Business Research and Development and Innovation: 2013

Detailed Statistical Tables | NSF 16-313 | August 2016 (Revised November 2016)

Errata: Table 30 contained errors in data reported for the number of companies by company size distribution. This table has been replaced with a corrected version.

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General Notes

The Business R&D and Innovation Survey (BRDIS) is the primary source of information on business domestic and global research and development expenditures and workforce for companies of businesses operating in the 50 states and the District of Columbia. The survey is conducted annually by the U.S. Census Bureau in accordance with an interagency agreement with the National Science Foundation's (NSF's) National Center for Science and Engineering Statistics (NCSES). BRDIS succeeds the Survey of Industrial Research and Development, which produced statistics for 1953–2007 and was conducted by the U.S. Bureau of Labor Statistics (1953–56) and the U.S. Census Bureau (1957–2007).

The results of the survey are used to assess trends in the performance and funding of R&D. Government agencies, corporations, and research organizations use the data to investigate productivity, formulate tax policy, and compare individual company performance with industry averages. Individual researchers in industry and academia use the data to investigate a variety of topics and to prepare professional papers, dissertations, and books. Total R&D expenditure statistics are used by the U.S. Bureau of Economic Analysis for inclusion in their System of National Accounts and Foreign Direct Investment programs.

Further, BRDIS statistics make it possible to evaluate more fully the status of R&D in the United States and to compare the R&D and innovation activities of the United States with those of other nations. The usefulness of the information collected in this survey is enhanced by linking it to the U.S. Census Bureau's Longitudinal Establishment Data file, which contains information on the outputs and inputs of companies' manufacturing plants. Response to this survey is mandatory and confidential under Title 13 of the United States Code.

In conducting BRDIS, data are collected from a probability sample of for-profit companies, which are classified in select manufacturing and nonmanufacturing industries. BRDIS is administered both to companies known to have performed or funded R&D and to companies with no known history of R&D activity. The survey is sent to a single coordinator within each company, but it is organized into sections that help the coordinator collect specific types of information from different experts in the company (e.g., human resources, accounting, R&D managers). Foreign-owned companies are instructed to report only for company operations owned by the U.S. subsidiary and, for purposes of the survey, to treat their foreign owners as if they were unrelated third parties.

The target population for BRDIS consists of all for-profit companies that have five or more paid employees in the United States, have at least one establishment that is in business during the survey year and is located in the United States, and are classified in certain industries, with a particular focus on those

companies that perform R&D in the United States. A company is defined as one or more establishments under common domestic ownership or control.

The U.S. Census Bureau's Business Register contains information on more than 3 million establishments with paid employees. It serves as the primary input to the sampling frame from which the sample survey is selected. For companies with more than one establishment, data are summed to the company level to assign an industry classification code and a measure of size, which are used in designing the sample. Companies are excluded from the frame if they are classified in an industry that is outside the scope of BRDIS or have fewer than five employees, based on their prior year's aggregated annual payroll and employment data.

This report includes tabulations containing statistics for multiple years. In these tables, most prior-year statistics have been revised since originally published in the annual BRDIS detailed statistical tables reports. Revised statistics include adjustments based on information obtained after the original statistics were prepared. For any given year, after the published tables are produced, the statistical file used to produce the tables stays open for about 1 year before it is permanently closed. During that year respondents may provide updated data, or information from other U.S. Census Bureau surveys or publicly available sources may become available. The new data and information are evaluated and tested and, if appropriate, revisions are made to the statistical file. In addition to containing 2013 statistics, the multiyear tables in this report (tables 3, 4, 5, 10, 14, 15, 16, and 25) were prepared using the revised statistical files for 2008–12.

Terms used in business accounting and incorporated throughout the tables are defined at the end of the technical notes. BRDIS reports and data can be found at http://www.nsf.gov/statistics/industry/.

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TABLE 1. Business R&D and Innovation Survey aggregate estimates, by questionnaire reference: 2013

Question	Survey item	Aggregate amount
Company and financial information (US$millions)		
1.8	Worldwide net sales and operating revenues	13,319,076
1.9	Net sales and operating revenues from domestic operations	9,654,952
2.4	Worldwide R&D paid for by the company and performed by the company and others	376,151
2.7a	Domestic R&D paid for by the company and performed by the company and others	298,077
2.7b	Foreign R&D paid for by the company and performed by the company and others	78,074
	Domestic R&D paid for by the company and performed by the company and others	
2.10a(1)	Salaries, wages, and fringe benefits	153,633
2.10b(1)	Stock-based compensation	13,553
2.10c(1)	Temporary staffing	11,904
2.10d(1)	Expensed equipment	4,059
2.10e(1)	Materials and supplies	19,511
2.10f(1)	Lease and rental payments	4,099
2.10g(1)	Depreciation and amortization	10,413
2.10h(1)	Payments to business partners for collaborative R&D	6,433
2.10i(1)	Purchased R&D Services	26,732
2.10j(1)	All other purchased services except R&D	5,491
2.10k(1)	All other costs	42,250
2.11(3)	Worldwide R&D paid for by the company and performed by others	44,111
2.11(1)	Domestic R&D paid for by the company and performed by others	33,165
2.11(2)	Foreign R&D paid for by the company and performed by others	10,946
2.12(3)	Worldwide R&D paid for and performed by the company	332,040
2.12(1)	Domestic R&D paid for and performed by the company	264,913
2.12(2)	Foreign R&D paid for and performed by the company	67,128
2.11(1) + 2.12(1) + 3.8(1) + 3.9(1)	Domestic R&D paid for by the company and others and performed by the company and others	365,631
2.12(1) + 3.9(1)	Domestic R&D paid for by the company and others and performed by the company	322,528
	Domestic R&D paid for and performed by the company	
2.18	Performed at largest domestic location	145,126
2.20	Performed at second-largest domestic location	22,179
2.22	Domestic R&D paid for by foreign operations or subsidiaries and performed by the company	5,005
2.23	Foreign R&D paid for by domestic operations or subsidiaries and performed by the company	8,869
	Domestic R&D paid for by the company and performed by others	
2.25a	Companies in United States	27,056
2.25b	Your company's foreign owner	536
2.25c	Companies outside United States	2,859
2.25d	U.S. federal government	71
2.25e	U.S. state and local governments	20
2.25f	Foreign governments	1
2.25g	All other organizations in United States	730
2.25h	All other organizations outside United States	341
2.25	Undistributed (BRD-1(S))	1,550 i
2.26	Indirect R&D charges to be recouped from the U.S. federal government	5,392
	Projected worldwide R&D expense for 2014	
2.27(3)	Worldwide R&D to be paid for and performed by the company	392,477
2.27(1)	Domestic R&D to be paid for and performed by the company	314,549
2.27(2)	Foreign R&D to be paid for and performed by the company	77,928
2.28	Projected R&D services and projected payments for collaborative R&D	28,998
2.29	Total domestic capital expenditures	508,722
2.3	Domestic capital expenditures for R&D	31,145
2.30a	Structures	1,941
2.31b	Equipment	8,150
2.31c	Capitalized software	4,448
2.31d	All other expenditures	2,349
2.31	Undistributed (BRD-1(S))	14,257 i
	R&D paid for by others and performed by the company and others	
3.1j	Worldwide R&D paid for by others and performed by the company and others	75,011

TABLE 1. Business R&D and Innovation Survey aggregate estimates, by questionnaire reference: 2013

Question	Survey item	Aggregate amount
3.4a	Domestic R&D paid for by others and performed by the company and others	67,553
3.4b	Foreign R&D paid for by others and performed by the company and others	7,458
	Domestic R&D paid for by others and performed by the company and others	
3.7a(1)	Salaries, wages, and fringe benefits	32,958
3.7b(1)	Stock-based compensation	276
3.7c(1)	Temporary staffing	1,276
3.7d(1)	Expensed equipment	361
3.7e(1)	Materials and supplies	5,855
3.7f(1)	Lease and rental payments	756
3.7g(1)	Depreciation and amortization	1,479
3.7h(1)	Payments to business partners for collaborative R&D	1,780
3.7i(1)	Purchased R&D services	8,157
3.7j(1)	All other purchased services except R&D	1,496 i
3.7k(1)	All other costs	13,158 i
3.8(3)	Worldwide R&D paid for and performed by others	11,423
3.8(1)	Domestic R&D paid for and performed by others	9,938
3.8(2)	Foreign R&D paid for and performed by others	1,485
3.9(3)	Worldwide R&D paid for by others and performed by the company	63,588
3.9(1)	Domestic R&D paid for by others and performed by the company	57,615
3.9(2)	Foreign R&D paid for by others and performed by the company	5,973
	Domestic R&D paid for by others and performed by the company	
3.14a	Companies in United States	13,450
3.14b	Your company's foreign owner	10,445
3.14c	Companies outside United States	3,346
3.14d	U.S. federal government	29,362
3.14e	U.S. state and local governments	194
3.14f	Foreign governments	526
3.14g	Other organizations in United States	262
3.14h	Other organizations outside United States	31
	Federally funded R&D performed by the company	
3.18a	Department of Defense	23,466 i
3.18b	Department of Energy	957
3.18c	National Aeronautics and Space Administration	2,661 i
3.18d	National Institutes of Health	624
3.18e	Department of Homeland Security	151
3.18f	Department of Transportation	35
3.18g	Environmental Protection Agency	6
3.18h	National Science Foundation	14
3.18i	Other U.S. federal agencies	1,447
	Domestic R&D paid for by others and performed by the company	
3.23	Performed at largest domestic location	25,098
3.25	Performed at second-largest domestic location	5,169
	Projected R&D to be paid for by others and performed by the company in 2014	
3.26	Worldwide to be paid for by others and performed by the company	71,130
3.27	Domestic R&D to be paid for by others and performed by the company	60,399
3.28	R&D to be paid for by U.S. federal government and performed by the company	31,559 i
	Domestic R&D paid for and performed by the company	
	Character of work	
4.6b	Basic research	15,275
4.6a	Applied research	38,105
4.5b	Development	211,532
	Application areas	
4.7	Energy applications	20,008
4.8	Environmental protection applications	7,475
4.9	Defense applications	10,163
4.10	Health or medical applications	59,950
4.11	Agricultural applications	4,894 i
	Technology focus areas	
4.12	Software products and software embedded	87,245
4.13	Optics and photonics	7,028

TABLE 1. Business R&D and Innovation Survey aggregate estimates, by questionnaire reference: 2013

Question	Survey item	Aggregate amount
4.14	Products enabled by optics and photonics	3,846
4.15	Biotechnology	27,054
4.16	Nanotechnology	14,878
	Domestic R&D paid for by others and performed by the company	
	Character of work	
4.20b	Basic research	4,233
4.20a	Applied research	12,908
4.19b	Development	40,475
	Application areas	
4.21	Energy applications	3,084 i
4.22	Environmental protection applications	2,190 i
4.23	Defense applications	27,308 i
4.24	Health or medical applications	14,143
4.25	Agricultural applications	774
	Technology focus areas	
4.26	Software products and software embedded	10,103 i
4.27	Optics and photonics	2,602 i
4.28	Products enabled by optics and photonics	1,284 i
4.29	Biotechnology	5,410
4.3	Nanotechnology	1,865 i
	Federally funded R&D performed by the company	
	Character of work	
4.34b	Basic research	1,196 i
4.34a	Applied research	6,028 i
4.33b	Development	22,137 i
	Technology focus areas	
4.35	Software products and software embedded	6,275 i
Employees (thousands)		
	Worldwide	
5.1	Total employees	30,560
5.3b(3)	Non-R&D employees	28,465
5.3a(3)	R&D employees	2,095
5.5a(3)	Female	548
5.5b(3)	Male	1,547
5.6a(3)	Scientists and engineers	1,438
5.6b(3)	Technicians	412
5.6c(3)	Support staff	245
	Domestic	
5.2(1)	Total employees	20,046
5.3b(1)	Non-R&D employees	18,550
5.3a(1)	R&D employees	1,495
5.5a(1)	Female	371
5.5b(1)	Male	1,124
5.6a(1)	Scientists and engineers	1,014
5.6b(1)	Technicians	308
5.6c(1)	Support staff	174
	Foreign	
5.2(2)	Total employees	10,514
5.3b(2)	Non-R&D employees	9,915
5.3a(2)	R&D employees	600
5.5a(2)	Female	177
5.5b(2)	Male	423
5.6a(2)	Scientists and engineers	425
5.6b(2)	Technicians	104
5.6c(2)	Support staff	71
	Full-time equivalent	
5.8d	R&D employees	1,318
5.8a	Full-time R&D employees	1,171
5.8b	Full-time employees not solely working on R&D	124 i
5.8c	Part-time employees working on R&D	22 i

TABLE 1. Business R&D and Innovation Survey aggregate estimates, by questionnaire reference: 2013

Question	Survey item	Aggregate amount
5.9d	R&D scientists and engineers	914
5.9a	Full-time R&D employees	833
5.9b	Full-time employees not solely working on R&D	70 i
5.9c	Part-time employees working on R&D	12 i
U.S. patents (number)[a]		
6.1	Applied for	149,818
6.2	Applications, foreign	60,923
6.3	Applications originated from organized R&D activities	101,589
6.4	Issued	98,370
6.7	New agreements to license patents to others	2,857
6.6	Revenue from patent licensing (US$millions)	26,276

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

[a] These statistics do not include an adjustment to the weight to account for unit nonresponse.

NOTES: Detail may not add to total because of rounding. 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, 2013.

TABLE 2. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
All industries	21–23, 31–33, 42–81	395,628	332,040	63,588	322,528	264,913	57,615	73,100	67,128	5,973
Manufacturing industries	31–33	272,580	230,644	41,936	221,476	181,170	40,306	51,104	49,474	1,630
Food	311	6,343	6,107	236	5,028	4,801	227	1,315	1,306	9
Beverage and tobacco products	312	1,358	1,258	100 i	827	727	100 i	531	531	0
Textile, apparel, and leather products	313–16	760	739	21 i	662	642	21 i	98	98	0
Wood products	321	222	211	11	220	209	11	2	2	0
Paper	322	1,022	1,009	13 i	920	907	13 i	103	103	*
Printing and related support activities	323	258 i	230 i	28 i	252 i	224 i	28 i	6	6	0
Petroleum and coal products	324	288	282	5	242	236	5	46	46	*
Chemicals	325	74,397	66,769	7,629	61,664	54,285	7,379	12,733	12,484	250
Basic chemicals	3251	3,373	3,052	321	2,658	2,341	317	715	711	4
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,570	1,408	163	1,065	954	111	506	454	52
Pesticide, fertilizer, and other agricultural chemicals	3253	1,966 i	1,587 i	379	1,691 i	1,325 i	366	275 i	262 i	13
Pharmaceuticals and medicines	3254	62,477	55,762	6,715	52,426	45,891	6,534	10,051	9,870	181
Soap, cleaning compound, and toilet preparation	3256	3,393	3,382	11 i	2,469	2,458	11 i	924	924	0
Paint, coating, adhesive, and other chemicals	3255, 3259	1,618	1,578	40	1,355	1,315	40	263	263	0
Plastics and rubber products	326	4,580	4,423	158 i	3,650	3,496	154 i	931	927	4
Nonmetallic mineral products	327	1,578	1,551	27 i	1,329 i	1,303 i	26 i	249 i	248 i	1
Primary metals	331	706	687	19	624	605	19	82	82	0
Fabricated metal products	332	2,328 i	2,049 i	278 i	2,212 i	1,934 i	278 i	116	116	0
Machinery	333	15,502	14,913	589	12,650	12,092	558	2,852	2,820	31
Agricultural implement	33311	2,243	2,207	36	1,597	1,561	36	646	646	*
Semiconductor machinery	333295	3,645	3,547	98	3,194	3,097	97	451	450	1
Engine, turbine, and power transmission equipment	3336	1,795	1,677	118	1,448	1,336	113	347	342	5
Other machinery	other 333	7,819	7,481	337	6,411	6,098	312	1,408	1,383	25
Computer and electronic products	334	85,480	75,215	10,265	67,205	57,364	9,841	18,275	17,852	423
Communications equipment	3342	20,353	18,354	1,999 i	15,658	13,693	1,964 i	4,696	4,661	35
Semiconductor and other electronic components	3344	40,609	38,220	2,389	30,800	28,576	2,224	9,809	9,644	165
Navigational, measuring, electromedical, and control instruments	3345	16,769	11,169	5,600	14,478	9,001	5,477	2,291	2,168	123
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,837	2,672	165	2,634	2,470	164	202	202	1

TABLE 2. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,753	3,599	5,155	8,106	3,037	5,069	647	561	86
Other measuring and controlling device	other 3345	5,179	4,898	281	3,738	3,494	245	1,441	1,405	36
Other computer and electronic products	other 334	7,748	7,472	277	6,269	6,093	176	1,480	1,379	101
Electrical equipment, appliances, and components	335	5,741	5,234	507 i	4,136	3,660	475 i	1,605	1,574	31
Transportation equipment	336	55,191	33,515	21,677 i	45,972	25,165	20,807 i	9,219	8,350	870
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	23,605	20,495	3,110	16,729	14,081	2,647	6,877	6,414	463 i
Aerospace products and parts	3364	29,331	11,894	17,438 i	27,114	10,042	17,072 i	2,218	1,852	366
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D	D	9,765	D	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D	D	278	D	D	D	D
Military armored vehicle, tank, and tank components	336992	9 i	7 i	2 i	9 i	7 i	2 i	0	0	0
Other transportation	other 336	2,246	1,119	1,127	2,121	1,035	1,086	125	84	41
Furniture and related products	337	402	401	1 i	374	374	1 i	28	28	0
Miscellaneous manufacturing	339	16,422	16,050	373	13,509	13,147	362	2,913	2,903	10
Medical equipment and supplies	3391	13,456	13,129	327	10,954	10,638	317	2,502	2,492	10
Other miscellaneous manufacturing	3399	2,966	2,920	46 i	2,555	2,509	46 i	411	411	*
Nonmanufacturing industries	21–23, 42–81	123,048	101,396	21,652	101,052	83,742	17,310	21,996	17,654	4,343
Mining, extraction, and support activities	21	4,449	D	D	3,997	3,602	395	452	D	D
Utilities	22	317	267	50	294	243	50	23	23	0
Wholesale trade	42	554 i	535 i	18 i	529 i	510 i	18 i	25 i	25 i	0
Electronic shopping and electronic auctions	454111–12	1,846	1,846	1 i	1,357 i	1,356 i	1 i	490	490	0
Transportation and warehousing	48–49	D	418	D	D	411	D	7	7	0
Information	51	70,857	69,613	1,244	57,207	56,039	1,168	13,650	13,574	76
Publishing	511	47,012	45,903	1,109	35,675	34,637	1,038	11,337	11,266	71
Newspaper, periodical, book, and directory publishers	5111	348 i	347 i	1 i	342 i	341 i	1 i	6 i	6 i	0
Software publishers	5112	46,664	45,556	1,107	35,333	34,296	1,037	11,331	11,260	71
Telecommunications	517	3,104	3,100	4 i	3,041	3,037	4 i	63	63	0
Data processing, hosting, and related services	518	7,077	6,960	117	6,446	6,333	113	631	627	5
Other information	other 51	13,665	13,650	15	12,046	12,032	14	1,619	1,618	1
Finance and insurance	52	5,011	5,001	10	4,308	4,298	10	703	703	0
Real estate and rental and leasing	53	161	161	* i	150	150	* i	11	11	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	D	0	58 i	58 i	0	D	D	0
Other real estate and rental and leasing	other 53	D	D	* i	92	92	* i	D	D	0

TABLE 2. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
Professional, scientific, and technical services	54	37,560	D	D	31,017	15,617 i	15,400	6,543	D	D
Architectural, engineering, and related services	5413	3,174	1,296	1,878	3,133	1,261	1,872	41	35	6
Computer systems design and related services	5415	10,563 i	9,385 i	1,178 i	9,268 i	8,107 i	1,161 i	1,294	1,277	17
Scientific research and development services	5417	18,464	2,926	15,538	14,201	2,838	11,363	4,263	89	4,174
Biotechnology research and development	541711	5,899	1,383	4,516	4,499	1,331	3,168 i	1,400	52	1,348
Physical, engineering, and life sciences (except biotechnology) research and development	541712	11,771	1,507	10,263	8,910	1,470	7,440	2,861	37	2,824
Social sciences and humanities research and development	541720	795	36 i	759	792	36 i	756	3	0	3
Other professional, scientific, and technical services	other 54	5,359	D	D	4,415	3,411	1,003	944	D	D
Health care services	621–23	533 i	437 i	96	526 i	430 i	96	7	7	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	1,171 i	D	D	1,086 i	D	85	85	0
All companies (number of domestic employees)	–	395,628	332,040	63,588	322,528	264,913	57,615	73,100	67,128	5,973
Small companies[a]										
5–499	–	57,172	46,007	11,166	53,002	42,106	10,897	4,170	3,901	269
5–99	–	28,670 i	22,300 i	6,370 i	27,148 i	20,886 i	6,262 i	1,522	1,413	108
5–49	–	19,415 i	14,807 i	4,609 i	18,238 i	13,726 i	4,513 i	1,177	1,081	96
5–9	–	3,454 i	2,247 i	1,207 i	3,402 i	2,195 i	1,207 i	52 i	52 i	* i
10–24	–	7,580 i	5,920 i	1,660 i	6,895 i	5,290 i	1,605 i	685	630	55
25–49	–	8,381 i	6,640 i	1,741	7,941 i	6,241 i	1,700	440	399 i	41
50–99	–	9,254	7,493	1,761	8,910	7,161	1,749	344	332	12
100–249	–	14,941	12,139	2,802	13,666	10,922	2,743	1,275	1,217	58
250–499	–	13,562	11,567	1,995	12,189	10,297	1,892	1,373	1,270	103
Medium and large companies										
500–999	–	13,658	11,770	1,888	12,002	10,280	1,722	1,656	1,490	166 i
1,000–4,999	–	69,097	57,770	11,327	55,517	45,342	10,175	13,580	12,428	1,152 i

TABLE 2. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
5,000–9,999	–	42,350	32,363	9,987	31,514	25,009	6,505	10,836	7,354	3,482
10,000–24,999	–	60,999	53,669	7,330	51,218	44,275	6,942	9,782	9,394	388
25,000 or more	–	152,351	130,461	21,890 i	119,275	97,901	21,374 i	33,076	32,560	516

* = 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.

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. 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, 2013.

TABLE 3. Worldwide R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008[a]	2009	2010	2011	2012	2013
All industries	21–23, 31–33, 42–81	NA	336,571	338,451	359,490	374,916	395,628
Manufacturing industries	31–33	NA	236,858	243,611	253,821	261,697	272,580
Food	311	NA	4,916	D	5,589	5,163	6,343
Beverage and tobacco products	312	NA	933	D	D	D	1,358
Textile, apparel, and leather products	313–16	NA	519	522	656	605	760
Wood products	321	NA	283	254	211	282	222
Paper	322	NA	NA	1,665	769	858	1,022
Printing and related support activities	323	NA	217	269	212	291 i	258 i
Petroleum and coal products	324	NA	NA	D	1,281	D	288
Chemicals	325	NA	64,442	72,610	72,068	70,218	74,397
Basic chemicals	3251	NA	NA	2,671	5,166	3,400	3,373
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	NA	NA	1,038	1,117	D	1,570
Pesticide, fertilizer, and other agricultural chemicals	3253	NA	NA	D	2,049	D	1,966 i
Pharmaceuticals and medicines	3254	NA	53,456	60,537	58,866	58,920	62,477
Soap, cleaning compound, and toilet preparation	3256	NA	NA	3,285	3,386	3,212	3,393
Paint, coating, adhesive, and other chemicals	3255, 3259	NA	NA	D	1,485	D	1,618
Plastics and rubber products	326	NA	2,982	2,515	2,640	4,446	4,580
Nonmetallic mineral products	327	NA	1,153 i	1,596	1,428	1,588 i	1,578
Primary metals	331	NA	993	802	763	818	706
Fabricated metal products	332	NA	2,174	1,818	1,993	1,949 i	2,328 i
Machinery	333	NA	11,156	12,403	18,312	17,462	15,502
Agricultural implement	33311	NA	NA	D	1,570	2,142	2,243
Semiconductor machinery	333295	NA	NA	2,469	2,727	1,357	3,645
Engine, turbine, and power transmission equipment	3336	NA	NA	D	D	D	1,795
Other machinery	other 333	NA	NA	6,566	D	D	7,819
Computer and electronic products	334	NA	68,772	75,345	79,145	87,406	85,480
Communications equipment	3342	NA	NA	17,069	15,197	18,877	20,353
Semiconductor and other electronic components	3344	NA	26,082	29,354	32,146	38,300	40,609
Navigational, measuring, electromedical, and control instruments	3345	NA	16,498	17,905	18,242	18,640	16,769
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	NA	NA	4,548	4,987	4,999	2,837
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	NA	NA	8,769	8,641	8,312	8,753
Other measuring and controlling device	other 3345	NA	NA	4,588	4,615	5,329	5,179
Other computer and electronic products	other 334	NA	NA	11,017	13,559	11,589	7,748
Electrical equipment, appliances, and components	335	NA	4,475	4,767	5,319	4,140	5,741
Transportation equipment	336	NA	56,183	51,362	49,030	50,415	55,191
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	NA	NA	17,764	D	D	23,605
Aerospace products and parts	3364	NA	36,409	31,627	26,858	D	29,331
Aircraft, aircraft engine, and aircraft parts	336411–13	NA	NA	D	D	D	D

TABLE 3. Worldwide R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008[a]	2009	2010	2011	2012	2013
Guided missile, space vehicle, and related parts	336414–15, 336419	NA	NA	D	D	1,425	D
Military armored vehicle, tank, and tank components	336992	NA	NA	D	52	D	9 i
Other transportation	other 336	NA	NA	D	D	D	2,246
Furniture and related products	337	NA	433	407	347	383	402
Miscellaneous manufacturing	339	NA	NA	9,528	D	D	16,422
Medical equipment and supplies	3391	NA	NA	7,461	D	10,311	13,456
Other miscellaneous manufacturing	3399	NA	NA	2,066	D	D	2,966
Nonmanufacturing industries	21–23, 42–81	NA	99,713	94,840	105,669	113,220	123,048
Mining, extraction, and support activities	21	NA	NA	2,785	2,597	D	4,449
Utilities	22	NA	NA	442	396	368	317
Wholesale trade	42	NA	NA	1,145	1,697 i	2,165 i	554 i
Electronic shopping and electronic auctions	454111–12	NA	NA	D	D	D	1,846
Transportation and warehousing	48–49	NA	NA	124	159	186	D
Information	51	NA	43,197	45,099	52,341	56,815	70,857
Publishing	511	NA	33,171	33,883	36,310	36,947	47,012
Newspaper, periodical, book, and directory publishers	5111	NA	NA	826	401	221 i	348 i
Software publishers	5112	NA	NA	33,058	35,910	36,726	46,664
Telecommunications	517	NA	1,609	2,043	2,267	2,787 i	3,104
Data processing, hosting, and related services	518	NA	3,008	2,895	5,450	5,574	7,077
Other information	other 51	NA	5,410	6,278	8,313	11,506	13,665
Finance and insurance	52	NA	NA	2,568	3,943	4,159	5,011
Real estate and rental and leasing	53	NA	NA	367	D	400	161
Lessors of nonfinancial intangible assets (except copyrighted works)	533	NA	NA	NA	365	379	D
Other real estate and rental and leasing	other 53	NA	NA	NA	D	21 i	D
Professional, scientific, and technical services	54	NA	47,709	37,108	39,731	40,843	37,560
Architectural, engineering, and related services	5413	NA	3,384	4,156	D	2,541 i	3,174
Computer systems design and related services	5415	NA	15,310	12,458	13,181	13,404 i	10,563 i
Scientific research and development services	5417	NA	19,307	16,408	19,295	20,225	18,464
Biotechnology research and development	541711	NA	8,492	6,266	7,985	8,364	5,899
Physical, engineering, and life sciences (except biotechnology) research and development	541712	NA	10,129	9,591	10,697	11,261	11,771
Social sciences and humanities research and development	541720	NA	686	551	613	600	795
Other professional, scientific, and technical services	other 54	NA	9,708	4,086	D	4,674	5,359
Health care services	621–23	NA	NA	D	D	708 i	533 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	NA	NA	NA	D	D	D
All companies (number of domestic employees)	–	NA	336,571	338,451	359,490	374,916	395,628
Small companies[b]							
5–499	–	NA	62,281	55,645	57,411	53,585	57,172

TABLE 3. Worldwide R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008[a]	2009	2010	2011	2012	2013
5–99	–	NA	35,601	31,218	29,483	27,227 i	28,670 i
5–49	–	NA	21,815	21,748	19,649	17,499 i	19,415 i
5–9	–	NA	NA	3,792	4,143	3,025 i	3,454 i
10–24	–	NA	NA	9,083	7,192	7,027 i	7,580 i
25–49	–	NA	9,852	8,873	8,314	7,446 i	8,381 i
50–99	–	NA	13,785	9,470	9,834	9,728	9,254
100–249	–	NA	14,365	12,989	13,354	13,665	14,941
250–499	–	NA	12,315	11,439	14,573	12,693	13,562
Medium and large companies							
500–999	–	NA	12,124	11,794	11,388	12,955	13,658
1,000–4,999	–	NA	54,600	60,782	63,801	62,729	69,097
5,000–9,999	–	NA	27,461	34,453	32,578	41,006	42,350
10,000–24,999	–	NA	61,681	50,710	61,593	60,544	60,999
25,000 or more	–	NA	118,424	125,067	132,719	144,097	152,351

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 = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS. Beginning with survey year 2011, the composition of the other nonmanufacturing industry changed.

[a] Worldwide R&D paid for by the company and others and performed by the company was not published in 2008.

[b] 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. 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.

TABLE 4. Domestic R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008	2009	2010	2011	2012	2013
All industries	21–23, 31–33, 42–81	290,680	282,505	279,289	290,240	302,759	322,528
Manufacturing industries	31–33	203,755	196,441	199,147	202,363	208,577	221,476
Food	311	2,100	4,099	D	4,393	4,087	5,028
Beverage and tobacco products	312	780	477	D	D	D	827
Textile, apparel, and leather products	313–16	815	439	482	608	553	662
Wood products	321	273	280	252	211	280	220
Paper	322	NA	NA	1,341	676	752	920
Printing and related support activities	323	349	210	231	181	256 i	252 i
Petroleum and coal products	324	NA	NA	D	D	888	242
Chemicals	325	58,250	54,753	58,343	55,853	56,748	61,664
Basic chemicals	3251	NA	NA	1,810	D	2,705	2,658
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	NA	NA	783	798	997	1,065
Pesticide, fertilizer, and other agricultural chemicals	3253	NA	NA	D	D	D	1,691 i
Pharmaceuticals and medicines	3254	48,131	46,415	49,469	46,308	47,851	52,426
Soap, cleaning compound, and toilet preparation	3256	NA	NA	2,400	2,476	2,342	2,469
Paint, coating, adhesive, and other chemicals	3255, 3259	NA	NA	D	1,290	D	1,355
Plastics and rubber products	326	1,817	2,388	2,129	2,278	3,585	3,650
Nonmetallic mineral products	327	1,556	1,098 i	1,314 i	1,175	1,327 i	1,329 i
Primary metals	331	695	863	681	655	741	624
Fabricated metal products	332	2,419	2,057	1,727	1,857	1,827 i	2,212 i
Machinery	333	10,104	9,226	10,260	14,725	13,752	12,650
Agricultural implement	33311	NA	NA	1,345	1,277	1,546	1,597
Semiconductor machinery	333295	NA	NA	2,173	2,351	1,291	3,194
Engine, turbine, and power transmission equipment	3336	NA	NA	1,430	4,273	4,336	1,448
Other machinery	other 333	NA	NA	5,312	6,824	6,579	6,411
Computer and electronic products	334	60,464	55,856	61,623	62,438	66,290	67,205
Communications equipment	3342	NA	NA	13,875	12,335	14,352	15,658
Semiconductor and other electronic components	3344	22,324	20,023	23,011	24,237	28,218	30,800
Navigational, measuring, electromedical, and control instruments	3345	15,460	14,318	15,747	15,852	15,918	14,478
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	NA	NA	4,189	4,430	4,413	2,634
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	NA	NA	8,293	8,066	7,734	8,106
Other measuring and controlling device	other 3345	NA	NA	3,265	3,356	3,772	3,738
Other computer and electronic products	other 334	NA	NA	8,990	10,014	7,801	6,269
Electrical equipment, appliances, and components	335	3,143	3,317	3,320	3,624	3,078	4,136
Transportation equipment	336	50,552	48,209	42,940	41,094	42,340	45,972
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	NA	NA	D	D	D	16,729
Aerospace products and parts	3364	36,941	34,563	29,857	26,086 i	24,874 i	27,114
Aircraft, aircraft engine, and aircraft parts	336411–13	NA	NA	24,777 i	24,839 i	23,454 i	D

TABLE 4. Domestic R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008	2009	2010	2011	2012	2013
Guided missile, space vehicle, and related parts	336414–15, 336419	NA	NA	5,080	1,247	1,420	D
Military armored vehicle, tank, and tank components	336992	NA	NA	D	51	D	9 i
Other transportation	other 336	NA	NA	D	D	D	2,121
Furniture and related products	337	477	395	374	319	360	374
Miscellaneous manufacturing	339	NA	NA	D	D	D	13,509
Medical equipment and supplies	3391	NA	NA	6,459	7,796	8,333	10,954
Other miscellaneous manufacturing	3399	NA	NA	D	D	D	2,555
Nonmanufacturing industries	21–23, 42–81	86,926	86,064	80,142	87,877	94,183	101,052
Mining, extraction, and support activities	21	NA	NA	2,545	2,365	3,031	3,997
Utilities	22	NA	NA	425	358	348	294
Wholesale trade	42	NA	NA	1,092	1,556 i	2,053 i	529 i
Electronic shopping and electronic auctions	454111–12	NA	NA	D	949 i	1,353	1,357 i
Transportation and warehousing	48–49	NA	NA	95	132	178	D
Information	51	37,695	35,953	37,088	42,697	46,900	57,207
Publishing	511	28,427	26,838	26,957	28,411	29,067	35,675
Newspaper, periodical, book, and directory publishers	5111	NA	NA	770	372	219 i	342 i
Software publishers	5112	NA	NA	26,187	28,039	28,848	35,333
Telecommunications	517	1,684	1,523	1,912	2,169	2,729 i	3,041
Data processing, hosting, and related services	518	6,567	2,741	2,753	5,111	4,914	6,446
Other information	other 51	1,016	4,850	5,466	7,006	10,190	12,046
Finance and insurance	52	NA	NA	2,101	3,447	3,530	4,308
Real estate and rental and leasing	53	NA	NA	330	343	363	150
Lessors of nonfinancial intangible assets (except copyrighted works)	533	NA	NA	NA	324	342	58 i
Other real estate and rental and leasing	other 53	NA	NA	NA	19	21 i	92
Professional, scientific, and technical services	54	37,954	42,380	31,798	33,307	34,121	31,017
Architectural, engineering, and related services	5413	3,422	3,258	4,008	3,114	2,483 i	3,133
Computer systems design and related services	5415	12,146	13,351	10,359	10,938	11,006 i	9,268 i
Scientific research and development services	5417	17,913	16,402	13,712	15,713	16,415	14,201
Biotechnology research and development	541711	NA	7,809	5,537	7,043	7,387	4,499
Physical, engineering, and life sciences (except biotechnology) research and development	541712	NA	7,916	7,628	8,058	8,431	8,910
Social sciences and humanities research and development	541720	NA	676	547	612	598	792
Other professional, scientific, and technical services	other 54	4,474	9,370	3,720	3,542	4,216	4,415
Health care services	621–23	NA	NA	1,049	542	672 i	526 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	NA	NA	NA	2,181	1,635	D
All companies (number of domestic employees)	–	290,680	282,505	279,289	290,240	302,759	322,528
Small companies[a]							
5–499	–	58,137	58,113	51,438	53,355	49,973	53,002
5–99	–	33,257	33,991	29,613	28,039	26,132 i	27,148 i

TABLE 4. Domestic R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008	2009	2010	2011	2012	2013
5–49	–	23,906	20,715	20,832	18,744	17,032 i	18,238 i
5–9	–	NA	NA	3,614	4,060	2,926 i	3,402 i
10–24	–	NA	NA	8,658	6,657	6,905 i	6,895 i
25–49	–	9,626	9,434	8,560	8,027	7,200 i	7,941 i
50–99	–	9,351	13,277	8,781	9,295	9,100 i	8,910
100–249	–	14,662	12,791	11,631	12,303	12,454	13,666
250–499	–	10,219	11,330	10,194	13,013	11,387	12,189
Medium and large companies							
500–999	–	11,886	10,131	10,053	9,993	11,499	12,002
1,000–4,999	–	46,336	44,197	49,108	51,110	50,311	55,517
5,000–9,999	–	24,764	21,769	27,546	24,452	30,708	31,514
10,000–24,999	–	48,737	51,239	41,853	49,107	50,226	51,218
25,000 or more	–	100,820	97,056	99,291	102,222	110,042	119,275

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 = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS. Beginning with survey year 2011, the composition of the other nonmanufacturing industry changed.

[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. 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.

TABLE 5. Foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008	2009	2010	2011	2012	2013
All industries	21–23, 31–33, 42–81	61,475	54,066	59,162	69,251	72,157	73,100
Manufacturing industries	31–33	46,572	40,417	44,464	51,458	53,120	51,104
Food	311	596	817	1,006	1,195	1,076	1,315
Beverage and tobacco products	312	123	455	783 i	599	532	531
Textile, apparel, and leather products	313–16	367	80	39	49	52	98
Wood products	321	4	2	3	1	2	2
Paper	322	274	257	324	93	106	103
Printing and related support activities	323	9	7	38	30	35	6
Petroleum and coal products	324	D	156	D	D	D	46
Chemicals	325	13,990	9,689	14,267	16,215	13,470	12,733
Basic chemicals	3251	1,198	797	861	D	695	715
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	224	260	255	319	D	506
Pesticide, fertilizer, and other agricultural chemicals	3253	371	D	D	D	D	275 i
Pharmaceuticals and medicines	3254	10,862	7,041	11,068	12,557	11,069	10,051
Soap, cleaning compound, and toilet preparation	3256	965	873	884	910	870	924
Paint, coating, adhesive, and other chemicals	3255, 3259	370	D	D	195	210	263
Plastics and rubber products	326	341	595	386	362	861	931
Nonmetallic mineral products	327	106	54	282 i	253	261	249 i
Primary metals	331	114	130	121	108	77	82
Fabricated metal products	332	188	117	91	135	122	116
Machinery	333	1,929	1,930	2,143	3,587	3,710	2,852
Agricultural implement	33311	399	391	D	293	596	646
Semiconductor machinery	333295	366	285	296	376	66	451
Engine, turbine, and power transmission equipment	3336	92	83	D	D	D	347
Other machinery	other 333	1,072	1,170	1,254	D	D	1,408
Computer and electronic products	334	15,774	12,917	13,722	16,708	21,117	18,275
Communications equipment	3342	2,951	2,862	3,194	2,863	4,525	4,696
Semiconductor and other electronic components	3344	7,075	6,058	6,343	7,909	10,082	9,809
Navigational, measuring, electromedical, and control instruments	3345	2,308	2,180	2,158	2,390	2,722	2,291
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	838	522	360	557	586	202
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	D	508	475	575	578	647
Other measuring and controlling device	other 3345	D	1,149	1,324	1,258	1,557	1,441
Other computer and electronic products	other 334	3,440	1,817	2,027	3,546	3,788	1,480
Electrical equipment, appliances, and components	335	1,162	1,158	1,447	1,695	1,062	1,605
Transportation equipment	336	10,267	7,974	8,422	7,936	8,075	9,219
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	8,448	6,023	D	D	D	6,877
Aerospace products and parts	3364	1,816	1,846	1,770	772	D	2,218
Aircraft, aircraft engine, and aircraft parts	336411–13	1,742	1,760	D	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	74	85	D	D	5	D
Military armored vehicle, tank, and tank components	336992	0	D	D	1	0	0

TABLE 5. Foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008	2009	2010	2011	2012	2013
Other transportation	other 336	3	D	D	D	D	125
Furniture and related products	337	27	38	33	28	23	28
Miscellaneous manufacturing	339	D	4,044	D	D	D	2,913
Medical equipment and supplies	3391	766	3,813	1,003	D	1,978	2,502
Other miscellaneous manufacturing	3399	D	231	D	D	D	411
Nonmanufacturing industries	21–23, 42–81	14,903	13,648	14,698	17,792	19,037	21,996
Mining, extraction, and support activities	21	D	D	239	232	D	452
Utilities	22	6	13	17	38	21	23
Wholesale trade	42	509	D	53	141 i	112 i	25 i
Electronic shopping and electronic auctions	454111–12	NA	NA	D	D	D	490
Transportation and warehousing	48–49	2	1	29	28 i	8 i	7
Information	51	7,657	7,243	8,011	9,644	9,915	13,650
Publishing	511	6,301	6,332	6,926	7,899	7,880	11,337
Newspaper, periodical, book, and directory publishers	5111	27	47	55	29	2 i	6 i
Software publishers	5112	6,274	6,285	6,871	7,870	7,878	11,331
Telecommunications	517	175	86	131	98	59	63
Data processing, hosting, and related services	518	1,089 i	266	142 i	339	661	631
Other information	other 51	93	559	812	1,308	1,316	1,619
Finance and insurance	52	74	518	467	496	628	703
Real estate and rental and leasing	53	65	28	37	D	38	11
Lessors of nonfinancial intangible assets (except copyrighted works)	533	NA	NA	NA	41	37	D
Other real estate and rental and leasing	other 53	NA	NA	NA	D	* i	D
Professional, scientific, and technical services	54	6,150	5,328	5,309	6,424	6,723	6,543
Architectural, engineering, and related services	5413	200	126	148 i	D	57	41
Computer systems design and related services	5415	2,164	1,959	2,099	2,243 i	2,398 i	1,294
Scientific research and development services	5417	3,544	2,905	2,696	3,581	3,810	4,263
Biotechnology research and development	541711	NA	683	729	942	977	1,400
Physical, engineering, and life sciences (except biotechnology) research and development	541712	NA	2,213	1,962	2,638	2,830	2,861
Social sciences and humanities research and development	541720	NA	9	5	1	2	3
Other professional, scientific, and technical services	other 54	241	338	366	D	458	944
Health care services	621–23	1	10	D	D	36	7
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	NA	NA	NA	D	D	85
All companies (number of domestic employees)	–	61,475	54,066	59,162	69,251	72,157	73,100
Small companies[a]							
5–499	–	4,915	4,168	4,207	4,056	3,613	4,170
5–99	–	2,002	1,609	1,605	1,444	1,095	1,522
5–49	–	1,027	1,101	917	905	467 i	1,177
5–9	–	NA	NA	178	83	99 i	52 i
10–24	–	NA	NA	425	535	123	685

TABLE 5. Foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2008–13
(Millions of U.S. dollars)

Industry and company size	NAICS code	2008	2009	2010	2011	2012	2013
25–49	–	658	419	314	287	246 i	440
50–99	–	976	509	688 i	539	628	344
100–249	–	1,735	1,574	1,358 i	1,051	1,212	1,275
250–499	–	1,178	985	1,245	1,561	1,306	1,373
Medium and large companies							
500–999	–	1,753	1,992	1,741	1,396	1,455	1,656
1,000–4,999	–	11,350	10,403	11,674	12,691	12,419	13,580
5,000–9,999	–	7,000	5,692	6,907	8,126	10,298	10,836
10,000–24,999	–	11,785	10,442	8,856	12,485	10,317	9,782
25,000 or more	–	24,671	21,368	25,777	30,497	34,056	33,076

* = 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 = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS. Beginning with survey year 2011, the composition of the other nonmanufacturing industry changed.

