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Social sciences and humanities research and development	541720	708	705	3	7	7	*	102	102	233
Other professional, scientific, and technical services	other 54	4,157	3,835	322	34	28	6	123	137	56
Health care services	621-23	771	758	12	6	5	*	136	143	35
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	930	D	15	13	2	D	72	D
All companies (number of domestic employees)	-	429,512	355,821	73,691	2,178	1,543	635	197	231	116
Micro companies <sup>a</sup>										
5-9	-	3,107	2,988	118	29	26	3	107	116	38
Small companies										
10-19	-	5,756	5,680	76	54	50	4	108	114	20
20-49	-	10,624	10,249	375	99	91	9	107	113	42
Medium companies										
50-99	-	11,916	11,509	406	90	83	7	133	139	62
100-249	-	14,991	13,602	1,389	118	100	18	127	136	77
Large companies										
250-499	-	14,675	13,553	1,122	99	86	14	148	158	83
500-999	-	17,643	15,217	2,426	102	77	25	173	197	99
1,000-4,999	-	71,610	58,094	13,516	388	254	134	184	228	101
5,000-9,999	-	48,336	38,838	9,498	227	147	80	213	264	118
10,000-24,999	-	70,870	59,328	11,543	336	228	108	211	260	107
25,000 or more	-	159,984	126,763	33,221	637	402	235	251	316	141

\* = amount &lt; 500 employees; D = data withheld to avoid disclosing operations of individual companies; i = &gt; 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

<sup>a</sup> 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. Ratios were calculated using unrounded data. Industry classification is based on the dominant business code for domestic R&amp;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&amp;D.

**Source(s)**

National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&amp;D and Innovation Survey, 2015.