[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. 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.

TABLE 6. Worldwide R&D paid for by the company and others and performed by the company, by industry, company size, and worldwide R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS codes	R&D program size					
		All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
All industries	21–23, 31–33, 42–81	395,628	10,015 i	26,908	32,006	18,070	308,630
Manufacturing industries	31–33	272,580	5,769 i	13,125	19,602	12,958	221,126
Food	311	6,343	286 i	614 i	520	572	4,351
Beverage and tobacco products	312	1,358	18 i	40	111	191 i	999
Textile, apparel, and leather products	313–16	760	133 i	177	243	206	0
Wood products	321	222	52 i	53	117	0	0
Paper	322	1,022	80 i	140 i	226	74	504
Printing and related support activities	323	258 i	88 i	130	39 i	0	0
Petroleum and coal products	324	288	82 i	39	35	132	0
Chemicals	325	74,397	504 i	2,236	5,127	3,176	63,354
Basic chemicals	3251	3,373	58 i	290	659	516	1,850
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,570	53 i	145	49	140	1,183
Pesticide, fertilizer, and other agricultural chemicals	3253	1,966 i	34 i	39	74	0	1,818 i
Pharmaceuticals and medicines	3254	62,477	124 i	1,448	3,863	2,179	54,863
Soap, cleaning compound, and toilet preparation	3256	3,393	107 i	94	216	166	2,809
Paint, coating, adhesive, and other chemicals	3255, 3259	1,618	127 i	219	266	175	830
Plastics and rubber products	326	4,580	422 i	630	524	346	2,658
Nonmetallic mineral products	327	1,578	96 i	152	201 i	0	1,130
Primary metals	331	706	123 i	164	209	0	210
Fabricated metal products	332	2,328 i	803 i	744	648	133 i	0
Machinery	333	15,502	888 i	1,413	1,975	1,316	9,909
Agricultural implement	33311	2,243	39 i	90	92	68	1,954
Semiconductor machinery	333295	3,645	41 i	55 i	225	284	3,040
Engine, turbine, and power transmission equipment	3336	1,795	24 i	109	106	186	1,372
Other machinery	other 333	7,819	784 i	1,160	1,552	779	3,544
Computer and electronic products	334	85,480	786 i	3,414	4,927	3,862	72,491
Communications equipment	3342	20,353	98 i	421	906	808	18,120
Semiconductor and other electronic components	3344	40,609	286 i	986	1,811	1,322	36,203
Navigational, measuring, electromedical, and control instruments	3345	16,769	274 i	1,405	1,343	831	12,917
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,837	53 i	554 i	625	372	1,232
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,753	27 i	128	162	73	8,363
Other measuring and controlling device	other 3345	5,179	193 i	723	555	387	3,321
Other computer and electronic products	other 334	7,748	128 i	602	867	900	5,251
Electrical equipment, appliances, and components	335	5,741	290 i	729	801	528	3,394
Transportation equipment	336	55,191	333 i	985	1,808	1,317	50,747
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	23,605	181 i	597	1,181	819	20,827

TABLE 6. Worldwide R&D paid for by the company and others and performed by the company, by industry, company size, and worldwide R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS codes	R&D program size					
		All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
Aerospace products and parts	3364	29,331	87 i	234	517	442	28,051
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D	413	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D	104	D	D
Military armored vehicle, tank, and tank components	336992	9 i	2 i	7 i	0	0	0
Other transportation	other 336	2,246	64 i	146	110	56	1,869
Furniture and related products	337	402	98 i	106	198	0	0
Miscellaneous manufacturing	339	16,422	688 i	1,358	1,891	1,106	11,380
Medical equipment and supplies	3391	13,456	247 i	871	1,500	936	9,903
Other miscellaneous manufacturing	3399	2,966	440 i	487	391	170	1,478
Nonmanufacturing industries	21–23, 42–81	123,048	4,245 i	13,784	12,403	5,112	87,504
Mining, extraction, and support activities	21	4,449	21 i	122	103	0	4,203
Utilities	22	317	7 i	63	189	58	0
Wholesale trade	42	554 i	306 i	247 i	0	0	0
Electronic shopping and electronic auctions	454111–12	1,846	69 i	23	34 i	0	1,720
Transportation and warehousing	48–49	D	D	41	83	0	365
Information	51	70,857	824 i	3,491	4,520	2,326	59,696
Publishing	511	47,012	432 i	2,037 i	1,840	1,397	41,306
Newspaper, periodical, book, and directory publishers	5111	348 i	53 i	47 i	248 i	0	0
Software publishers	5112	46,664	379 i	1,990 i	1,592	1,397	41,306
Telecommunications	517	3,104	D	152	423 i	D	2,304
Data processing, hosting, and related services	518	7,077	251 i	1,069	1,629	666	3,461
Other information	other 51	13,665	D	232	628	D	12,625
Finance and insurance	52	5,011	21 i	285 i	334	348	4,025
Real estate and rental and leasing	53	161	12 i	11	137	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	3 i	2	D	0	0
Other real estate and rental and leasing	other 53	D	9 i	9	D	0	0
Professional, scientific, and technical services	54	37,560	2,541 i	8,913	6,542	2,069 i	17,495
Architectural, engineering, and related services	5413	3,174	316 i	986	835 i	366	671
Computer systems design and related services	5415	10,563 i	1,120 i	2,651 i	2,874	785 i	3,133 i
Scientific research and development services	5417	18,464	527 i	3,807	2,187	622	11,322
Biotechnology research and development	541711	5,899	138 i	1,243	D	0	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	11,771	373 i	2,413	1,606	622	6,756
Social sciences and humanities research and development	541720	795	15 i	150	D	0	D
Other professional, scientific, and technical services	other 54	5,359	578 i	1,470	645	297	2,369
Health care services	621–23	533 i	79 i	156	146 i	152	0

TABLE 6. Worldwide R&D paid for by the company and others and performed by the company, by industry, company size, and worldwide R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS codes	R&D program size: All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	430	315 i	160 i	0
All companies (number of domestic employees)	–	395,628	10,015 i	26,908	32,006	18,070	308,630
Small companies[a]							
5–499	–	57,172	9,811 i	22,986	17,267	3,914	3,195
5–99	–	28,670 i	8,260 i	15,167	5,242	0	0
5–49	–	19,415 i	6,530 i	10,732	2,153	0	0
5–9	–	3,454 i	1,893 i	1,536	26	0	0
10–24	–	7,580 i	2,503 i	4,442	635 i	0	0
25–49	–	8,381 i	2,135 i	4,754	1,492	0	0
50–99	–	9,254	1,730 i	4,434	3,090	0	0
100–249	–	14,941	1,124 i	5,296	6,313	1,479	729
250–499	–	13,562	427 i	2,523	5,711	2,435	2,466
Medium and large companies							
500–999	–	13,658	108 i	1,838	4,333	3,320	4,060
1,000–4,999	–	69,097	72 i	1,650	7,516	7,718	52,141
5,000–9,999	–	42,350	10 i	210	1,423	2,066	38,641
10,000–24,999	–	60,999	12 i	146	811	635	59,396
25,000 or more	–	152,351	1 i	78	656	419	151,198

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.

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. 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, 2013.

TABLE 7. Companies with worldwide, domestic, and foreign R&D paid for by the company and by others and performed by the company, by source of funds, industry, and company size: 2013
(Number of companies)

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
All industries	21–23, 31–33, 42–81	70,466	65,222	11,577	70,383	65,139	11,514	2,902	2,739	395
Manufacturing industries	31–33	29,829	27,664	6,121	29,823	27,655	6,068	1,344	1,285	219
Food	311	2,149	2,072	D	2,149	2,072	290	40	40	3
Chemicals	325	2,968	D	577	2,968	2,898	569	235	223	39
Pharmaceuticals and medicines	3254	947	D	323	947	906	319	123	D	27
Other chemicals	other 325	2,021	1,992	254	2,021	1,992	250	112	D	12
Plastics and rubber products	326	1,703	1,553	D	1,703	1,553	326	59	59	25
Nonmetallic mineral products	327	590	D	132	D	584	132	19	D	D
Fabricated metal products	332	3,966	3,137	1,282	3,966	3,137	1,282	38	38	0
Machinery	333	4,173	3,918	524	4,173	3,918	519	160	D	17
Computer and electronic products	334	4,279	3,944	998	4,279	3,944	966	430	398	72
Electrical equipment, appliances, and components	335	1,174	D	243	D	1,143	243	52	52	D
Transportation equipment	336	2,104	D	465	D	1,948	461	105	95	37
Miscellaneous manufacturing	339	2,870	2,773	650	D	2,770	650	127	D	16
Other manufacturing	312–316, 321–24, 331, 337	3,858	D	631	D	3,694	631	80	80	6
Nonmanufacturing industries	21–23, 42–81	40,637	37,559	5,456	40,561	37,486	5,446	1,559	1,455	177
Wholesale trade	42	4,779	D	128	D	4,664	128	27	27	0
Information	51	4,028	3,915	324	4,003	3,890	321	561	D	54
Telecommunications	517	247	D	27	D	231	27	56	56	0
Data processing, hosting, and related services	518	1,069	D	127	D	1,015	127	101	D	D
Other information	other 51	2,712	2,666	170	2,690	2,644	167	404	404	D
Professional, scientific, and technical services	54	15,256	12,739	4,519	15,208	12,693	4,512	916	818	119
Architectural, engineering, and related services	5413	2,428	D	641	2,428	2,074	641	40	D	D
Scientific research and development services	5417	1,899	D	D	D	1,320	1,108	84	55	38
Biotechnology research and development	541711	525	D	249	D	416	249	43	27	22
Other scientific research and development	other 5417	1,374	903	D	1,374	903	859	41	27	16
Other professional, scientific, and technical services	other 54	10,928	9,342	D	D	9,300	2,763	792	D	D
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	16,574	D	486	D	16,238	486	55	D	4
All companies (number of domestic employees)	–	70,466	65,222	11,577	70,383	65,139	11,514	2,902	2,739	395
Small companies[a]										
5–499	–	68,178	63,007	11,125	68,102	62,932	11,083	2,075	1,931	270
5–99	–	61,286	56,460	10,070	61,215	56,394	10,034	1,525	1,397	206
5–49	–	52,791	48,668	8,827	D	48,605	8,792	1,321	1,205	186
5–9	–	18,903	D	3,350	D	17,348	3,350	154	154	D
10–24	–	21,197	D	3,786	D	19,210	3,761	833	732	148
25–49	–	12,692	12,068	1,692	12,667	12,046	1,681	335	319	D
50–99	–	8,494	7,792	1,242	D	7,789	1,242	203	192	20
100–249	–	5,064	4,801	D	D	4,796	800	332	324	43
250–499	–	1,829	1,746	D	D	1,742	249	218	209	21

TABLE 7. Companies with worldwide, domestic, and foreign R&D paid for by the company and by others and performed by the company, by source of funds, industry, and company size: 2013
(Number of companies)

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
Medium and large companies										
500–999	–	906	D	133	D	876	130	179	175	15
1,000–4,999	–	944	911	170	941	907	160	390	382	48
5,000–9,999	–	196	D	52	D	188	47	114	111	24
10,000–24,999	–	141	137	58	141	137	58	74	D	16
25,000 or more	–	109	D	40	D	108	37	73	D	22

D = data withheld to avoid disclosing operations of individual companies.

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: Statistics are based on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. Detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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, 2013.

TABLE 8. Worldwide R&D paid for by the company and performed by the company and others, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Performed by the company	Performed by others
All industries	21–23, 31–33, 42–81	376,151	332,040	44,111
Manufacturing industries	31–33	270,003	230,644	39,358
Food	311	6,688	6,107	581
Beverage and tobacco products	312	1,565	1,258	307
Textile, apparel, and leather products	313–16	769	739	30
Wood products	321	223	211	11
Paper	322	1,032	1,009	23
Printing and related support activities	323	238	230 i	8
Petroleum and coal products	324	638	282	355
Chemicals	325	95,029	66,769	28,261
Basic chemicals	3251	3,281	3,052	228
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,481	1,408	73
Pesticide, fertilizer, and other agricultural chemicals	3253	D	1,587 i	D
Pharmaceuticals and medicines	3254	83,226	55,762	27,465
Soap, cleaning compound, and toilet preparation	3256	3,790	3,382	408
Paint, coating, adhesive, and other chemicals	3255, 3259	D	1,578	D
Plastics and rubber products	326	4,664	4,423	242
Nonmetallic mineral products	327	1,724	1,551	173 i
Primary metals	331	751	687	64
Fabricated metal products	332	2,094	2,049 i	45 i
Machinery	333	15,572	14,913	659
Agricultural implement	33311	2,554	2,207	347
Semiconductor machinery	333295	3,568	3,547	21
Engine, turbine, and power transmission equipment	3336	1,751	1,677	74
Other machinery	other 333	7,699	7,481	218
Computer and electronic products	334	77,588	75,215	2,373
Communications equipment	3342	19,199	18,354	844
Semiconductor and other electronic components	3344	39,002	38,220	782
Navigational, measuring, electromedical, and control instruments	3345	11,703	11,169	534
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,872	2,672	201
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,787	3,599	188
Other measuring and controlling device	other 3345	5,044	4,898	146
Other computer and electronic products	other 334	7,684	7,472	212
Electrical equipment, appliances, and components	335	5,396	5,234	162
Transportation equipment	336	38,697	33,515	5,182
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	23,596	20,495	3,101
Aerospace products and parts	3364	13,937	11,894	2,044
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D
Military armored vehicle, tank, and tank components	336992	8	7 i	*
Other transportation	other 336	1,156	1,119	37
Furniture and related products	337	426	401	24
Miscellaneous manufacturing	339	16,909	16,050	860
Medical equipment and supplies	3391	13,793	13,129	664
Other miscellaneous manufacturing	3399	3,116	2,920	196
Nonmanufacturing industries	21–23, 42–81	106,148	101,396	4,752
Mining, extraction, and support activities	21	4,510	D	D
Utilities	22	468	267	201
Wholesale trade	42	D	535 i	D
Electronic shopping and electronic auctions	454111–12	D	1,846	D
Transportation and warehousing	48–49	D	418	D
Information	51	71,515	69,613	1,902
Publishing	511	47,247	45,903	1,344
Newspaper, periodical, book, and directory publishers	5111	365 i	347 i	18 i
Software publishers	5112	46,882	45,556	1,325
Telecommunications	517	3,264	3,100	164
Data processing, hosting, and related services	518	7,200	6,960	240

TABLE 8. Worldwide R&D paid for by the company and performed by the company and others, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Performed by the company	Performed by others
Other information	other 51	13,804	13,650	155
Finance and insurance	52	5,119	5,001	118
Real estate and rental and leasing	53	164	161	3
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	D	* i
Other real estate and rental and leasing	other 53	D	D	3
Professional, scientific, and technical services	54	18,852	D	D
Architectural, engineering, and related services	5413	1,359	1,296	63
Computer systems design and related services	5415	9,584	9,385 i	200 i
Scientific research and development services	5417	3,467	2,926	541
Biotechnology research and development	541711	1,680	1,383	297
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,751	1,507	244
Social sciences and humanities research and development	541720	36	36 i	0
Other professional, scientific, and technical services	other 54	4,442	D	D
Health care services	621–23	440	437 i	2 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,224	1,171 i	53 i
All companies (number of domestic employees)	–	376,151	332,040	44,111
Small companies[a]				
5–499	–	51,659	46,007	5,652
5–99	–	25,921	22,300 i	3,621
5–49	–	17,297	14,807 i	2,491
5–9	–	2,570	2,247 i	323 i
10–24	–	7,004	5,920 i	1,084
25–49	–	7,723	6,640 i	1,084
50–99	–	8,623	7,493	1,130
100–249	–	13,383	12,139	1,243
250–499	–	12,355	11,567	788
Medium and large companies				
500–999	–	12,822	11,770	1,051
1,000–4,999	–	65,350	57,770	7,580
5,000–9,999	–	33,908	32,363	1,545
10,000–24,999	–	67,736	53,669	14,067
25,000 or more	–	144,676	130,461	14,215

* = 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.

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. 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, 2013.

TABLE 9. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2013
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Amount
All business activities	21100–81000	376,151
Oil and gas extraction	21100	1,487
Mining	21200	114
Support activities for mining, including oil and gas	21300	1,748
Utilities	22100	608
Construction	23000	307
Food manufacturing	31100	7,036
Beverage manufacturing	31210	772
Tobacco manufacturing	31220	668
Textile, apparel, and leather products manufacturing	31990	787
Wood products manufacturing	32100	244
Paper manufacturing	32200	1,593
Printing and related support activities	32300	392
Petroleum refineries	32401	558
Asphalt paving, roofing, and saturated materials manufacturing	32402	123
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	455
Basic chemicals manufacturing	32510	4,167
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	1,259
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	2,365 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	68,136
In-vitro diagnostic substances manufacturing[c]	32542	1,070
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	10,958
Soap, cleaning compound, and toilet preparations manufacturing	32591	3,446
Paint, adhesive, and other chemical manufacturing	32592	1,929
Plastics and rubber products manufacturing	32600	3,592
Clay and glass products manufacturing	32710	1,078
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	623 i
Primary metal manufacturing	33100	740
Fabricated metal products manufacturing	33200	2,482
Agricultural machinery and equipment manufacturing	33311	2,055
Construction machinery manufacturing	33312	1,708
Mining, oil, and gas field machinery and equipment manufacturing	33319	1,948 i
Semiconductor machinery manufacturing	33321	3,500
Industrial machinery manufacturing (except semiconductor machinery)	33322	1,011
Photographic and photocopying equipment manufacturing	33331	108
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	1,676
Engine, turbine, and power transmission equipment manufacturing	33360	3,808
Metalworking and other general purpose machinery manufacturing	33390	2,261
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	12,871
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	9,588
Radio, television, and wireless communication equipment manufacturing	33422	5,960
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	1,826
Audio and video equipment manufacturing	33430	1,119
Semiconductor and other electronic components manufacturing	33440	39,998
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,839

TABLE 9. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2013
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Amount
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	2,566
Measuring and control instruments manufacturing (not listed elsewhere)	33459	4,670
Electrical equipment, appliances, and components manufacturing	33500	5,268
Motor vehicles manufacturing	33610	17,743
Motor vehicle body and trailer manufacturing	33620	107 i
Motor vehicle parts manufacturing	33630	5,600
Aircraft manufacturing	33641	4,301
Aircraft engine and engine parts manufacturing	33642	1,506
Other aircraft parts and auxiliary equipment manufacturing	33643	3,263
Guided missiles, space vehicles, and related parts manufacturing	33644	499
Railroad rolling stock manufacturing	33651	214
Ship and boat building	33660	192
Motorcycle, bicycle, and parts manufacturing	33691	231
Military armored vehicle, tank, and tank components manufacturing	33692	90
All other transportation equipment manufacturing	33699	421
Furniture and related products manufacturing	33700	435
Medical equipment and supplies manufacturing	33910	15,155
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,972
Merchant wholesalers, durable goods	42300	543
Merchant wholesalers, nondurable goods	42400	325
Wholesale electronic markets and agents and brokers (business to business)	42500	18
Retail trade (except electronic shopping and electronic auctions)	44000	128
Electronic shopping and electronic auctions	45411	1,285
Transportation	48000	380
Couriers, messengers, and express delivery services	49200	90
Warehousing and storage	49300	11
Newspaper, periodical, book, and directory publishers (except Internet)	51110	339 i
Software publishers (except Internet)[d]	51120	39,002
Motion picture and sound recording (except Internet)	51200	53
Broadcasting (except Internet)	51500	179
Wired telecommunications carriers	51710	1,131 i
Wireless telecommunications carriers (except satellite)	51720	1,614 i
Satellite telecommunications	51740	176
Other telecommunications (not listed elsewhere)	51790	377
Data processing, hosting, and related services[d]	51800	4,381
Cloud computing applications and Internet-based software services	51801	2,581
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	15,430
Finance: banking and credit intermediation	52200	3,240
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	1,329
Insurance carriers and related activities	52400	1,772
Real estate	53100	64
Rental and leasing services	53200	94
Lessors of nonfinancial intangible assets, including patent licensing	53300	100
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	665
Architectural, engineering, and related services	54130	1,493
Specialized design services	54140	78
Computer systems design and related services[d]	54150	11,849
Management, scientific, and technical consulting services	54160	1,430

TABLE 9. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2013
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Amount
Research and development services in social sciences and humanities	54172	36
Research and development services in biotechnology[c]	54173	1,711
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	2,412
Advertising and related services	54180	384
Professional, scientific, and technical services (not listed elsewhere)	54190	1,972
Management of companies and enterprises	55100	65
Administrative and support services	56100	633
Waste management and remediation services	56200	23
Offices of physicians	62110	43
Medical and diagnostic laboratories	62150	345
Other ambulatory health care services (ambulance, dental, home health care)	62199	52
Hospitals and nursing care facilities	62200	2
Social assistance services	62400	47
Arts, entertainment, and recreation	71000	30
Accommodation and food services	72000	163
Other services (not listed elsewhere)	81000	406
Undistributed	–	425 i

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on industry definitions in the 2007 North American Industry Classification System.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 10. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
All business activities	21100–81000	328,040	311,170	316,262	336,629	352,951	376,151
Oil and gas extraction	21100	1,215	1,223	1,268	1,379	D	1,487
Mining	21200	NA	D	75	128	92	114
Support activities for mining, including oil and gas	21300	NA	993	1,638	1,386	1,814	1,748
Utilities	22100	NA	1,607	903	639	686	608
Construction	23000	NA	198	918	269	393 i	307
Food manufacturing	31100	2,983	4,039	4,478	4,970	4,635	7,036
Beverage manufacturing	31210	605	564	926	668	641	772
Tobacco manufacturing	31220	D	792	800	717	662	668
Textile, apparel, and leather products manufacturing	31990	NA	673	658	712	759	787
Wood products manufacturing	32100	264	304	239	208	D	244
Paper manufacturing	32200	1,130	1,144	1,231	1,156	1,362	1,593
Printing and related support activities	32300	297	241	244	265	356 i	392
Petroleum refineries	32401	NA	NA	708	591	807	558
Asphalt paving, roofing, and saturated materials manufacturing	32402	NA	NA	35	39	45	123
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	NA	NA	403	415	382	455
Basic chemicals manufacturing	32510	3,806	2,978	3,133	3,614	4,271	4,167
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	1,152	1,459	1,444	1,228	1,437	1,259
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	2,100	1,990	1,722	2,333	2,307	2,365 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	70,016	68,588	71,603	67,688	69,473	68,136
In-vitro diagnostic substances manufacturing[c]	32542	1,988	1,159	1,207	1,544	1,371 i	1,070
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	NA	NA	NA	NA	NA	10,958
Soap, cleaning compound, and toilet preparations manufacturing	32591	2,787	2,883	3,147	3,472	3,266	3,446
Paint, adhesive, and other chemical manufacturing	32592	2,152	2,320	2,238	2,011	2,087	1,929
Plastics and rubber products manufacturing	32600	2,536	2,842	3,128	3,689	3,739	3,592
Clay and glass products manufacturing	32710	966 i	312	1,056 i	920 i	1,154 i	1,078
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	738	555	522	590	621	623 i
Primary metal manufacturing	33100	NA	840	933	783	882	740
Fabricated metal products manufacturing	33200	2,935	2,438	1,971	2,471	2,517	2,482
Agricultural machinery and equipment manufacturing	33311	1,404	1,507	1,523	1,430	1,893	2,055
Construction machinery manufacturing	33312	581	653	682	875	816	1,708
Mining, oil, and gas field machinery and equipment manufacturing	33319	NA	1,629	1,765	2,204	2,589	1,948 i
Semiconductor machinery manufacturing	33321	2,553	1,978	2,279	2,574	1,266 i	3,500
Industrial machinery manufacturing (except semiconductor machinery)	33322	1,191	853	806	1,128	1,031	1,011
Photographic and photocopying equipment manufacturing	33331	NA	852	270	757	25 i	108

TABLE 10. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	NA	977	1,268	1,143	1,621	1,676
Engine, turbine, and power transmission equipment manufacturing	33360	2,386	1,589	3,481	3,623	4,068	3,808
Metalworking and other general purpose machinery manufacturing	33390	2,039	1,618	1,998	2,359	1,916	2,261
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	NA	13,094	12,672	13,319	14,716	12,871
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	6,739	7,758	9,010	9,530	9,335	9,588
Radio, television, and wireless communication equipment manufacturing	33422	5,958	5,181	5,719	4,383	4,773	5,960
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	2,482	1,352	715	1,092	2,111	1,826
Audio and video equipment manufacturing	33430	773	977	1,352	1,019	1,081	1,119
Semiconductor and other electronic components manufacturing	33440	29,911	26,118	29,457	32,354	38,109	39,998
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,822	2,544	3,046	3,230	3,494	3,839
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	1,845	2,229	2,417	2,161	2,337	2,566
Measuring and control instruments manufacturing (not listed elsewhere)	33459	3,458	4,425	4,579	4,566	4,871	4,670
Electrical equipment, appliances, and components manufacturing	33500	4,687	4,229	4,500	4,768	4,773	5,268
Motor vehicles manufacturing	33610	18,296	13,165	14,524	17,011	18,362	17,743
Motor vehicle body and trailer manufacturing	33620	70	96	190	73	98 i	107 i
Motor vehicle parts manufacturing	33630	5,401	4,158	4,310	4,681	4,736	5,600
Aircraft manufacturing	33641	4,053	7,390	4,430	4,512	4,716 i	4,301
Aircraft engine and engine parts manufacturing	33642	2,433	1,765	1,978	2,136	D	1,506
Other aircraft parts and auxiliary equipment manufacturing	33643	1,222	1,135	1,825	1,752	3,121	3,263
Guided missiles, space vehicles, and related parts manufacturing	33644	1,402	1,176	1,132	1,050	659	499
Railroad rolling stock manufacturing	33651	195	83	177	165	237	214
Ship and boat building	33660	151	616 i	608 i	154	143 i	192
Motorcycle, bicycle, and parts manufacturing	33691	199	194	186	234	197	231
Military armored vehicle, tank, and tank components manufacturing	33692	107	228	182	118	135	90
All other transportation equipment manufacturing	33699	176	135	232	367	437	421
Furniture and related products manufacturing	33700	511	495	402	344	431	435
Medical equipment and supplies manufacturing	33910	11,587	11,457	13,226	13,701	14,259	15,155
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,976	2,793	2,341	2,698	D	2,972
Merchant wholesalers, durable goods	42300	449	923 i	714	711	1,277 i	543
Merchant wholesalers, nondurable goods	42400	257	365 i	348	605	699 i	325

TABLE 10. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Wholesale electronic markets and agents and brokers (business to business)	42500	14	43 i	19 i	70	173 i	18
Retail trade (except electronic shopping and electronic auctions)	44000	NA	50	164	74	100 i	128
Electronic shopping and electronic auctions	45411	NA	NA	753	D	1,749	1,285
Transportation	48000	NA	319	211	111	199	380
Couriers, messengers, and express delivery services	49200	D	14	6	D	D	90
Warehousing and storage	49300	26	17	19	16	17	11
Newspaper, periodical, book, and directory publishers (except Internet)	51110	180	748	853	408 i	257 i	339 i
Software publishers (except Internet)[d]	51120	31,369	26,362	28,457	29,992	31,209	39,002
Motion picture and sound recording (except Internet)	51200	104	135	93	67	67	53
Broadcasting (except Internet)	51500	NA	89	100	115	165 i	179
Wired telecommunications carriers	51710	673	D	1,499 i	1,685	1,631 i	1,131 i
Wireless telecommunications carriers (except satellite)	51720	532 i	186	724 i	815 i	860 i	1,614 i
Satellite telecommunications	51740	153	108	229	114	163	176
Other telecommunications (not listed elsewhere)	51790	501	351	338	462	399	377
Data processing, hosting, and related services[d]	51800	NA	2,889	3,051	5,293	4,406	4,381
Cloud computing applications and Internet-based software services	51801	NA	NA	NA	NA	NA	2,581
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	NA	5,519	7,270	9,456	12,998	15,430
Finance: banking and credit intermediation	52200	NA	D	1,235	1,703	2,454	3,240
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	NA	678	903	1,347	1,110	1,329
Insurance carriers and related activities	52400	NA	798	611	872	1,429	1,772
Real estate	53100	20	32	3	13	27	64
Rental and leasing services	53200	NA	129	146	51	59	94
Lessors of nonfinancial intangible assets, including patent licensing	53300	80	259	268	369	437	100
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	NA	D	505	705 i	535	665
Architectural, engineering, and related services	54130	1,742	1,115	1,390	1,380	1,232	1,493
Specialized design services	54140	75	76	65	283	157 i	78
Computer systems design and related services[d]	54150	11,476	12,292	11,528	13,673	13,909 i	11,849
Management, scientific, and technical consulting services	54160	1,110	2,246	1,380	1,618	2,066 i	1,430
Research and development services in social sciences and humanities	54172	NA	96	8	19	64	36
Research and development services in biotechnology[c]	54173	NA	6,850	2,601	6,238	6,294	1,711
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	NA	3,208	1,447	2,751	3,166	2,412
Advertising and related services	54180	37	1,950	422	97	375 i	384
Professional, scientific, and technical services (not listed elsewhere)	54190	439	1,036	543	1,242	1,199	1,972

TABLE 10. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Management of companies and enterprises	55100	11	40	23	43	18	65
Administrative and support services	56100	NA	419	640	348	609	633
Waste management and remediation services	56200	NA	15	684	20	D	23
Offices of physicians	62110	40	37	371	36	42 i	43
Medical and diagnostic laboratories	62150	903	246	409	287	364	345
Other ambulatory health care services (ambulance, dental, home health care)	62199	NA	47	145 i	15	45 i	52
Hospitals and nursing care facilities	62200	NA	62 i	68	2	2 i	2
Social assistance services	62400	NA	D	15	13	36	47
Arts, entertainment, and recreation	71000	NA	161	137	85	70	30
Accommodation and food services	72000	NA	50	119	84	149 i	163
Other services (not listed elsewhere)	81000	NA	89	465	345	484	406
Undistributed	–	10,660	14,175	5,373 i	D	491	425 i

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 = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on 2007 NAICS industry definitions.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

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

TABLE 11. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Performed by the company	Performed by others
All industries	21–23, 31–33, 42–81	75,011	63,588	11,423
Manufacturing industries	31–33	50,647	41,936	8,711
Food	311	245	236	9
Beverage and tobacco products	312	105 i	100 i	5
Textile, apparel, and leather products	313–16	21	21 i	* i
Wood products	321	12	11	1 i
Paper	322	14	13 i	1
Printing and related support activities	323	39	28 i	11 i
Petroleum and coal products	324	7	5	1
Chemicals	325	11,867	7,629	4,238
Basic chemicals	3251	332	321	11
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	179	163	16
Pesticide, fertilizer, and other agricultural chemicals	3253	379	379	1
Pharmaceuticals and medicines	3254	10,917	6,715	4,201
Soap, cleaning compound, and toilet preparation	3256	11	11 i	* i
Paint, coating, adhesive, and other chemicals	3255, 3259	50	40	10
Plastics and rubber products	326	172	158 i	14
Nonmetallic mineral products	327	32	27 i	4 i
Primary metals	331	19	19	*
Fabricated metal products	332	364	278 i	86 i
Machinery	333	670	589	81
Agricultural implement	33311	49	36	13
Semiconductor machinery	333295	104	98	7
Engine, turbine, and power transmission equipment	3336	164	118	47
Other machinery	other 333	352	337	15
Computer and electronic products	334	10,816	10,265	551
Communications equipment	3342	D	1,999 i	D
Semiconductor and other electronic components	3344	2,445	2,389	56
Navigational, measuring, electromedical, and control instruments	3345	5,966	5,600	366
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	180	165	15
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	5,496	5,155	341
Other measuring and controlling device	other 3345	290	281	10
Other computer and electronic products	other 334	D	277	D
Electrical equipment, appliances, and components	335	520	507 i	14 i
Transportation equipment	336	25,329 i	21,677 i	3,653 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	3,430	3,110	319
Aerospace products and parts	3364	20,767 i	17,438 i	3,329 i
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	3,328 i
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	1
Military armored vehicle, tank, and tank component	336992	2 i	2 i	0
Other transportation	other 336	1,131	1,127	4
Furniture and related products	337	1	1 i	* i
Miscellaneous manufacturing	339	413	373	40
Medical equipment and supplies	3391	358	327	32
Other miscellaneous manufacturing	3399	54	46 i	8 i
Nonmanufacturing industries	21–23, 42–81	24,364	21,652	2,712
Mining, extraction, and support activities	21	D	D	D
Utilities	22	65	50	15
Wholesale trade	42	19	18 i	1
Electronic shopping and electronic auctions	454111–12	1	1 i	0
Transportation and warehousing	48–49	D	D	*

TABLE 11. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Performed by the company	Performed by others
Information	51	D	1,244	D
Publishing	511	D	1,109	D
Newspaper, periodical, book, and directory publishers	5111	1	1 i	* i
Software publishers	5112	D	1,107	D
Telecommunications	517	4	4 i	* i
Data processing, hosting, and related services	518	124	117	7 i
Other information	other 51	15	15	* i
Finance and insurance	52	10	10	0
Real estate and rental and leasing	53	*	* i	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0
Other real estate and rental and leasing	other 53	*	* i	0
Professional, scientific, and technical services	54	21,961	D	D
Architectural, engineering, and related services	5413	2,056	1,878	178
Computer systems design and related services	5415	1,289	1,178 i	111 i
Scientific research and development services	5417	17,464	15,538	1,927
Biotechnology research and development	541711	4,615	4,516	99
Physical, engineering, and life sciences (except biotechnology) research and development	541712	11,909	10,263	1,646
Social sciences and humanities research and development	541720	941	759	182
Other professional, scientific, and technical services	other 54	1,152	D	D
Health care services	621–23	100	96	4
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	32
All companies (number of domestic employees)	–	75,011	63,588	11,423
Small companies[a]				
5–499	–	12,939	11,166	1,773
5–99	–	7,425	6,370 i	1,056
5–49	–	5,347	4,609 i	739
5–9	–	1,381	1,207 i	174 i
10–24	–	1,890	1,660 i	230 i
25–49	–	2,076	1,741	335
50–99	–	2,078	1,761	317
100–249	–	3,243	2,802	442
250–499	–	2,271	1,995	276
Medium and large companies				
500–999	–	2,200	1,888	312
1,000–4,999	–	13,877	11,327	2,550
5,000–9,999	–	11,723	9,987	1,736
10,000–24,999	–	8,378	7,330	1,048
25,000 or more	–	25,893 i	21,890 i	4,004 i

* = 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.

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. 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, 2013.

TABLE 12. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	13,319,076	9,654,952	3,664,125
Manufacturing industries	31–33	8,346,109	5,902,677	2,443,432
Food	311	995,339	726,220	269,120
Beverage and tobacco products	312	328,694	144,311	184,383
Textile, apparel, and leather products	313–16	64,921	53,968	10,953
Wood products	321	35,636	31,215	4,421
Paper	322	119,531	89,445	30,086
Printing and related support activities	323	25,813	23,847	1,966
Petroleum and coal products	324	432,908	336,727	96,181
Chemicals	325	1,861,340	1,361,379	499,962
Basic chemicals	3251	564,113	475,040	89,074
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	204,156	152,626	51,530
Pesticide, fertilizer, and other agricultural chemicals	3253	64,177	48,243	15,934 i
Pharmaceuticals and medicines	3254	720,695	511,393	209,302
Soap, cleaning compound, and toilet preparation	3256	208,989	101,808	107,180
Paint, coating, adhesive, and other chemicals	3255, 3259	99,210	72,269	26,941
Plastics and rubber products	326	254,970	166,421	88,549
Nonmetallic mineral products	327	73,835	56,391	17,444
Primary metals	331	162,182	136,226	25,956
Fabricated metal products	332	162,824	139,953	22,871
Machinery	333	555,237	370,969	184,268
Agricultural implement	33311	84,468	57,778	26,690
Semiconductor machinery	333295	24,771	11,240	13,531
Engine, turbine, and power transmission equipment	3336	67,992	49,460	18,532
Other machinery	other 333	378,006	252,491	125,515
Computer and electronic products	334	1,069,841	634,383	435,458
Communications equipment	3342	320,049	173,235	146,814
Semiconductor and other electronic components	3344	342,067	166,587	175,480
Navigational, measuring, electromedical, and control instruments	3345	257,219	174,885	82,333
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	32,986	27,849	5,137
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	115,940	86,433	29,506
Other measuring and controlling device	other 3345	108,293	60,604	47,690
Other computer and electronic products	other 334	150,506	119,676	30,830
Electrical equipment, appliances, and components	335	216,393	142,537	73,856
Transportation equipment	336	1,481,442	1,113,141	368,301
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	967,752	694,029	273,722
Aerospace products and parts	3364	438,502	355,687	82,815
Aircraft, aircraft engine, and aircraft parts	336411–13	D	339,208	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	16,479	D
Military armored vehicle, tank, and tank components	336992	329 i	329 i	0
Other transportation	other 336	74,859	63,096	11,764
Furniture and related products	337	39,552	33,940	5,612
Miscellaneous manufacturing	339	465,650	341,605	124,044
Medical equipment and supplies	3391	321,108	246,484	74,625
Other miscellaneous manufacturing	3399	144,541	95,122	49,420
Nonmanufacturing industries	21–23, 42–81	4,972,968	3,752,275	1,220,693
Mining, extraction, and support activities	21	966,750	467,247	499,503
Utilities	22	316,590	311,075	5,515
Wholesale trade	42	303,454 i	288,199 i	15,255 i
Electronic shopping and electronic auctions	454111–12	106,507	64,865	41,642
Transportation and warehousing	48–49	145,540	113,897	31,643
Information	51	1,400,995	1,048,039	352,956
Publishing	511	681,729	417,455	264,274
Newspaper, periodical, book, and directory publishers	5111	29,213 i	23,099 i	6,115 i
Software publishers	5112	652,516	394,356	258,159
Telecommunications	517	418,781	417,146	1,635

TABLE 12. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
Data processing, hosting, and related services	518	101,116	79,378	21,738
Other information	other 51	199,370	134,060	65,310
Finance and insurance	52	723,140	646,362	76,778
Real estate and rental and leasing	53	10,840	10,161	679
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	375	D
Other real estate and rental and leasing	other 53	D	9,786	D
Professional, scientific, and technical services	54	492,896	371,322	121,574
Architectural, engineering, and related services	5413	159,592	91,748	67,844
Computer systems design and related services	5415	138,840	110,779	28,061 i
Scientific research and development services	5417	79,536	70,480	9,056
Biotechnology research and development	541711	25,137	23,303	1,834
Physical, engineering, and life sciences (except biotechnology) research and development	541712	53,098	45,880	7,217
Social sciences and humanities research and development	541720	1,301	1,297	4
Other professional, scientific, and technical services	other 54	114,928	98,314	16,614
Health care services	621–23	51,317	50,959	359
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	454,938	380,150	74,788
All companies (number of domestic employees)	–	13,319,076	9,654,952	3,664,125
Small companies[a]				
5–499	–	1,400,366	1,232,792	167,574
5–99	–	563,523	545,480	18,044
5–49	–	305,241	295,604	9,637
5–9	–	50,223	49,814	409
10–24	–	115,653	109,764	5,888
25–49	–	139,365	136,026	3,339
50–99	–	258,283	249,876	8,407
100–249	–	462,197	351,550	110,647
250–499	–	374,646	335,762	38,883
Medium and large companies				
500–999	–	409,847	357,480	52,367
1,000–4,999	–	1,612,672	1,164,681	447,991
5,000–9,999	–	1,287,757	888,101	399,657
10,000–24,999	–	2,571,874	1,893,277	678,597
25,000 or more	–	6,036,560	4,118,621	1,917,939

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.

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: Domestic sales are the amount of sales that originated from domestic operations. Foreign sales are the amount of sales that originated from foreign operations. Detail may not add to total because of rounding. 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, 2013.

TABLE 13. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2013

(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Sales		
		Worldwide	Domestic	Foreign
All business activities	21100–81000	13,319,076	9,654,952	3,664,125
Oil and gas extraction	21100	250,895	120,514	130,380
Mining	21200	54,469	38,237	16,232
Support activities for mining, including oil and gas	21300	100,568	72,644	27,924
Utilities	22100	324,056	316,046	8,010
Construction	23000	94,282	60,712	33,570
Food manufacturing	31100	942,191	694,281	247,910
Beverage manufacturing	31210	164,288	106,592	57,696
Tobacco manufacturing	31220	120,557	35,865	84,692
Textile, apparel, and leather products manufacturing	31990	70,319	55,123	15,195
Wood products manufacturing	32100	42,524	36,751	5,773
Paper manufacturing	32200	147,149	106,687	40,462
Printing and related support activities	32300	29,616	26,318	3,298
Petroleum refineries	32401	968,499	640,022	328,477
Asphalt paving, roofing, and saturated materials manufacturing	32402	14,552	13,308	1,244
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	23,482	13,756	9,726
Basic chemicals manufacturing	32510	278,913	198,980	79,933
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	96,186	68,459	27,726
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	67,842	45,668	22,174 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	577,561	415,007	162,554
In-vitro diagnostic substances manufacturing[c]	32542	13,910	8,172	5,738
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	40,431	36,876	3,555
Soap, cleaning compound, and toilet preparations manufacturing	32591	185,338	87,095	98,242
Paint, adhesive, and other chemical manufacturing	32592	113,616	67,918	45,698
Plastics and rubber products manufacturing	32600	218,175	152,967	65,208
Clay and glass products manufacturing	32710	39,535	23,064	16,471
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	42,701	33,483	9,218
Primary metal manufacturing	33100	159,622	135,076	24,547
Fabricated metal products manufacturing	33200	183,315	151,839	31,476
Agricultural machinery and equipment manufacturing	33311	68,800	45,722	23,078
Construction machinery manufacturing	33312	63,970	43,323	20,647
Mining, oil, and gas field machinery and equipment manufacturing	33319	84,287	47,164	37,123
Semiconductor machinery manufacturing	33321	24,424	10,809	13,615
Industrial machinery manufacturing (except semiconductor machinery)	33322	39,273	29,134	10,139
Photographic and photocopying equipment manufacturing	33331	7,595	6,969	626
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	98,790	64,850	33,940
Engine, turbine, and power transmission equipment manufacturing	33360	144,563	88,901	55,661
Metalworking and other general purpose machinery manufacturing	33390	107,592	82,182	25,410
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	299,498	176,629	122,870
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	75,933	39,037	36,897
Radio, television, and wireless communication equipment manufacturing	33422	148,641	88,869	59,772
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	23,306	16,607	6,700 i
Audio and video equipment manufacturing	33430	19,747	14,927	4,819

TABLE 13. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2013

(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Sales		
		Worldwide	Domestic	Foreign
Semiconductor and other electronic components manufacturing	33440	322,556	124,422	198,134
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	43,400	31,396	12,004
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	66,341	52,977	13,364
Measuring and control instruments manufacturing (not listed elsewhere)	33459	86,411	47,730	38,681
Electrical equipment, appliances, and components manufacturing	33500	182,174	132,916	49,258
Motor vehicles manufacturing	33610	615,139	459,722	155,417
Motor vehicle body and trailer manufacturing	33620	25,911	25,723	187
Motor vehicle parts manufacturing	33630	269,109	155,216	113,893
Aircraft manufacturing	33641	145,270	139,393	5,877
Aircraft engine and engine parts manufacturing	33642	51,518	44,250	7,269
Other aircraft parts and auxiliary equipment manufacturing	33643	60,341	47,488	12,854
Guided missiles, space vehicles, and related parts manufacturing	33644	17,201	14,770	2,431
Railroad rolling stock manufacturing	33651	12,466	10,701	1,764
Ship and boat building	33660	16,980 i	15,061	1,919 i
Motorcycle, bicycle, and parts manufacturing	33691	11,331	10,406	926
Military armored vehicle, tank, and tank components manufacturing	33692	4,354 i	4,190 i	164
All other transportation equipment manufacturing	33699	29,051	15,806	13,245
Furniture and related products manufacturing	33700	41,641	35,661	5,980
Medical equipment and supplies manufacturing	33910	246,961	164,968	81,992
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	141,333	93,484	47,849
Merchant wholesalers, durable goods	42300	382,262	356,866 i	25,396 i
Merchant wholesalers, nondurable goods	42400	572,591	363,573	209,018
Wholesale electronic markets and agents and brokers (business to business)	42500	53,498	33,265	20,233
Retail trade (except electronic shopping and electronic auctions)	44000	158,171	131,500	26,671
Electronic shopping and electronic auctions	45411	96,615	59,212	37,403
Transportation	48000	97,692	88,604	9,088
Couriers, messengers, and express delivery services	49200	108,143	77,766	30,377
Warehousing and storage	49300	13,583	12,287	1,296
Newspaper, periodical, book, and directory publishers (except Internet)	51110	17,946	14,993	2,952 i
Software publishers (except Internet)[d]	51120	274,806	157,995	116,811
Motion picture and sound recording (except Internet)	51200	21,114	13,974	7,140
Broadcasting (except Internet)	51500	81,500	73,285	8,215
Wired telecommunications carriers	51710	182,002	181,131	871
Wireless telecommunications carriers (except satellite)	51720	D	205,148	D
Satellite telecommunications	51740	D	3,143	D
Other telecommunications (not listed elsewhere)	51790	18,504	16,325	2,179
Data processing, hosting, and related services[d]	51800	58,499	49,450	9,050
Cloud computing applications and Internet-based software services	51801	22,686	16,188	6,498 i
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	65,131	36,613	28,518
Finance: banking and credit intermediation	52200	346,846	305,720	41,126
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	105,715	82,964	22,752
Insurance carriers and related activities	52400	320,286	310,166	10,120
Real estate	53100	D	8,075	D
Rental and leasing services	53200	34,988	26,379	8,610
Lessors of nonfinancial intangible assets, including patent licensing	53300	11,532 i	10,892 i	640
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	14,013	11,522	2,491

TABLE 13. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2013

(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Sales		
		Worldwide	Domestic	Foreign
Architectural, engineering, and related services	54130	125,310	80,681	44,629
Specialized design services	54140	3,541	2,671	870
Computer systems design and related services[d]	54150	249,310	158,729	90,581
Management, scientific, and technical consulting services	54160	78,389	56,559	21,830
Research and development services in social sciences and humanities	54172	1,301	1,297	4
Research and development services in biotechnology[c]	54173	12,392	10,690	1,702
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	36,937	32,121	4,816
Advertising and related services	54180	D	34,910	D
Professional, scientific, and technical services (not listed elsewhere)	54190	49,331	39,529	9,802
Management of companies and enterprises	55100	178,179	177,298	881
Administrative and support services	56100	46,581	29,336	17,245
Waste management and remediation services	56200	6,254	5,659	595
Offices of physicians	62110	36,254	36,254	0
Medical and diagnostic laboratories	62150	17,785	16,894	890
Other ambulatory health care services (ambulance, dental, home health care)	62199	10,930	10,930	0
Hospitals and nursing care facilities	62200	D	1,230	D
Social assistance services	62400	1,066	1,037	29
Arts, entertainment, and recreation	71000	D	13,183	D
Accommodation and food services	72000	107,445	57,995	49,449
Other services (not listed elsewhere)	81000	142,184	120,573	21,612
Less: intersegment eliminations	–	302,085	136,884	165,202
Undistributed	–	D	114,359 i	D

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.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on industry definitions in the 2007 North American Industry Classification System.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Domestic sales are the amount of sales that originated from domestic operations. Foreign sales are the amount of sales that originated from foreign operations. Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 14. Worldwide sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
All business activities	21100–81000	10,976,518	10,221,923	12,204,773	12,874,185	12,975,886	13,319,076
Oil and gas extraction	21100	271,493	153,939	212,469	331,320	271,983	250,895
Mining	21200	NA	D	38,302	57,661	43,857	54,469
Support activities for mining, including oil and gas	21300	NA	45,184	61,062	68,523	79,788	100,568
Utilities	22100	NA	317,243	310,768	348,763	318,893	324,056
Construction	23000	NA	42,287	93,305	107,286	107,685	94,282
Food manufacturing	31100	475,588	630,500	694,763	690,698	688,804	942,191
Beverage manufacturing	31210	143,008	129,396	141,259	180,153	167,003	164,288
Tobacco manufacturing	31220	28,970	134,972	133,993	140,998	130,759	120,557
Textile, apparel, and leather products manufacturing	31990	NA	56,131	68,515	66,416	89,086	70,319
Wood products manufacturing	32100	34,563	27,826	28,342	24,165	32,908	42,524
Paper manufacturing	32200	139,953	110,534	136,302	144,064	142,335	147,149
Printing and related support activities	32300	26,426	37,743	37,398	32,823	32,152	29,616
Petroleum refineries	32401	NA	NA	837,945	954,108	911,784	968,499
Asphalt paving, roofing, and saturated materials manufacturing	32402	NA	NA	7,566	8,872	8,563	14,552
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	NA	NA	32,282	43,514	D	23,482
Basic chemicals manufacturing	32510	273,809	179,494	243,193	299,476	473,666 i	278,913
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	89,805	94,915	108,693	88,762	97,410	96,186
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	40,337	71,003	51,940	47,381	57,246	67,842
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	582,910	438,687	471,763	577,607	594,394	577,561
In-vitro diagnostic substances manufacturing[c]	32542	22,317	16,940	20,637	25,005	27,022	13,910
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	NA	NA	NA	NA	NA	40,431
Soap, cleaning compound, and toilet preparations manufacturing	32591	142,212	151,565	167,258	170,417	166,942	185,338
Paint, adhesive, and other chemical manufacturing	32592	113,118	104,308	103,452	120,242	128,998	113,616
Plastics and rubber products manufacturing	32600	162,401	161,057	193,471	243,447	265,623	218,175
Clay and glass products manufacturing	32710	36,417	27,803	37,853	34,184	36,960	39,535
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	48,680	35,530	31,789	32,864	40,193	42,701
Primary metal manufacturing	33100	NA	124,478	197,315	179,318	176,544	159,622
Fabricated metal products manufacturing	33200	188,359	132,465	161,593	179,228	207,423	183,315
Agricultural machinery and equipment manufacturing	33311	48,185	46,695	53,946	43,410	59,651	68,800
Construction machinery manufacturing	33312	32,109	23,195	30,685	42,974	43,355	63,970
Mining, oil, and gas field machinery and equipment manufacturing	33319	NA	69,074	75,563	101,549	110,356	84,287
Semiconductor machinery manufacturing	33321	20,019	10,505	21,588	25,960	9,973	24,424
Industrial machinery manufacturing (except semiconductor machinery)	33322	26,984	21,368	30,723	44,666	42,619	39,273
Photographic and photocopying equipment manufacturing	33331	NA	7,471	D	D	307 i	7,595
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	NA	49,546	76,811	73,896	90,814	98,790
Engine, turbine, and power transmission equipment manufacturing	33360	86,660	46,879	84,686	112,562	120,116	144,563

TABLE 14. Worldwide sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Metalworking and other general purpose machinery manufacturing	33390	90,067	66,350	95,017	112,947	125,495	107,592
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	NA	273,429	330,020	342,416	304,309	299,498
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	48,816	66,123	87,159	64,811	64,652	75,933
Radio, television, and wireless communication equipment manufacturing	33422	76,167	64,808	79,675	92,884	136,470	148,641
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	17,976	13,324	12,856	21,004	15,949	23,306
Audio and video equipment manufacturing	33430	13,212	15,041	22,242	11,476	17,926	19,747
Semiconductor and other electronic components manufacturing	33440	220,272	196,399	296,058	336,789	332,771	322,556
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	41,395	27,437	29,041	38,560	39,590	43,400
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	38,474	55,866	68,907	47,701	63,724	66,341
Measuring and control instruments manufacturing (not listed elsewhere)	33459	57,989	78,228	88,305	84,368	99,774	86,411
Electrical equipment, appliances, and components manufacturing	33500	154,206	129,174	160,532	165,156	164,998	182,174
Motor vehicles manufacturing	33610	521,541	399,125	476,726	539,595	541,730	615,139
Motor vehicle body and trailer manufacturing	33620	D	15,688	23,105	15,325	34,284	25,911
Motor vehicle parts manufacturing	33630	163,993	126,638	242,201	224,450	228,418	269,109
Aircraft manufacturing	33641	97,635	75,960	89,235	121,480	97,484 i	145,270
Aircraft engine and engine parts manufacturing	33642	42,829	37,086	34,925	42,514	40,376	51,518
Other aircraft parts and auxiliary equipment manufacturing	33643	30,319	36,714	41,704	56,509	44,556	60,341
Guided missiles, space vehicles, and related parts manufacturing	33644	D	51,326	D	D	16,554	17,201
Railroad rolling stock manufacturing	33651	7,248	3,639	9,075 i	8,870	14,255	12,466
Ship and boat building	33660	16,461	37,439 i	D	D	23,966 i	16,980 i
Motorcycle, bicycle, and parts manufacturing	33691	8,423	6,677	6,646	8,948	7,829	11,331
Military armored vehicle, tank, and tank components manufacturing	33692	13,341	10,136	D	6,239	4,893	4,354 i
All other transportation equipment manufacturing	33699	9,513	6,332	13,008	13,415	18,469	29,051
Furniture and related products manufacturing	33700	43,401	35,821	37,487	39,031	43,719	41,641
Medical equipment and supplies manufacturing	33910	164,066	159,611	243,406	304,215	217,549	246,961
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	122,669	114,088	101,526	D	118,660	141,333
Merchant wholesalers, durable goods	42300	412,269	313,095	334,004	214,772	246,702	382,262
Merchant wholesalers, nondurable goods	42400	340,956	273,118	280,982	496,309	587,019	572,591
Wholesale electronic markets and agents and brokers (business to business)	42500	2,600	8,684	3,347	4,722 i	115,452 i	53,498
Retail trade (except electronic shopping and electronic auctions)	44000	NA	206,489	223,211	104,922	257,466	158,171
Electronic shopping and electronic auctions	45411	NA	NA	D	D	88,213	96,615
Transportation	48000	NA	D	182,535	109,842	139,615	97,692
Couriers, messengers, and express delivery services	49200	D	D	47,619	D	D	108,143

TABLE 14. Worldwide sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Warehousing and storage	49300	31,235	1,536	24,457	22,885	3,983	13,583
Newspaper, periodical, book, and directory publishers (except Internet)	51110	17,053	24,528	26,671	30,831	33,557 i	17,946
Software publishers (except Internet)[d]	51120	210,186	195,833	214,359	230,898	237,602	274,806
Motion picture and sound recording (except Internet)	51200	16,774	20,697	18,011	14,964	9,467	21,114
Broadcasting (except Internet)	51500	NA	39,734	53,313	44,029	67,429	81,500
Wired telecommunications carriers	51710	D	187,439	210,704	268,345	223,829	182,002
Wireless telecommunications carriers (except satellite)	51720	135,248	154,682	138,479	156,696	193,408	D
Satellite telecommunications	51740	19,330	12,662 i	16,021	2,783	3,056	D
Other telecommunications (not listed elsewhere)	51790	5,603	9,122	7,737	18,803	17,803	18,504
Data processing, hosting, and related services[d]	51800	NA	36,196	38,523	60,641	95,872 i	58,499
Cloud computing applications and Internet-based software services	51801	NA	NA	NA	NA	NA	22,686
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	NA	41,660	77,319	39,551	45,729	65,131
Finance: banking and credit intermediation	52200	NA	D	1,068,703	631,129	673,238 i	346,846
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	NA	148,454	148,014	152,435	104,915	105,715
Insurance carriers and related activities	52400	NA	294,233	281,344	280,278	358,159	320,286
Real estate	53100	D	7,738	D	D	D	D
Rental and leasing services	53200	NA	32,231	36,299	23,830	29,033	34,988
Lessors of nonfinancial intangible assets, including patent licensing	53300	D	1,835	1,927	2,709	2,890	11,532 i
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	NA	D	16,188	D	11,315	14,013
Architectural, engineering, and related services	54130	42,680	96,534	147,309	102,126	114,240 i	125,310
Specialized design services	54140	D	6,504	3,976	2,581	3,646 i	3,541
Computer systems design and related services[d]	54150	210,916	216,477	224,026	377,919 i	272,065	249,310
Management, scientific, and technical consulting services	54160	52,497	60,125	43,190	76,910	85,161	78,389
Research and development services in social sciences and humanities	54172	NA	980	1,170	827	D	1,301
Research and development services in biotechnology[c]	54173	NA	22,354 i	8,493	8,657	11,316	12,392
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	NA	19,858	18,840	23,446	33,296	36,937
Advertising and related services	54180	D	48,883	12,992 i	D	52,764	D
Professional, scientific, and technical services (not listed elsewhere)	54190	19,146	30,323	35,320	50,949	63,254	49,331
Management of companies and enterprises	55100	828	2,333	3,613	17,275	5,435	178,179
Administrative and support services	56100	NA	35,867	45,135	32,735	50,684 i	46,581
Waste management and remediation services	56200	NA	6,242	14,172	8,182	6,564	6,254
Offices of physicians	62110	7,492	25,752	24,133	23,844	35,513	36,254
Medical and diagnostic laboratories	62150	20,968	15,216	37,950	17,047	21,038	17,785
Other ambulatory health care services (ambulance, dental, home health care)	62199	NA	8,127	8,487	D	3,361 i	10,930
Hospitals and nursing care facilities	62200	NA	D	D	D	D	D

TABLE 14. Worldwide sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Social assistance services	62400	D	286	448	326	249	1,066
Arts, entertainment, and recreation	71000	NA	17,339	16,089	16,023	18,344	D
Accommodation and food services	72000	NA	D	69,474	39,421	88,878 i	107,445
Other services (not listed elsewhere)	81000	NA	15,585	43,778	129,084	57,612	142,184
Less: intersegment eliminations	–	381,031	237,743	234,289	281,460	309,288	302,085
Undistributed	–	1,092,275	1,590,109	516,754	598,369 i	167,240 i	D

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 = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on 2007 NAICS industry definitions.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

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

TABLE 15. Domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
All business activities	21100–81000	7,796,340	7,448,495	8,831,739	9,059,299	9,260,168	9,654,952
Oil and gas extraction	21100	127,788	61,582	85,797	178,926 i	124,569	120,514
Mining	21200	NA	D	33,072	38,109	24,837	38,237
Support activities for mining, including oil and gas	21300	NA	23,022	34,840	42,645	51,327	72,644
Utilities	22100	NA	D	301,613	337,871	309,573	316,046
Construction	23000	NA	27,180	81,641	88,626	64,402	60,712
Food manufacturing	31100	394,404	503,047	501,332	494,683	503,915	694,281
Beverage manufacturing	31210	83,691	78,740	84,764	95,236	83,774	106,592
Tobacco manufacturing	31220	28,680	32,431	31,357	29,645	27,706	35,865
Textile, apparel, and leather products manufacturing	31990	NA	45,893	56,890	52,532	68,545	55,123
Wood products manufacturing	32100	28,183	26,213	25,241	22,344	28,764	36,751
Paper manufacturing	32200	100,057	80,030	99,820	103,867	101,033	106,687
Printing and related support activities	32300	22,678	33,532	32,163	26,809	26,267	26,318
Petroleum refineries	32401	NA	NA	540,612	581,297	578,075	640,022
Asphalt paving, roofing, and saturated materials manufacturing	32402	NA	NA	7,549	8,781	8,489	13,308
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	NA	NA	21,658	20,509	20,440	13,756
Basic chemicals manufacturing	32510	158,621	103,950	150,240	206,723	344,515 i	198,980
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	60,269	61,805	64,684	58,263	68,104	68,459
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	28,010	47,317	41,528	33,380	40,317	45,668
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	445,985	309,750	324,266	414,284	428,486	415,007
In-vitro diagnostic substances manufacturing[c]	32542	15,353	9,805	12,835	13,735	14,646	8,172
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	NA	NA	NA	NA	NA	36,876
Soap, cleaning compound, and toilet preparations manufacturing	32591	69,942	71,452	81,151	70,851	82,518	87,095
Paint, adhesive, and other chemical manufacturing	32592	63,149	62,724	60,506	64,497	79,372	67,918
Plastics and rubber products manufacturing	32600	118,523	114,191	137,777	173,290	194,568	152,967
Clay and glass products manufacturing	32710	24,394	19,014	25,143	21,754	20,164	23,064
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	43,373	31,599	24,141	24,235	33,359	33,483
Primary metal manufacturing	33100	NA	97,493	161,558	148,670	153,926	135,076
Fabricated metal products manufacturing	33200	142,788	102,595	119,246	130,090	155,294 i	151,839
Agricultural machinery and equipment manufacturing	33311	27,543	25,669	29,904	29,258	35,667	45,722
Construction machinery manufacturing	33312	18,228	13,180	19,480	25,854	31,853	43,323
Mining, oil, and gas field machinery and equipment manufacturing	33319	NA	33,167	39,264	53,050	60,556	47,164
Semiconductor machinery manufacturing	33321	9,091	4,765	11,918	15,018	6,839	10,809
Industrial machinery manufacturing (except semiconductor machinery)	33322	19,452	15,372	21,762	29,736	31,127	29,134
Photographic and photocopying equipment manufacturing	33331	NA	5,392	3,927 i	4,791 i	D	6,969

TABLE 15. Domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	NA	33,493	48,407	43,626	54,363	64,850
Engine, turbine, and power transmission equipment manufacturing	33360	58,560	30,093	46,693	68,243	74,148	88,901
Metalworking and other general purpose machinery manufacturing	33390	54,007	43,998	58,532	71,081	86,258	82,182
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	NA	136,666	167,290	174,898	143,492	176,629
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	26,447	35,592	40,631	32,334	34,783	39,037
Radio, television, and wireless communication equipment manufacturing	33422	46,641	46,769	61,641	55,217	82,027	88,869
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	11,185	8,644	8,841	12,452	13,908	16,607
Audio and video equipment manufacturing	33430	10,969	10,929	19,142	7,296	14,633	14,927
Semiconductor and other electronic components manufacturing	33440	119,612	117,302	138,124	151,590	146,764	124,422
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	28,976	18,709	19,647	25,057	27,605	31,396
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	33,348	46,237	57,639	40,372	53,425	52,977
Measuring and control instruments manufacturing (not listed elsewhere)	33459	37,609	42,753	50,643	49,752	58,909	47,730
Electrical equipment, appliances, and components manufacturing	33500	106,551	85,758	105,982	106,576	110,094	132,916
Motor vehicles manufacturing	33610	346,591	274,985	329,874	373,194	375,113	459,722
Motor vehicle body and trailer manufacturing	33620	9,363	15,184	22,168	14,423	31,982	25,723
Motor vehicle parts manufacturing	33630	97,433	77,528	146,257	125,593	130,372	155,216
Aircraft manufacturing	33641	97,973	69,001 i	81,666	111,748	91,545 i	139,393
Aircraft engine and engine parts manufacturing	33642	35,056	24,737	25,563	27,491	26,706	44,250
Other aircraft parts and auxiliary equipment manufacturing	33643	21,141	26,755	31,157	43,898	34,541	47,488
Guided missiles, space vehicles, and related parts manufacturing	33644	38,114	D	25,391	35,889	14,656	14,770
Railroad rolling stock manufacturing	33651	6,354	2,763	7,095 i	7,204	11,800	10,701
Ship and boat building	33660	14,880	D	10,531	11,647	22,778 i	15,061
Motorcycle, bicycle, and parts manufacturing	33691	8,078	6,282	6,081	7,422	7,067	10,406
Military armored vehicle, tank, and tank components manufacturing	33692	13,092	9,674	9,072	5,755	4,668	4,190 i
All other transportation equipment manufacturing	33699	7,131	5,438	11,079	11,066	16,258	15,806
Furniture and related products manufacturing	33700	36,218	31,479	32,876	32,881	37,447 i	35,661
Medical equipment and supplies manufacturing	33910	105,647	102,585	169,760	225,177	136,664	164,968
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	80,689	84,846	71,000	78,674	80,879	93,484
Merchant wholesalers, durable goods	42300	238,101	196,341	206,240	171,815	221,488	356,866 i
Merchant wholesalers, nondurable goods	42400	274,190	239,385	247,311	266,388	349,833	363,573

TABLE 15. Domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Wholesale electronic markets and agents and brokers (business to business)	42500	2,481	D	3,331	3,008	65,076 i	33,265
Retail trade (except electronic shopping and electronic auctions)	44000	NA	D	195,958	70,424	214,728 i	131,500
Electronic shopping and electronic auctions	45411	NA	NA	32,624	40,254	53,712	59,212
Transportation	48000	NA	D	95,591	83,912	107,212	88,604
Couriers, messengers, and express delivery services	49200	D	D	36,420	D	D	77,766
Warehousing and storage	49300	28,723	1,296	23,982	21,910	3,157	12,287
Newspaper, periodical, book, and directory publishers (except Internet)	51110	12,383	16,369	18,917	22,488	26,549 i	14,993
Software publishers (except Internet)[d]	51120	121,028	118,001	129,649	132,970	136,905	157,995
Motion picture and sound recording (except Internet)	51200	10,053	14,356	11,375	9,824	7,281 i	13,974
Broadcasting (except Internet)	51500	NA	34,110	45,779	39,563	59,926	73,285
Wired telecommunications carriers	51710	99,917	D	209,490	261,484	216,736	181,131
Wireless telecommunications carriers (except satellite)	51720	134,162	153,937	138,473	156,525	193,254	205,148
Satellite telecommunications	51740	14,005	6,743 i	15,845	2,430	2,822	3,143
Other telecommunications (not listed elsewhere)	51790	4,374	8,108	7,222	15,929	14,610	16,325
Data processing, hosting, and related services[d]	51800	NA	29,903	31,417	51,197	82,997 i	49,450
Cloud computing applications and Internet-based software services	51801	NA	NA	NA	NA	NA	16,188
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	NA	27,907	47,397	28,424	28,760	36,613
Finance: banking and credit intermediation	52200	NA	D	992,651	601,628	631,902 i	305,720
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	NA	D	113,669	117,167	88,244	82,964
Insurance carriers and related activities	52400	NA	282,640	265,110	265,293	349,252	310,166
Real estate	53100	6,053	D	4,615	4,727	8,069	8,075
Rental and leasing services	53200	NA	D	27,719	18,597	21,801	26,379
Lessors of nonfinancial intangible assets, including patent licensing	53300	D	1,484	1,702	2,350	2,125	10,892 i
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	NA	D	14,565	7,394	9,093	11,522
Architectural, engineering, and related services	54130	37,749	81,565	113,603	65,209	94,868 i	80,681
Specialized design services	54140	3,325	D	3,522	2,353	3,301 i	2,671
Computer systems design and related services[d]	54150	124,832	140,234	143,787	224,144	167,759	158,729
Management, scientific, and technical consulting services	54160	33,588	36,811	28,351	52,489	57,925	56,559
Research and development services in social sciences and humanities	54172	NA	978	1,168	820	934	1,297
Research and development services in biotechnology[c]	54173	NA	18,691 i	7,194	7,388	9,769	10,690
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	NA	16,041	15,845	19,094	27,670	32,121
Advertising and related services	54180	14,574	D	11,336 i	21,227	27,500	34,910
Professional, scientific, and technical services (not listed elsewhere)	54190	15,690	28,298	33,134	46,048	53,969	39,529

TABLE 15. Domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Management of companies and enterprises	55100	752	2,310	3,347	11,847	4,131	177,298
Administrative and support services	56100	NA	29,045	25,660	22,146	38,874 i	29,336
Waste management and remediation services	56200	NA	D	13,971	7,223	6,080	5,659
Offices of physicians	62110	7,492	25,751	24,133	23,844	35,513	36,254
Medical and diagnostic laboratories	62150	19,930	14,359	36,288	15,778	19,655	16,894
Other ambulatory health care services (ambulance, dental, home health care)	62199	NA	D	8,333	D	3,334 i	10,930
Hospitals and nursing care facilities	62200	NA	D	7,831	16,084	870 i	1,230
Social assistance services	62400	D	D	448	326	249	1,037
Arts, entertainment, and recreation	71000	NA	14,265	12,920	12,727	15,248	13,183
Accommodation and food services	72000	NA	D	37,218	27,476	54,266 i	57,995
Other services (not listed elsewhere)	81000	NA	9,638	35,994	118,268	44,823	120,573
Less: intersegment eliminations	–	219,384	110,499	132,754	117,417	136,579	136,884
Undistributed	–	756,553	1,137,705	412,892	450,613 i	108,244 i	114,359 i

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 = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on 2007 NAICS industry definitions.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

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

TABLE 16. Foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
All business activities	21100–81000	3,180,177	2,773,429	3,373,035	3,814,885	3,715,718	3,664,125
Oil and gas extraction	21100	143,705	92,357	126,671	152,394	147,415	130,380
Mining	21200	NA	D	5,230	19,552	19,020	16,232
Support activities for mining, including oil and gas	21300	NA	22,162	26,223	25,878	28,461	27,924
Utilities	22100	NA	D	9,155	10,892	9,320	8,010
Construction	23000	NA	15,107	11,664	18,660	43,283	33,570
Food manufacturing	31100	81,184	127,453	193,432	196,015	184,889	247,910
Beverage manufacturing	31210	59,317	50,655	56,495	84,916	83,229	57,696
Tobacco manufacturing	31220	290	102,541	102,636	111,353	103,052	84,692
Textile, apparel, and leather products manufacturing	31990	NA	10,239	11,625	13,883	20,542	15,195
Wood products manufacturing	32100	6,381	1,613	3,101 i	1,821	4,144	5,773
Paper manufacturing	32200	39,895	30,504	36,481	40,196	41,303	40,462
Printing and related support activities	32300	3,748	4,212	5,234	6,013	5,885	3,298
Petroleum refineries	32401	NA	NA	297,333	372,811	333,710	328,477
Asphalt paving, roofing, and saturated materials manufacturing	32402	NA	NA	17	91	74 i	1,244
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	NA	NA	10,623	23,005	D	9,726
Basic chemicals manufacturing	32510	115,189	75,544	92,953	92,754	129,151	79,933
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	29,537	33,110	44,009	30,499	29,307	27,726
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	12,327	23,686	10,412	14,001	16,929	22,174 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	136,925	128,937	147,497	163,323	165,908	162,554
In-vitro diagnostic substances manufacturing[c]	32542	6,964	7,135	7,802	11,270	12,376	5,738
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	NA	NA	NA	NA	NA	3,555
Soap, cleaning compound, and toilet preparations manufacturing	32591	72,271	80,113	86,107	99,565	84,423	98,242
Paint, adhesive, and other chemical manufacturing	32592	49,968	41,584	42,946	55,746	49,627	45,698
Plastics and rubber products manufacturing	32600	43,878	46,866	55,694	70,156	71,055	65,208
Clay and glass products manufacturing	32710	12,023	8,789	12,710	12,430	16,796	16,471
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	5,307	3,931	7,648	8,629	6,833	9,218
Primary metal manufacturing	33100	NA	26,985	35,756	30,648	22,619	24,547
Fabricated metal products manufacturing	33200	45,571	29,870	42,347	49,138	52,129	31,476
Agricultural machinery and equipment manufacturing	33311	20,642	21,025	24,042 i	14,152	23,984	23,078
Construction machinery manufacturing	33312	13,881	10,015	11,205	17,120	11,502	20,647
Mining, oil, and gas field machinery and equipment manufacturing	33319	NA	35,907	36,300	48,499	49,800	37,123
Semiconductor machinery manufacturing	33321	10,928	5,740	9,670	10,941	3,134	13,615
Industrial machinery manufacturing (except semiconductor machinery)	33322	7,532	5,996	8,961	14,930	11,492	10,139
Photographic and photocopying equipment manufacturing	33331	NA	2,080	D	D	D	626

TABLE 16. Foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	NA	16,053	28,404	30,270	36,451	33,940
Engine, turbine, and power transmission equipment manufacturing	33360	28,100	16,787	37,994	44,319	45,968	55,661
Metalworking and other general purpose machinery manufacturing	33390	36,061	22,352	36,485	41,866	39,237	25,410
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	NA	136,763	162,729	167,518	160,818	122,870
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	22,369	30,531	46,528	32,477	29,869	36,897
Radio, television, and wireless communication equipment manufacturing	33422	29,526	18,039	18,034	37,667	54,443	59,772
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	6,791	4,680	4,015	8,552	2,041	6,700 i
Audio and video equipment manufacturing	33430	2,243	4,112	3,100	4,180	3,294	4,819
Semiconductor and other electronic components manufacturing	33440	100,661	79,098	157,934	185,199	186,007	198,134
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	12,419	8,728	9,394	13,503	11,985	12,004
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	5,126	9,629	11,268	7,329	10,300	13,364
Measuring and control instruments manufacturing (not listed elsewhere)	33459	20,381	35,476	37,663	34,616	40,865	38,681
Electrical equipment, appliances, and components manufacturing	33500	47,654	43,416	54,549	58,580	54,904	49,258
Motor vehicles manufacturing	33610	174,950	124,140	146,852	166,401	166,616	155,417
Motor vehicle body and trailer manufacturing	33620	D	504	937	903	2,302	187
Motor vehicle parts manufacturing	33630	66,559	49,109	95,944	98,857	98,046	113,893
Aircraft manufacturing	33641	S	6,959	7,569	9,732 i	5,939	5,877
Aircraft engine and engine parts manufacturing	33642	7,773	12,349	9,361	15,023	13,670	7,269
Other aircraft parts and auxiliary equipment manufacturing	33643	9,178	9,959	10,547	12,611	10,015	12,854
Guided missiles, space vehicles, and related parts manufacturing	33644	D	D	D	D	1,899	2,431
Railroad rolling stock manufacturing	33651	894	875	1,980	1,666	2,455	1,764
Ship and boat building	33660	1,581	D	D	D	1,188 i	1,919 i
Motorcycle, bicycle, and parts manufacturing	33691	345	395	565	1,526	762	926
Military armored vehicle, tank, and tank components manufacturing	33692	249	462	D	484	224	164
All other transportation equipment manufacturing	33699	2,382	895	1,929	2,349	2,212	13,245
Furniture and related products manufacturing	33700	7,183	4,342	4,610	6,151	6,272	5,980
Medical equipment and supplies manufacturing	33910	58,419	57,025	73,646	79,038	80,885	81,992
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	41,981	29,242	30,526	D	37,781	47,849
Merchant wholesalers, durable goods	42300	174,168	116,754	127,763	42,957	25,213	25,396 i
Merchant wholesalers, nondurable goods	42400	66,765	33,733	33,672	229,921	237,186	209,018

TABLE 16. Foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Wholesale electronic markets and agents and brokers (business to business)	42500	119	D	16	1,714 i	50,376 i	20,233
Retail trade (except electronic shopping and electronic auctions)	44000	NA	D	27,253	34,498	42,738	26,671
Electronic shopping and electronic auctions	45411	NA	NA	D	D	34,500	37,403
Transportation	48000	NA	D	86,945	25,930	32,403	9,088
Couriers, messengers, and express delivery services	49200	D	D	11,199	D	0	30,377
Warehousing and storage	49300	2,512	240	474	975	826	1,296
Newspaper, periodical, book, and directory publishers (except Internet)	51110	4,670	8,159	7,754	8,343	7,008 i	2,952 i
Software publishers (except Internet)[d]	51120	89,158	77,832	84,710	97,929	100,697	116,811
Motion picture and sound recording (except Internet)	51200	6,721	6,341	6,635	5,141	2,185	7,140
Broadcasting (except Internet)	51500	NA	5,624	7,533	4,466	7,504 i	8,215
Wired telecommunications carriers	51710	D	D	1,214	6,862	7,093	871
Wireless telecommunications carriers (except satellite)	51720	1,085	745	6	171	154 i	D
Satellite telecommunications	51740	5,325	5,919 i	176	353 i	234	D
Other telecommunications (not listed elsewhere)	51790	1,230	1,015	515	2,875	3,193 i	2,179
Data processing, hosting, and related services[d]	51800	NA	6,292	7,107	9,443	12,874	9,050
Cloud computing applications and Internet-based software services	51801	NA	NA	NA	NA	NA	6,498 i
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	NA	13,753	29,921	11,126	16,969	28,518
Finance: banking and credit intermediation	52200	NA	45,027	76,052 i	29,501	41,335	41,126
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	NA	D	34,345	35,268	16,671	22,752
Insurance carriers and related activities	52400	NA	11,594	16,234	14,985	8,907	10,120
Real estate	53100	D	D	D	D	D	D
Rental and leasing services	53200	NA	D	8,580 i	5,232 i	7,232	8,610
Lessors of nonfinancial intangible assets, including patent licensing	53300	D	352	225	359	764	640
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	NA	864 i	1,623	D	2,222	2,491
Architectural, engineering, and related services	54130	4,931	14,969	33,706	36,917	19,373	44,629
Specialized design services	54140	D	D	454	228	345	870
Computer systems design and related services[d]	54150	86,084	76,243	80,239	153,776 i	104,306	90,581
Management, scientific, and technical consulting services	54160	18,909	23,315	14,838	24,421	27,236	21,830
Research and development services in social sciences and humanities	54172	NA	2	2	7	D	4
Research and development services in biotechnology[c]	54173	NA	3,663 i	1,299	1,269	1,547	1,702
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	NA	3,817	2,994	4,352	5,625	4,816
Advertising and related services	54180	D	D	1,656	D	25,263	D
Professional, scientific, and technical services (not listed elsewhere)	54190	3,456	2,025	2,186	4,901	9,285	9,802

TABLE 16. Foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008	2009	2010	2011	2012	2013
Management of companies and enterprises	55100	76	23	266	5,428	1,304	881
Administrative and support services	56100	NA	6,821	19,476	10,588	11,810	17,245
Waste management and remediation services	56200	NA	D	201	959	484	595
Offices of physicians	62110	0	* i	0	0	0	0
Medical and diagnostic laboratories	62150	1,037	857	1,662	1,269	1,383	890
Other ambulatory health care services (ambulance, dental, home health care)	62199	NA	D	154	D	27	0
Hospitals and nursing care facilities	62200	NA	0	D	D	D	D
Social assistance services	62400	D	D	0	0	0	29
Arts, entertainment, and recreation	71000	NA	3,074	3,169	3,297	3,096	D
Accommodation and food services	72000	NA	9,891	32,256	11,945	34,612	49,449
Other services (not listed elsewhere)	81000	NA	5,946	7,784	10,816	12,789	21,612
Less: intersegment eliminations	–	161,647	127,244	101,536	164,044	172,709	165,202
Undistributed	–	335,723	452,404	103,862	147,756 i	58,997 i	D

* = 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; S = negative value due to intersegment eliminations.

NAICS = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on 2007 NAICS industry definitions.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

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

TABLE 17. Domestic R&D paid for by the company and others and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	322,528	19,508	51,014	252,007
Manufacturing industries	31–33	221,476	15,186	35,166	171,124
Food	311	5,028	761 i	1,178 i	3,089 i
Beverage and tobacco products	312	827	167	198	461
Textile, apparel, and leather products	313–16	662	62	57	543
Wood products	321	220	12	50	157
Printing and related support activities	323	252 i	15 i	32 i	206 i
Chemicals	325	61,664	7,308	13,894	40,462
Pharmaceuticals and medicines	3254	52,426	6,535	11,576	34,315
Other chemicals	other 325	9,238	773	2,318	6,147
Plastics and rubber products	326	3,650	390	863	2,397
Nonmetallic mineral products	327	1,329 i	190 i	296 i	843 i
Primary metals	331	624	32 i	110 i	482 i
Fabricated metal products	332	2,212 i	90 i	272 i	1,850 i
Machinery	333	12,650	576	995	11,079
Computer and electronic products	334	67,205	2,684	8,485	56,036
Semiconductor and other electronic components	3344	30,800	1,132	3,746	25,923
Navigational, measuring, electromedical, and control instruments	3345	14,478	724	2,221	11,534
Other computer and electronic products	other 334	21,926	829 i	2,519	18,579
Electrical equipment, appliances, and components	335	4,136	205	659	3,271
Transportation equipment	336	45,972	1,823	6,022	38,126
Aerospace products and parts	3364	27,114	946	3,351	22,817
Other transportation equipment	other 336	18,858	877	2,671	15,310
Furniture and related products	337	374	21 i	86	267
Miscellaneous manufacturing	322, 324, 339	14,670	848	1,968	11,854
Nonmanufacturing industries	21–23, 42–81	101,052	4,321	15,848	80,883
Information	51	57,207	2,178	5,687	49,341
Publishing	511	35,675	1,491	3,106	31,078
Telecommunications	517	3,041	206 i	1,051	1,784 i
Data processing, hosting, and related services	518	6,446	245	595	5,605
Other information	other 51	12,046	236	935	10,874
Professional, scientific, and technical services	54	31,017	1,630	8,181	21,206 i
Architectural, engineering, and related services	5413	3,133	98	1,005	2,030 i
Computer systems design and related services	5415	9,268 i	188 i	1,013 i	8,068 i
Scientific research and development services	5417	14,201	1,213	5,437	7,551 i
Biotechnology research and development	541711	4,499	679	664	3,155 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,910	478	4,327	4,105 i
Social sciences and humanities research and development	541720	792	56 i	445 i	291 i
Other professional, scientific, and technical services	other 54	4,415	130 i	727 i	3,558 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	12,828	513 i	1,980	10,335
All companies (number of domestic employees)	–	322,528	19,508	51,014	252,007
Small companies[a]					
5–499	–	53,002	3,290	10,172 i	39,541 i
5–99	–	27,148 i	1,767 i	5,289 i	20,092 i
5–49	–	18,238 i	1,096 i	3,750 i	13,392 i
5–9	–	3,402 i	231 i	659 i	2,513 i
10–24	–	6,895 i	460 i	1,362 i	5,073 i
25–49	–	7,941 i	405	1,729 i	5,806 i
50–99	–	8,910	671	1,539	6,700 i
100–249	–	13,666	774	2,552	10,340
250–499	–	12,189	749	2,331 i	9,109
Medium and large companies					
500–999	–	12,002	678	2,106	9,219

TABLE 17. Domestic R&D paid for by the company and others and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
1,000–4,999	–	55,517	3,373	9,491	42,654
5,000–9,999	–	31,514	1,609	5,546	24,359
10,000–24,999	–	51,218	3,004	9,414	38,799
25,000 or more	–	119,275	7,555	14,285	97,435

i = > 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. 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, 2013.

TABLE 18. Domestic R&D paid for by the company and others and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other
All industries	21–23, 31–33, 42–81	322,528	186,590	13,829	13,180	4,421	25,367	4,854	11,892	6,988	55,408
Manufacturing industries	31–33	221,476	122,019	7,728	7,221	3,139	21,537	3,393	9,064	4,898	42,478
Food	311	5,028	3,682 i	86	88	11	263	49	139	157 i	553
Beverage and tobacco products	312	827	477	10	33	9 i	48	5 i	43	7 i	194
Textile, apparel, and leather products	313–16	662	447	3	16	4	76	7	17	13	79
Wood products	321	220	144	* i	8	1	49	2	3	1	12
Paper	322	920	551 i	* i	40 i	3 i	203 i	3 i	13 i	16 i	90 i
Printing and related support activities	323	252 i	173 i	4 i	3 i	2 i	25 i	4 i	7 i	3 i	30 i
Petroleum and coal products	324	242	165	*	4 i	1	15	1	7 i	9	40 i
Chemicals	325	61,664	30,069	2,443	2,557	290	5,024	1,368	2,900	1,906	15,107
Basic chemicals	3251	2,658	1,612	15	80	37	230	75	148	43	420
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,065	683	1	22	15	58	23	50	39	173
Pesticide, fertilizer, and other agricultural chemicals	3253	1,691 i	657 i	8 i	D	4 i	126 i	67 i	170 i	150 i	D
Pharmaceuticals and medicines	3254	52,426	24,673	2,403	2,278	214	4,414	1,161	2,382	1,612	13,288
Soap, cleaning compound, and toilet preparation	3256	2,469	1,549	10	69	4	145	26	102	40	524
Paint, coating, adhesive, and other chemicals	3255, 3259	1,355	897	5	D	16	51	16	48	21	D
Plastics and rubber products	326	3,650	2,145	56	93	28	456	38	237	112	485
Nonmetallic mineral products	327	1,329 i	773 i	2 i	34 i	10 i	103 i	10 i	50 i	26 i	322 i
Primary metals	331	624	338	5	10	3	68	3	21	5	170
Fabricated metal products	332	2,212 i	1,605 i	4 i	22 i	44 i	232 i	9 i	47 i	37 i	213 i
Machinery	333	12,650	7,325	201 i	711	127	1,789	131	562	169	1,637 i
Agricultural implement	33311	1,597	812	0	109	16	319	6	47	3	285
Semiconductor machinery	333295	3,194	1,494 i	176 i	88 i	5 i	507 i	56 i	252 i	6 i	612 i
Engine, turbine, and power transmission equipment	3336	1,448	856	2	122	41	124	12	54	110	128
Other machinery	other 333	6,411	4,163	23	392	66	839 i	57	208	50	613 i
Computer and electronic products	334	67,205	39,755	4,528	1,716	1,337	5,540	1,221	3,495	1,370	8,244
Communications equipment	3342	15,658	8,994	1,602	214	464	1,005	502	826	572	1,480
Semiconductor and other electronic components	3344	30,800	17,890	2,500	589	585	2,377	497	1,852	312	4,197
Navigational, measuring, electromedical, and control instruments	3345	14,478	8,988	146	712	149	1,690	133	423	200	2,037
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,634	1,511	49	301	27	250	58	176	33	230
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,106	5,086	22	285	66 i	1,142	35	140	90	1,241
Other measuring and controlling device	other 3345	3,738	2,391	76	126	56	299	40	107	77	567

TABLE 18. Domestic R&D paid for by the company and others and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other
Other computer and electronic products	other 334	6,269	3,882	280	202	139	468	89	394	287	529
Electrical equipment, appliances, and components	335	4,136	2,821 i	51	152	93 i	334 i	60 i	112 i	82 i	431
Transportation equipment	336	45,972	23,135	4	1,297	1,035	6,274	382	969	618	12,258
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	16,729	9,329	3	1,015	837	2,818	313	492	179	1,743
Aerospace products and parts	3364	27,114	12,630	*	258	192	2,982	49	443	395	10,165 i
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	*	D	190	D	D	442	395	9,973 i
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	0	D	2	D	D	1	*	192
Military armored vehicle, tank, and tank components	336992	9 i	5 i	*	*	0	3 i	0	*	*	1
Other transportation	other 336	2,121	1,171 i	0	24	6 i	472 i	20 i	34 i	44 i	350 i
Furniture and related products	337	374	253	2	9	1	61	1	4	1	41
Miscellaneous manufacturing	339	13,509	8,160	328	430	139	976	100	439	365	2,572
Medical equipment and supplies	3391	10,954	6,427	313	375	132	865	76	377	346	2,043
Other miscellaneous manufacturing	3399	2,555	1,733	15	55	7	110	24	62	19	529
Nonmanufacturing industries	21–23, 42–81	101,052	64,572	6,101	5,959	1,282	3,830	1,461	2,828	2,089	12,930
Mining, extraction, and support activities	21	3,997	2,261	41	232	44	397	69	86	276	592
Utilities	22	294	103	5	45	1	20	2	28	23	68
Wholesale trade	42	529 i	396 i	* i	14 i	3 i	42 i	6 i	8 i	12 i	47 i
Electronic shopping and electronic auctions	454111–12	1,357 i	926	9 i	22 i	D	D	18 i	D	79 i	246
Transportation and warehousing	48–49	D	D	* i	7	5 i	D	D	16 i	0	D
Information	51	57,207	35,778	5,585	2,861	914	1,492	781	1,592	476	7,727
Publishing	511	35,675	23,013	2,246	1,558	230	1,255	225	683	409	6,056
Newspaper, periodical, book, and directory publishers	5111	342 i	212 i	0	65 i	* i	1 i	* i	* i	13 i	52 i
Software publishers	5112	35,333	22,801	2,246	1,493	230	1,254	225	683	396	6,004
Telecommunications	517	3,041	2,155 i	13	329 i	118 i	22 i	17 i	46	16 i	324 i
Data processing, hosting, and related services	518	6,446	4,475	337	313	154	91	108	164	31	773
Other information	other 51	12,046	6,136	2,990	661	412	124	431	698	21	574
Finance and insurance	52	4,308	2,355	45	1,239	24	6	31	50	295	263
Real estate and rental and leasing	53	150	105	12	8	*	2	6	2	*	15
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	43 i	3	2	*	1	4	1	0	4
Other real estate and rental and leasing	other 53	92	62	9	6	*	1	2	1	*	11
Professional, scientific, and technical services	54	31,017	21,181 i	397 i	1,409	271 i	1,630	523	962 i	894 i	3,749
Architectural, engineering, and related services	5413	3,133	2,321 i	1	65	8 i	85 i	30 i	16 i	8 i	598
Computer systems design and related services	5415	9,268 i	7,173 i	294 i	415 i	128 i	157 i	165 i	201 i	70 i	665 i

TABLE 18. Domestic R&D paid for by the company and others and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other
Scientific research and development services	5417	14,201	8,367	70	539	124	1,255	288	657 i	785 i	2,116
Biotechnology research and development	541711	4,499	2,602	46	146	29	479	109	202	428 i	458
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,910	5,196	15	377	89 i	774	163	448 i	353 i	1,494
Social sciences and humanities research and development	541720	792	569	9	16	6	2	16	6	4	163
Other professional, scientific, and technical services	other 54	4,415	3,320	32	389	11	133	40	88	31	371
Health care services	621–23	526 i	316 i	7 i	16 i	3 i	65	13 i	24 i	28 i	55 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	* i	107 i	D	D	D	D	6 i	D
All companies (number of domestic employees)	–	322,528	186,590	13,829	13,180	4,421	25,367	4,854	11,892	6,988	55,408
Small companies[a]											
5–499	–	53,002	33,859 i	1,374	2,293	582 i	4,513	1,202	1,526	950	6,704
5–99	–	27,148 i	17,410 i	554 i	1,328 i	288 i	2,501	591	697 i	490 i	3,288 i
5–49	–	18,238 i	11,607 i	362 i	961 i	190 i	1,782 i	380 i	483 i	346 i	2,126 i
5–9	–	3,402 i	2,296 i	65 i	160 i	32 i	247 i	72 i	76 i	56 i	398 i
10–24	–	6,895 i	4,457 i	142 i	374	64 i	567 i	131 i	171 i	150 i	839 i
25–49	–	7,941 i	4,853 i	155 i	427 i	94 i	969	177	236 i	140	889 i
50–99	–	8,910	5,803 i	192	367	97 i	719	211	213 i	144	1,162
100–249	–	13,666	8,814	352	532	156	1,162	345	414	281	1,609
250–499	–	12,189	7,634	468	432	138	849	266	415	179	1,807
Medium and large companies											
500–999	–	12,002	7,188	616	394	199	952	166	583	167	1,737
1,000–4,999	–	55,517	31,401	3,195	1,818	817	3,972	1,168	2,219	1,467 i	9,459
5,000–9,999	–	31,514	18,695	1,356	1,067	409	2,282	378	1,570	943	4,814
10,000–24,999	–	51,218	29,440	1,413	1,980	366	5,197	681	2,239	1,175	8,728
25,000 or more	–	119,275	66,008	5,875	5,628	2,047	8,450	1,259	3,756	2,286	23,965

* = 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.

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. 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, 2013.

TABLE 19. Domestic R&D paid for by the company and others and performed by the company as a percent of domestic net sales, by industry and company size: 2013

Industry and company size	NAICS code	Domestic R&D (US$millions)	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
All industries	21–23, 31–33, 42–81	322,528	3.3	3.5
Manufacturing industries	31–33	221,476	3.8	3.9
Food	311	5,028	0.7	0.7
Beverage and tobacco products	312	827	0.6	0.6
Textile, apparel, and leather products	313–316	662	1.2	1.2
Wood products	321	220	0.7	0.7
Paper	322	920	1.0	1.0
Printing and related support activities	323	252 i	1.1	1.1
Petroleum and coal products	324	242	0.1	0.1
Chemicals	325	61,664	4.5	4.5
Basic chemicals	3251	2,658	0.6	0.6
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,065	0.7	0.7
Pesticide, fertilizer, and other agricultural chemicals	3253	1,691 i	3.5	3.5
Pharmaceuticals and medicines	3254	52,426	10.3	10.3
Soap, cleaning compound, and toilet preparation	3256	2,469	2.4	2.4
Paint, coating, adhesive, and other chemicals	3255, 3259	1,355	1.9	1.9
Plastics and rubber products	326	3,650	2.2	2.2
Nonmetallic mineral products	327	1,329 i	2.4	2.4
Primary metals	331	624	0.5	0.5
Fabricated metal products	332	2,212 i	1.6	1.6
Machinery	333	12,650	3.4	3.4
Agricultural implement	33311	1,597	2.8	2.8
Semiconductor machinery	333295	3,194	28.4	28.4
Engine, turbine, and power transmission equipment	3336	1,448	2.9	2.9
Other machinery	other 333	6,411	2.5	2.5
Computer and electronic products	334	67,205	10.6	10.6
Communications equipment	3342	15,658	9.0	9.0
Semiconductor and other electronic components	3344	30,800	18.5	18.6
Navigational, measuring, electromedical, and control instruments	3345	14,478	8.3	8.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,634	9.5	9.5
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,106	9.4	9.4
Other measuring and controlling device	other 3345	3,738	6.2	6.2
Other computer and electronic products	other 334	6,269	5.2	5.3
Electrical equipment, appliances, and components	335	4,136	2.9	2.9
Transportation equipment	336	45,972	4.1	4.3
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	16,729	2.4	2.6
Aerospace products and parts	3364	27,114	7.6	7.6
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D
Military armored vehicle, tank, and tank components	336992	9 i	2.7	2.7
Other transportation	other 336	2,121	3.4	3.4
Furniture and related products	337	374	1.1	1.1
Miscellaneous manufacturing	339	13,509	4.0	4.0
Medical equipment and supplies	3391	10,954	4.4	4.4
Other miscellaneous manufacturing	3399	2,555	2.7	2.7
Nonmanufacturing industries	21–23, 42–81	101,052	2.7	2.8
Mining, extraction, and support activities	21	3,997	0.9	0.9
Utilities	22	294	0.1	0.1
Wholesale trade	42	529 i	0.2	0.2
Electronic shopping and electronic auctions	454111–12	1,357 i	2.1	2.1
Transportation and warehousing	48–49	D	D	D
Information	51	57,207	5.5	5.5
Publishing	511	35,675	8.6	8.6

TABLE 19. Domestic R&D paid for by the company and others and performed by the company as a percent of domestic net sales, by industry and company size: 2013

Industry and company size	NAICS code	Domestic R&D (US$millions)	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
Newspaper, periodical, book, and directory publishers	5111	342 i	1.5	1.5
Software publishers	5112	35,333	9.0	9.0
Telecommunications	517	3,041	0.7	0.7
Data processing, hosting, and related services	518	6,446	8.1	8.2
Other information	other 51	12,046	9.0	9.5
Finance and insurance	52	4,308	0.7	0.7
Real estate and rental and leasing	53	150	1.5	1.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	15.4	15.4
Other real estate and rental and leasing	other 53	92	0.9	0.9
Professional, scientific, and technical services	54	31,017	8.4	8.4
Architectural, engineering, and related services	5413	3,133	3.4	3.4
Computer systems design and related services	5415	9,268 i	8.4	8.4
Scientific research and development services	5417	14,201	20.1	20.3
Biotechnology research and development	541711	4,499	19.3	19.4
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,910	19.4	19.5
Social sciences and humanities research and development	541720	792	61.1	61.1
Other professional, scientific, and technical services	other 54	4,415	4.5	4.5
Health care services	621–23	526 i	1.0	1.0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	D
All companies (number of domestic employees)	–	322,528	3.3	3.5
Small companies[c]				
5–499	–	53,002	4.3	4.3
5–99	–	27,148 i	5.0	5.0
5–49	–	18,238 i	6.2	6.2
5–9	–	3,402 i	6.8	6.9
10–24	–	6,895 i	6.3	6.3
25–49	–	7,941 i	5.8	5.9
50–99	–	8,910	3.6	3.6
100–249	–	13,666	3.9	3.9
250–499	–	12,189	3.6	3.6
Medium and large companies				
500–999	–	12,002	3.4	3.7
1,000–4,999	–	55,517	4.8	4.8
5,000–9,999	–	31,514	3.5	3.7
10,000–24,999	–	51,218	2.7	2.9
25,000 or more	–	119,275	2.9	3.0

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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed or funded R&D.

[b] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed R&D. The calculation of percentages in this column excludes sales of companies that fund R&D but do not perform R&D.

[c] 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. 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, unless indicated otherwise. Percentages are calculated as domestic R&D paid for by the company and others divided by domestic sales.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 20. Domestic R&D paid for by the company and others and performed by the company and others as a percent of domestic net sales, by industry and company size: 2013

Industry and company size	NAICS code	Domestic R&D (US$millions)	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
All industries	21–23, 31–33, 42–81	365,630	3.8	3.9
Manufacturing industries	31–33	259,254	4.4	4.5
Food	311	5,569	0.8	0.8
Beverage and tobacco products	312	1,049	0.7	0.7
Textile, apparel, and leather products	313–16	687	1.3	1.3
Wood products	321	230	0.7	0.7
Paper	322	937	1.0	1.0
Printing and related support activities	323	271 i	1.1	1.1
Petroleum and coal products	324	573	0.2	0.1
Chemicals	325	86,503	6.4	6.4
Basic chemicals	3251	2,832	0.6	0.6
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,119	0.7	0.7
Pesticide, fertilizer, and other agricultural chemicals	3253	1,723 i	3.6	3.6
Pharmaceuticals and medicines	3254	76,653	15.0	15.1
Soap, cleaning compound, and toilet preparation	3256	2,776	2.7	2.7
Paint, coating, adhesive, and other chemicals	3255, 3259	1,400	1.9	1.9
Plastics and rubber products	326	3,840	2.3	2.3
Nonmetallic mineral products	327	1,492 i	2.6	2.6
Primary metals	331	683	0.5	0.5
Fabricated metal products	332	2,337 i	1.7	1.7
Machinery	333	13,216	3.6	3.6
Agricultural implement	33311	1,906	3.3	3.3
Semiconductor machinery	333295	3,214	28.6	28.6
Engine, turbine, and power transmission equipment	3336	1,503	3.0	3.0
Other machinery	other 333	6,594	2.6	2.6
Computer and electronic products	334	69,253	10.9	10.9
Communications equipment	3342	16,324	9.4	9.4
Semiconductor and other electronic components	3344	D	D	D
Navigational, measuring, electromedical, and control instruments	3345	15,182	8.7	8.7
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,804	10.1	10.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,536	9.9	9.9
Other measuring and controlling device	other 3345	3,843	6.3	6.4
Other computer and electronic products	other 334	D	D	D
Electrical equipment, appliances, and components	335	4,253	3.0	3.0
Transportation equipment	336	53,655	4.8	5.1
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	19,305	2.8	3.0
Aerospace products and parts	3364	32,182	9.0	9.1
Aircraft, aircraft engine, and aircraft parts	336411–13	31,044	9.2	9.2
Guided missile, space vehicle, and related parts	336414–15, 336419	1,138	6.9	6.9
Military armored vehicle, tank, and tank components	336992	9 i	2.9	2.9
Other transportation	other 336	2,159	3.4	3.5
Furniture and related products	337	397	1.2	1.2
Miscellaneous manufacturing	339	14,306	4.2	4.2
Medical equipment and supplies	3391	11,579	4.7	4.7
Other miscellaneous manufacturing	3399	2,727	2.9	2.9
Nonmanufacturing industries	21–23, 42–81	106,376	2.8	2.9
Mining, extraction, and support activities	21	4,631	1.0	1.1
Utilities	22	509	0.2	0.2
Wholesale trade	42	678 i	0.2	0.2
Electronic shopping and electronic auctions	454111–12	1,357 i	2.1	2.1
Transportation and warehousing	48–49	D	D	D
Information	51	58,742	5.6	5.6
Publishing	511	36,762	8.8	8.8

TABLE 20. Domestic R&D paid for by the company and others and performed by the company and others as a percent of domestic net sales, by industry and company size: 2013

Industry and company size	NAICS code	Domestic R&D (US$millions)	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
Newspaper, periodical, book, and directory publishers	5111	359 i	1.6	1.6
Software publishers	5112	36,403	9.2	9.2
Telecommunications	517	3,203	0.8	0.8
Data processing, hosting, and related services	518	6,614	8.3	8.4
Other information	other 51	12,164	9.1	9.6
Finance and insurance	52	4,388	0.7	0.7
Real estate and rental and leasing	53	153	1.5	1.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	15.4	15.4
Other real estate and rental and leasing	other 53	95	1.0	1.0
Professional, scientific, and technical services	54	33,605	9.1	9.0
Architectural, engineering, and related services	5413	3,373	3.7	3.7
Computer systems design and related services	5415	9,545 i	8.6	8.7
Scientific research and development services	5417	16,074	22.8	22.7
Biotechnology research and development	541711	4,847	20.8	20.8
Physical, engineering, and life sciences (except biotechnology) research and development	541712	10,253	22.3	22.2
Social sciences and humanities research and development	541720	974	75.1	75.1
Other professional, scientific, and technical services	other 54	4,612	4.7	4.7
Health care services	621–23	532 i	1.0	1.0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	D
All companies (number of domestic employees)	–	365,630	3.8	
Small companies[c]				
5–499	–	59,631	4.8	4.8
5–99	–	31,353 i	5.7	5.8
5–49	–	21,135 i	7.1	7.2
5–9	–	3,850 i	7.7	7.8
10–24	–	8,103 i	7.4	7.4
25–49	–	9,182	6.8	6.7
50–99	–	10,218	4.1	4.1
100–249	–	15,129	4.3	4.3
250–499	–	13,148	3.9	3.9
Medium and large companies				
500–999	–	13,069	3.7	4.0
1,000–4,999	–	63,385	5.4	5.5
5,000–9,999	–	33,890	3.8	4.0
10,000–24,999	–	61,896	3.3	3.5
25,000 or more	–	133,760	3.2	3.3

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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed or funded R&D.

[b] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed R&D. The calculation of percentages in this column excludes R&D and sales of companies that fund R&D but do not perform R&D.

[c] 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. 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, unless indicated otherwise. Percentages are calculated as domestic R&D paid for by the company and others divided by domestic sales.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 21. Domestic R&D paid for by the company and others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
		Company size (domestic employees)											
All industries	21–23, 31–33, 42–81	322,528	3,402 i	6,895 i	7,941 i	8,910	13,666	12,189	12,002	55,517	31,514	51,218	119,275
Manufacturing industries	31–33	221,476	1,329 i	2,863 i	4,049 i	4,945	7,434	7,813	8,159	39,827	20,258	46,423	78,378
Food	311	5,028	19 i	37 i	23 i	100 i	166	157 i	288 i	525	374	1,374 i	1,967
Beverage and tobacco products	312	827	* i	6 i	2 i	3 i	10 i	119 i	5	34 i	135	18	495
Textile, apparel, and leather products	313–16	662	D	28 i	39 i	38 i	58 i	36	54	182	215	D	0
Wood products	321	220	12 i	D	4 i	15	12 i	13	24	45	37	D	0
Paper	322	920	12 i	1 i	14 i	15 i	108 i	49 i	20	85	97	498	20
Printing and related support activities	323	252 i	D	36 i	13 i	21 i	36 i	71 i	21	41	5	D	0
Petroleum and coal products	324	242	D	7 i	D	64 i	D	27	33	21	0	D	D
Chemicals	325	61,664	261 i	743	1,275	1,480	2,453	1,866	1,421	13,809	3,606	19,966	14,784
Basic chemicals	3251	2,658	14 i	20	72 i	47	269	64	125	1,047	208	339	454
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,065	9 i	5 i	39 i	21 i	42	38	33	213	0	435	232
Pesticide, fertilizer, and other agricultural chemicals	3253	1,691 i	1 i	D	23 i	2 i	19	D	D	D	27	D	0
Pharmaceuticals and medicines	3254	52,426	205 i	627	1,057	1,282	2,025	1,615	1,202	11,186	2,759	17,524	12,942
Soap, cleaning compound, and toilet preparation	3256	2,469	3 i	55 i	D	58 i	44 i	33	36	D	344 i	492	1,105
Paint, coating, adhesive, and other chemicals	3255, 3259	1,355	29 i	D	D	69 i	54 i	D	D	D	267	D	51
Plastics and rubber products	326	3,650	20 i	74 i	79 i	177 i	241 i	224 i	300	467	464	1,462	140
Nonmetallic mineral products	327	1,329 i	16 i	18 i	29 i	14 i	57 i	17 i	53	146 i	52	930 i	0
Primary metals	331	624	20 i	7 i	7 i	29 i	70 i	49 i	97	102	45	12	186
Fabricated metal products	332	2,212 i	79 i	77 i	205 i	362 i	418 i	241	205	411	150 i	65	0
Machinery	333	12,650	80 i	275 i	433 i	537 i	673	504	795	2,828	1,921	1,814	2,791
Agricultural implement	33311	1,597	2 i	7 i	6 i	18	50 i	18	12	160	106	257	960
Semiconductor machinery	333295	3,194	24 i	22 i	9 i	20	100	59 i	462	1,341 i	1,158	0	0
Engine, turbine, and power transmission equipment	3336	1,448	* i	19 i	28	50	45	11	48	145	202	900	0
Other machinery	other 333	6,411	53 i	227 i	390 i	449 i	477	416	274	1,182	455	658	1,831
Computer and electronic products	334	67,205	662 i	576 i	1,240 i	1,151	1,948	2,953	3,158	13,392	10,084	10,201	21,839
Communications equipment	3342	15,658	11 i	D	105 i	D	461	386	1,146	1,781	1,935	D	D
Semiconductor and other electronic components	3344	30,800	425	228	352 i	312	740	1,563	871	7,967	D	D	D
Navigational, measuring, electromedical, and control instruments	3345	14,478	D	207 i	507 i	401	534	661	566	2,028	D	2,032	6,163
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,634	39 i	91 i	343 i	115	196	239	297	329 i	157	829	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,106	5 i	9 i	25	29	132	140	0	802	331	821	5,811
Other measuring and controlling device	other 3345	3,738	D	107 i	139 i	257	206	282	269	897	D	382	352
Other computer and electronic products	other 334	6,269	D	D	276	D	213	343	575	1,616	1,801	D	1,042 i
Electrical equipment, appliances, and components	335	4,136	14 i	162 i	138 i	212	274	335	393	700	370	1,092	447
Transportation equipment	336	45,972	18 i	97 i	103	201	426	593	697	3,413	2,083	6,069	32,271
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	16,729	17 i	12 i	76	137	255	315	472	2,339	1,228	1,830	10,049
Aerospace products and parts	3364	27,114	1 i	63 i	D	D	88	260 i	D	839	697	4,239	20,720 i
Aircraft, aircraft engine, and aircraft parts	336411–13	D	* i	D	12	D	88	260 i	D	D	D	D	20,720 i

TABLE 21. Domestic R&D paid for by the company and others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
		Company size (domestic employees)											
Guided missile, space vehicle, and related parts	336414–15, 336419	D	* i	D	D	D	0	0	0	D	D	D	0
Military armored vehicle, tank, and tank components	336992	9 i	*	3 i	4 i	* i	2	0	0	0	0	0	0
Other transportation	other 336	2,121	* i	19 i	D	D	82 i	19	D	235	159	0	1,502
Furniture and related products	337	374	14 i	37 i	11 i	17 i	26 i	27 i	16	109	107	11 i	0
Miscellaneous manufacturing	339	13,509	D	D	D	508 i	D	534	579	3,517	512	2,788	D
Medical equipment and supplies	3391	10,954	90 i	498 i	267 i	247	312	409	421	2,507	403	2,788	3,014
Other miscellaneous manufacturing	3399	2,555	D	D	D	261 i	D	125	158	1,010	109	0	D
Nonmanufacturing industries	21–23, 42–81	101,052	2,073 i	4,032 i	3,892 i	3,965	6,232	4,376	3,843	15,690	11,256	4,795	40,896
Mining, extraction, and support activities	21	3,997	1 i	13 i	16	D	29 i	8	16	75	D	1,875	1,794
Utilities	22	294	* i	1 i	20 i	46	2	* i	11	68	16	77	51
Wholesale trade	42	529 i	43 i	62 i	81 i	171 i	117 i	29 i	6 i	10 i	1 i	9 i	0
Electronic shopping and electronic auctions	454111–12	1,357 i	18 i	31 i	10 i	1 i	8	20	36 i	3	0	D	D
Transportation and warehousing	48–49	D	0	6 i	* i	1	128	2 i	8 i	D	2	0	90
Information	51	57,207	262 i	773 i	725 i	1,131	2,006	1,562	1,471	9,575	6,346	506	32,850
Publishing	511	35,675	196 i	488 i	274 i	696	857	665	714	4,593	4,699	88 i	22,406
Newspaper, periodical, book, and directory publishers	5111	342 i	8 i	21 i	15 i	2 i	47 i	48 i	21 i	92 i	0	88 i	0
Software publishers	5112	35,333	188 i	466 i	258 i	694	810	617	694	4,500	4,699	0	22,406
Telecommunications	517	3,041	9 i	47 i	147 i	60	86	48 i	95	101	0	13	2,435
Data processing, hosting, and related services	518	6,446	28 i	206 i	D	D	947	608	431	2,200	D	404	D
Other information	other 51	12,046	30 i	32 i	D	D	116	241	231 i	2,681	D	* i	D
Finance and insurance	52	4,308	7 i	126 i	12 i	18	56	295	96	258	146	282	3,013
Real estate and rental and leasing	53	150	D	1 i	8 i	2 i	54 i	4	D	61	0	* i	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	0	1 i	D	2 i	D	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	92	D	1 i	D	*	D	4	D	61	0	* i	0
Professional, scientific, and technical services	54	31,017	1,665 i	2,910	2,777 i	2,504 i	3,639	2,319	1,963	5,096 i	4,531	1,325 i	2,288
Architectural, engineering, and related services	5413	3,133	100 i	298 i	226 i	347 i	429 i	229	212	323	190	107	671
Computer systems design and related services	5415	9,268 i	578 i	496 i	660 i	1,005 i	1,667 i	1,090 i	766 i	1,460	547 i	776 i	222
Scientific research and development services	5417	14,201	766 i	1,416	1,592	973	1,208	773	724	3,068 i	3,216	428	35
Biotechnology research and development	541711	4,499	258 i	625	316	D	D	18 i	220	D	1,627	0	35
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,910	428 i	774	1,235	654	878	755	504	1,664 i	1,590	428	0
Social sciences and humanities research and development	541720	792	79	18	41 i	D	D	0	0	D	0	0	0

TABLE 21. Domestic R&D paid for by the company and others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	Company size (domestic employees)											
		All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
Other professional, scientific, and technical services	other 54	4,415	221 i	700	299 i	178 i	334 i	227	260	244	578	14	1,359
Health care services	621–23	526 i	22 i	13	98	14 i	81 i	23 i	87 i	31 i	0	* i	157
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	95 i	145 i	D	113 i	116 i	D	D	D	D	D

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] 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. 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, 2013.

TABLE 22. Domestic R&D paid for by the company and others and performed by the company, by source of funds and state: 2013
(Millions of U.S. dollars)

State	Total	Paid for by the company	Paid for by others		
			Total	Federal	Nonfederal
All states	322,528	264,913	57,615	29,362	28,254
Alabama	1,563	802	761	663	97
Alaska	46	33	12 e	6 e	6
Arizona	5,208	4,036	1,172	609	563
Arkansas	288	252	36	13	23
California	89,373	76,851	12,522	7,147 i	5,374
Colorado	4,522	3,869	652	432	221
Connecticut	8,010	5,789	2,221	1,826	394
Delaware	2,310 i	1,705 i	605	18 i	587
District of Columbia	488	297	191	161	30
Florida	5,795	3,900	1,894 i	1,377 i	517
Georgia	4,023	3,350	673 i	182 i	491 i
Hawaii	214 i	158 i	57	12	44
Idaho	1,238	908	331	7 e	324
Illinois	13,096	11,961	1,136	200	936
Indiana	6,479	5,482	997	122	875
Iowa	2,052	1,498	554	430	124
Kansas	1,942	1,321	621	44 i	577
Kentucky	1,279	917	362	318	44 i
Louisiana	354	275	79 i	38 i	41
Maine	365	314	51	40	11 e
Maryland	4,770	2,665	2,105	1,575	530
Massachusetts	17,395	14,000	3,395	939	2,457
Michigan	15,925	14,409	1,517	363	1,154
Minnesota	6,614	6,057	557	288	268
Mississippi	211	183 i	28	13	15 e
Missouri	7,174 i	3,570	3,605 i	D	D
Montana	92	73	20	9	11 e
Nebraska	627	577	50	15	34
Nevada	525	460	66	28	38 e
New Hampshire	2,045	811	1,234	911	322
New Jersey	14,022	11,955	2,067	307 i	1,760
New Mexico	519	291	227	196	32
New York	12,032	9,456	2,577	1,713 i	863
North Carolina	8,083	5,690	2,393 i	142	2,250 i
North Dakota	229	215	14 e	4 e	10
Ohio	8,118	5,582	2,536	970 i	1,565
Oklahoma	505	450	55	19	36
Oregon	5,635	5,405	230	57	173
Pennsylvania	10,761	10,001	760	236	524 i
Rhode Island	571	501	70	37	33
South Carolina	1,016	861	155	87	69
South Dakota	164	149	14 e	3 e	11 e
Tennessee	1,423	1,188	236	56	180
Texas	15,550	13,406	2,144 i	984 i	1,159
Utah	2,945	2,384	561	420	141
Vermont	406 i	363 i	44	18	26
Virginia	4,445	2,465	1,980 i	1,695 i	284 i
Washington	14,860	13,996	863 i	501 i	362
West Virginia	306	273	32 i	4 e	28 i

TABLE 22. Domestic R&D paid for by the company and others and performed by the company, by source of funds and state: 2013
(Millions of U.S. dollars)

State	Total	Paid for by the company	Paid for by others		
			Total	Federal	Nonfederal
Wisconsin	4,227	3,618	609	61	547
Wyoming	28 e	21 e	6 e	2 e	4 e
Undistributed[a]	12,664	10,120	2,544	D	D

D = data withheld to avoid disclosing operations of individual companies; e = > 50% of value is modeled—see technical notes; i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

[a] Includes data reported on Form BRDI-1 that were not allocated to a specific state, as well as data reported on Form BRD-1(S) by multi-establishment companies. For single-establishment companies, data reported on Form BRD-1S were allocated to the state in the address used to mail the survey form.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For a given estimate in this table, if the conditions are satisfied for both the i and e flags, the e flag is assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 23. Domestic R&D paid for by the company and others and performed by the company, by industry and company size, by domestic R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D program size: All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
All industries	21–23, 31–33, 42–81	322,528	10,067 i	25,844	31,446	16,318	238,853
Manufacturing industries	31–33	221,476	5,763 i	13,102	19,314	11,724	171,572
Food	311	5,028	288 i	620 i	538	625	2,957
Beverage and tobacco products	312	827	18 i	39	111	190 i	469
Textile, apparel, and leather products	313–16	662	133 i	180	223	127	0
Wood products	321	220	52 i	52	116	0	0
Paper	322	920	80 i	151 i	153	58	477
Printing and related support activities	323	252 i	89 i	124	39 i	0	0
Petroleum and coal products	324	242	82 i	D	47	D	0
Chemicals	325	61,664	507 i	2,270	4,995	3,179	50,712
Basic chemicals	3251	2,658	59 i	308	672	555	1,065
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,065	53 i	130	103	0	779
Pesticide, fertilizer, and other agricultural chemicals	3253	1,691 i	34 i	D	66	0	D
Pharmaceuticals and medicines	3254	52,426	124 i	1,481	3,757	2,205	44,858
Soap, cleaning compound, and toilet preparation	3256	2,469	107 i	92	187	229	1,854
Paint, coating, adhesive, and other chemicals	3255, 3259	1,355	130 i	D	211	190	D
Plastics and rubber products	326	3,650	423 i	636	499	236	1,857
Nonmetallic mineral products	327	1,329 i	97 i	145	158 i	93	837 i
Primary metals	331	624	124 i	162	176	0	162
Fabricated metal products	332	2,212 i	804 i	744	531	133 i	0
Machinery	333	12,650	883 i	1,399	1,981	1,117	7,271
Agricultural implement	33311	1,597	39 i	105	64	66	1,323
Semiconductor machinery	333295	3,194	41 i	40 i	310	241 i	2,563
Engine, turbine, and power transmission equipment	3336	1,448	24 i	107	103	182	1,033
Other machinery	other 333	6,411	779 i	1,146	1,505	628	2,353
Computer and electronic products	334	67,205	776 i	3,374	4,842	3,475	54,738
Communications equipment	3342	15,658	86 i	411	852	822	13,487
Semiconductor and other electronic components	3344	30,800	286 i	954	1,833	1,087	26,639
Navigational, measuring, electromedical, and control instruments	3345	14,478	276 i	1,406	1,339	803	10,654
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,634	53 i	568 i	564	336	1,114
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,106	27 i	128	144	162	7,644
Other measuring and controlling device	other 3345	3,738	196 i	710	631	305	1,896
Other computer and electronic products	other 334	6,269	128 i	604	818	762	3,957
Electrical equipment, appliances, and components	335	4,136	290 i	721	739	370	2,017
Transportation equipment	336	45,972	336 i	945	2,095	1,360	41,236
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	16,729	181 i	566	1,419	922	13,640

TABLE 23. Domestic R&D paid for by the company and others and performed by the company, by industry and company size, by domestic R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D program size: All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
Aerospace products and parts	3364	27,114	87 i	229	568	277	25,952
Aircraft, aircraft engine, and aircraft parts	336411–13	D	83 i	224	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	4	6	D	D	D
Military armored vehicle, tank, and tank components	336992	9 i	2 i	7 i	0	0	0
Other transportation	other 336	2,121	65 i	142	108	160	1,645
Furniture and related products	337	374	98 i	114	163	0	0
Miscellaneous manufacturing	339	13,509	686 i	D	1,908	D	8,839
Medical equipment and supplies	3391	10,954	248 i	900	1,510	590	7,706
Other miscellaneous manufacturing	3399	2,555	438 i	D	398	D	1,133
Nonmanufacturing industries	21–23, 42–81	101,052	4,304 i	12,742	12,132	4,593	67,281
Mining, extraction, and support activities	21	3,997	23 i	123	D	0	D
Utilities	22	294	7 i	61	226	0	0
Wholesale trade	42	529 i	308 i	221 i	0	0	0
Electronic shopping and electronic auctions	454111–12	1,357 i	69 i	23	34 i	0	1,230
Transportation and warehousing	48–49	D	24 i	34	83	0	D
Information	51	57,207	878 i	3,097	4,425	2,191	46,617
Publishing	511	35,675	483 i	1,654	1,907	1,043	30,589
Newspaper, periodical, book, and directory publishers	5111	342 i	53 i	47 i	242 i	0	0
Software publishers	5112	35,333	430 i	1,607	1,664	1,043	30,589
Telecommunications	517	3,041	50 i	143	426	119	2,304
Data processing, hosting, and related services	518	6,446	254 i	1,091	1,494	748	2,858
Other information	other 51	12,046	92 i	208	599	281	10,866
Finance and insurance	52	4,308	20 i	284 i	294	341	3,370
Real estate and rental and leasing	53	150	12 i	11	126	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	3 i	D	D	0	0
Other real estate and rental and leasing	other 53	92	9 i	D	D	0	0
Professional, scientific, and technical services	54	31,017	2,543 i	8,317	6,388	1,841	11,927
Architectural, engineering, and related services	5413	3,133	316 i	961	819 i	366	671
Computer systems design and related services	5415	9,268 i	1,106 i	2,522 i	2,882 i	507 i	2,251 i
Scientific research and development services	5417	14,201	544 i	3,742	2,127	674 i	7,114
Biotechnology research and development	541711	4,499	153 i	1,193	D	0	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,910	376 i	2,399	1,584	674 i	3,877
Social sciences and humanities research and development	541720	792	15 i	150	D	0	D
Other professional, scientific, and technical services	other 54	4,415	578 i	1,092	561	293	1,890
Health care services	621–23	526 i	79 i	154	146 i	147	0

TABLE 23. Domestic R&D paid for by the company and others and performed by the company, by industry and company size, by domestic R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D program size: All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	339 i	418	D	74 i	0
All companies (number of domestic employees)	–	322,528	10,067 i	25,844	31,446	16,318	238,853
Small companies[a]							
5–499	–	53,002	9,861 i	21,825	16,086	2,937	2,294
5–99	–	27,148 i	8,305 i	14,046	4,797	0	0
5–49	–	18,238 i	6,570 i	9,708	1,961 i	0	0
5–9	–	3,402 i	1,927 i	1,449	26	0	0
10–24	–	6,895 i	2,500 i	3,816	579 i	0	0
25–49	–	7,941 i	2,143 i	4,442	1,356	0	0
50–99	–	8,910	1,735 i	4,339	2,836	0	0
100–249	–	13,666	D	5,199	5,937	1,048	D
250–499	–	12,189	D	2,579	5,352	1,889	D
Medium and large companies							
500–999	–	12,002	109 i	1,855	4,166	3,156	2,715
1,000–4,999	–	55,517	75 i	1,717	8,167	6,372	39,185
5,000–9,999	–	31,514	9 i	226	1,557	2,202	27,520
10,000–24,999	–	51,218	12 i	153	862	1,238	48,952
25,000 or more	–	119,275	1 i	69	607	412	118,187

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.

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. 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, 2013.

TABLE 24. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2013
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Total	Paid for by the company	Paid for by others
All business activities	21100–81000	322,528	264,913	57,615
Oil and gas extraction	21100	D	1,041	D
Mining	21200	80	80	* i
Support activities for mining, including oil and gas	21300	1,869	1,583	286
Utilities	22100	340	290	50
Construction	23000	248	247	1
Food manufacturing	31100	5,163	4,956	207
Beverage manufacturing	31210	628	533	95 i
Tobacco manufacturing	31220	163	157	6
Textile, apparel, and leather products manufacturing	31990	688	667	21 i
Wood products manufacturing	32100	234	224	10
Paper manufacturing	32200	1,169	1,156	13
Printing and related support activities	32300	390	362	28 i
Petroleum refineries	32401	438	434	4
Asphalt paving, roofing, and saturated materials manufacturing	32402	117 i	117 i	0
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	256	254	2 i
Basic chemicals manufacturing	32510	2,976	2,796	180
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	928	832	96
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	2,108 i	1,726 i	382 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	41,812	36,676	5,136
In-vitro diagnostic substances manufacturing[c]	32542	834	769	65
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	7,694	6,756	938
Soap, cleaning compound, and toilet preparations manufacturing	32591	2,322	2,296	26
Paint, adhesive, and other chemical manufacturing	32592	1,471	1,450	22 i
Plastics and rubber products manufacturing	32600	3,013	2,857	156 i
Clay and glass products manufacturing	32710	974 i	950 i	24 i
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	461 i	456 i	5
Primary metal manufacturing	33100	621	611	11 i
Fabricated metal products manufacturing	33200	2,553 i	2,152 i	401 i
Agricultural machinery and equipment manufacturing	33311	1,193	1,161	32
Construction machinery manufacturing	33312	1,353	1,340	12
Mining, oil, and gas field machinery and equipment manufacturing	33319	1,445 i	1,436 i	9
Semiconductor machinery manufacturing	33321	3,146	3,051	95
Industrial machinery manufacturing (except semiconductor machinery)	33322	882	828	53 i
Photographic and photocopying equipment manufacturing	33331	459	105	354
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	1,379	1,208	171 i
Engine, turbine, and power transmission equipment manufacturing	33360	2,368	2,154	214
Metalworking and other general purpose machinery manufacturing	33390	1,889	1,751	138 i
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	10,449	10,229	220
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	5,534	5,530	4 i
Radio, television, and wireless communication equipment manufacturing	33422	7,657	5,074	2,583 i
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	1,730	1,649	81 i
Audio and video equipment manufacturing	33430	884	879	5 i
Semiconductor and other electronic components manufacturing	33440	31,111	29,214	1,898
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,195 i	3,032 i	163
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	6,550	2,187	4,363
Measuring and control instruments manufacturing (not listed elsewhere)	33459	3,586	3,344	242
Electrical equipment, appliances, and components manufacturing	33500	4,207	3,784	423 i

TABLE 24. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2013
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Total	Paid for by the company	Paid for by others
Motor vehicles manufacturing	33610	11,692	10,071	1,621
Motor vehicle body and trailer manufacturing	33620	98 i	97 i	2
Motor vehicle parts manufacturing	33630	4,554	3,618	936 i
Aircraft manufacturing	33641	16,517 i	4,081	12,436 i
Aircraft engine and engine parts manufacturing	33642	1,578	890	688
Other aircraft parts and auxiliary equipment manufacturing	33643	3,431	2,263	1,169
Guided missiles, space vehicles, and related parts manufacturing	33644	2,703	446	2,257
Railroad rolling stock manufacturing	33651	175	175	*
Ship and boat building	33660	1,107	190	916
Motorcycle, bicycle, and parts manufacturing	33691	210	204	6 i
Military armored vehicle, tank, and tank components manufacturing	33692	215	79 i	136
All other transportation equipment manufacturing	33699	358	339	19
Furniture and related products manufacturing	33700	384	383	1 i
Medical equipment and supplies manufacturing	33910	11,500	11,176	324
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,541	2,468	72 i
Merchant wholesalers, durable goods	42300	438 i	411 i	27
Merchant wholesalers, nondurable goods	42400	275 i	249 i	27
Wholesale electronic markets and agents and brokers (business to business)	42500	D	13 i	D
Retail trade (except electronic shopping and electronic auctions)	44000	105 i	99 i	6 i
Electronic shopping and electronic auctions	45411	994	993	1 i
Transportation	48000	D	358	D
Couriers, messengers, and express delivery services	49200	80	80	0
Warehousing and storage	49300	17	6	11
Newspaper, periodical, book, and directory publishers (except Internet)	51110	316 i	315 i	1 i
Software publishers (except Internet)[d]	51120	28,602	27,987	615
Motion picture and sound recording (except Internet)	51200	93	37 i	57
Broadcasting (except Internet)	51500	53	53	0
Wired telecommunications carriers	51710	1,061 i	1,060 i	1 i
Wireless telecommunications carriers (except satellite)	51720	1,649 i	1,590 i	60
Satellite telecommunications	51740	106	105	1 i
Other telecommunications (not listed elsewhere)	51790	322	314	8
Data processing, hosting, and related services[d]	51800	4,008	3,940	68 i
Cloud computing applications and Internet-based software services	51801	2,279	2,250	30
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	13,483	13,469	14
Finance: banking and credit intermediation	52200	1,836	1,834	2
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	1,159	1,150	9
Insurance carriers and related activities	52400	1,458	1,449	9
Real estate	53100	59	59	0
Rental and leasing services	53200	69	66	4
Lessors of nonfinancial intangible assets, including patent licensing	53300	74	74	*
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	492 i	492 i	0
Architectural, engineering, and related services	54130	3,398	1,390	2,008
Specialized design services	54140	98	32 i	66
Computer systems design and related services[d]	54150	11,283 i	9,919 i	1,364 i
Management, scientific, and technical consulting services	54160	1,993	1,300	693
Research and development services in social sciences and humanities	54172	792	36 i	756
Research and development services in biotechnology[c]	54173	4,141	1,354	2,787 i
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	9,467	2,031	7,436
Advertising and related services	54180	444 i	375 i	69 i
Professional, scientific, and technical services (not listed elsewhere)	54190	1,958	1,309	649 i
Management of companies and enterprises	55100	55	47	8
Administrative and support services	56100	599 i	566 i	33
Waste management and remediation services	56200	39 i	23 i	16

TABLE 24. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2013
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Total	Paid for by the company	Paid for by others
Offices of physicians	62110	74 i	43 i	32 i
Medical and diagnostic laboratories	62150	957	342	616
Other ambulatory health care services (ambulance, dental, home health care)	62199	51 i	49 i	3
Hospitals and nursing care facilities	62200	2	2	0
Social assistance services	62400	38	38	0
Arts, entertainment, and recreation	71000	31	29	3
Accommodation and food services	72000	123 i	123 i	0
Other services (not listed elsewhere)	81000	367	329	37
Undistributed	–	401 i	261 i	141 i

* = 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.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on industry definitions in the 2007 North American Industry Classification System.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 25. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008[c]	2009[d]	2010[d]	2011	2012	2013
All business activities	21100–81000	NA	NA	NA	290,240	302,759	322,528
Oil and gas extraction	21100	NA	NA	NA	D	D	D
Mining	21200	NA	NA	NA	83	88	80
Support activities for mining, including oil and gas	21300	NA	NA	NA	D	1,860	1,869
Utilities	22100	NA	NA	NA	298	434	340
Construction	23000	NA	NA	NA	752	756	248
Food manufacturing	31100	NA	NA	NA	3,769	3,565	5,163
Beverage manufacturing	31210	NA	NA	NA	D	D	628
Tobacco manufacturing	31220	NA	NA	NA	D	140	163
Textile, apparel, and leather products manufacturing	31990	NA	NA	NA	623	688	688
Wood products manufacturing	32100	NA	NA	NA	202	278	234
Paper manufacturing	32200	NA	NA	NA	755	982	1,169
Printing and related support activities	32300	NA	NA	NA	244	305 i	390
Petroleum refineries	32401	NA	NA	NA	D	596	438
Asphalt paving, roofing, and saturated materials manufacturing	32402	NA	NA	NA	38	41	117 i
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	NA	NA	NA	285	218	256
Basic chemicals manufacturing	32510	NA	NA	NA	3,099	3,228	2,976
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	NA	NA	NA	815	1,093	928
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	NA	NA	NA	D	1,951	2,108 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[e]	32541	NA	NA	NA	42,381	43,672	41,812
In-vitro diagnostic substances manufacturing[e]	32542	NA	NA	NA	1,110	1,044 i	834
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	NA	NA	NA	NA	NA	7,694
Soap, cleaning compound, and toilet preparations manufacturing	32591	NA	NA	NA	2,344	2,261	2,322
Paint, adhesive, and other chemical manufacturing	32592	NA	NA	NA	1,552	1,630	1,471
Plastics and rubber products manufacturing	32600	NA	NA	NA	2,669	3,277	3,013
Clay and glass products manufacturing	32710	NA	NA	NA	801 i	987 i	974 i
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	NA	NA	NA	303	367	461 i
Primary metal manufacturing	33100	NA	NA	NA	552	750	621
Fabricated metal products manufacturing	33200	NA	NA	NA	D	2,236	2,553 i
Agricultural machinery and equipment manufacturing	33311	NA	NA	NA	989	1,175	1,193
Construction machinery manufacturing	33312	NA	NA	NA	655	675	1,353
Mining, oil, and gas field machinery and equipment manufacturing	33319	NA	NA	NA	1,735	1,999	1,445 i
Semiconductor machinery manufacturing	33321	NA	NA	NA	2,207	1,308 i	3,146
Industrial machinery manufacturing (except semiconductor machinery)	33322	NA	NA	NA	945	850	882
Photographic and photocopying equipment manufacturing	33331	NA	NA	NA	656	23 i	459
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	NA	NA	NA	D	1,182	1,379
Engine, turbine, and power transmission equipment manufacturing	33360	NA	NA	NA	3,257	3,603	2,368

TABLE 25. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008[c]	2009[d]	2010[d]	2011	2012	2013
Metalworking and other general purpose machinery manufacturing	33390	NA	NA	NA	1,832	1,607	1,889
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	NA	NA	NA	10,311	10,893	10,449
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	NA	NA	NA	7,006	5,101	5,534
Radio, television, and wireless communication equipment manufacturing	33422	NA	NA	NA	4,182	5,851	7,657
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	NA	NA	NA	871	1,937	1,730
Audio and video equipment manufacturing	33430	NA	NA	NA	798	865	884
Semiconductor and other electronic components manufacturing	33440	NA	NA	NA	24,580	28,983	31,111
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	NA	NA	NA	2,787	2,868 i	3,195 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	NA	NA	NA	5,666	6,403	6,550
Measuring and control instruments manufacturing (not listed elsewhere)	33459	NA	NA	NA	3,191	3,465	3,586
Electrical equipment, appliances, and components manufacturing	33500	NA	NA	NA	3,007	3,391	4,207
Motor vehicles manufacturing	33610	NA	NA	NA	9,320	11,314	11,692
Motor vehicle body and trailer manufacturing	33620	NA	NA	NA	69	91 i	98 i
Motor vehicle parts manufacturing	33630	NA	NA	NA	3,010	D	4,554
Aircraft manufacturing	33641	NA	NA	NA	5,853	15,380 i	16,517 i
Aircraft engine and engine parts manufacturing	33642	NA	NA	NA	1,636	1,296	1,578
Other aircraft parts and auxiliary equipment manufacturing	33643	NA	NA	NA	1,896	2,655	3,431
Guided missiles, space vehicles, and related parts manufacturing	33644	NA	NA	NA	3,526	2,850	2,703
Railroad rolling stock manufacturing	33651	NA	NA	NA	136	177	175
Ship and boat building	33660	NA	NA	NA	D	D	1,107
Motorcycle, bicycle, and parts manufacturing	33691	NA	NA	NA	212 i	176 i	210
Military armored vehicle, tank, and tank components manufacturing	33692	NA	NA	NA	D	122	215
All other transportation equipment manufacturing	33699	NA	NA	NA	415	D	358
Furniture and related products manufacturing	33700	NA	NA	NA	300	382	384
Medical equipment and supplies manufacturing	33910	NA	NA	NA	10,141	10,703	11,500
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	NA	NA	NA	2,593	D	2,541
Merchant wholesalers, durable goods	42300	NA	NA	NA	505	1,461 i	438 i
Merchant wholesalers, nondurable goods	42400	NA	NA	NA	429	651 i	275 i
Wholesale electronic markets and agents and brokers (business to business)	42500	NA	NA	NA	54	182 i	D
Retail trade (except electronic shopping and electronic auctions)	44000	NA	NA	NA	52	101 i	105 i
Electronic shopping and electronic auctions	45411	NA	NA	NA	940 i	1,239	994
Transportation	48000	NA	NA	NA	123	D	D
Couriers, messengers, and express delivery services	49200	NA	NA	NA	D	D	80
Warehousing and storage	49300	NA	NA	NA	15	15	17

TABLE 25. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008[c]	2009[d]	2010[d]	2011	2012	2013
Newspaper, periodical, book, and directory publishers (except Internet)	51110	NA	NA	NA	345 i	229 i	316 i
Software publishers (except Internet)[f]	51120	NA	NA	NA	22,635	23,803	28,602
Motion picture and sound recording (except Internet)	51200	NA	NA	NA	61	73 i	93
Broadcasting (except Internet)	51500	NA	NA	NA	94	36	53
Wired telecommunications carriers	51710	NA	NA	NA	867	1,482 i	1,061 i
Wireless telecommunications carriers (except satellite)	51720	NA	NA	NA	391 i	739 i	1,649 i
Satellite telecommunications	51740	NA	NA	NA	D	195	106
Other telecommunications (not listed elsewhere)	51790	NA	NA	NA	495	383	322
Data processing, hosting, and related services[f]	51800	NA	NA	NA	4,922	3,997	4,008
Cloud computing applications and Internet-based software services	51801	NA	NA	NA	NA	NA	2,279
Other information services, including Internet publishing, broadcasting, and Web search portals[f]	51910	NA	NA	NA	D	11,397	13,483
Finance: banking and credit intermediation	52200	NA	NA	NA	1,365	1,601	1,836
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	NA	NA	NA	1,148	893	1,159
Insurance carriers and related activities	52400	NA	NA	NA	D	1,141	1,458
Real estate	53100	NA	NA	NA	13	26 i	59
Rental and leasing services	53200	NA	NA	NA	27	D	69
Lessors of nonfinancial intangible assets, including patent licensing	53300	NA	NA	NA	319	369	74
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	NA	NA	NA	578 i	417 i	492 i
Architectural, engineering, and related services	54130	NA	NA	NA	2,028	4,206 i	3,398
Specialized design services	54140	NA	NA	NA	271	207 i	98
Computer systems design and related services[f]	54150	NA	NA	NA	11,129	12,390 i	11,283 i
Management, scientific, and technical consulting services	54160	NA	NA	NA	1,745	2,280	1,993
Research and development services in social sciences and humanities	54172	NA	NA	NA	D	601	792
Research and development services in biotechnology[e]	54173	NA	NA	NA	6,030	7,146	4,141
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	NA	NA	NA	7,196	9,427	9,467
Advertising and related services	54180	NA	NA	NA	80	377 i	444 i
Professional, scientific, and technical services (not listed elsewhere)	54190	NA	NA	NA	1,316	2,463 i	1,958
Management of companies and enterprises	55100	NA	NA	NA	20	40	55
Administrative and support services	56100	NA	NA	NA	338	436	599 i
Waste management and remediation services	56200	NA	NA	NA	19 i	D	39 i
Offices of physicians	62110	NA	NA	NA	24	73 i	74 i
Medical and diagnostic laboratories	62150	NA	NA	NA	764	1,027	957
Other ambulatory health care services (ambulance, dental, home health care)	62199	NA	NA	NA	11	41 i	51 i
Hospitals and nursing care facilities	62200	NA	NA	NA	2	2 i	2
Social assistance services	62400	NA	NA	NA	7	36	38
Arts, entertainment, and recreation	71000	NA	NA	NA	105	108	31

TABLE 25. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2008–13
(Millions of U.S. dollars)

Business activity[a]	Business code[b]	2008[c]	2009[d]	2010[d]	2011	2012	2013
Accommodation and food services	72000	NA	NA	NA	74	131 i	123 i
Other services (not listed elsewhere)	81000	NA	NA	NA	366	553	367
Undistributed	–	NA	NA	NA	28,583 i	1,689 i	401 i

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 = 2007 North American Industry Classification System. For survey year 2008, industry classification was based on the 2002 NAICS.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on 2007 NAICS industry definitions.

[c] Data were collected as domestic R&D performed by the company and paid for by others and domestic R&D performance for survey year 2008.

[d] Data were collected as worldwide R&D paid for by others and performed by the company for survey years 2009 and 2010.

[e] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[f] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For companies that did not report business codes, classification used for sampling was assigned.

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

TABLE 26. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	264,913	15,275	38,105	211,532
Manufacturing industries	31–33	181,170	12,126	28,443	140,601
Food	311	4,801	751 i	1,081 i	2,969 i
Beverage and tobacco products	312	727	157	177	393
Textile, apparel, and leather products	313–16	642	62	57	523
Wood products	321	209	12	49	148
Printing and related support activities	323	224 i	10 i	26 i	188
Chemicals	325	54,285	6,083	12,473	35,729
Pharmaceuticals and medicines	3254	45,891	5,438	10,563	29,891
Other chemicals	other 325	8,394	645	1,910	5,838
Plastics and rubber products	326	3,496	390	855	2,250
Nonmetallic mineral products	327	1,303 i	186 i	292 i	826 i
Primary metals	331	605	31 i	108 i	465 i
Fabricated metal products	332	1,934 i	88 i	257 i	1,588 i
Machinery	333	12,092	567	895	10,631
Computer and electronic products	334	57,364	1,527	7,117	48,720
Semiconductor and other electronic components	3344	28,576	718	3,502	24,356
Navigational, measuring, electromedical, and control instruments	3345	9,001	425	1,553	7,023
Other computer and electronic products	other 334	19,786	384	2,062	17,340
Electrical equipment, appliances, and components	335	3,660	153	563	2,945
Transportation equipment	336	25,165	1,251	2,466	21,448
Aerospace products and parts	3364	10,042	534	1,454	8,054
Other transportation equipment	other 336	15,123	717	1,011	13,394
Furniture and related products	337	374	21 i	86	267
Miscellaneous manufacturing	322, 324, 339	14,290	836	1,941	11,512
Nonmanufacturing industries	21–23, 42–81	83,742	3,149 i	9,663	70,930
Information	51	56,039	2,108	5,186	48,745
Publishing	511	34,637	1,435	2,632	30,570
Telecommunications	517	3,037	206 i	1,050	1,782 i
Data processing, hosting, and related services	518	6,333	231	570	5,532
Other information	other 51	12,032	236	935	10,860
Professional, scientific, and technical services	54	15,617 i	589 i	2,570 i	12,458 i
Architectural, engineering, and related services	5413	1,261	37 i	208 i	1,016 i
Computer systems design and related services	5415	8,107 i	176 i	890 i	7,041 i
Scientific research and development services	5417	2,838	273	919 i	1,645
Biotechnology research and development	541711	1,331	192	375	764
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,470	73 i	529 i	868
Social sciences and humanities research and development	541720	36 i	8 i	15 i	13 i
Other professional, scientific, and technical services	other 54	3,411	102 i	553 i	2,756 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	12,087	452 i	1,907	9,728
All companies (number of domestic employees)	–	264,913	15,275	38,105	211,532
Small companies[a]					
5–499	–	42,106	2,345	7,788	31,972 i
5–99	–	20,886 i	1,245 i	4,017 i	15,625 i
5–49	–	13,726 i	782 i	2,813 i	10,131 i
5–9	–	2,195 i	134 i	370 i	1,691 i
10–24	–	5,290 i	332 i	996 i	3,962 i
25–49	–	6,241 i	316	1,447 i	4,478 i
50–99	–	7,161	463	1,204	5,494 i
100–249	–	10,922	586	1,901	8,436
250–499	–	10,297	514	1,871	7,912
Medium and large companies					
500–999	–	10,280	552	1,432	8,296
1,000–4,999	–	45,342	2,146	6,926	36,270

TABLE 26. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
5,000–9,999	–	25,009	793	3,312	20,905
10,000–24,999	–	44,275	2,578	8,046	33,651
25,000 or more	–	97,901	6,861	10,601	80,438

i = > 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. 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, 2013.

TABLE 27. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
All industries	21–23, 31–33, 42–81	264,913	153,633	13,553	11,904	4,059	19,511	4,099	10,413	5,491	42,250
Manufacturing industries	31–33	181,170	100,140	7,482	6,528	2,867	17,011	2,907	8,163	4,149	31,923
Food	311	4,801	3,534 i	85	85 i	10	248	43	133 i	145 i	518
Beverage and tobacco products	312	727	419	10	28	2	43	2	33	4 i	186
Textile, apparel, and leather products	313–16	642	433	3	16	4	70	7	17	13	78
Wood products	321	209	139	*	7	1	47	2	3	1	9
Paper	322	907	548 i	* i	40 i	3 i	198 i	3 i	13 i	16 i	86 i
Printing and related support activities	323	224 i	158 i	3 i	3 i	1	23	4 i	5 i	2	24
Petroleum and coal products	324	236	160	*	4 i	1	15	1	7 i	9	39 i
Chemicals	325	54,285	26,242	2,220	2,350	251	4,528	1,174	2,579	1,659	13,282
Basic chemicals	3251	2,341	1,426	15	73	29	190	64	136	39	369
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	954	609	1	22	15	58	23	50	39	137
Pesticide, fertilizer, and other agricultural chemicals	3253	1,325 i	478 i	8 i	37 i	4 i	99 i	50 i	143 i	142 i	363 i
Pharmaceuticals and medicines	3254	45,891	21,309	2,179	2,122	184	3,989	996	2,100	1,378	11,635
Soap, cleaning compound, and toilet preparation	3256	2,458	1,544	10	69	4	143	26	102	40	521
Paint, coating, adhesive, and other chemicals	3255, 3259	1,315	876	5	28	15	49	15	48	21	257
Plastics and rubber products	326	3,496	2,108	56	92	19	357	38	236	111	479
Nonmetallic mineral products	327	1,303 i	759 i	2	34 i	10 i	100 i	9 i	48 i	25 i	316 i
Primary metals	331	605	327	5	10	3	61	2	21	5	170
Fabricated metal products	332	1,934 i	1,414 i	4 i	22 i	17 i	202 i	7 i	43 i	26 i	199 i
Machinery	333	12,092	7,021	200 i	699	106	1,709	115	543	163	1,536 i
Agricultural implement	33311	1,561	789	0	108	16	312	6	45	3	282
Semiconductor machinery	333295	3,097	1,449 i	175 i	85 i	4 i	493 i	46 i	240 i	5 i	600 i
Engine, turbine, and power transmission equipment	3336	1,336	806	2	119	38	113	11	53	106	88
Other machinery	other 333	6,098	3,978	23	388	49	791 i	52	204	49	565
Computer and electronic products	334	57,364	33,306	4,511	1,440	1,255	4,387	1,127	3,117	1,168	7,053
Communications equipment	3342	13,693	7,503	1,602	199	442	955	472	715	539	1,267
Semiconductor and other electronic components	3344	28,576	16,439	2,491	510	549	2,137	465	1,699	216	4,069
Navigational, measuring, electromedical, and control instruments	3345	9,001	5,596	138	551	127	839	104	313	127	1,206
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,470	1,419	48	294	26	210	54	175	33	212
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,037	1,956	14	146	46 i	344	11	57	17	446
Other measuring and controlling device	other 3345	3,494	2,221	76	112	55	285	39	81	77	548
Other computer and electronic products	other 334	6,093	3,767	280	179	138	456	85	390	286	511
Electrical equipment, appliances, and components	335	3,660	2,513	51	147	46	292 i	49 i	103 i	78 i	382
Transportation equipment	336	25,165	12,903	4	1,119	999	3,737	226	823	361	4,993
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	14,081	7,975	3	870	827	2,228	195	398	133	1,453
Aerospace products and parts	3364	10,042	4,288	*	226	170	1,244	26	406	212	3,469
Aircraft, aircraft engine, and aircraft parts	336411–13	9,765	4,144	*	222	169	1,203	26	405	212	3,382

TABLE 27. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
Guided missile, space vehicle, and related parts	336414–15, 336419	278	144	0	3	1	41	1	1	*	87
Military armored vehicle, tank, and tank components	336992	7 i	4 i	*	*	0	2 i	0	*	*	1
Other transportation	other 336	1,035	637 i	0	23	2	263 i	5	19	15 i	70
Furniture and related products	337	374	253	2	9	1	61	1	4	1	41
Miscellaneous manufacturing	339	13,147	7,903	327	424	135	932	97	434	362	2,533
Medical equipment and supplies	3391	10,638	6,203	312	370	128	828	72	372	344	2,009
Other miscellaneous manufacturing	3399	2,509	1,699	15	54	7	104	24	62	18	524
Nonmanufacturing industries	21–23, 42–81	83,742	53,492	6,071	5,376	1,193	2,500	1,192	2,250	1,342	10,326
Mining, extraction, and support activities	21	3,602	2,048	39	213	43	363	56	81	275	484
Utilities	22	243	84	3	35	1	18	2	28	6	66
Wholesale trade	42	510 i	378 i	* i	14 i	3 i	42 i	6 i	8 i	12 i	47 i
Electronic shopping and electronic auctions	454111–12	1,356 i	925	9 i	22 i	D	D	18 i	D	79 i	246
Transportation and warehousing	48–49	411	225	* i	7	5 i	96 i	4 i	16 i	0	59 i
Information	51	56,039	34,900	5,584	2,841	913	1,305	768	1,582	469	7,676
Publishing	511	34,637	22,245	2,246	1,542	230	1,072	213	675	406	6008
Newspaper, periodical, book, and directory publishers	5111	341 i	211 i	0	65 i	* i	1 i	* i	0	13 i	52 i
Software publishers	5112	34,296	22,034	2,246	1,477	230	1,072	213	675	394	5,956
Telecommunications	517	3,037	2,153 i	13	329 i	118 i	22 i	17 i	46	16 i	323 i
Data processing, hosting, and related services	518	6,333	4,378	337	310	154	88	107	163	27	771
Other information	other 51	12,032	6,124	2,989	660	412	124	431	698	21	574
Finance and insurance	52	4,298	2,345	45	1,239	24	6	31	50	295	263
Real estate and rental and leasing	53	150	105	12	8	*	2	6	2	*	15
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	43 i	3	2	*	1	4	1	0	4
Other real estate and rental and leasing	other 53	92	62	9	6	*	1	2	1	*	11
Professional, scientific, and technical services	54	15,617 i	11,424 i	371 i	877 i	184 i	562	283 i	405 i	172 i	1,339 i
Architectural, engineering, and related services	5413	1,261	1,014 i	1	54 i	4	42	12	12 i	2	121 i
Computer systems design and related services	5415	8,107 i	6,163 i	294 i	408 i	128 i	120 i	153 i	195 i	62 i	585 i
Scientific research and development services	5417	2,838	1,582	44	130 i	46	331	102	123	81	399
Biotechnology research and development	541711	1,331	677	33	47 i	15	172	54	72	50	210
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,470	877	11 i	82 i	31 i	158	47 i	51 i	31 i	182
Social sciences and humanities research and development	541720	36 i	27 i	0	*	*	1	* i	*	*	7 i
Other professional, scientific, and technical services	other 54	3,411	2,665	32	285	7	69	16 i	76	28	234
Health care services	621–23	430 i	262 i	7 i	14 i	3 i	42 i	11 i	18 i	28 i	45 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,086 i	796 i	* i	105 i	D	D	8 i	D	6 i	87 i

TABLE 27. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
All companies (number of domestic employees)	–	264,913	153,633	13,553	11,904	4,059	19,511	4,099	10,413	5,491	42,250
Small companies[b]											
5–499	–	42,106	26,575 i	1,337	2,051	460 i	3,375	916	1,239	738	5,414
5–99	–	20,886 i	13,183 i	536 i	1,197 i	228 i	1,813	456	558 i	394 i	2,522 i
5–49	–	13,726 i	8,550 i	350 i	876 i	153 i	1,230 i	292 i	373 i	272 i	1,631 i
5–9	–	2,195 i	1,421 i	63 i	127 i	21 i	140 i	44 i	58 i	40 i	281 i
10–24	–	5,290 i	3,369 i	138 i	343 i	54 i	392 i	99 i	144 i	115 i	634 i
25–49	–	6,241 i	3,759 i	149 i	406 i	77 i	698	148	171 i	116	716 i
50–99	–	7,161	4,634 i	186	321	75 i	583	164	186 i	122	891 i
100–249	–	10,922	6,973	347	475	128	874	250	351	206	1,319
250–499	–	10,297	6,418	454	379	104	689	210	331	139	1,573
Medium and large companies											
500–999	–	10,280	6,130	599	356	177	733	139	463	143	1,540
1,000–4,999	–	45,342	25,703	3,020	1,523	729	3,112	967	1,800	711	7,775
5,000–9,999	–	25,009	14,902	1,324	738	374	1,698	270	1,199	816	3,688
10,000–24,999	–	44,275	25,343	1,410	1,775	322	4,140	610	2,102	948	7,625
25,000 or more	–	97,901	54,980	5,862	5,460	1,998	6,454	1,195	3,609	2,136	16,207

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] May include R&D costs allocated to subsidiaries by parent companies.

[b] 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. 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, 2013.

TABLE 28. Domestic R&D paid for by the company and performed by the company and others as a percent of domestic net sales, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
All industries	21–23, 31–33, 42–81	298,077	3.1	3.2
Manufacturing industries	31–33	211,144	3.6	3.7
Food	311	5,334	0.7	0.7
Beverage and tobacco products	312	943	0.7	0.7
Textile, apparel, and leather products	313–16	666	1.2	1.2
Wood products	321	218	0.7	0.7
Paper	322	924	1.0	1.0
Printing and related support activities	323	232 i	1.0	1.0
Petroleum and coal products	324	567	0.2	0.1
Chemicals	325	75,490	5.5	5.6
Basic chemicals	3251	2,504	0.5	0.5
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,008	0.7	0.7
Pesticide, fertilizer, and other agricultural chemicals	3253	1,357 i	2.8	2.8
Pharmaceuticals and medicines	3254	66,505	13.0	13.1
Soap, cleaning compound, and toilet preparation	3256	2,765	2.7	2.7
Paint, coating, adhesive, and other chemicals	3255, 3259	1,351	1.9	1.9
Plastics and rubber products	326	3,672	2.2	2.2
Nonmetallic mineral products	327	1,461 i	2.6	2.6
Primary metals	331	664	0.5	0.5
Fabricated metal products	332	1,972 i	1.4	1.4
Machinery	333	12,619	3.4	3.4
Agricultural implement	33311	1,857	3.2	3.2
Semiconductor machinery	333295	3,114	27.7	27.7
Engine, turbine, and power transmission equipment	3336	1,376	2.8	2.8
Other machinery	other 333	6,272	2.5	2.5
Computer and electronic products	334	58,877	9.3	9.3
Communications equipment	3342	14,264	8.2	8.2
Semiconductor and other electronic components	3344	28,972	17.4	17.4
Navigational, measuring, electromedical, and control instruments	3345	9,348	5.3	5.4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,632	9.5	9.5
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,128	3.6	3.6
Other measuring and controlling device	other 3345	3,588	5.9	6.0
Other computer and electronic products	other 334	6,292	5.3	5.3
Electrical equipment, appliances, and components	335	3,767	2.6	2.7
Transportation equipment	336	29,434	2.6	2.8
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	16,486	2.4	2.6
Aerospace products and parts	3364	11,872	3.3	3.3
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D
Military armored vehicle, tank, and tank components	336992	8 i	2.3	2.3
Other transportation	other 336	1,069	1.7	1.7
Furniture and related products	337	397	1.2	1.2
Miscellaneous manufacturing	339	13,905	4.1	4.1
Medical equipment and supplies	3391	11,232	4.6	4.6
Other miscellaneous manufacturing	3399	2,674	2.8	2.8
Nonmanufacturing industries	21–23, 42–81	86,933	2.3	2.4
Mining, extraction, and support activities	21	3,992	0.9	0.9
Utilities	22	444	0.1	0.2
Wholesale trade	42	660 i	0.2	0.2
Electronic shopping and electronic auctions	454111–12	1,356 i	2.1	2.1
Transportation and warehousing	48–49	438	0.4	0.4
Information	51	57,538	5.5	5.5

TABLE 28. Domestic R&D paid for by the company and performed by the company and others as a percent of domestic net sales, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
Publishing	511	35,695	8.6	8.6
Newspaper, periodical, book, and directory publishers	5111	358 i	1.5	1.5
Software publishers	5112	35,337	9.0	9.0
Telecommunications	517	3,199	0.8	0.8
Data processing, hosting, and related services	518	6,495	8.2	8.2
Other information	other 51	12,149	9.1	9.5
Finance and insurance	52	4,378	0.7	0.7
Real estate and rental and leasing	53	153	1.5	1.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	15.4	15.4
Other real estate and rental and leasing	other 53	95	1.0	1.0
Professional, scientific, and technical services	54	16,403	4.4	4.4
Architectural, engineering, and related services	5413	1,323	1.4	1.4
Computer systems design and related services	5415	8,273 i	7.5	7.5
Scientific research and development services	5417	3,308	4.7	4.6
Biotechnology research and development	541711	1,585	6.8	6.8
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,687	3.7	3.6
Social sciences and humanities research and development	541720	36 i	2.8	2.8
Other professional, scientific, and technical services	other 54	3,498	3.6	3.6
Health care services	621–23	433 i	0.8	0.8
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,139 i	0.3	0.3
All companies (number of domestic employees)	–	298,077	3.1	3.2
Small companies[c]				
5–499	–	47,061	3.8	3.8
5–99	–	24,115 i	4.4	4.4
5–49	–	15,928 i	5.4	5.4
5–9	–	2,477 i	5.0	5.0
10–24	–	6,274 i	5.7	5.7
25–49	–	7,177 i	5.3	5.3
50–99	–	8,187	3.3	3.3
100–249	–	11,957	3.4	3.4
250–499	–	10,989	3.3	3.3
Medium and large companies				
500–999	–	11,094	3.1	3.4
1,000–4,999	–	51,104	4.4	4.4
5,000–9,999	–	26,157	2.9	3.1
10,000–24,999	–	54,105	2.9	3.1
25,000 or more	–	108,556	2.6	2.7

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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed or funded R&D.

[b] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed R&D. The calculation of percentages in this column excludes R&D and sales of companies that fund R&D but do not perform R&D.

[c] 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. 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, unless indicated otherwise. Percentages are calculated as domestic R&D paid for by the company divided by domestic sales.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 29. Domestic R&D paid for and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	All companies	Company size (domestic employees) 5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
All industries	21–23, 31–33, 42–81	264,913	2,195 i	5,290 i	6,241 i	7,161	10,922	10,297	10,280	45,342	25,009	44,275	97,901
Manufacturing industries	31–33	181,170	893 i	2,581 i	3,570 i	4,254	6,353	6,930	7,458	32,993	17,604	40,337	58,197
Food	311	4,801	19 i	31 i	21 i	96 i	109 i	152 i	279 i	410	374	1,373 i	1,937
Beverage and tobacco products	312	727	* i	6 i	2 i	3 i	8 i	24	5	34 i	132	18	495
Textile, apparel, and leather products	313–16	642	D	28 i	36 i	35 i	51 i	30	54	182	215	D	0
Wood products	321	209	12 i	16 i	4 i	15	12 i	13	20	45	37	35	0
Paper	322	907	12 i	1 i	13 i	13 i	101 i	49 i	20	83	97	498	20
Printing and related support activities	323	224 i	D	13 i	11 i	21 i	35 i	71 i	20	41	5	D	0
Petroleum and coal products	324	236	D	7 i	10 i	64 i	D	27	33	21	0	D	D
Chemicals	325	54,285	220 i	669	1,130	1,270	2,161	1,735	1,316	10,195	2,674	18,512	14,403
Basic chemicals	3251	2,341	13 i	17	67 i	47	236	64	105	813	202	328	449
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	954	9 i	5 i	38 i	19 i	42	37	33	109	0	431	232
Pesticide, fertilizer, and other agricultural chemicals	3253	1,325 i	0	D	23 i	2 i	19	D	D	249	27	D	0
Pharmaceuticals and medicines	3254	45,891	167 i	558	924	1,075	1,769	1,489	1,118	8,235	1,844	16,145	12,566
Soap, cleaning compound, and toilet preparation	3256	2,458	3 i	55 i	13 i	57 i	43 i	28	36	282	344 i	492	1,105
Paint, coating, adhesive, and other chemicals	3255, 3259	1,315	28 i	D	64 i	69 i	52 i	D	D	507	256	D	51
Plastics and rubber products	326	3,496	5 i	67 i	54 i	151 i	216 i	214 i	268	458	463	1,459	140
Nonmetallic mineral products	327	1,303 i	10 i	18 i	27 i	14 i	40 i	17 i	53	145 i	52	929 i	0
Primary metals	331	605	20 i	7 i	7 i	26 i	70 i	47 i	96	99	42	12	179
Fabricated metal products	332	1,934 i	59 i	59 i	158 i	265 i	363 i	230	205	411	119	65	0
Machinery	333	12,092	79 i	249 i	370 i	461 i	607	491	744	2,726	1,825	1,753	2,788
Agricultural implement	33311	1,561	2 i	7 i	6 i	18	50 i	18	12	155	106	227	960
Semiconductor machinery	333295	3,097	23 i	14 i	9 i	14	79	59 i	453	1,289 i	1,158	0	0
Engine, turbine, and power transmission equipment	3336	1,336	* i	13 i	15	43	40	8	44	145	159	868	0
Other machinery	other 333	6,098	53 i	215 i	340 i	386 i	437	407	235	1,137	402	658	1,828
Computer and electronic products	334	57,364	331 i	515 i	1,117 i	1,024	1,511	2,607	2,905	11,895	9,028	8,513	17,918
Communications equipment	3342	13,693	11 i	86 i	86 i	189	348	307	1,134	1,201	1,935	D	D
Semiconductor and other electronic components	3344	28,576	115 i	211	283 i	228	562	1,406	742	7,358	4,504	D	D
Navigational, measuring, electromedical, and control instruments	3345	9,001	178 i	177 i	472 i	369	389	550	546	1,764	788	1,526	2,242
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,470	39 i	83 i	342 i	111	123	212	278	307 i	150	826	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,037	3 i	6 i	12	24 i	81	65	0	564	74	318	1,890
Other measuring and controlling device	other 3345	3,494	136 i	89 i	118 i	234	185	274	268	892	564	382	352
Other computer and electronic products	other 334	6,093	27 i	40 i	276	238	212	343	483	1,572	1,801	59	1,042 i
Electrical equipment, appliances, and components	335	3,660	10 i	144 i	126 i	177	252	294	334	601	370	905	447
Transportation equipment	336	25,165	18 i	69 i	91	125	368	419 i	538	2,041	1,553	3,501	16,441
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	14,081	17 i	12 i	69	68	201	150	366	1,297	980	1,538	9,383

TABLE 29. Domestic R&D paid for and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
		Company size (domestic employees)											
Aerospace products and parts	3364	10,042	1 i	40 i	11	24 i	85	251 i	115	509	414 i	1,963	6,629
Aircraft, aircraft engine, and aircraft parts	336411–13	9,765	* i	39 i	11	D	85	251 i	115	D	D	D	6,629
Guided missile, space vehicle, and related parts	336414–15, 336419	278	* i	1 i	* i	D	0	0	0	D	D	D	0
Military armored vehicle, tank, and tank components	336992	7 i	*	3 i	2 i	* i	2	0	0	0	0	0	0
Other transportation	other 336	1,035	* i	14 i	9 i	33	80 i	19	57 i	235	159	0	429
Furniture and related products	337	374	14 i	37 i	11 i	17 i	26 i	26 i	16	109	107	11 i	0
Miscellaneous manufacturing	339	13,147	D	645 i	383	479 i	D	483	552	3,497	512	2,674	D
Medical equipment and supplies	3391	10,638	73 i	494 i	231 i	224	287	360	403	2,487	403	2,674	3,003
Other miscellaneous manufacturing	3399	2,509	D	151 i	153	255 i	D	124	150	1,010	109	0	D
Nonmanufacturing industries	21–23, 42–81	83,742	1,302 i	2,709 i	2,671 i	2,906	4,569	3,367	2,822	12,348	7,405	3,938	39,704
Mining, extraction, and support activities	21	3,602	1 i	13 i	16	D	25 i	8	16	65	D	1,502	1,787
Utilities	22	243	* i	1 i	17 i	45	2	* i	9	67	11	69	20
Wholesale trade	42	510 i	42 i	60 i	79 i	170 i	113 i	21 i	6 i	10 i	1 i	9 i	0
Electronic shopping and electronic auctions	454111–12	1,356 i	18 i	31 i	10 i	1 i	8	20	36 i	3	0	D	D
Transportation and warehousing	48–49	411	0	6 i	* i	1	128	2 i	7 i	174	2	0	90
Information	51	56,039	250 i	546 i	690 i	1,087	1,932	1,527	1,441	9,573	6,050	506	32,438
Publishing	511	34,637	195 i	273 i	262 i	656	791	645	702	4,593	4,403	88 i	22,027
Newspaper, periodical, book, and directory publishers	5111	341 i	8 i	20 i	15 i	2 i	46 i	48 i	21 i	92 i	0	88 i	0
Software publishers	5112	34,296	187 i	253 i	247 i	654	745	597	681	4,500	4,403	0	22,027
Telecommunications	517	3,037	7 i	47 i	146 i	60	85	48 i	95	101	0	13	2,435
Data processing, hosting, and related services	518	6,333	17 i	195 i	D	D	939	593	425	2,198	D	404	D
Other information	other 51	12,032	30 i	30 i	D	D	116	241	218 i	2,681	D	* i	D
Finance and insurance	52	4,298	7 i	126 i	12 i	18	54	295	96	249	146	282	3,013
Real estate and rental and leasing	53	150	D	1 i	8 i	2 i	54 i	4	D	61	0	* i	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	0	1 i	D	2 i	D	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	92	D	1 i	D	*	D	4	D	61	0	* i	0
Professional, scientific, and technical services	54	15,617 i	914 i	1,839	1,659 i	1,505 i	2,072	1,385 i	976 i	1,891	981 i	850 i	1,545
Architectural, engineering, and related services	5413	1,261	40 i	118 i	139 i	193 i	152	147	106	209	95	60	1
Computer systems design and related services	5415	8,107 i	385 i	398 i	612 i	784 i	1,335 i	947 i	727 i	1,424	547 i	776 i	171
Scientific research and development services	5417	2,838	353 i	838	653	436	326	160 i	29	20	6	0	16
Biotechnology research and development	541711	1,331	141 i	489	224	246	186	15 i	10	4	0	0	16
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,470	201 i	343 i	427	180	134	145 i	19	16	6	0	0
Social sciences and humanities research and development	541720	36 i	11 i	6 i	2 i	10	7	0	0	0	0	0	0

TABLE 29. Domestic R&D paid for and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
		Company size (domestic employees)											
Other professional, scientific, and technical services	other 54	3,411	136 i	485	254 i	92 i	258 i	130	113	237	334	14	1,357
Health care services	621–23	430 i	21 i	5 i	39	5 i	70	15 i	87 i	31 i	0	* i	157
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,086 i	D	80 i	142 i	D	113 i	91 i	D	224 i	D	D	D

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] 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. 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, 2013.

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies[a] (number)	United States	Alabama	Alaska	Arizona	Arkansas	California
All industries	21–23, 31–33, 42–81	65,139	264,913	802	33	4,036	252	76,851
Manufacturing industries	31–33	27,655	181,170	477	11	3,387	195	48,473
Food	311	2,072	4,801	7 e	5	7 e	42	154 i
Beverage and tobacco products	312	202	727	* e	* e	* e	* e	9 i
Textile, apparel, and leather products	313–16	767	642	3 i	* e	* e	* e	80
Wood products	321	392	209	1 e	* e	* e	4	19
Paper	322	366	907	15	* e	1 e	22	16 e
Printing and related support activities	323	617	224 i	* e	* e	2 i	1 i	67
Petroleum and coal products	324	257	236	1 e	* e	1 e	2 e	4 e
Chemicals	325	2,898	54,285	84	* e	119	35	11,861
Basic chemicals	3251	386	2,341	15	0	2	6	212
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	270	954	1 e	0	4	13	4 i
Pesticide, fertilizer, and other agricultural chemicals	3253	89	1,325 i	1 e	* e	7 i	5 i	30 i
Pharmaceuticals and medicines	3254	906	45,891	59	*	75	11	11,412
Soap, cleaning compound, and toilet preparation	3256	594	2,458	* e	* e	2	1 e	127
Paint, coating, adhesive, and other chemicals	3255, 3259	653	1,315	8	0	29	1 e	75
Plastics and rubber products	326	1,553	3,496	29 i	* e	199	13	115
Nonmetallic mineral products	327	584	1,303 i	3 i	* e	1 e	1 e	19
Primary metals	331	529	605	7 i	0	4	1 e	13 i
Fabricated metal products	332	3,137	1,934 i	11 e	* e	14 i	7 i	168 i
Machinery	333	3,918	12,092	24	* e	72	12 e	3,124
Agricultural implement	33311	198	1,561	* e	0	9	1 e	22
Semiconductor machinery	333295	162	3,097	1 e	0	2 e	0	2,658
Engine, turbine, and power transmission equipment	3336	146	1,336	1 e	* e	1	* e	84
Other machinery	other 333	3,412	6,098	23	* e	60	11 e	361
Computer and electronic products	334	3,944	57,364	141	2	2,619	11	26,920
Communications equipment	3342	519	13,693	94	1	62	4	7,745
Semiconductor and other electronic components	3344	1,305	28,576	6 e	1	1,768	2 e	15,250
Navigational, measuring, electromedical, and control instruments	3345	1,338	9,001	25	* e	777 i	4	2,043
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	290	2,470	* e	0	13	0	492
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	186	3,037	6 i	0	697 i	0	387
Other measuring and controlling device	other 3345	863	3,494	18	* e	67 i	4	1,165
Other computer and electronic products	other 334	782	6,093	16	0	12	* e	1,882
Electrical equipment, appliances, and components	335	1,143	3,660	9	*	28	4 e	640
Transportation equipment	336	1,948	25,165	116	2	196	12	2,009
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1,212	14,081	40	* e	23	8	369 i
Aerospace products and parts	3364	377	10,042	48	1	74	2 e	1,620
Aircraft, aircraft engine, and aircraft parts	336411–13	363	9,765	47	1	34	2 e	1,591
Guided missile, space vehicle, and related parts	336414–15, 336419	15	278	1	0	40	0	29

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies[a] (number)	United States	Alabama	Alaska	Arizona	Arkansas	California
Military armored vehicle, tank, and tank components	336992	8	7 i	0	0	*	0	0
Other transportation	other 336	350	1,035	29	* e	99	2 i	21
Furniture and related products	337	563	374	6	* e	2 e	* e	19 i
Miscellaneous manufacturing	339	2,770	13,147	20 e	1 e	123	26 i	3,234
Medical equipment and supplies	3391	1,088	10,638	11 e	* e	101	22 i	2,895
Other miscellaneous manufacturing	3399	1,682	2,509	9 e	* e	22	4 e	339 i
Nonmanufacturing industries	21–23, 42–81	37,486	83,742	325	22	649	57	28,378
Mining, extraction, and support activities	21	246	3,602	* e	2	D	* e	222
Utilities	22	65	243	7	* i	4	1	69
Wholesale trade	42	4,664	510 i	3 e	* e	3 e	2 e	89 i
Electronic shopping and electronic auctions	454111–12	387	1,356 i	* e	* e	4 i	* e	1,240
Transportation and warehousing	48–49	328	411	* e	* i	D	1	2 i
Information	51	3,890	56,039	142	3 e	182	17 e	22,741
Publishing	511	2,055	34,637	106	1	137	10	10,329
Newspaper, periodical, book, and directory publishers	5111	441	341 i	1 e	* e	* e	* e	71 i
Software publishers	5112	1,614	34,296	105	1	137	10	10,258
Telecommunications	517	231	3,037	4 i	1 e	3 i	3 e	161
Data processing, hosting, and related services	518	1,015	6,333	32	* e	40	4 e	2,200
Other information	other 51	589	12,032	1 e	* e	2 e	1 e	10,051
Finance and insurance	52	674	4,298	4	* e	302	24	130
Real estate and rental and leasing	53	47	150	* e	* e	2 i	* e	90
Lessors of nonfinancial intangible assets (except copyrighted works)	533	14	58 i	0	0	D	0	D
Other real estate and rental and leasing	other 53	33	92	* e	* e	D	* e	D
Professional, scientific, and technical services	54	12,693	15,617 i	154	11 e	112	10 e	3,348
Architectural, engineering, and related services	5413	2,074	1,261	38	5	10	2 e	151
Computer systems design and related services	5415	4,621	8,107 i	88	1 e	56	2 e	1,894
Scientific research and development services	5417	1,320	2,838	19 e	3	25	1 e	889
Biotechnology research and development	541711	416	1,331	4	0	19	* e	475
Physical, engineering, and life sciences (except biotechnology) research and development	541712	863	1,470	16 e	3	6	1 e	394
Social sciences and humanities research and development	541720	40	36 i	* e	* e	0	* e	19
Other professional, scientific, and technical services	other 54	4,679	3,411	9 e	1 e	21 e	4 e	415 i
Health care services	621–23	1,674	430 i	2 i	* e	4 i	* e	269 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	12,817	1,086 i	11 i	5	D	2 e	177 i
All companies (number of domestic employees)	–	65,139	264,913	802	33	4,036	252	76,851
Small companies[b]								
5–499	–	62,932	42,106	288 e	23 e	401	76 e	11,177
5–99	–	56,394	20,886 i	142 e	18 e	230 e	56 e	5,296
5–49	–	48,605	13,726 i	108 e	16 e	144 e	42 e	3,212 i

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies[a] (number)	United States	Alabama	Alaska	Arizona	Arkansas	California
5–9	–	17,348	2,195 i	24 e	2 e	26 e	7 e	459 e
10–24	–	19,210	5,290 i	45 e	8	57 e	19 e	1,176 i
25–49	–	12,046	6,241 i	40 e	6 e	61 e	16 e	1,577
50–99	–	7,789	7,161	34 e	3 e	85	14 e	2,084
100–249	–	4,796	10,922	66 i	1 e	72	10 e	3,305
250–499	–	1,742	10,297	79	3	100	10	2,576
Medium and large companies								
500–999	–	876	10,280	107	1 e	44	10	3,332
1,000–4,999	–	907	45,342	222	3	506	18	15,528
5,000–9,999	–	188	25,009	67	1	454	33	11,712
10,000–24,999	–	137	44,275	31	2	222	35	10,971
25,000 or more	–	108	97,901	87	2	2,410	80	24,131

Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
All industries	21–23, 31–33, 42–81	3,869	5,789	1,705 i	297	3,900	3,350	158 i
Manufacturing industries	31–33	2,428	5,231	1,519 i	32	2,019	1,763	89 i
Food	311	27	28	1,003 i	* e	15 e	22	2 e
Beverage and tobacco products	312	5	15	* e	* e	9	110	* e
Textile, apparel, and leather products	313–16	1 e	6 i	* e	* e	15	34	* e
Wood products	321	* e	* e	* e	0	1 e	7	* e
Paper	322	2 i	8	*	0	19	94	* e
Printing and related support activities	323	3	1 e	* e	* e	2 i	7	* e
Petroleum and coal products	324	7	2	* i	0	4 e	2 e	* e
Chemicals	325	230	3,539	354	10	440	303	60 i
Basic chemicals	3251	37	67	67	* e	28	55	0
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	* e	1 i	13	0	2 i	39	0
Pesticide, fertilizer, and other agricultural chemicals	3253	13 i	* e	2 i	1 i	11	6 i	58 i
Pharmaceuticals and medicines	3254	161	3,267	267	9	352	176	2 e
Soap, cleaning compound, and toilet preparation	3256	2 e	169	4	0	8 i	12	* e
Paint, coating, adhesive, and other chemicals	3255, 3259	17	33	* e	* e	38	14 i	* e
Plastics and rubber products	326	27	25	38	0	20	26	13
Nonmetallic mineral products	327	5	1 e	* e	* e	12	11	* e
Primary metals	331	2	2 i	3	0	1 e	13	* e
Fabricated metal products	332	12 i	47 i	3 i	* e	30 i	73 i	* e
Machinery	333	50	197	* e	0	145	107	1
Agricultural implement	33311	3	* e	* e	0	2	27	0
Semiconductor machinery	333295	13	18	0	0	1 e	0	0
Engine, turbine, and power transmission equipment	3336	4	1 e	0	0	55	* e	0
Other machinery	other 333	30	178	* e	0	87	80	1
Computer and electronic products	334	1,630	247	80	21	758	487	9
Communications equipment	3342	318	47	42	9	383	314	9
Semiconductor and other electronic components	3344	600	30	* e	D	129	74	*

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Navigational, measuring, electromedical, and control instruments	3345	289	158	38	2	215	73	* i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	26 e	30	*	*	100	3 e	* i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	104	20 i	* e	1	54	34	0
Other measuring and controlling device	other 3345	158	108	38	0	60	36	* e
Other computer and electronic products	other 334	423	12 e	* e	D	31	26 i	0
Electrical equipment, appliances, and components	335	17 i	66	2	* e	52 i	55	0
Transportation equipment	336	181	743	1 i	0	341	260	1
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	2 e	5 i	* e	0	11 i	13	0
Aerospace products and parts	3364	179	727	1 i	0	299	61	1
Aircraft, aircraft engine, and aircraft parts	336411–13	D	727	1 i	0	299	61	1
Guided missile, space vehicle, and related parts	336414–15, 336419	D	* e	0	0	*	0	0
Military armored vehicle, tank, and tank components	336992	0	0	0	0	* i	0	0
Other transportation	other 336	* e	11	* e	0	31	185	1 e
Furniture and related products	337	20	1 e	4	* e	3 e	4 i	* e
Miscellaneous manufacturing	339	207	305	30 i	* e	152	148	2 e
Medical equipment and supplies	3391	170	285	30 i	*	136	94	1 e
Other miscellaneous manufacturing	3399	38	20	* e	* e	16 e	54	1 e
Nonmanufacturing industries	21–23, 42–81	1,442	557	186	265 i	1,881	1,587	68 e
Mining, extraction, and support activities	21	86	* e	* e	0	* e	6	1
Utilities	22	*	* e	* e	*	4	10	3
Wholesale trade	42	5 e	4 e	1 e	* e	12 e	12 e	1 e
Electronic shopping and electronic auctions	454111–12	3	1 e	* e	* e	3 e	1 e	* e
Transportation and warehousing	48–49	5	* e	* e	* e	9	1	* e
Information	51	987	291	82	189 i	1,260	832	11
Publishing	511	707	101 i	80	169 i	727 i	511	8
Newspaper, periodical, book, and directory publishers	5111	1 e	1 e	* e	96 i	3 e	1 e	* e
Software publishers	5112	705	100 i	80	73	724 i	510	8
Telecommunications	517	82	2 e	* e	1 e	315	39	* e
Data processing, hosting, and related services	518	117	185	2 e	5 e	198	147	2
Other information	other 51	81	4 e	* e	15	19	136	* e
Finance and insurance	52	12	27	60	* e	190	498	* e
Real estate and rental and leasing	53	4	* e	* e	D	* e	2	* e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	D	* e	* e	D	* e	2	* e
Professional, scientific, and technical services	54	318	225 i	41	56 e	354	210	26
Architectural, engineering, and related services	5413	47	27	3	2 e	28	14 i	2 e
Computer systems design and related services	5415	168	43 i	28	28 i	180 i	146 i	14
Scientific research and development services	5417	80	136 i	7 i	6 e	84	15 i	8
Biotechnology research and development	541711	30	23	2 i	*	28	4	6

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Physical, engineering, and life sciences (except biotechnology) research and development	541712	50	113 i	5 e	5 e	55	11 i	1 e
Social sciences and humanities research and development	541720	* e	* e	0	0	* e	* e	* e
Other professional, scientific, and technical services	other 54	24 e	19 e	3 e	21 e	63 e	36 e	2 e
Health care services	621–23	1 e	1 e	* e	* e	6 e	1 e	* e
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	19 i	8 i	1 e	D	42 i	13 e	25 e
All companies (number of domestic employees)	–	3,869	5,789	1,705 i	297	3,900	3,350	158 i
Small companies[b]								
5–499	–	803	647 i	361	76 e	932 i	611 i	53 e
5–99	–	341 e	281 e	32 e	72 e	550 e	350 e	47 e
5–49	–	227 e	196 e	25 e	42 e	417 e	234 e	38 e
5–9	–	39 e	39 e	5 e	8 e	71 e	41 e	7 e
10–24	–	84 e	75 e	11 e	20 e	190 e	96 e	17 e
25–49	–	105 e	82 e	9 e	15 e	155 e	97 e	15 e
50–99	–	114	85	7 e	30 i	133 e	117	9 e
100–249	–	234	152	20	4 e	202	151	5 e
250–499	–	228	214 i	310	* e	180	109	1 e
Medium and large companies								
500–999	–	140	82	5	14 i	84	158	8
1,000–4,999	–	761	656	67	95	538	809	20
5,000–9,999	–	586	126	74	1	725 i	131	5
10,000–24,999	–	540	1,621	35	95 i	621	217	65 i
25,000 or more	–	1,038	2,657	1,162 i	16	1,000	1,425	7

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
All industries	21–23, 31–33, 42–81	908	11,961	5,482	1,498	1,321	917	275
Manufacturing industries	31–33	771	9,866	5,181	1,382	1,165	811	184
Food	311	47	385 i	70	36	14	9 e	7 e
Beverage and tobacco products	312	* e	95	* e	* e	* e	30	* e
Textile, apparel, and leather products	313–16	* e	6 i	1 e	1 i	1 e	2 i	1 e
Wood products	321	3	2 i	1 e	8	1 i	1 e	1
Paper	322	* e	12 i	5 e	1 e	7	16	7
Printing and related support activities	323	* e	12 i	1 e	2 i	* e	1 e	1
Petroleum and coal products	324	* e	9	3	1 e	4	2	2 e
Chemicals	325	18	4,407 i	2,418	142 i	184	365	57
Basic chemicals	3251	* e	109	22	27	8	44	39
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	* e	58	6	*	6	16	6 i
Pesticide, fertilizer, and other agricultural chemicals	3253	3	62 i	8 i	62 i	7 i	1	* e
Pharmaceuticals and medicines	3254	13	4,018 i	2,361	46	49	10	10
Soap, cleaning compound, and toilet preparation	3256	2 i	97	4 e	1 e	57 i	* e	* e

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Paint, coating, adhesive, and other chemicals	3255, 3259	* e	63 i	17	6	56	294	1 e
Plastics and rubber products	326	2 i	65	473	26	6 i	28	28
Nonmetallic mineral products	327	* e	26	9	5	1 e	2 i	2 e
Primary metals	331	* e	18 i	32	24	1 i	2 e	1 i
Fabricated metal products	332	2 e	221	57 i	17 i	19 i	15 i	10 e
Machinery	333	5 e	1,997	822	741	145 i	79 i	35
Agricultural implement	33311	1 e	326	4	702	95 i	* e	17
Semiconductor machinery	333295	1 e	* e	0	0	0	0	0
Engine, turbine, and power transmission equipment	3336	*	33	576	2 e	1	*	* e
Other machinery	other 333	3 e	1,638	242	38	49	79 i	17 e
Computer and electronic products	334	677	1,512	108	298	405	38	12 e
Communications equipment	3342	13 i	1,018	8	12	18	4	5
Semiconductor and other electronic components	3344	658	171	32	36	62 i	6	* e
Navigational, measuring, electromedical, and control instruments	3345	5	223 i	55	235	210	22	6 e
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	* e	46	15 e	11 e	3	* e	1 e
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	* e	117 i	22	202	202	2 i	1 i
Other measuring and controlling device	other 3345	5	59	18	23 i	5 e	20	3 e
Other computer and electronic products	other 334	* e	101	13 e	15	116	6 e	1 e
Electrical equipment, appliances, and components	335	1 e	121	84	34 i	1 e	5 i	1 e
Transportation equipment	336	5	600	535	11 e	359	193	11 e
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1 e	368	461	9 e	22	D	1 e
Aerospace products and parts	3364	4	226	70	2	336	D	3
Aircraft, aircraft engine, and aircraft parts	336411–13	4	226	70	2	336	D	3
Guided missile, space vehicle, and related parts	336414–15, 336419	0	*	*	*	*	0	0
Military armored vehicle, tank, and tank components	336992	0	1 i	0	0	0	0	0
Other transportation	other 336	* e	5 i	4 e	* e	* e	D	6 e
Furniture and related products	337	* e	10 i	19	21	2 i	5	1 i
Miscellaneous manufacturing	339	8 e	369	542	13 e	16 e	20 i	6 e
Medical equipment and supplies	3391	2 e	205 i	521	9 e	8 e	14 i	3 e
Other miscellaneous manufacturing	3399	6 i	165	21 e	4 e	8 e	6 e	3 e
Nonmanufacturing industries	21–23, 42–81	137	2,095	301	116	156	106	91 e
Mining, extraction, and support activities	21	* e	6	2	* e	4	1 e	6
Utilities	22	* e	*	* e	*	*	* e	* e
Wholesale trade	42	1 e	19 e	7 e	3 e	8 i	3 e	3 e
Electronic shopping and electronic auctions	454111–12	* e	3 e	1 e	1 e	* e	2 i	* e
Transportation and warehousing	48–49	* e	1	1 i	* e	* e	* e	* e
Information	51	119	516	138	79	72	51	17 e
Publishing	511	112	324	67 i	39	50	26	10
Newspaper, periodical, book, and directory publishers	5111	* e	28 i	1 e	1 e	* e	* e	* e
Software publishers	5112	112	296	67 i	38	49	26	10
Telecommunications	517	1 e	32	4 e	3 e	16	2 e	1 e

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Data processing, hosting, and related services	518	6	98	64	27	5 e	21	4 e
Other information	other 51	* e	62	4	10	1 e	1 e	1 e
Finance and insurance	52	1	1,174	11	2 e	2 e	2 e	2 e
Real estate and rental and leasing	53	* e	D	* e	* e	* e	* e	1 i
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	* e	D	* e	* e	* e	* e	1 i
Professional, scientific, and technical services	54	14	308 i	115	28 i	61 i	27 e	54
Architectural, engineering, and related services	5413	6	25	9	2 e	5	5	33
Computer systems design and related services	5415	2 e	119 e	87	14 i	44 i	9 e	7 e
Scientific research and development services	5417	5 i	51 i	10	8	6	7 e	4 e
Biotechnology research and development	541711	*	37 i	1 e	3	4	4 e	1 e
Physical, engineering, and life sciences (except biotechnology) research and development	541712	4 i	14	9	5	2 e	3 e	2 e
Social sciences and humanities research and development	541720	0	* e	* e	* e	* e	* e	2 i
Other professional, scientific, and technical services	other 54	2 e	113	9 e	4 e	7 e	6 e	10 e
Health care services	621–23	* e	4 e	1 e	* e	* e	1 e	1 e
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1 e	D	24 i	3 e	8 i	20	8 e
All companies (number of domestic employees)	–	908	11,961	5,482	1,498	1,321	917	275
Small companies[b]								
5–499	–	81 e	1,414 i	480 e	246 i	188 e	216 i	128 e
5–99	–	50 e	771 e	303 e	149 e	105 e	133 e	97 e
5–49	–	36 e	522 e	199 e	90 e	79 e	66 e	70 e
5–9	–	7 e	89 e	31 e	13 e	14 e	12 e	14 e
10–24	–	19 e	193 e	84 e	38 e	39 e	28 e	29 e
25–49	–	10 e	241 e	84 e	39 e	25 e	26 e	28 e
50–99	–	14 e	249 i	104 i	59	26 e	67 i	26 e
100–249	–	25 i	379	106 i	66	39 i	28 i	25 e
250–499	–	7	264	71	31	44	55	7
Medium and large companies								
500–999	–	D	420	98	64	34	23	7 e
1,000–4,999	–	59	1,307	711	114	387	471	50
5,000–9,999	–	D	734	446	47	244 i	46	6
10,000–24,999	–	9	4,113 i	3,408	311	344	15	22
25,000 or more	–	208	3,972	339	715	123	145	62

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
All industries	21–23, 31–33, 42–81	314	2,665	14,000	14,409	6,057	183 i	3,570
Manufacturing industries	31–33	231	1,924	9,862	13,646	5,261	149 i	2,708
Food	311	2 e	73	32 i	312 i	374	14 i	29
Beverage and tobacco products	312	* e	* e	7	* e	* e	* e	18
Textile, apparel, and leather products	313–16	1 e	1 e	40	38	9	1 e	1 e

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Wood products	321	* e	1 e	3	3 i	36	2	1 e
Paper	322	17	5	22	10 i	8	1 e	4 e
Printing and related support activities	323	* e	6	5 i	4 i	10	* e	1 e
Petroleum and coal products	324	* e	1 e	2 i	4 e	2 i	1 i	2 e
Chemicals	325	18 i	945	5,501	367	332	33 i	1,277 i
Basic chemicals	3251	* e	40	69	65 i	19	7	16 i
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	* e	* e	41	20	7	* e	6
Pesticide, fertilizer, and other agricultural chemicals	3253	2 i	4 i	9 i	5	13 i	17 i	D
Pharmaceuticals and medicines	3254	15 i	879	5,248	212	179	5	521
Soap, cleaning compound, and toilet preparation	3256	* e	19	112	6	82	1 e	11 i
Paint, coating, adhesive, and other chemicals	3255, 3259	* e	2	21	60	32 i	2 i	D
Plastics and rubber products	326	2 e	90 i	138	487	112	9	18
Nonmetallic mineral products	327	* e	3	76	19	9	1 e	4 i
Primary metals	331	2	* e	4 i	35	10 i	1 e	7 i
Fabricated metal products	332	2 e	13 i	55	91 i	50 i	3 e	42
Machinery	333	3 e	89 i	180	366	408	5 e	91
Agricultural implement	33311	* e	* e	0	2	94	* e	3 i
Semiconductor machinery	333295	0	* e	105	* e	14	0	0
Engine, turbine, and power transmission equipment	3336	1	*	6	85	49	1	5
Other machinery	other 333	3 e	89 i	69	278	250	4 e	84
Computer and electronic products	334	78 i	241	2,600	241	1,040	29	57
Communications equipment	3342	2	141	324	35	76 i	5 e	30
Semiconductor and other electronic components	3344	66 i	41	949	32	100 i	5	3 e
Navigational, measuring, electromedical, and control instruments	3345	8	47	898	78	277 i	12	20 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3 e	17	460	6 e	36	4	1 e
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	0	24	161	13	127 i	* e	5
Other measuring and controlling device	other 3345	6	5 e	276	58	115	8	15 i
Other computer and electronic products	other 334	2 e	12 e	429	96	587	6 e	4 e
Electrical equipment, appliances, and components	335	* e	6 i	162	419	135	19 i	46
Transportation equipment	336	24	327	231	10,884	297	17	917
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1 e	90	65	10,708	79 i	12	D
Aerospace products and parts	3364	D	231	150	83	81	3	D
Aircraft, aircraft engine, and aircraft parts	336411–13	D	231	149	83	D	3	D
Guided missile, space vehicle, and related parts	336414–15, 336419	0	* i	*	0	D	0	*
Military armored vehicle, tank, and tank components	336992	0	2 i	2	0	2	0	0
Other transportation	other 336	D	5	15	93	136	1	9
Furniture and related products	337	1 i	1 e	1 e	87	29	9	1 e
Miscellaneous manufacturing	339	79	123	803	281	2,399	4 e	192
Medical equipment and supplies	3391	75	112	713	246	2,376	2 e	164
Other miscellaneous manufacturing	3399	4 e	11 e	90	35	23 i	2 e	28

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Nonmanufacturing industries	21–23, 42–81	83	741	4,138	763	796	34	862 i
Mining, extraction, and support activities	21	2	1	D	3	1	* e	* e
Utilities	22	* i	*	* e	3	*	1	1
Wholesale trade	42	1 e	5 e	12 e	9 e	16 i	1 e	7 e
Electronic shopping and electronic auctions	454111–12	* e	1 e	5 i	1 e	1 e	* e	2 i
Transportation and warehousing	48–49	* e	D	* e	* e	* e	* e	* e
Information	51	62	248	3,069 i	288	491	15	180
Publishing	511	57	218	2,593 i	228	423	13	56
Newspaper, periodical, book, and directory publishers	5111	* e	1 e	5	1 e	2 e	* e	1 e
Software publishers	5112	57	217	2,588 i	227	421	12	56
Telecommunications	517	2 e	2 e	17	4 e	3 e	1 e	2 e
Data processing, hosting, and related services	518	3 e	25 e	273	51	53	2 i	118
Other information	other 51	1 e	2 e	186	6	12	* e	4
Finance and insurance	52	2	13	46	15	6 e	1 e	18
Real estate and rental and leasing	53	* e	*	4	* e	1 i	* e	* e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	2	0	1 i	0	0
Other real estate and rental and leasing	other 53	* e	*	2	* e	* e	* e	* e
Professional, scientific, and technical services	54	15 i	407 i	856	417	259 i	13	643 i
Architectural, engineering, and related services	5413	3	35	39	36 i	39 i	3	11
Computer systems design and related services	5415	7 i	181 i	371	99 i	104 i	2 e	578 i
Scientific research and development services	5417	2 e	123 i	360	46	60	5	42
Biotechnology research and development	541711	1 e	74	231	8	12	*	37
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1 e	48 i	126	38	47	5	5
Social sciences and humanities research and development	541720	* e	1 i	4 i	* e	* e	0	0
Other professional, scientific, and technical services	other 54	2 e	68	86	236	57	3 e	13 e
Health care services	621–23	* e	3	11	9 i	1 e	* e	3
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1 e	D	D	16 i	20 i	2 e	7 e
All companies (number of domestic employees)	–	314	2,665	14,000	14,409	6,057	183 i	3,570
Small companies[b]								
5–499	–	61 e	710 i	3,313	1,157	901 i	68 e	392 i
5–99	–	47 e	453 e	1,646	642 e	559 i	51 e	214 e
5–49	–	32 e	349 e	1,140	413 e	315 e	38 e	147 e
5–9	–	5 e	62 e	138 e	61 e	47 e	6 e	26 e
10–24	–	14 e	130 e	432	168 e	111 e	17 e	64 e
25–49	–	13 e	157 i	570	184 e	157 i	15 e	57 e
50–99	–	15 e	104	506	229 i	244 i	13 e	67 e
100–249	–	12 e	111 i	888	266	216	11 e	123
250–499	–	2 e	147	779	249	127	7	54

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Medium and large companies								
500–999	–	44	272	470	328	405	4 e	28
1,000–4,999	–	161	777	4,269	961	816	30	162
5,000–9,999	–	10 i	155 i	518	733	688	12	185
10,000–24,999	–	26	400	1,637	1,806	1,220	36	1,489 i
25,000 or more	–	13	351	3,792	9,424	2,028	33 i	1,313

Industry and company size	NAICS code	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
All industries	21–23, 31–33, 42–81	73	577	460	811	11,955	291	9,456
Manufacturing industries	31–33	34	217	369	420	9,405	223	4,985
Food	311	1 e	83	2 e	2	344	1 e	116 i
Beverage and tobacco products	312	* e	* e	* e	* e	* e	* e	150
Textile, apparel, and leather products	313–16	* e	* i	1	16	22	* e	39
Wood products	321	* e	* e	2	* e	2	* e	1 e
Paper	322	* e	3 i	1 e	1	20	1 e	22
Printing and related support activities	323	1 i	* e	* e	1	6 i	* e	10 i
Petroleum and coal products	324	* e	* e	* e	* e	50	* e	5 e
Chemicals	325	6	40 i	16 i	42	7,148	43	1,937
Basic chemicals	3251	* e	1 e	* e	4	255	26	138
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	0	* e	* e	2 i	4	0	42
Pesticide, fertilizer, and other agricultural chemicals	3253	2 i	1	8 i	0	98 i	* e	3
Pharmaceuticals and medicines	3254	4	36 i	7 e	33	6,369	13	1,587
Soap, cleaning compound, and toilet preparation	3256	* e	* e	* e	* e	376	* e	153
Paint, coating, adhesive, and other chemicals	3255, 3259	* e	* e	* e	4	45	3	13
Plastics and rubber products	326	1 i	11	3 e	6 e	65	* e	64
Nonmetallic mineral products	327	1	* e	1 e	6	27	* e	19
Primary metals	331	* e	* e	2	5	6 i	* e	12
Fabricated metal products	332	1 e	11	5	10 i	27 i	1 e	58 i
Machinery	333	1 e	18	9	36	105	13	365
Agricultural implement	33311	* e	11	0	4	* e	* e	* e
Semiconductor machinery	333295	0	0	* e	1 e	58	0	26
Engine, turbine, and power transmission equipment	3336	*	* e	3	* e	* e	* e	34
Other machinery	other 333	1 e	6 i	6	31	46	13	305
Computer and electronic products	334	7	22	34	217	942 i	143	1,200
Communications equipment	3342	2	3	9	31	547 i	6	291
Semiconductor and other electronic components	3344	2	4	2 e	102	200	107	499
Navigational, measuring, electromedical, and control instruments	3345	2 e	14	17	56	177	18	369
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2 e	*	1 e	10 e	66	* e	110
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	* e	0	13	20	43	5	189
Other measuring and controlling device	other 3345	1	14	3 e	26	68	13	69

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
Other computer and electronic products	other 334	* e	2 e	6	27	19	12	41 e
Electrical equipment, appliances, and components	335	4	9 i	15	51	107	* e	53
Transportation equipment	336	7	15	30	7	213	13	598
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	* e	12	* e	1 e	13	5 i	166
Aerospace products and parts	3364	6	2	29	6	186	8	422
Aircraft, aircraft engine, and aircraft parts	336411–13	*	2	29	6	186	8	422
Guided missile, space vehicle, and related parts	336414–15, 336419	6	0	0	*	*	*	*
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0	0	0
Other transportation	other 336	* e	1 i	* e	1 e	13	0	10
Furniture and related products	337	* e	* e	* e	* e	2 e	* e	10 i
Miscellaneous manufacturing	339	5 e	4 e	250	19 e	319	6 e	325 i
Medical equipment and supplies	3391	2 e	3 e	11 i	12 e	299	3 e	216 i
Other miscellaneous manufacturing	3399	3	1 e	239	7	20 e	3 e	109 i
Nonmanufacturing industries	21–23, 42–81	39	360	91	392 i	2,550 i	69	4,471
Mining, extraction, and support activities	21	1 e	* e	8	* e	D	9	9
Utilities	22	* e	3	* e	* e	3	*	4
Wholesale trade	42	1 e	2 e	2 e	3 i	35 i	1 e	33 e
Electronic shopping and electronic auctions	454111–12	* e	* e	1 i	* e	2 e	* e	9 e
Transportation and warehousing	48–49	* e	D	* e	* e	* e	* e	1 e
Information	51	19	267	40	286 i	797	13 i	3,158
Publishing	511	5	34	28	232 i	333	7 e	2,164
Newspaper, periodical, book, and directory publishers	5111	* e	* e	* i	* e	3 e	* e	11 e
Software publishers	5112	4	34	27	231 i	330	7 e	2,153
Telecommunications	517	1 e	2 e	2	2 e	353	1 e	33 e
Data processing, hosting, and related services	518	13	225	9 i	51	84	4 i	416
Other information	other 51	1 e	6	1 e	1 e	27	* e	545
Finance and insurance	52	* e	29	1 e	1 e	133	1 e	773
Real estate and rental and leasing	53	* e	D	1 i	* e	* e	* e	* e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	D	0	0	0	0	0
Other real estate and rental and leasing	other 53	* e	* e	1 i	* e	* e	* e	* e
Professional, scientific, and technical services	54	17	43	33 e	100	1,301 i	44	444 i
Architectural, engineering, and related services	5413	5	2 e	2 e	11	31	3 e	30 i
Computer systems design and related services	5415	2 e	20 i	12 i	68	391 i	13	208 i
Scientific research and development services	5417	8	3 e	13 i	10	126	25	63 i
Biotechnology research and development	541711	* e	2 e	2 i	2	46 i	17	25 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8	1 e	12 e	8	79	9 i	37
Social sciences and humanities research and development	541720	* e	0	* e	0	* e	* e	1 e
Other professional, scientific, and technical services	other 54	2 e	18	6 e	11	753 i	3 e	143 e
Health care services	621–23	* e	* e	* e	* e	2 e	* e	4 e

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1 e	15	4 e	1 e	D	2 e	35 e
All companies (number of domestic employees)	–	73	577	460	811	11,955	291	9,456
Small companies[b]								
5–499	–	46 i	131 i	126 e	235	1,671	102 i	2,050
5–99	–	32 e	75 e	93 e	178 i	864 i	69 e	1,039 e
5–49	–	28 e	41 e	68 e	83 e	583 e	51 e	784 e
5–9	–	3 e	8 e	13 e	15 e	91 e	10 e	136 e
10–24	–	7 e	18 e	27 e	28 e	210 e	14 e	297 e
25–49	–	18	15 e	28 e	40 e	282	26 i	350 e
50–99	–	4 e	34 i	26	95	281	17 e	255 e
100–249	–	9	19 e	28	37	425	32	358
250–499	–	4	37	6	20	382	1 e	654
Medium and large companies								
500–999	–	8	34	23	129	315	6 i	181
1,000–4,999	–	4	194 i	243	127	1,952	45	1,406
5,000–9,999	–	3	39	2	33	752 i	13	449
10,000–24,999	–	11	84	15 i	55	2,191	22	758
25,000 or more	–	2	95	49	232 i	5,074	104	4,612

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
All industries	21–23, 31–33, 42–81	5,690	215	5,582	450	5,405	10,001	501
Manufacturing industries	31–33	4,004	106	5,014	285	4,626	8,243	404
Food	311	243 i	3 e	124	13	21 i	121	2 e
Beverage and tobacco products	312	35	* e	* i	* e	1 e	1 i	* e
Textile, apparel, and leather products	313–16	65	* e	71	* e	32	10 i	3
Wood products	321	5	9	2 e	* e	14	2 e	* i
Paper	322	20	* e	29	1 e	1 e	40	3
Printing and related support activities	323	2 i	* e	12	1 i	* e	7	* e
Petroleum and coal products	324	3 i	0	10 e	D	3	18	* e
Chemicals	325	1,443	2	2,068	44	79	5,101	90
Basic chemicals	3251	134 i	* e	247	12	5	129	* e
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	15	0	258	5	5	10	4
Pesticide, fertilizer, and other agricultural chemicals	3253	63	1 i	33	* e	2	11 i	0
Pharmaceuticals and medicines	3254	1,180	1	373	22	64	4,831	82
Soap, cleaning compound, and toilet preparation	3256	23	* e	1,051	* e	1 e	4 e	2 e
Paint, coating, adhesive, and other chemicals	3255, 3259	28	0	106	5	3 i	116	2 i
Plastics and rubber products	326	58	7	257	42	17	195	10
Nonmetallic mineral products	327	9	2	43	1 e	8	83	* e
Primary metals	331	10	* e	33	1 e	5	196	2 i
Fabricated metal products	332	32	1 e	188	10 e	24 i	74 i	14

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Machinery	333	205	62	344	36	228 i	403	10
Agricultural implement	33311	41	53	12	2	* e	58	0
Semiconductor machinery	333295	0	0	2 e	0	94 i	5 e	0
Engine, turbine, and power transmission equipment	3336	53	* e	19 i	3 i	4	4	1
Other machinery	other 333	111	9	311	31	130	336	9
Computer and electronic products	334	1,330	5	648	29	3,544	995	79
Communications equipment	3342	422	*	109 i	8	49	272	14
Semiconductor and other electronic components	3344	550	1	100	2 e	3,329	274 i	22
Navigational, measuring, electromedical, and control instruments	3345	140	1 e	369	14	130	305	34
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4	0	144	2 e	9	201	2 e
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	32 i	0	30	7	62	39	17
Other measuring and controlling device	other 3345	104	1 e	195 i	5 e	59	65	15
Other computer and electronic products	other 334	219	3	70	4 e	36	144	9
Electrical equipment, appliances, and components	335	186 i	* e	86	3 e	51	342	11 i
Transportation equipment	336	157	11	819	26	198	373	7
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	114	5	228	9	D	84	* e
Aerospace products and parts	3364	37	6	591	16	22	280	5
Aircraft, aircraft engine, and aircraft parts	336411–13	37	6	589	16	22	280	5
Guided missile, space vehicle, and related parts	336414–15, 336419	*	0	1	0	0	*	*
Military armored vehicle, tank, and tank components	336992	0	0	*	0	0	0	0
Other transportation	other 336	5	* e	1 e	1 e	D	9 i	1 e
Furniture and related products	337	22	* e	5 i	* e	2 i	9	* e
Miscellaneous manufacturing	339	179	3 e	276	D	396	272	173
Medical equipment and supplies	3391	148	2 e	177	5	37 i	192	29
Other miscellaneous manufacturing	3399	31	1 e	99	D	359	80	144
Nonmanufacturing industries	21–23, 42–81	1,687	109	569	166	779	1,757	98
Mining, extraction, and support activities	21	1	1 e	9	99	* e	19	* e
Utilities	22	36	5	21	* e	1	19	* e
Wholesale trade	42	8 e	1 e	14 e	3 e	3 e	17 e	2 i
Electronic shopping and electronic auctions	454111–12	2 e	* e	2 e	* e	1 e	3 e	* e
Transportation and warehousing	48–49	* e	* e	2	* e	12	5	* e
Information	51	1,229	89	314	29	587	951	60
Publishing	511	1,145	86	259	13	387	703	55
Newspaper, periodical, book, and directory publishers	5111	1 e	* e	2 e	1 e	1 e	2 e	* e
Software publishers	5112	1,144	86	257	12	387	701	55
Telecommunications	517	28	1 e	5 e	2 e	18	54	* e
Data processing, hosting, and related services	518	24	2 e	46	5 e	152	132	4
Other information	other 51	32	* e	3 e	9	29	62	* e
Finance and insurance	52	67 i	* e	30	2 e	3	140	8
Real estate and rental and leasing	53	* e	* e	* e	* e	1 i	1 i	* e

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	1 i	D	0
Other real estate and rental and leasing	other 53	* e	* e	* e	* e	* e	D	* e
Professional, scientific, and technical services	54	306	11	140 e	29 e	164	567 i	23 i
Architectural, engineering, and related services	5413	57	1 e	11 e	4 e	67	26	1 e
Computer systems design and related services	5415	163	1 e	67 e	9 e	65	373 i	7 i
Scientific research and development services	5417	49	8	38 i	3 e	12	84 i	11 i
Biotechnology research and development	541711	12	5	10 i	1 e	2 e	36 i	1 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	37	4	28	2 e	9	47	10 i
Social sciences and humanities research and development	541720	*	* e	* e	0	1 i	1 i	*
Other professional, scientific, and technical services	other 54	37	1 e	25 e	12 e	20	84	4 e
Health care services	621–23	18	* e	15	1 e	1 e	2 e	* e
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	18 i	1 e	22 i	4 e	6 e	33 i	5
All companies (number of domestic employees)	–	5,690	215	5,582	450	5,405	10,001	501
Small companies[b]								
5–499	–	736	46 i	1,033 i	142 e	571	1,369	130 i
5–99	–	412 e	27 e	579 e	102 e	238 e	734 e	84 e
5–49	–	292 e	21 e	388 e	76 e	153 e	498 e	60 e
5–9	–	46 e	4 e	71 e	16 e	22 e	89 e	15 i
10–24	–	120 e	11 e	141 e	32 e	83 e	208 e	19 e
25–49	–	127 e	6 e	176 e	28 e	47 e	202 e	26
50–99	–	119	6 e	191 e	26 e	85	235	24 i
100–249	–	187	12	236	26 e	137	426	26
250–499	–	137	7	218	15	196	209	20
Medium and large companies								
500–999	–	278	10	147	9	190 i	330	8
1,000–4,999	–	1,053	19	733	65	596	1,853	273
5,000–9,999	–	921	3 i	544	19	53	755	*
10,000–24,999	–	1,222	30	669	131	394	2,668 i	58
25,000 or more	–	1,481	107	2,455	84	3,601	3,024	33

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
All industries	21–23, 31–33, 42–81	861	149	1,188	13,406	2,384	363 i	2,465
Manufacturing industries	31–33	674	118	884	7,588	1,050	133	1,430
Food	311	6 i	4 e	51	52 i	8 i	2 e	222 i
Beverage and tobacco products	312	* e	* e	2	96	1	* e	98
Textile, apparel, and leather products	313–16	70	* e	4 e	4 e	* e	2	2 e
Wood products	321	8	* e	3	3 e	* e	1 i	5
Paper	322	48	* e	9	7 e	1 i	* e	40

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
Printing and related support activities	323	* e	* i	10	2 e	1 i	* e	8 i
Petroleum and coal products	324	1 e	0	2 e	6 e	* e	0	3 e
Chemicals	325	88	7 i	236	983	166	35	274
Basic chemicals	3251	21	1 e	14	199	4	*	119
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	16	* e	167	98	* e	* e	24
Pesticide, fertilizer, and other agricultural chemicals	3253	2 i	4 i	5	9 i	1 i	* e	4
Pharmaceuticals and medicines	3254	27	2 e	41	554	158	26	118
Soap, cleaning compound, and toilet preparation	3256	4 e	* e	4 i	74	2 i	9	8
Paint, coating, adhesive, and other chemicals	3255, 3259	17	* e	5 i	50	1 e	* e	2 e
Plastics and rubber products	326	68	3	17	333	4 e	1 e	24
Nonmetallic mineral products	327	4	* e	2 e	10 i	1 e	3 i	5 i
Primary metals	331	4	* e	31	44	7	1 i	2 e
Fabricated metal products	332	16 i	31	30 i	86 e	21	1 e	6 e
Machinery	333	36	13	75	397	12	8 i	76 i
Agricultural implement	33311	* e	4	* e	3 i	* e	0	* e
Semiconductor machinery	333295	0	0	* e	35	* e	0	0
Engine, turbine, and power transmission equipment	3336	5	* e	39	11	* i	* e	38 i
Other machinery	other 333	31	9	36	348	11	7 i	37
Computer and electronic products	334	145	17	66	4,572	300	25	286
Communications equipment	3342	16	*	19	549	21	2 e	170
Semiconductor and other electronic components	3344	78	2 e	8 e	2,225	27 i	2	14
Navigational, measuring, electromedical, and control instruments	3345	50	14	31	491	131	12	75 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	5	*	24	154	65 i	1 e	15 e
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	18 i	* i	*	136	32	* e	36 i
Other measuring and controlling device	other 3345	27	14	7	200 i	33	10	24
Other computer and electronic products	other 334	1 e	* e	8 e	1,308 i	120	9	27 e
Electrical equipment, appliances, and components	335	52 i	13	36	82	5	5	20
Transportation equipment	336	91	28	129 i	577	319	40	287
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	53	26	98 i	103	177	* e	19
Aerospace products and parts	3364	35	1	30	464	142	39	161
Aircraft, aircraft engine, and aircraft parts	336411–13	35	1	D	464	D	39	D
Guided missile, space vehicle, and related parts	336414–15, 336419	*	0	D	*	D	0	D
Military armored vehicle, tank, and tank components	336992	* i	0	0	0	0	0	0
Other transportation	other 336	3 e	* i	2	10	* e	* e	108
Furniture and related products	337	1 e	1 e	1 e	7 e	7	2	16
Miscellaneous manufacturing	339	37 i	3 e	181	326	196	10 i	57 i
Medical equipment and supplies	3391	28 i	1	164	235	176	6 i	31 i
Other miscellaneous manufacturing	3399	9 e	2 e	17	91 i	21	4	26
Nonmanufacturing industries	21–23, 42–81	186	31	303	5,818	1,334	230 i	1,035

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
Mining, extraction, and support activities	21	* e	* e	* e	2,693	14	* e	D
Utilities	22	*	*	* e	5	* e	* e	3
Wholesale trade	42	3 e	1 e	5 e	22 e	2 e	1 i	12 i
Electronic shopping and electronic auctions	454111–12	2 i	* e	1 e	5 e	5 i	* e	1 e
Transportation and warehousing	48–49	* e	* e	16	17	2	* e	7
Information	51	106	17	96	2,112	513	186 i	486
Publishing	511	83	11	83	1,707	373	184 i	194
Newspaper, periodical, book, and directory publishers	5111	* e	* e	1 e	3 e	* e	* e	1 e
Software publishers	5112	82	11	82	1,704	372	184 i	193
Telecommunications	517	4 e	1 e	1 e	41	1 e	1 e	84
Data processing, hosting, and related services	518	6 e	5	9 e	227	39	1 e	156 i
Other information	other 51	13	* e	3 e	137	100	1	52
Finance and insurance	52	19	* e	6 i	107	67	* e	12
Real estate and rental and leasing	53	* e	* e	* e	5	* e	* e	* e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	1 i	0	0	0
Other real estate and rental and leasing	other 53	* e	* e	* e	4	* e	* e	* e
Professional, scientific, and technical services	54	50 i	10	169	775 i	712	42	446 i
Architectural, engineering, and related services	5413	3 e	* e	9	170	11	1 e	84
Computer systems design and related services	5415	31 i	3 i	45 i	421 i	37	36	280 e
Scientific research and development services	5417	6 e	6	18	87	30	1 e	39 e
Biotechnology research and development	541711	1 e	1	4 e	49 i	12	* e	8 e
Physical, engineering, and life sciences (except biotechnology) research and development	541712	6 e	5	14	38	18	1 e	30 e
Social sciences and humanities research and development	541720	0	* e	1 e	* e	* e	* e	1 i
Other professional, scientific, and technical services	other 54	10 e	1 e	98	96 e	635	3	43 e
Health care services	621–23	2 i	* e	1 e	6 e	* e	* e	6 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	4 e	2 i	8 e	71 i	17	1 e	D
All companies (number of domestic employees)	–	861	149	1,188	13,406	2,384	363 i	2,465
Small companies[b]								
5–499	–	179 e	45 e	288 e	1,919 i	485	79	744 e
5–99	–	106 e	29 e	188 e	1,160 e	189 e	42 e	464 e
5–49	–	81 e	23 e	124 e	794 e	142 e	22 e	340 e
5–9	–	16 e	4 e	23 e	137 e	22 e	3 e	82 e
10–24	–	35 e	8 e	50 e	297 e	50 e	9 e	127 e
25–49	–	30 e	12 e	52 e	360 e	70 e	9 e	130 e
50–99	–	25 e	6 e	64 e	366 i	47 e	20	124 e
100–249	–	44 i	15	47 i	499	132	20	176
250–499	–	29	1 e	53	260	164	17	103 i

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
Medium and large companies								
500–999	–	72	6	48	625	65	29	99
1,000–4,999	–	148	85	254	1,603	612	14	464
5,000–9,999	–	169	5	66	908	167	28	240
10,000–24,999	–	72	5 i	227	3,162	110	29	122
25,000 or more	–	221	4	304	5,190	944	184 i	797

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed[c]
All industries	21–23, 31–33, 42–81	13,996	273	3,618	21 e	10,120
Manufacturing industries	31–33	3,987	253	2,750	11	5,193
Food	311	65 i	49 i	91	* i	463
Beverage and tobacco products	312	26 i	* e	1 i	* e	15
Textile, apparel, and leather products	313–16	13	* e	23	* e	21
Wood products	321	28	10	5 i	* e	9
Paper	322	3 e	1	334	* e	32
Printing and related support activities	323	3	* e	16	* e	16
Petroleum and coal products	324	3	* e	4 i	0	D
Chemicals	325	502	90	243	3	504
Basic chemicals	3251	6	1	10	*	58
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	2	1	47	*	8
Pesticide, fertilizer, and other agricultural chemicals	3253	3 i	* e	51	0	D
Pharmaceuticals and medicines	3254	473	86	103	3	340
Soap, cleaning compound, and toilet preparation	3256	14	1 e	5 e	0	10
Paint, coating, adhesive, and other chemicals	3255, 3259	3	1 e	26	* e	D
Plastics and rubber products	326	17	23	137	* e	144
Nonmetallic mineral products	327	5 i	2	7	* e	850
Primary metals	331	5	10 i	15 i	* e	30
Fabricated metal products	332	64 i	2 e	92	2	163
Machinery	333	102 i	6 e	446	3 e	387
Agricultural implement	33311	3	2	37	* e	20
Semiconductor machinery	333295	*	0	0	0	63
Engine, turbine, and power transmission equipment	3336	1 e	* e	212	*	2
Other machinery	other 333	98 i	4 e	197	2 e	302
Computer and electronic products	334	870	14	212	1 e	1,399
Communications equipment	3342	127	3	17	*	288
Semiconductor and other electronic components	3344	217	1 e	38	1	D
Navigational, measuring, electromedical, and control instruments	3345	438	6	85	* e	302
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	273	2	16 e	0	95
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	27	0	9	0	139
Other measuring and controlling device	other 3345	139	4	60	* e	67

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed[c]
Other computer and electronic products	other 334	88 i	4 e	72 i	* e	D
Electrical equipment, appliances, and components	335	30	37 i	333	* e	219
Transportation equipment	336	2,092	5	503	* e	349
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	47	1 e	156	* e	D
Aerospace products and parts	3364	2,028	4	D	* e	D
Aircraft, aircraft engine, and aircraft parts	336411–13	2,027	4	D	* e	D
Guided missile, space vehicle, and related parts	336414–15, 336419	1	1	0	0	*
Military armored vehicle, tank, and tank components	336992	0	0	* i	0	0
Other transportation	other 336	16 i	* e	D	0	D
Furniture and related products	337	3 i	* e	11	* e	28
Miscellaneous manufacturing	339	157	2 e	279	* e	D
Medical equipment and supplies	3391	51 i	2 e	106 i	*	512
Other miscellaneous manufacturing	3399	106	1 e	173	* e	D
Nonmanufacturing industries	21–23, 42–81	10,009	21 e	867	10 e	4,927
Mining, extraction, and support activities	21	1	1 e	1 i	1 e	D
Utilities	22	*	1	16	1	19
Wholesale trade	42	9 e	1 e	9 e	1 i	91
Electronic shopping and electronic auctions	454111–12	10 i	* e	1 e	0	36
Transportation and warehousing	48–49	D	* e	*	* e	D
Information	51	9,157	6 e	622	3 e	2,813
Publishing	511	8,636	2	541	1	271
Newspaper, periodical, book, and directory publishers	5111	1 e	* e	1 e	* e	97 i
Software publishers	5112	8,635	1	540	1	174
Telecommunications	517	3 e	3 e	14	1 e	1,676
Data processing, hosting, and related services	518	180	* e	56	1 e	808
Other information	other 51	337	1 e	11	* e	58
Finance and insurance	52	11	* e	122	* e	224
Real estate and rental and leasing	53	D	* e	* e	* e	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	0	0	0	D
Other real estate and rental and leasing	other 53	D	* e	* e	* e	D
Professional, scientific, and technical services	54	697	11	80	3 e	1,319
Architectural, engineering, and related services	5413	61	1 e	14	1 e	80
Computer systems design and related services	5415	487	7	36 i	1 i	1,052
Scientific research and development services	5417	75	1 e	16	1 e	105
Biotechnology research and development	541711	27	* e	11	* e	53
Physical, engineering, and life sciences (except biotechnology) research and development	541712	48	* e	4 e	* e	49
Social sciences and humanities research and development	541720	1 i	0	* e	0	2
Other professional, scientific, and technical services	other 54	74	2 e	14 e	1 e	81
Health care services	621–23	2 e	* e	1 e	* e	44

TABLE 30. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed[c]
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	1 e	16 i	1 e	D
All companies (number of domestic employees)	–	13,996	273	3,618	21 e	10,120
Small companies[b]						
5–499	–	1,525	58 e	716 i	17 e	2,858
5–99	–	578 i	44 e	352 e	11 e	566
5–49	–	358 e	25 e	222 e	9 e	264
5–9	–	62 e	4 e	35 e	2 e	15
10–24	–	134 e	9 e	90 e	3 e	102
25–49	–	162 i	12 e	98 e	4 e	147
50–99	–	220	18	130 i	2 e	303
100–249	–	375	11	204	1 e	923
250–499	–	572	3	160	6	1,369
Medium and large companies						
500–999	–	275	9 i	197	* e	D
1,000–4,999	–	919	4	519	1	2,657
5,000–9,999	–	295	88	1,075	*	D
10,000–24,999	–	463	28	710	1 e	1,745
25,000 or more	–	10,520	87 i	402	1	1,759

* = amount < $500,000; D = data withheld to avoid disclosing operations of individual companies; e = estimated, > 50% of the estimate is modeled—see technical notes; i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Statistics for number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse.

[b] 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.

[c] Includes data reported on Form BRDI-1 that were not allocated to a specific state, as well as data reported on Form BRD-1S by multi-establishment companies. For single-establishment companies, data reported on Form BRD-1(S) were allocated to the state in the address used to mail the survey form.

NOTES: Detail may not add to total because of rounding; for number of companies detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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. For a given estimate in this table, if the conditions are satisfied for both the i and e flags, the e flag is 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, 2013.

TABLE 31. Domestic R&D paid for and performed by the company, by industry, company size, and domestic R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D program size: All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
All industries	21–23, 31–33, 42–81	264,913	8,586 i	21,158	26,137	14,554	194,478
Manufacturing industries	31–33	181,170	5,150 i	11,808	16,911	10,855	136,446
Food	311	4,801	270 i	604 i	441	625	2,861
Beverage and tobacco products	312	727	18 i	37	107	96	469
Textile, apparel, and leather products	313–16	642	121 i	171	223	127	0
Wood products	321	209	49 i	49	111	0	0
Paper	322	907	74 i	147 i	152	58	477
Printing and related support activities	323	224 i	62 i	122	39 i	0	0
Petroleum and coal products	324	236	81 i	D	47	D	0
Chemicals	325	54,285	484 i	2,046	4,414	2,993	44,348
Basic chemicals	3251	2,341	57 i	301	574	546	863
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	954	51 i	128	102	0	672
Pesticide, fertilizer, and other agricultural chemicals	3253	1,325 i	33 i	35	63	0	1,194 i
Pharmaceuticals and medicines	3254	45,891	115 i	1,276	3,285	2,041	39,174
Soap, cleaning compound, and toilet preparation	3256	2,458	101 i	90	186	228	1,854
Paint, coating, adhesive, and other chemicals	3255, 3259	1,315	126 i	216	204	178 i	590
Plastics and rubber products	326	3,496	355 i	585	467	236	1,853
Nonmetallic mineral products	327	1,303 i	90 i	144	141	93	836 i
Primary metals	331	605	119 i	158	173	0	156
Fabricated metal products	332	1,934 i	679 i	622	530	103 i	0
Machinery	333	12,092	834 i	1,296	1,761	1,061	7,141
Agricultural implement	33311	1,561	39 i	100	63	66	1,293
Semiconductor machinery	333295	3,097	36 i	35 i	244	232 i	2,550
Engine, turbine, and power transmission equipment	3336	1,336	23 i	91	82	139	1,001
Other machinery	other 333	6,098	736 i	1,069	1,372	624	2,297
Computer and electronic products	334	57,364	648 i	2,921	3,916	3,118	46,760
Communications equipment	3342	13,693	75 i	380	623	821	11,794
Semiconductor and other electronic components	3344	28,576	206 i	631	1,439	936	25,364
Navigational, measuring, electromedical, and control instruments	3345	9,001	246 i	1,315	1,153	626	5,662
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,470	42 i	559 i	466	300	1,104
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,037	25 i	98	95	23	2,796
Other measuring and controlling device	other 3345	3,494	178 i	658	592	303	1,763
Other computer and electronic products	other 334	6,093	122 i	596	701	735	3,940

TABLE 31. Domestic R&D paid for and performed by the company, by industry, company size, and domestic R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D program size: All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
Electrical equipment, appliances, and components	335	3,660	262 i	647	613	365	1,773
Transportation equipment	336	25,165	264 i	819	1,783	1,240	21,058
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	14,081	129 i	475	1,144	844	11,490
Aerospace products and parts	3364	10,042	74 i	199	537	236	8,996
Aircraft, aircraft engine, and aircraft parts	336411–13	9,765	72 i	199	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	278	2 i	*	D	D	D
Military armored vehicle, tank, and tank components	336992	7 i	2 i	6	0	0	0
Other transportation	other 336	1,035	60 i	140	103	160	572
Furniture and related products	337	374	97 i	114	163	0	0
Miscellaneous manufacturing	339	13,147	642 i	D	1,830	D	8,714
Medical equipment and supplies	3391	10,638	228 i	816	1,440	573	7,581
Other miscellaneous manufacturing	3399	2,509	414 i	D	391	D	1,133
Nonmanufacturing industries	21–23, 42–81	83,742	3,436 i	9,350	9,226	3,699	58,032
Mining, extraction, and support activities	21	3,602	23 i	113	69	0	3,398
Utilities	22	243	6 i	50	187	0	0
Wholesale trade	42	510 i	299 i	211 i	0	0	0
Electronic shopping and electronic auctions	454111–12	1,356 i	69 i	22	34 i	0	1,230
Transportation and warehousing	48–49	411	24 i	34	83	0	271
Information	51	56,039	823 i	2,779	4,337	2,191	45,909
Publishing	511	34,637	450 i	1,383	1,847	1,043	29,914
Newspaper, periodical, book, and directory publishers	5111	341 i	52 i	47 i	242 i	0	0
Software publishers	5112	34,296	398 i	1,336	1,605	1,043	29,914
Telecommunications	517	3,037	48 i	141	426	119	2,304
Data processing, hosting, and related services	518	6,333	234 i	1,048	1,477	748	2,826
Other information	other 51	12,032	91 i	207	587	281	10,866
Finance and insurance	52	4,298	20 i	273 i	294	341	3,370
Real estate and rental and leasing	53	150	12 i	11	126	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	3 i	D	D	0	0
Other real estate and rental and leasing	other 53	92	9 i	D	D	0	0
Professional, scientific, and technical services	54	15,617 i	1,776 i	5,376	3,664	947 i	3,854
Architectural, engineering, and related services	5413	1,261	209 i	522	358	171	1
Computer systems design and related services	5415	8,107 i	918 i	2,090 i	2,393 i	507 i	2,200 i
Scientific research and development services	5417	2,838	275 i	1,876	569	111 i	7
Biotechnology research and development	541711	1,331	73 i	900	356	0	1
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,470	193 i	955	205	111 i	6

TABLE 31. Domestic R&D paid for and performed by the company, by industry, company size, and domestic R&D program size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D program size: All companies	Less than $1 million	$1 million–$9.999 million	$10 million–$49.999 million	$50 million–$99.999 million	$100 million or more
Social sciences and humanities research and development	541720	36 i	8 i	21 i	7	0	0
Other professional, scientific, and technical services	other 54	3,411	375 i	888	344	158 i	1,647
Health care services	621–23	430 i	51 i	86	146 i	147	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,086 i	331 i	394	286 i	74 i	0
All companies (number of domestic employees)	–	264,913	8,586 i	21,158	26,137	14,554	194,478
Small companies[a]							
5–499	–	42,106	8,388 i	17,350	12,086	2,336	1,946
5–99	–	20,886 i	6,951 i	10,265	3,670	0	0
5–49	–	13,726 i	5,402 i	6,688	1,636 i	0	0
5–9	–	2,195 i	1,466 i	703 i	26	0	0
10–24	–	5,290 i	1,975 i	2,756	559 i	0	0
25–49	–	6,241 i	1,961 i	3,229	1,051	0	0
50–99	–	7,161	1,549 i	3,577	2,034	0	0
100–249	–	10,922	1,046 i	4,722	3,935	903	316
250–499	–	10,297	391 i	2,363	4,481	1,433	1,630
Medium and large companies							
500–999	–	10,280	105 i	1,730	3,609	2,609	2,227
1,000–4,999	–	45,342	72 i	1,643	7,585	6,023	30,019
5,000–9,999	–	25,009	9 i	221	1,530	1,939	21,310
10,000–24,999	–	44,275	12 i	145	771	1,234	42,112
25,000 or more	–	97,901	1 i	68	556	412	96,864

* = 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.

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. 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, 2013.

TABLE 32. Companies with domestic R&D paid for and performed by the company in energy and environmental protection application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
All industries	21–23, 31–33, 42–81	65,139	264,913	26,721	20,008	22,438	7,475
Manufacturing industries	31–33	27,655	181,170	16,972	15,176	15,502	6,353
Food	311	2,072	4,801	8	12	1,066	88 i
Chemicals	325	2,898	54,285	1,619	876	1,621	468
Basic chemicals	3251	386	2,341	337	531	313	268
Pharmaceuticals and medicines	3254	906	45,891	7	23	47	11
Other chemicals	other 325	1,605	6,053	1,275	321	1,261	189
Plastics and rubber products	326	1,553	3,496	1,261	221	1,193	116 i
Nonmetallic mineral products	327	584	1,303 i	555	151 i	411	40 i
Fabricated metal products	332	3,137	1,934 i	2,351	139 i	1,888	52 i
Machinery	333	3,918	12,092	3,455	1,924	3,197	1,896
Agricultural implement	33311	198	1,561	127	29	151	152
Semiconductor machinery	333295	162	3,097	154	209	145	89
Engine, turbine, and power transmission equipment	3336	146	1,336	137	622 i	120	795
Other machinery	other 333	3,412	6,098	3,038	1,065	2,781	859
Computer and electronic products	334	3,944	57,364	2,963	4,740	1,173	1,132 i
Semiconductor and other electronic components	3344	1,305	28,576	1,136	2,832	26	399 i
Other electronic products	other 334	2,640	28,788	1,828	1,908	1,148	733
Electrical equipment, appliances, and components	335	1,143	3,660	1,060	924 i	935	157 i
Transportation equipment	336	1,948	25,165	1,019	5,320	1,010	1,551
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1,212	14,081	897	4,560	898	1,248
Other transportation	other 336	736	11,084	122	760	112	303 i
Miscellaneous manufacturing	339	2,770	13,147	782	618 i	779	660 i
Other manufacturing	312–316, 321–24, 331, 337	3,694	3,923	1,901	250	2,229	194
Nonmanufacturing industries	21–23, 42–81	37,486	83,742	9,750	4,832	6,937	1,122
Mining, extraction, and support activities	21	246	3,602	159	2,724	81	351
Utilities	22	65	243	65	234	59	77
Wholesale trade	42	4,664	510 i	D	1	D	*
Information	51	3,890	56,039	679	274	13	147
Publishing	511	2,055	34,637	14	135	7	107
Telecommunications	517	231	3,037	91	36	0	0
Data processing, hosting, and related services	518	1,015	6,333	570	92	D	D
Other information	other 51	589	12,032	4	10	D	D
Professional, scientific, and technical services	54	12,693	15,617 i	7,944	1,544 i	6,190	446 i
Architectural, engineering, and related services	5413	2,074	1,261	2,002	513 i	1,784	139 i
Scientific research and development services	5417	1,320	2,838	790	504 i	727	97 i
Biotechnology research and development	541711	416	1,331	203	132 i	177	15
Other scientific research and development	other 5417	903	1,507	587	371 i	550	82 i

TABLE 32. Companies with domestic R&D paid for and performed by the company in energy and environmental protection application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
Other professional, scientific, and technical services	other 54	9,300	11,518 i	5,152	527 i	3,679	210 i
Health care services	621–23	1,674	430 i	0	0	0	0
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	14,253	7,301	D	56 i	D	100
All companies (number of domestic employees)	–	65,139	264,913	26,721	20,008	22,438	7,475
Small companies[b]							
5–499	–	62,932	42,106	25,840	3,236 i	21,571	1,144 i
5–99	–	56,394	20,886 i	22,740	1,781 i	18,426	671 i
5–49	–	48,605	13,726 i	19,251	1,201 i	15,121	493 i
5–9	–	17,348	2,195 i	7,545	163 i	5,529	67 i
10–24	–	19,210	5,290 i	7,139	458 i	5,646	159 i
25–49	–	12,046	6,241 i	4,568	580 i	3,946	267
50–99	–	7,789	7,161	3,488	580 i	3,305	178 i
100–249	–	4,796	10,922	2,375	794	2,378	247 i
250–499	–	1,742	10,297	725	661 i	767	226 i
Medium and large companies							
500–999	–	876	10,280	304	795	348	259 i
1,000–4,999	–	907	45,342	371	2,746	328	998
5,000–9,999	–	188	25,009	87	1,664	85	940 i
10,000–24,999	–	137	44,275	75	3,610	69	1,616
25,000 or more	–	108	97,901	47	7,957	39	2,518

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics for number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. A company having multiple reporting parts for data collection may contribute to the statistics for multiple industries, so the detail may not add to the total for the number of companies.

[b] 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; for number of companies detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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. Some R&D may be reported in more than one application area. Some R&D is not classified in any application area.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 33. Companies with domestic R&D paid for and performed by the company in health or medical, defense, and agricultural application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Health or medical		Defense		Agriculture	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
All industries	21–23, 31–33, 42–81	65,139	264,913	25,726	59,950	20,803	10,163	15,183	4,894 i
Manufacturing industries	31–33	27,655	181,170	15,741	54,771	11,788	8,216	9,935	4,577
Food	311	2,072	4,801	1,422	364 i	5	1	1,670	628 i
Chemicals	325	2,898	54,285	2,259	40,270	906	128 i	594	1,488 i
Basic chemicals	3251	386	2,341	291	50	280	49	296	115
Pharmaceuticals and medicines	3254	906	45,891	843	40,076	70	23 i	81	228
Other chemicals	other 325	1,605	6,053	1,125	144	556	56 i	217	1,145 i
Plastics and rubber products	326	1,553	3,496	1,325	345	1,098	101	1,324	746
Nonmetallic mineral products	327	584	1,303 i	367	38 i	226	42 i	93	5 i
Fabricated metal products	332	3,137	1,934 i	2,402	130 i	2,346	118 i	2,034	55 i
Machinery	333	3,918	12,092	1,774	269	1,994	239 i	2,125	1,301
Agricultural implement	33311	198	1,561	0	0	D	4	195	1,063
Semiconductor machinery	333295	162	3,097	146	82	143	88	140	74
Engine, turbine, and power transmission equipment	3336	146	1,336	117	78 i	123	77 i	120	102 i
Other machinery	other 333	3,412	6,098	1,511	109	D	70 i	1,669	62 i
Computer and electronic products	334	3,944	57,364	1,987	3,282	2,219	2,739	1,105	237
Semiconductor and other electronic components	3344	1,305	28,576	614	415	797	692 i	11	9
Other electronic products	other 334	2,640	28,788	1,373	2,867	1,422	2,047	1,094	228 i
Electrical equipment, appliances, and components	335	1,143	3,660	840	93 i	911	116 i	8	3
Transportation equipment	336	1,948	25,165	152	763	459	4,459	15	23
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1,212	14,081	9	6	18	47	9	1
Other transportation	other 336	736	11,084	143	757	442	4,413	6	21
Miscellaneous manufacturing	339	2,770	13,147	1,337	9,122	744	245 i	10	25
Other manufacturing	312–316, 321–24, 331, 337	3,694	3,923	1,877	97	879	27	956	66
Nonmanufacturing industries	21–23, 42–81	37,486	83,742	9,985	5,178 i	9,016	1,948	5,249	317 i
Mining, extraction, and support activities	21	246	3,602	D	*	0	0	D	2
Utilities	22	65	243	3	1	0	0	6	1
Wholesale trade	42	4,664	510 i	3	5	D	*	D	3
Information	51	3,890	56,039	2,100	1,998 i	1,404	1,177	13	21
Publishing	511	2,055	34,637	1,319	1,676 i	1,327	1,061	9	7
Telecommunications	517	231	3,037	D	14	70	98	0	0
Data processing, hosting, and related services	518	1,015	6,333	D	298	7	18	D	D
Other information	other 51	589	12,032	D	10 i	0	0	D	D
Professional, scientific, and technical services	54	12,693	15,617 i	7,556	2,750 i	D	759 i	5,220	288 i
Architectural, engineering, and related services	5413	2,074	1,261	1,198	50 i	1,565	71 i	1,128	20 i
Scientific research and development services	5417	1,320	2,838	1,099	1,758 i	612	160 i	719	125 i
Biotechnology research and development	541711	416	1,331	356	961	14	5	210	71 i
Other scientific research and development	other 5417	903	1,507	743	797 i	598	155 i	509	54 i

TABLE 33. Companies with domestic R&D paid for and performed by the company in health or medical, defense, and agricultural application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Health or medical		Defense		Agriculture	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
Other professional, scientific, and technical services	other 54	9,300	11,518 i	5,259	942 i	D	528 i	3,373	143 i
Health care services	621–23	1,674	430 i	58	293 i	D	* i	0	0
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	14,253	7,301	D	131 i	D	11	5	2
All companies (number of domestic employees)	–	65,139	264,913	25,726	59,950	20,803	10,163	15,183	4,894 i
Small companies[b]									
5–499	–	62,932	42,106	24,851	11,102	20,270	1,605 i	14,626	720 i
5–99	–	56,394	20,886 i	21,402	6,259 i	17,781	915 i	12,452	379 i
5–49	–	48,605	13,726 i	17,813	4,601 i	15,041	572 i	10,103	235 i
5–9	–	17,348	2,195 i	5,525	582 i	5,456	134 i	3,480	31 i
10–24	–	19,210	5,290 i	6,986	1,790 i	5,758	191 i	3,770	75 i
25–49	–	12,046	6,241 i	5,303	2,229	3,827	247 i	2,853	129 i
50–99	–	7,789	7,161	3,589	1,658	2,740	344	2,349	144 i
100–249	–	4,796	10,922	2,552	2,570	1,904	387	1,671	197 i
250–499	–	1,742	10,297	897	2,273	585	303 i	503	143
Medium and large companies									
500–999	–	876	10,280	387	1,968	208	411	283	194
1,000–4,999	–	907	45,342	327	10,901	218	1,239	189	430
5,000–9,999	–	188	25,009	69	3,247	47	1,272	36	351
10,000–24,999	–	137	44,275	55	18,382	34	1,786	30	2,126 i
25,000 or more	–	108	97,901	39	14,349	27	3,851	20	1,073

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics for number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. A company having multiple reporting parts for data collection may contribute to the statistics for multiple industries, so the detail may not add to the total for the number of companies.

[b] 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; for number of companies detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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. Some R&D may be reported in more than one application area. Some R&D is not classified in any application area.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 34. Companies with domestic R&D paid for and performed by the company in selected technology focus areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products and embedded software		Biotechnology		Nanotechnology	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
All industries	21–23, 31–33, 42–81	65,139	264,913	31,681	87,245	6,238	27,054	11,358	14,878
Manufacturing industries	31–33	27,655	181,170	15,241	24,956	5,184	25,641	7,360	13,889
Food	311	2,072	4,801	10	10	1,407	270 i	D	*
Chemicals	325	2,898	54,285	1,214	500	1,624	23,498	1,141	252
Basic chemicals	3251	386	2,341	274	42	298	321	D	58
Pharmaceuticals and medicines	3254	906	45,891	421	401	769	22,013	150	109
Other chemicals	other 325	1,605	6,053	519	57	557	1,165 i	D	85
Plastics and rubber products	326	1,553	3,496	15	23	5	287	1,080	56
Nonmetallic mineral products	327	584	1,303 i	322	47 i	D	*	233	26 i
Fabricated metal products	332	3,137	1,934 i	2,509	181 i	3	1	10	20
Machinery	333	3,918	12,092	3,346	1,389	155	116	D	920
Agricultural implement	33311	198	1,561	127	71	D	*	0	0
Semiconductor machinery	333295	162	3,097	154	468	144	106	D	851
Engine, turbine, and power transmission equipment	3336	146	1,336	117	177 i	0	0	75	14 i
Other machinery	other 333	3,412	6,098	2,948	673	D	10	553	54 i
Computer and electronic products	334	3,944	57,364	3,552	19,624	845	427 i	2,134	12,185
Semiconductor and other electronic components	3344	1,305	28,576	1,201	6,954	5	9	1,158	11,888
Other electronic products	other 334	2,640	28,788	2,352	12,670	840	418 i	976	297 i
Electrical equipment, appliances, and components	335	1,143	3,660	1,042	694 i	4	3	783	44 i
Transportation equipment	336	1,948	25,165	1,156	1,156	4	75	D	73
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1,212	14,081	906	419	D	D	D	7
Other transportation	other 336	736	11,084	250	736	D	D	D	66
Miscellaneous manufacturing	339	2,770	13,147	957	1,237 i	806	852 i	745	287 i
Other manufacturing	312–316, 321–24, 331, 337	3,694	3,923	1,119	96 i	D	111	D	27
Nonmanufacturing industries	21–23, 42–81	37,486	83,742	16,440	62,289	1,053	1,413 i	3,997	989 i
Mining, extraction, and support activities	21	246	3,602	149	330	D	11	7	31 i
Utilities	22	65	243	35	37 i	D	1	34	2
Wholesale trade	42	4,664	510 i	5	6	0	0	0	0
Information	51	3,890	56,039	3,020	47,791	9	49	D	609 i
Publishing	511	2,055	34,637	1,611	29,562	D	D	D	604 i
Telecommunications	517	231	3,037	130	2,133 i	0	0	0	0
Data processing, hosting, and related services	518	1,015	6,333	969	5,327	D	D	D	5
Other information	other 51	589	12,032	310	10,769	D	D	0	0
Professional, scientific, and technical services	54	12,693	15,617 i	10,041	8,993 i	987	1,084	2,676	345 i
Architectural, engineering, and related services	5413	2,074	1,261	1,753	131 i	50	13	1,544	78 i
Scientific research and development services	5417	1,320	2,838	615	203 i	929	1,070 i	823	219 i
Biotechnology research and development	541711	416	1,331	10	9 i	360	902	213	76 i
Other scientific research and development	other 5417	903	1,507	605	194 i	569	168 i	610	142 i

TABLE 34. Companies with domestic R&D paid for and performed by the company in selected technology focus areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products and embedded software		Biotechnology		Nanotechnology	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
Other professional, scientific, and technical services	other 54	9,300	11,518 i	7,673	8,659 i	8	1	309	48 i
Health care services	621–23	1,674	430 i	32	19 i	48	262 i	0	0
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	14,253	7,301	3,158	5,113	D	7	D	2 i
All companies (number of domestic employees)	–	65,139	264,913	31,681	87,245	6,238	27,054	11,358	14,878
Small companies[b]									
5–499	–	62,932	42,106	30,641	13,217 i	5,860	6,023	10,986	1,542 i
5–99	–	56,394	20,886 i	27,395	6,147 i	4,975	3,088	9,635	797 i
5–49	–	48,605	13,726 i	23,685	3,912 i	4,097	2,053	7,943	639 i
5–9	–	17,348	2,195 i	9,189	738 i	1,255	249 i	2,586	104 i
10–24	–	19,210	5,290 i	8,639	1,575 i	1,886	890 i	3,319	235 i
25–49	–	12,046	6,241 i	5,856	1,599 i	956	915	2,038	300 i
50–99	–	7,789	7,161	3,710	2,235	878	1,035	1,692	158 i
100–249	–	4,796	10,922	2,446	3,830	604	1,672	1,011	326 i
250–499	–	1,742	10,297	801	3,241	280	1,263	339	419 i
Medium and large companies									
500–999	–	876	10,280	349	3,153	166	824	125	316 i
1,000–4,999	–	907	45,342	443	15,230	124	7,171	146	3,309
5,000–9,999	–	188	25,009	102	10,101	31	572 i	38	3,335
10,000–24,999	–	137	44,275	79	5,749	34	9,567	D	2,453
25,000 or more	–	108	97,901	69	39,795	24	2,896 i	D	3,924 i

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics for number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. A company having multiple reporting parts for data collection may contribute to the statistics for multiple industries, so the detail may not add to the total for the number of companies.

[b] 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; for number of companies detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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. Some R&D may be reported in more than one technology area. Some R&D is not classified in any technology area. Changes in data collection and imputation processes have affected the comparability of company count estimates in this table with estimates published for previous years.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 35. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	57,615	4,233	12,908	40,475
Manufacturing industries	31–33	40,306	3,060	6,723	30,523
Food	311	227	10	97	120
Beverage and tobacco products	312	100 i	11 i	21 i	69 i
Textile, apparel, and leather products	313–16	21 i	*	* i	20 i
Wood products	321	11	1 i	1 i	9
Printing and related support activities	323	28 i	5 i	5 i	18 i
Chemicals	325	7,379	1,225	1,420	4,734
Pharmaceuticals and medicines	3254	6,534	1,097	1,013	4,424
Other chemicals	other 325	845	127	408	310
Plastics and rubber products	326	154 i	*	8 i	146 i
Nonmetallic mineral products	327	26 i	4 i	5 i	17 i
Primary metals	331	19	1 i	1	17
Fabricated metal products	332	278 i	1 i	15 i	262 i
Machinery	333	558	10	100	448
Computer and electronic products	334	9,841	1,157	1,368 i	7,316
Semiconductor and other electronic components	3344	2,224	414	243	1,567
Navigational, measuring, electromedical, and control instruments	3345	5,477	299	668	4,511
Other computer and electronic products	other 334	2,140 i	444 i	457 i	1,239 i
Electrical equipment, appliances, and components	335	475 i	52 i	97 i	327 i
Transportation equipment	336	20,807 i	572 i	3,556 i	16,679 i
Aerospace products and parts	3364	17,072 i	412 i	1,897 i	14,763 i
Other transportation equipment	other 336	3,735	160 i	1,660	1,916
Furniture and related products	337	1 i	* i	* i	* i
Miscellaneous manufacturing	322, 324, 339	380	12 i	27	341
Nonmanufacturing industries	21–23, 42–81	17,310	1,172	6,185	9,952 i
Information	51	1,168	70	501	597
Publishing	511	1,038	56	474	508
Telecommunications	517	4 i	* i	1 i	2 i
Data processing, hosting, and related services	518	113	14	25	73 i
Other information	other 51	14	* i	* i	14
Professional, scientific, and technical services	54	15,400	1,040	5,611	8,748 i
Architectural, engineering, and related services	5413	1,872	60	797	1,015 i
Computer systems design and related services	5415	1,161 i	12	123	1,027 i
Scientific research and development services	5417	11,363	940	4,518	5,905 i
Biotechnology research and development	541711	3,168 i	487	289	2,391 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	7,440	405	3,799	3,236 i
Social sciences and humanities research and development	541720	756	48 i	431 i	278 i
Other professional, scientific, and technical services	other 54	1,003	28 i	173	802
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	741	61	73	607
All companies (number of domestic employees)	–	57,615	4,233	12,908	40,475
Small companies[a]					
5–499	–	10,897	945	2,384 i	7,568 i
5–99	–	6,262 i	522	1,272 i	4,467 i
5–49	–	4,513 i	315 i	937 i	3,261 i
5–9	–	1,207 i	97 i	288 i	821 i
10–24	–	1,605 i	128 i	366 i	1,111 i
25–49	–	1,700	89	283 i	1,328
50–99	–	1,749	208	335	1,206 i
100–249	–	2,743	188	651	1,904
250–499	–	1,892	234	461 i	1,197
Medium and large companies					
500–999	–	1,722	125	674	923

TABLE 35. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
1,000–4,999	–	10,175	1,227	2,565	6,383
5,000–9,999	–	6,505	816	2,234	3,455
10,000–24,999	–	6,942	426 i	1,368	5,148
25,000 or more	–	21,374 i	694 i	3,683 i	16,997 i

* = amount < $500,000; i = > 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. 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, 2013.

TABLE 36. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other
All industries	21–23, 31–33, 42–81	57,615	32,958	276	1,276	361	5,855	756	1,479	1,496 i	13,158 i
Manufacturing industries	31–33	40,306	21,878	245	693	272	4,526	486	901	749	10,555 i
Food	311	227	148	1	3	1	15	6	6	12	36
Beverage and tobacco products	312	100 i	58 i	0	5 i	7 i	5 i	3 i	10 i	3 i	8 i
Textile, apparel, and leather products	313–16	21 i	14 i	0	0	0	5 i	0	0	* i	1 i
Wood products	321	11	5	* i	1	* i	2	* i	* i	* i	3
Paper	322	13 i	4 i	0	1	0	4 i	0	0	0	4 i
Printing and related support activities	323	28 i	15 i	1 i	0	* i	2 i	1 i	1 i	1 i	6 i
Petroleum and coal products	324	5	5	0	0	*	*	0	*	*	*
Chemicals	325	7,379	3,827	224	206	39	496	194	321	246	1,826
Basic chemicals	3251	317	186	*	6	8	40	11	12	4	51
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	111	74	0	*	*	*	*	*	*	36
Pesticide, fertilizer, and other agricultural chemicals	3253	366	179	0	D	* i	27	17	27	8 i	D
Pharmaceuticals and medicines	3254	6,534	3,363	224	156	30	425	166	282	234	1,653
Soap, cleaning compound, and toilet preparation	3256	11 i	5 i	0	*	0	2 i	0	0	* i	3 i
Paint, coating, adhesive, and other chemicals	3255, 3259	40	21	0	D	1	2	*	*	*	D
Plastics and rubber products	326	154 i	36 i	* i	1	9 i	100 i	* i	1 i	1 i	7 i
Nonmetallic mineral products	327	26 i	14 i	1 i	0	* i	2 i	1 i	1 i	1 i	6 i
Primary metals	331	19	11	0	0	0	7	*	*	*	1
Fabricated metal products	332	278 i	191 i	0	*	27 i	30 i	1 i	4 i	11 i	14 i
Machinery	333	558	303 i	1	11	20	80 i	16	20	6	101 i
Agricultural implement	33311	36	23	0	1	*	7	*	3	0	2
Semiconductor machinery	333295	97	44	1	3	1	14	10	12	1	11
Engine, turbine, and power transmission equipment	3336	113	50	0	3	3	11	1	1	4	40 i
Other machinery	other 333	312	185 i	* i	4	17	48 i	5 i	4	1 i	47 i
Computer and electronic products	334	9,841	6,449	17	276	82	1,152	94	378	202	1,190
Communications equipment	3342	1,964 i	1,491 i	* i	14	22 i	50 i	29 i	111 i	33 i	213 i
Semiconductor and other electronic components	3344	2,224	1,451	9	79	36	240	32	153	96	128
Navigational, measuring, electromedical, and control instruments	3345	5,477	3,392	8	161	23	851	29	110	73	831
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	164	92	*	7	2	40	4	1	*	18
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	5,069	3,130	8	140	20	798	24	83	72	795
Other measuring and controlling device	other 3345	245	170	*	14	1	13	1	26	1	18
Other computer and electronic products	other 334	176	115	0	22	1	12	4 i	4	1	18

TABLE 36. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other
Electrical equipment, appliances, and components	335	475 i	308 i	* i	5	48 i	42 i	10 i	9 i	4 i	49 i
Transportation equipment	336	20,807 i	10,232 i	* i	178	36	2,537	156	146	257	7,265 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	2,647	1,355	* i	145	10	590	118	94	46	290
Aerospace products and parts	3364	17,072 i	8,342 i	0	32	22	1,737	23	37	183	6,696 i
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	0	D	21	D	D	37	182	6,591 i
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	0	D	1	D	D	*	*	105
Military armored vehicle, tank, and tank components	336992	2 i	1 i	0	0	0	1 i	0	0	0	0
Other transportation	other 336	1,086	535 i	0	1 i	4 i	209 i	16 i	15 i	28 i	279 i
Furniture and related products	337	1 i	* i	0	0	* i	* i	* i	* i	* i	* i
Miscellaneous manufacturing	339	362	258	1	6	4	44	4	4	3	39
Medical equipment and supplies	3391	317	224	1	5	4	38	4	4	3	34
Other miscellaneous manufacturing	3399	46 i	34 i	0	1	0	6 i	0	0	* i	5 i
Nonmanufacturing industries	21–23, 42–81	17,310	11,079	31	583	89	1,330	270	578 i	747 i	2,603
Mining, extraction, and support activities	21	395	214	2	19	*	35	13	4	1	109
Utilities	22	50	19	2	9	*	1	*	0	17	2 i
Wholesale trade	42	18 i	18 i	0	0	0	*	0	0	0	*
Electronic shopping and electronic auctions	454111–12	1 i	1 i	0	0	0	0	0	0	0	0
Transportation and warehousing	48–49	D	D	0	0	* i	D	D	* i	0	D
Information	51	1,168	879	1	20	*	187	13	10	7	51 i
Publishing	511	1,038	768	*	16	*	182	12	8	3	48 i
Newspaper, periodical, book, and directory publishers	5111	1 i	1 i	0	0	0	* i	* i	* i	* i	* i
Software publishers	5112	1,037	767	*	16	*	182	12	8	3	48 i
Telecommunications	517	4 i	2 i	* i	*	0	1 i	*	* i	* i	*
Data processing, hosting, and related services	518	113	97 i	0	3	* i	4 i	1 i	1 i	4 i	2
Other information	other 51	14	11	1	1	0	* i	* i	* i	*	*
Finance and insurance	52	10	10	0	0	0	0	0	0	0	0
Real estate and rental and leasing	53	* i	* i	0	0	0	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	* i	* i	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	15,400	9,757	26	532	87	1,068	241	558 i	722 i	2,410
Architectural, engineering, and related services	5413	1,872	1,307 i	0	11	4 i	44 i	18 i	5 i	6 i	477
Computer systems design and related services	5415	1,161 i	1,010 i	* i	7	* i	37 i	13 i	7 i	8 i	80 i
Scientific research and development services	5417	11,363	6,785	25	410	78	925	186	534 i	703 i	1,717
Biotechnology research and development	541711	3,168 i	1,924	12	99	14	307	55	131	378 i	248

TABLE 36. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other
Physical, engineering, and life sciences (except biotechnology) research and development	541712	7,440	4,319	4	295	59 i	616	115	397 i	322 i	1,312
Social sciences and humanities research and development	541720	756	542	9	16	6	1	16	6	4	156
Other professional, scientific, and technical services	other 54	1,003	655	*	104	4	64	23	12	4 i	137
Health care services	621–23	96	53 i	*	2	* i	23	2 i	6	* i	10 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	0	1	*	D	D	*	0	D
All companies (number of domestic employees)	–	57,615	32,958	276	1,276	361	5,855	756	1,479	1,496 i	13,158 i
Small companies[a]											
5–499	–	10,897	7,284	37	241	122 i	1,138	286	287	212	1,290
5–99	–	6,262 i	4,227 i	18 i	132	60 i	688 i	135	139 i	97 i	766 i
5–49	–	4,513 i	3,057 i	12 i	85	38 i	553	88	111 i	74 i	495 i
5–9	–	1,207 i	875 i	2 i	33	11 i	107 i	28	19 i	16 i	117 i
10–24	–	1,605 i	1,088 i	4 i	31	10 i	175 i	32 i	27 i	35	204 i
25–49	–	1,700	1,094	6 i	21	17 i	271	29	65	23 i	173 i
50–99	–	1,749	1,170 i	6	47	22 i	136 i	47	28	22 i	272
100–249	–	2,743	1,841	5 i	57	29 i	289	94	63	75	290
250–499	–	1,892	1,216	13	53	34 i	161	56	85	40	234
Medium and large companies											
500–999	–	1,722	1,058	17	38	22	219	26	120 i	24	197
1,000–4,999	–	10,175	5,698	175	295	89	860	201	418	756 i	1,684
5,000–9,999	–	6,505	3,793	31	329	36	584	108	370	128	1,126
10,000–24,999	–	6,942	4,097	3 i	205	44 i	1,057	70	137 i	227	1,102
25,000 or more	–	21,374 i	11,028 i	13 i	168	49	1,997	64 i	147	150	7,758 i

* = 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.

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. 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, 2013.

TABLE 37. Domestic R&D paid for by others and performed by the company and others as a percent of domestic net sales, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
All industries	21–23, 31–33, 42–81	67,553	0.7	0.7
Manufacturing industries	31–33	48,110	0.8	0.8
Food	311	235	*	*
Beverage and tobacco products	312	105 i	0.1	0.1
Textile, apparel, and leather products	313–316	21 i	*	*
Wood products	321	12	*	*
Paper	322	14 i	*	*
Printing and related support activities	323	39 i	0.2	0.2
Petroleum and coal products	324	6	0.0	0.0
Chemicals	325	11,013	0.8	0.8
Basic chemicals	3251	328	0.1	0.1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	111	0.1	0.1
Pesticide, fertilizer, and other agricultural chemicals	3253	366	0.8	0.8
Pharmaceuticals and medicines	3254	10,148	2.0	2.0
Soap, cleaning compound, and toilet preparation	3256	11 i	*	*
Paint, coating, adhesive, and other chemicals	3255, 3259	50	0.1	0.1
Plastics and rubber products	326	168 i	0.1	0.1
Nonmetallic mineral products	327	30 i	0.1	0.1
Primary metals	331	19	*	*
Fabricated metal products	332	364 i	0.3	0.3
Machinery	333	597	0.2	0.2
Agricultural implement	33311	49	0.1	0.1
Semiconductor machinery	333295	100	0.9	0.9
Engine, turbine, and power transmission equipment	3336	127	0.3	0.3
Other machinery	other 333	321	0.1	0.1
Computer and electronic products	334	10,375	1.6	1.6
Communications equipment	3342	2,059 i	1.2	1.2
Semiconductor and other electronic components	3344	D	D	D
Navigational, measuring, electromedical, and control instruments	3345	5,834	3.3	3.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	172	0.6	0.6
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	5,408	6.3	6.3
Other measuring and controlling device	other 3345	254	0.4	0.4
Other computer and electronic products	other 334	D	D	D
Electrical equipment, appliances, and components	335	487 i	0.3	0.3
Transportation equipment	336	24,221 i	2.2	2.3
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	2,819	0.4	0.4
Aerospace products and parts	3364	20,310 i	5.7	5.7
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D
Military armored vehicle, tank, and tank components	336992	2 i	0.5	0.5
Other transportation	other 336	1,090	1.7	1.8
Furniture and related products	337	1 i	0.0	0.0
Miscellaneous manufacturing	339	401	0.1	0.1
Medical equipment and supplies	3391	348	0.1	0.1
Other miscellaneous manufacturing	3399	53 i	0.1	0.1
Nonmanufacturing industries	21–23, 42–81	19,443	0.5	0.5
Mining, extraction, and support activities	21	639	0.1	0.1
Utilities	22	65	*	*
Wholesale trade	42	19 i	0.0	0.0
Electronic shopping and electronic auctions	454111–12	1 i	0.0	0.0
Transportation and warehousing	48–49	D	D	D
Information	51	1,204	0.1	0.1
Publishing	511	1,067	0.3	0.3

TABLE 37. Domestic R&D paid for by others and performed by the company and others as a percent of domestic net sales, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D	Percent of domestic sales of R&D performers and funders[a]	Percent of domestic sales of R&D performers only[b]
Newspaper, periodical, book, and directory publishers	5111	1 i	0.0	0.0
Software publishers	5112	1,066	0.3	0.3
Telecommunications	517	4 i	0.0	0.0
Data processing, hosting, and related services	518	119	0.2	0.2
Other information	other 51	14	*	*
Finance and insurance	52	10	0.0	0.0
Real estate and rental and leasing	53	* i	0.0	0.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0.0	0.0
Other real estate and rental and leasing	other 53	* i	0.0	0.0
Professional, scientific, and technical services	54	17,202	4.6	4.6
Architectural, engineering, and related services	5413	2,050	2.2	2.2
Computer systems design and related services	5415	1,272 i	1.1	1.2
Scientific research and development services	5417	12,766	18.1	18.1
Biotechnology research and development	541711	3,262	14.0	14.1
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,566	18.7	18.6
Social sciences and humanities research and development	541720	938	72.3	72.3
Other professional, scientific, and technical services	other 54	1,114	1.1	1.1
Health care services	621–23	100	0.2	0.2
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	D
All companies (number of domestic employees)	–	67,553	0.7	0.7
Small companies[c]				
5–499	–	12,569	1.0	1.0
5–99	–	7,238 i	1.3	1.3
5–49	–	5,207 i	1.8	1.8
5–9	–	1,373 i	2.8	2.8
10–24	–	1,829 i	1.7	1.7
25–49	–	2,006	1.5	1.5
50–99	–	2,031	0.8	0.8
100–249	–	3,171	0.9	0.9
250–499	–	2,160	0.6	0.6
Medium and large companies				
500–999	–	1,975	0.6	0.6
1,000–4,999	–	12,281	1.1	1.1
5,000–9,999	–	7,733	0.9	0.9
10,000–24,999	–	7,791	0.4	0.4
25,000 or more	–	25,204 i	0.6	0.6

* = < $500,000 or < 0.05%; 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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed or funded R&D.

[b] Statistics used for the denominator in the calculation of these percentages are representative of companies located in the United States that performed R&D. The calculation of percentages in this column excludes R&D and sales of companies that fund R&D but do not perform R&D.

[c] 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. 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, unless indicated otherwise. Percentages are calculated as domestic R&D paid for by others divided by domestic sales.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 38. Domestic R&D paid for by others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
		Company size (domestic employees)											
All industries	21–23, 31–33, 42–81	57,615	1,207 i	1,605 i	1,700	1,749	2,743	1,892	1,722	10,175	6,505	6,942	21,374 i
Manufacturing industries	31–33	40,306	436	282 i	479 i	690	1,081	882	701	6,833	2,654	6,086	20,182 i
Food	311	227	1 i	6 i	2 i	3 i	57	5	9	115	*	*	29
Beverage and tobacco products	312	100 i	0	0	0	* i	2	95 i	0	* i	4	0	0
Textile, apparel, and leather products	313–16	21 i	1 i	* i	3 i	4 i	7 i	5	*	0	0	0	0
Wood products	321	11	* i	D	* i	* i	* i	0	4	0	0	D	0
Paper	322	13 i	0	* i	1 i	2 i	6	* i	0	2	1	0	0
Printing and related support activities	323	28 i	0	23 i	2 i	1 i	1 i	* i	1 i	0	0	0	0
Petroleum and coal products	324	5	0	0	D	0	D	0	*	0	0	D	*
Chemicals	325	7,379	41	74 i	145	210	291	131	105	3,613	933	1,454	382 i
Basic chemicals	3251	317	1 i	3	4	*	32	0	20	234 i	6	11	5
Resin, synthetic rubber, fibers, and artificial synthetic fibers and filaments	3252	111	0	0	* i	2 i	* i	1	0	103	0	4	*
Pesticide, fertilizer, and other agricultural chemicals	3253	366	1 i	D	* i	* i	0	0	0	D	0	D	0
Pharmaceuticals and medicines	3254	6,534	38	68 i	133	207	256	126	85	2,951	915	1,379	376 i
Soap, cleaning compound, and toilet preparation	3256	11 i	0	* i	D	* i	1	4 i	0	D	0	0	*
Paint, coating, adhesive, and other chemicals	3255, 3259	40	1 i	D	D	* i	2	*	* i	D	12	D	*
Plastics and rubber products	326	154 i	16 i	7 i	25 i	26 i	25	10 i	31	9	1	4	0
Nonmetallic mineral products	327	26 i	5 i	0	2 i	* i	17 i	0	*	1	0	1	0
Primary metals	331	19	0	* i	* i	3 i	* i	2 i	1 i	3	3	0	7
Fabricated metal products	332	278 i	20 i	17 i	47 i	97 i	55 i	11	*	0	31 i	0	0
Machinery	333	558	* i	26 i	63 i	76	66 i	12	51	103	96	62	3
Agricultural implement	33311	36	* i	* i	* i	* i	* i	0	0	5	0	30	0
Semiconductor machinery	333295	97	* i	8	0	7	20	0	9 i	52	0	0	0
Engine, turbine, and power transmission equipment	3336	113	0	6	13	7	5	3	4	0	43	32	0
Other machinery	other 333	312	* i	11 i	50 i	62 i	40 i	9	39	45 i	53	0	3
Computer and electronic products	334	9,841	331	61 i	123 i	128	438	346	253	1,497	1,056	1,688	3,921
Communications equipment	3342	1,964 i	* i	D	18 i	D	114	79 i	12	580 i	0	D	0
Semiconductor and other electronic components	3344	2,224	310	17 i	70 i	84	178 i	157	129	609	D	D	0
Navigational, measuring, electromedical, and control instruments	3345	5,477	D	30 i	35	32	145	110	20	264	D	506	3,921
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	164	*	8 i	1 i	4	73	27 i	19	22	7	3	0

TABLE 38. Domestic R&D paid for by others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
		Company size (domestic employees)											
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	5,069	3 i	3	13	5	52	75	0	238	257	503	3,921
Other measuring and controlling device	other 3345	245	D	18 i	21	23	21	8 i	1	4	D	0	0
Other computer and electronic products	other 334	176	D	D	* i	D	1	0	92	44	*	D	0
Electrical equipment, appliances, and components	335	475 i	3 i	18 i	12 i	35	22 i	40	59	99	0	187 i	0
Transportation equipment	336	20,807 i	0	28 i	12 i	77	58 i	174	160	1,372	530	2,568	15,830 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	2,647	0	0	7 i	69	53 i	165	106	1,041	247	292	666 i
Aerospace products and parts	3364	17,072 i	0	23	D	D	2 i	9	D	330	283	2,276	14,091 i
Aircraft, aircraft engine, and aircraft parts	336411–13	D	0	D	* i	D	2 i	9	D	D	282	D	14,091 i
Guided missile, space vehicle, and related parts	336414–15, 336419	D	0	D	D	D	0	0	0	D	*	D	0
Military armored vehicle, tank, and tank components	336992	2 i	0	0	2 i	0	0	0	0	0	0	0	0
Other transportation	other 336	1,086	0	4 i	D	D	2 i	*	D	*	0	0	1,072
Furniture and related products	337	1 i	0	0	* i	* i	0	* i	0	0	0	0	0
Miscellaneous manufacturing	339	362	18 i	D	D	29	D	51 i	26	20	0	114	11
Medical equipment and supplies	3391	317	18 i	4 i	36	23	25	49 i	18	20	0	114	11
Other miscellaneous manufacturing	3399	46 i	1 i	D	D	6 i	D	2	8	*	0	0	0
Nonmanufacturing industries	21–23, 42–81	17,310	771 i	1,323 i	1,222	1,059 i	1,663	1,010	1,021	3,342 i	3,851	857	1,192
Mining, extraction, and support activities	21	395	* i	0	0	0	5 i	* i	0	10	*	373	7
Utilities	22	50	0	0	3	*	* i	0	2	1	5	8	31
Wholesale trade	42	18 i	1 i	2 i	2	1 i	4 i	7	0	0	0	0	0
Electronic shopping and electronic auctions	454111–12	1 i	0	0	0	0	0	0	1 i	0	0	0	0
Transportation and warehousing	48–49	D	0	0	0	0	0	0	* i	D	0	0	0
Information	51	1,168	13 i	227 i	36	44 i	75 i	35	30	2	296	0	411
Publishing	511	1,038	* i	214 i	11 i	40 i	65 i	20	12	0	296	0	379
Newspaper, periodical, book, and directory publishers	5111	1 i	0	1 i	0	* i	* i	0	0	0	0	0	0
Software publishers	5112	1,037	* i	213 i	11 i	40 i	65 i	20	12	0	296	0	379
Telecommunications	517	4 i	1 i	0	1 i	*	1 i	0	0	0	0	0	0
Data processing, hosting, and related services	518	113	11 i	11 i	24	4 i	8	15 i	6	2	0	0	32
Other information	other 51	14	0	2	* i	0	0	0	12	0	0	0	0
Finance and insurance	52	10	0	0	0	0	1	0	0	9	0	0	0
Real estate and rental and leasing	53	* i	0	0	* i	0	0	* i	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 38. Domestic R&D paid for by others and performed by the company, by industry and company size: 2013
(Millions of U.S. dollars)

Industry	NAICS code	Company size (domestic employees)											
		All companies	5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 or more
Other real estate and rental and leasing	other 53	* i	0	0	* i	0	0	* i	0	0	0	0	0
Professional, scientific, and technical services	54	15,400	751 i	1,071 i	1,119	999 i	1,567	934	987	3,205 i	3,549	475	743
Architectural, engineering, and related services	5413	1,872	60 i	180 i	87	154 i	277 i	82	106	114	95	47	670
Computer systems design and related services	5415	1,161 i	193 i	97 i	47 i	221 i	333 i	143	39	36 i	0	0	51
Scientific research and development services	5417	11,363	413 i	578	940	537	882	613	695	3,048 i	3,210	428	19
Biotechnology research and development	541711	3,168 i	118 i	136	92 i	D	D	3	210	D	1,627	0	19
Physical, engineering, and life sciences (except biotechnology) research and development	541712	7,440	228 i	431	809	473	744	610	485	1,648 i	1,584	428	0
Social sciences and humanities research and development	541720	756	68	12	39 i	D	D	0	0	D	0	0	0
Other professional, scientific, and technical services	other 54	1,003	85	215 i	45 i	86	76	97	147	7	244	0	2
Health care services	621–23	96	1 i	8	59	9 i	11 i	8 i	0	1 i	0	0	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	6 i	16 i	3	6	* i	25	1	D	0	0	0

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] 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. 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, 2013.

TABLE 39. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States: Company's parent	Companies outside United States: Unaffiliated companies	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other: In United States	All other: Outside United States
All industries	21–23, 31–33, 42–81	57,615	13,450	10,445	3,346	29,362	194	526	262	31
Manufacturing industries	31–33	40,306	5,174	9,043	2,384	22,958	82	518	123	24
Food	311	227	34 i	176	1 i	1 i	0	0	15	0
Beverage and tobacco products	312	100 i	* i	97 i	4	* i	0	0	* i	0
Textile, apparel, and leather products	313–16	21 i	7 i	D	0	6 i	0	0	D	*
Wood products	321	11	5	4	1 i	1	0	0	0	* i
Paper	322	13 i	7 i	3	D	0	0	0	D	0
Printing and related support activities	323	28 i	10 i	* i	15 i	3 i	* i	0	* i	* i
Petroleum and coal products	324	5	5	0	*	0	0	0	0	0
Chemicals	325	7,379	1,389	3,690	1,904	356	3	0	16	22
Basic chemicals	3251	317	33	92	29	163 i	0	0	0	0
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	111	D	104	1	1	1	0	D	0
Pesticide, fertilizer, and other agricultural chemicals	3253	366	D	D	D	3	0	0	D	* i
Pharmaceuticals and medicines	3254	6,534	1,343	3,162	1,825	167	2	0	13	22
Soap, cleaning compound, and toilet preparation	3256	11 i	3 i	D	D	4 i	0	0	0	0
Paint, coating, adhesive, and other chemicals	3255, 3259	40	D	D	D	18	0	0	*	0
Plastics and rubber products	326	154 i	130 i	10 i	D	11 i	D	0	D	0
Nonmetallic mineral products	327	26 i	12 i	1 i	9 i	4 i	* i	0	*	* i
Primary metals	331	19	4	D	D	11	D	* i	* i	0
Fabricated metal products	332	278 i	192 i	7 i	1 i	53 i	25 i	D	D	0
Machinery	333	558	110	253	56	128	7	*	3	*
Agricultural implement	33311	36	2	34	* i	* i	* i	0	0	0
Semiconductor machinery	333295	97	10	58	10	18	0	0	0	0
Engine, turbine, and power transmission equipment	3336	113	50	10	18	27	5	0	2	*
Other machinery	other 333	312	48 i	152 i	27 i	83	2	*	1 i	* i
Computer and electronic products	334	9,841	1,748	2,720	D	4,866	43	D	20	1 i
Communications equipment	3342	1,964 i	257 i	834	2 i	864 i	* i	2 i	5	0
Semiconductor and other electronic components	3344	2,224	673	1,359	90	60	40	1	*	0
Navigational, measuring, electromedical, and control instruments	3345	5,477	785	420	D	3,912	2	D	16	1 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	164	15	88	30	20	* i	0	10	1 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	5,069	759	195	D	3,812	2	D	*	0
Other measuring and controlling device	other 3345	245	12	136	10	80	*	1	6 i	0
Other computer and electronic products	other 334	176	32	107	7	29	* i	* i	0	0
Electrical equipment, appliances, and components	335	475 i	83	258 i	1 i	129 i	D	0	D	0
Transportation equipment	336	20,807 i	1,328	1,676	D	17,312	2	D	D	0

TABLE 39. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States: Company's parent	Companies outside United States: Unaffiliated companies	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other: In United States	All other: Outside United States
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	2,647	565 i	1,673	99 i	304 i	*	* i	5	0
Aerospace products and parts	3364	17,072 i	758	1	D	15,927	2	D	D	0
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	1	D	D	2	D	D	0
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	0	0	D	1	D	0	0
Military armored vehicle, tank, and tank components	336992	2 i	0	0	0	2 i	0	0	0	0
Other transportation	other 336	1,086	5	1 i	* i	1,079	0	* i	* i	0
Furniture and related products	337	1 i	* i	* i	* i	* i	0	* i	0	0
Miscellaneous manufacturing	339	362	111	144	17	76	* i	0	13	0
Medical equipment and supplies	3391	317	97	137	17	52	0	0	13	0
Other miscellaneous manufacturing	3399	46 i	14 i	7 i	* i	24 i	* i	0	0	0
Nonmanufacturing industries	21–23, 42–81	17,310	8,276	1,402	962 i	6,404	112	8	138	7 i
Mining, extraction, and support activities	21	395	D	0	D	2	0	*	1	0
Utilities	22	50	0	3	0	45	2	0	1	0
Wholesale trade	42	18 i	5 i	13	0	0	0	0	* i	0
Electronic shopping and electronic auctions	454111–12	1 i	1 i	0	0	0	0	0	0	0
Transportation and warehousing	48–49	D	1 i	0	0	D	0	0	0	0
Information	51	1,168	447	506	6	203	4	0	2	0
Publishing	511	1,038	387	468	6	173	4	0	0	0
Newspaper, periodical, book, and directory publishers	5111	1 i	1 i	0	* i	* i	0	0	0	0
Software publishers	5112	1,037	386	468	6	173	4	0	0	0
Telecommunications	517	4 i	2 i	*	* i	1 i	0	0	0	0
Data processing, hosting, and related services	518	113	45	36 i	0	29	1	0	2	0
Other information	other 51	14	13	1	*	* i	0	0	0	0
Finance and insurance	52	10	10	0	0	0	0	0	0	0
Real estate and rental and leasing	53	* i	* i	0	0	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	* i	* i	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	15,400	7,610	863	662 i	6,033	83	8	134	7 i
Architectural, engineering, and related services	5413	1,872	306	52	46	1,372	31 i	1 i	63	* i
Computer systems design and related services	5415	1,161 i	175 i	156 i	* i	809 i	19 i	*	3 i	0
Scientific research and development services	5417	11,363	6,841	578	549 i	3,288	31	6	63	7 i
Biotechnology research and development	541711	3,168 i	2,320	270	398 i	157	4	1	16	3 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	7,440	4,482	309 i	150	2,454	12	5	23	4
Social sciences and humanities research and development	541720	756	40 i	0	0	677	15	0	24	0

TABLE 39. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States: Company's parent	Companies outside United States: Unaffiliated companies	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other: In United States	All other: Outside United States
Other professional, scientific, and technical services	other 54	1,003	288 i	77	67	565	2 i	* i	5	* i
Health care services	621–23	96	75	D	D	1 i	0	0	1	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	D	0	D	23	0	0	0
All companies (number of domestic employees)	–	57,615	13,450	10,445	3,346	29,362	194	526	262	31
Small companies[a]										
5–499	–	10,897	3,823 i	2,106	551	4,114	126	11 i	138	29
5–99	–	6,262 i	2,533 i	874	308	2,337 i	96	6	97	10
5–49	–	4,513 i	2,063 i	455 i	156 i	1,662 i	79	5	83	10
5–9	–	1,207 i	505 i	42 i	24 i	576 i	46	1	10 i	3
10–24	–	1,605 i	661 i	172 i	77 i	615 i	19	2 i	53	6
25–49	–	1,700	896	240	55 i	471	14 i	3	20	* i
50–99	–	1,749	471 i	419	152	675 i	17 i	1 i	14 i	1
100–249	–	2,743	704	672	142	1,161	25 i	3	34	1 i
250–499	–	1,892	585	560 i	101	615	4	2 i	7	18
Medium and large companies										
500–999	–	1,722	646	593	66	393	10	1	13	* i
1,000–4,999	–	10,175	2,569 i	4,581	1,038	1,927	32	1 i	26	1 i
5,000–9,999	–	6,505	3,654	1,660	345	828	6 i	*	10	1 i
10,000–24,999	–	6,942	1,016	1,310	1,083	3,491	18	2	24	0
25,000 or more	–	21,374 i	1,743	195	263 i	18,609	4	510	50	0

* = 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.

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. 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, 2013.

TABLE 40. Companies with domestic R&D paid for by others and performed by the company in energy and environmental protection application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
All industries	21–23, 31–33, 42–81	11,514	57,615	5,090	3,084 i	3,753	2,190 i
Manufacturing industries	31–33	6,068	40,306	2,088	1,740 i	1,938	540
Food	311	290	227	86	4 i	277	32
Chemicals	325	569	7,379	137	144 i	125	68 i
Basic chemicals	3251	130	317	125	102 i	118	45 i
Pharmaceuticals and medicines	3254	319	6,534	D	7	D	19
Other chemicals	other 325	120	527	D	35	D	4
Plastics and rubber products	326	326	154 i	235	5 i	243	7 i
Nonmetallic mineral products	327	132	26 i	3	1	D	*
Fabricated metal products	332	1,282	278 i	D	25 i	D	*
Machinery	333	519	558	389	146	379	72
Agricultural implement	33311	12	36	0	0	0	0
Semiconductor machinery	333295	19	97	0	0	0	0
Engine, turbine, and power transmission equipment	3336	35	113	31	66	25	52
Other machinery	other 333	453	312	358	80	354	20 i
Computer and electronic products	334	966	9,841	669	652	481	83 i
Semiconductor and other electronic components	3344	465	2,224	434	379	360	23 i
Other electronic products	other 334	502	7,617	236	273	121	60
Electrical equipment, appliances, and components	335	243	475 i	225	183 i	140	9 i
Transportation equipment	336	461	20,807 i	151	564 i	107	261 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	302	2,647	137	214	101	D
Other transportation	other 336	159	18,160 i	14	350 i	7	D
Miscellaneous manufacturing	339	650	362	178	8	176	6
Other manufacturing	312–316, 321–24, 331, 337	631	198 i	D	8	D	2
Nonmanufacturing industries	21–23, 42–81	5,446	17,310	3,002	1,345	1,814	1,651 i
Mining, extraction, and support activities	21	46	395	13	358	D	D
Utilities	22	13	50	13	49	5	37
Wholesale trade	42	128	18 i	D	*	0	0
Information	51	321	1,168	99	17	D	1
Publishing	511	130	1,038	D	13	0	0
Telecommunications	517	27	4 i	D	*	0	0
Data processing, hosting, and related services	518	127	113	D	4	D	1
Other information	other 51	37	14	0	0	0	0
Professional, scientific, and technical services	54	4,512	15,400	D	919 i	D	1,578 i
Architectural, engineering, and related services	5413	641	1,872	598	364 i	599	1,168 i
Scientific research and development services	5417	1,108	11,363	694	504 i	539	329 i
Biotechnology research and development	541711	249	3,168 i	115	52 i	D	10
Other scientific research and development	other 5417	859	8,196	579	451 i	D	319 i
Other professional, scientific, and technical services	other 54	2,763	2,165	D	51 i	D	81 i

TABLE 40. Companies with domestic R&D paid for by others and performed by the company in energy and environmental protection application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
Health care services	621–23	134	96	0	0	0	0
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	292	182	D	1	D	D
All companies (number of domestic employees)	–	11,514	57,615	5,090	3,084 i	3,753	2,190 i
Small companies[b]							
5–499	–	11,083	10,897	4,891	928	3,641	756 i
5–99	–	10,034	6,262 i	4,511	620	3,329	477 i
5–49	–	8,792	4,513 i	3,940	496	2,950	331 i
5–9	–	3,350	1,207 i	1,422	243	1,071	96 i
10–24	–	3,761	1,605 i	1,887	124 i	1,285	106 i
25–49	–	1,681	1,700	630	128 i	595	128 i
50–99	–	1,242	1,749	572	125 i	379	146 i
100–249	–	800	2,743	294	181 i	251	186 i
250–499	–	249	1,892	85	127 i	61	94 i
Medium and large companies							
500–999	–	130	1,722	43	111 i	33	76 i
1,000–4,999	–	160	10,175	73	366 i	38	101 i
5,000–9,999	–	47	6,505	27	377 i	14	188 i
10,000–24,999	–	58	6,942	37	570	15	149
25,000 or more	–	37	21,374 i	20	732 i	11	920

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics for number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. A company having multiple reporting parts for data collection may contribute to the statistics for multiple industries, so the detail may not add to the total for the number of companies.

[b] 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; for number of companies detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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. Some R&D may be reported in more than one application area. Some R&D is not classified in any application area.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 41. Companies with domestic R&D paid for by others and performed by the company in health or medical, defense, and agricultural application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Health or medical		Defense		Agriculture	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
All industries	21–23, 31–33, 42–81	11,514	57,615	6,424	14,143	6,489	27,308 i	2,705	774
Manufacturing industries	31–33	6,068	40,306	2,750	5,736	2,874	21,961 i	775	537
Food	311	290	227	281	59	0	0	277	29
Chemicals	325	569	7,379	287	4,948	62	74	121	441
Basic chemicals	3251	130	317	12	6 i	18	12 i	14	9 i
Pharmaceuticals and medicines	3254	319	6,534	271	4,936	37	46	103	195
Other chemicals	other 325	120	527	4	6	6	16	4	237
Plastics and rubber products	326	326	154 i	248	7 i	275	12 i	235	4 i
Nonmetallic mineral products	327	132	26 i	D	*	D	*	0	0
Fabricated metal products	332	1,282	278 i	843	22 i	1,000	50 i	0	0
Machinery	333	519	558	5	5	255	19	25	39
Agricultural implement	33311	12	36	0	0	D	*	4	30
Semiconductor machinery	333295	19	97	D	*	D	3	0	0
Engine, turbine, and power transmission equipment	3336	35	113	0	0	21	8 i	21	9
Other machinery	other 333	453	312	D	5	D	8	0	0
Computer and electronic products	334	966	9,841	655	369	755	4,358	D	19 i
Semiconductor and other electronic components	3344	465	2,224	422	208 i	424	296 i	D	2
Other electronic products	other 334	502	7,617	234	161	332	4,062	D	17 i
Electrical equipment, appliances, and components	335	243	475 i	183	18 i	224	111 i	D	1
Transportation equipment	336	461	20,807 i	9	24	99	17,298 i	0	0
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	302	2,647	D	* i	3	7 i	0	0
Other transportation	other 336	159	18,160 i	D	24	96	17,290 i	0	0
Miscellaneous manufacturing	339	650	362	D	284	196	30	0	0
Other manufacturing	312–316, 321–24, 331, 337	631	198 i	D	*	D	9 i	D	4
Nonmanufacturing industries	21–23, 42–81	5,446	17,310	3,674	8,406 i	3,615	5,346 i	1,931	238 i
Mining, extraction, and support activities	21	46	395	0	0	0	0	0	0
Utilities	22	13	50	D	*	0	0	0	0
Wholesale trade	42	128	18 i	D	7	0	0	0	0
Information	51	321	1,168	113	28	D	17	D	3
Publishing	511	130	1,038	98	14	D	5	D	3
Telecommunications	517	27	4 i	0	0	0	0	0	0
Data processing, hosting, and related services	518	127	113	D	13	D	12	D	1
Other information	other 51	37	14	D	1	0	0	0	0
Professional, scientific, and technical services	54	4,512	15,400	3,543	8,305 i	3,609	5,306 i	D	233 i
Architectural, engineering, and related services	5413	641	1,872	544	37 i	622	975 i	D	1
Scientific research and development services	5417	1,108	11,363	968	7,991 i	773	3,204 i	502	82 i
Biotechnology research and development	541711	249	3,168 i	234	2,686 i	129	56 i	7	9
Other scientific research and development	other 5417	859	8,196	734	5,306 i	644	3,148 i	495	73 i

TABLE 41. Companies with domestic R&D paid for by others and performed by the company in health or medical, defense, and agricultural application areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Health or medical		Defense		Agriculture	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
Other professional, scientific, and technical services	other 54	2,763	2,165	2,032	277 i	2,214	1,126 i	D	149 i
Health care services	621–23	134	96	D	61	0	0	0	0
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	292	182	D	5	D	23	D	2
All companies (number of domestic employees)	–	11,514	57,615	6,424	14,143	6,489	27,308 i	2,705	774
Small companies[b]									
5–499	–	11,083	10,897	6,282	3,388	6,349	3,652 i	2,643	171 i
5–99	–	10,034	6,262 i	5,778	2,257 i	5,850	1,929 i	2,467	102 i
5–49	–	8,792	4,513 i	5,016	1,817 i	5,112	1,370 i	2,183	65 i
5–9	–	3,350	1,207 i	1,886	403 i	1,873	524 i	828	22 i
10–24	–	3,761	1,605 i	2,325	475 i	2,245	482 i	1,186	28 i
25–49	–	1,681	1,700	805	939	995	365 i	169	15 i
50–99	–	1,242	1,749	761	440 i	738	559 i	284	37 i
100–249	–	800	2,743	400	621	408	1,079	144	48 i
250–499	–	249	1,892	105	510	92	644 i	32	20 i
Medium and large companies									
500–999	–	130	1,722	42	528	39	371 i	16	26
1,000–4,999	–	160	10,175	56	4,710 i	55	1,137	28	236
5,000–9,999	–	47	6,505	13	3,938	13	1,186 i	6	62 i
10,000–24,999	–	58	6,942	19	1,252	17	3,045	6	210
25,000 or more	–	37	21,374 i	12	327 i	16	17,917 i	7	69

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics for number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. A company having multiple reporting parts for data collection may contribute to the statistics for multiple industries, so the detail may not add to the total for the number of companies.

[b] 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; for number of companies detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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. Some R&D may be reported in more than one application area. Some R&D is not classified in any application area.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 42. Companies with domestic R&D paid for by others and performed by the company in selected technology focus areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products and embedded software		Biotechnology		Nanotechnology		Federally funded software	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
All industries	21–23, 31–33, 42–81	11,514	57,615	6,005	10,103 i	3,019	5,410	2,368	1,865 i	4,487	6,275 i
Manufacturing industries	31–33	6,068	40,306	2,464	5,276 i	1,172	4,189	907	976 i	1,620	3,787 i
Food	311	290	227	134	8	276	D	0	0	D	* i
Chemicals	325	569	7,379	27	38	475	4,002	159	58 i	15	7 i
Basic chemicals	3251	130	317	D	9 i	117	D	D	21 i	D	5 i
Pharmaceuticals and medicines	3254	319	6,534	10	23	272	3,666	36	18 i	D	2
Other chemicals	other 325	120	527	D	7	86	D	D	19	D	*
Plastics and rubber products	326	326	154 i	0	0	0	0	0	0	0	0
Nonmetallic mineral products	327	132	26 i	0	0	0	0	0	0	0	0
Fabricated metal products	332	1,282	278 i	741	14 i	0	0	D	*	D	3 i
Machinery	333	519	558	288	22	D	*	9	22	99	2
Agricultural implement	33311	12	36	D	*	0	0	0	0	0	0
Semiconductor machinery	333295	19	97	D	2 i	0	0	D	22	D	1
Engine, turbine, and power transmission equipment	3336	35	113	D	2	0	0	0	0	D	*
Other machinery	other 333	453	312	271	18	D	*	D	*	D	* i
Computer and electronic products	334	966	9,841	678	2,351 i	160	63	543	792 i	501	1,382 i
Semiconductor and other electronic components	3344	465	2,224	335	311	D	3	424	748 i	222	8
Other electronic products	other 334	502	7,617	342	2,040 i	D	60	119	43	279	1,374 i
Electrical equipment, appliances, and components	335	243	475 i	227	250 i	D	*	182	17 i	D	36 i
Transportation equipment	336	461	20,807 i	154	2,570 i	D	53 i	7	82 i	78	2,354 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	302	2,647	131	148	0	0	D	*	D	20 i
Other transportation	other 336	159	18,160 i	22	2,422 i	D	53 i	D	82 i	D	2,334 i
Miscellaneous manufacturing	339	650	362	216	23	200	27	D	6 i	170	4
Other manufacturing	312–316, 321–24, 331, 337	631	198 i	0	0	50	D	D	*	0	0
Nonmanufacturing industries	21–23, 42–81	5,446	17,310	3,541	4,827 i	1,848	1,221 i	1,461	889 i	2,867	2,488 i
Mining, extraction, and support activities	21	46	395	4	83	D	D	D	D	D	2
Utilities	22	13	50	D	*	D	*	0	0	D	*
Wholesale trade	42	128	18 i	D	1	0	0	0	0	0	0
Information	51	321	1,168	135	984 i	102	6	D	2	100	161 i
Publishing	511	130	1,038	112	932 i	D	D	D	2	96	158 i
Telecommunications	517	27	4 i	D	*	0	0	0	0	D	*
Data processing, hosting, and related services	518	127	113	D	40	D	D	0	0	D	3
Other information	other 51	37	14	D	12	0	0	0	0	0	0
Professional, scientific, and technical services	54	4,512	15,400	3,395	3,746 i	1,725	1,143 i	D	878 i	D	2,325 i
Architectural, engineering, and related services	5413	641	1,872	570	667 i	590	58 i	595	200 i	535	544 i
Scientific research and development services	5417	1,108	11,363	649	1,946 i	D	1,081 i	591	667 i	533	1,045
Biotechnology research and development	541711	249	3,168 i	9	3	224	562 i	15	8	5	1
Other scientific research and development	other 5417	859	8,196	640	1,944 i	D	519 i	577	659 i	528	1,044

TABLE 42. Companies with domestic R&D paid for by others and performed by the company in selected technology focus areas, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products and embedded software		Biotechnology		Nanotechnology		Federally funded software	
		Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount	Companies[a] (number)	Amount
Other professional, scientific, and technical services	other 54	2,763	2,165	2,176	1,132 i	D	5 i	D	11 i	D	736 i
Health care services	621–23	134	96	0	0	D	57	0	0	0	0
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	292	182	D	12	D	D	D	D	0	0
All companies (number of domestic employees)	–	11,514	57,615	6,005	10,103 i	3,019	5,410	2,368	1,865 i	4,487	6,275 i
Small companies[b]											
5–499	–	11,083	10,897	5,834	2,875 i	2,913	1,386	2,296	803 i	4,403	1,590 i
5–99	–	10,034	6,262 i	5,346	1,659 i	2,689	849	2,168	611 i	4,130	966 i
5–49	–	8,792	4,513 i	4,590	1,164 i	2,436	581	1,923	541 i	3,538	647 i
5–9	–	3,350	1,207 i	1,629	344 i	1,087	126 i	804	139 i	1,373	271 i
10–24	–	3,761	1,605 i	2,111	545 i	968	149 i	804	104 i	1,626	227 i
25–49	–	1,681	1,700	850	275 i	381	306	314	298	539	149 i
50–99	–	1,242	1,749	757	495 i	253	268	245	70 i	592	319 i
100–249	–	800	2,743	381	822 i	167	343	104	131 i	221	439
250–499	–	249	1,892	107	395 i	56	194	25	61 i	52	185
Medium and large companies											
500–999	–	130	1,722	50	325 i	25	195	18	D	21	63
1,000–4,999	–	160	10,175	58	1,041	44	1,983 i	25	254 i	22	488
5,000–9,999	–	47	6,505	16	977 i	10	958	8	D	8	54 i
10,000–24,999	–	58	6,942	27	951 i	D	596	12	82 i	D	566 i
25,000 or more	–	37	21,374 i	19	3,933 i	D	292 i	8	180 i	D	3,514 i

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] Statistics for number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. A company having multiple reporting parts for data collection may contribute to the statistics for multiple industries, so the detail may not add to the total for the number of companies.

[b] 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; for number of companies detail may not add to total because of rounding and because some companies requested multiple survey questionnaires to facilitate sub-company reporting (see technical notes and appendix table A-8). 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. Some R&D may be reported in more than one technology area. Some R&D is not classified in any technology area. Changes in data collection and imputation processes have affected the comparability of company count estimates in this table with estimates published for previous years.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 43. Domestic R&D paid for by other companies and performed by the company, by funders' business activity: 2013
(Millions of U.S. dollars)

Funders' business activity[a]	Business code[b]	Amount
All business activities	21100–81000	27,241
Oil and gas extraction	21100	39
Mining	21200	1
Support activities for mining, including oil and gas	21300	310
Utilities	22100	123
Construction	23000	2
Food manufacturing	31100	196
Beverage manufacturing	31210	107 i
Tobacco manufacturing	31220	6
Textile, apparel, and leather products manufacturing	31990	5 i
Wood products manufacturing	32100	9 i
Paper manufacturing	32200	3 i
Printing and related support activities	32300	2 i
Petroleum refineries	32401	13
Asphalt paving, roofing, and saturated materials manufacturing	32402	0
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	2
Basic chemicals manufacturing	32510	79
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	6
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	65 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing[c]	32541	9,276
In-vitro diagnostic substances manufacturing[c]	32542	29
Biotechnology-based pharmaceutical and biological products (except diagnostics)	32543	1,233
Soap, cleaning compound, and toilet preparations manufacturing	32591	23
Paint, adhesive, and other chemical manufacturing	32592	10 i
Plastics and rubber products manufacturing	32600	209
Clay and glass products manufacturing	32710	*
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	1 i
Primary metal manufacturing	33100	3 i
Fabricated metal products manufacturing	33200	118
Agricultural machinery and equipment manufacturing	33311	35
Construction machinery manufacturing	33312	11 i
Mining, oil, and gas field machinery and equipment manufacturing	33319	7
Semiconductor machinery manufacturing	33321	76
Industrial machinery manufacturing (except semiconductor machinery)	33322	27 i
Photographic and photocopying equipment manufacturing	33331	54 i
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	D
Engine, turbine, and power transmission equipment manufacturing	33360	99
Metalworking and other general purpose machinery manufacturing	33390	44 i
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	118
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	1 i
Radio, television, and wireless communication equipment manufacturing	33422	1,024 i
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	42 i
Audio and video equipment manufacturing	33430	5
Semiconductor and other electronic components manufacturing	33440	1,942

TABLE 43. Domestic R&D paid for by other companies and performed by the company, by funders' business activity: 2013
(Millions of U.S. dollars)

Funders' business activity[a]	Business code[b]	Amount
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	130
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	33452	605
Measuring and control instruments manufacturing (not listed elsewhere)	33459	27 i
Electrical equipment, appliances, and components manufacturing	33500	776
Motor vehicles manufacturing	33610	1,691
Motor vehicle body and trailer manufacturing	33620	1
Motor vehicle parts manufacturing	33630	633 i
Aircraft manufacturing	33641	238 i
Aircraft engine and engine parts manufacturing	33642	244
Other aircraft parts and auxiliary equipment manufacturing	33643	407
Guided missiles, space vehicles, and related parts manufacturing	33644	335
Railroad rolling stock manufacturing	33651	1
Ship and boat building	33660	1
Motorcycle, bicycle, and parts manufacturing	33691	5
Military armored vehicle, tank, and tank components manufacturing	33692	5
All other transportation equipment manufacturing	33699	9
Furniture and related products manufacturing	33700	* i
Medical equipment and supplies manufacturing	33910	461
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	29
Merchant wholesalers, durable goods	42300	23
Merchant wholesalers, nondurable goods	42400	4
Wholesale electronic markets and agents and brokers (business to business)	42500	D
Retail trade (except electronic shopping and electronic auctions)	44000	*
Electronic shopping and electronic auctions	45411	1 i
Transportation	48000	4
Couriers, messengers, and express delivery services	49200	0
Warehousing and storage	49300	0
Newspaper, periodical, book, and directory publishers (except Internet)	51110	0
Software publishers (except Internet)[d]	51120	417
Motion picture and sound recording (except Internet)	51200	0
Broadcasting (except Internet)	51500	*
Wired telecommunications carriers	51710	0
Wireless telecommunications carriers (except satellite)	51720	23
Satellite telecommunications	51740	1
Other telecommunications (not listed elsewhere)	51790	14
Data processing, hosting, and related services[d]	51800	31 i
Cloud computing applications and Internet-based software services	51801	14 i
Other information services, including Internet publishing, broadcasting, and Web search portals[d]	51910	8
Finance: banking and credit intermediation	52200	2
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	11
Insurance carriers and related activities	52400	9
Real estate	53100	1
Rental and leasing services	53200	1
Lessors of nonfinancial intangible assets, including patent licensing	53300	0
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	0

TABLE 43. Domestic R&D paid for by other companies and performed by the company, by funders' business activity: 2013
(Millions of U.S. dollars)

Funders' business activity[a]	Business code[b]	Amount
Architectural, engineering, and related services	54130	78
Specialized design services	54140	41
Computer systems design and related services[d]	54150	150 i
Management, scientific, and technical consulting services	54160	107
Research and development services in social sciences and humanities	54172	11
Research and development services in biotechnology[c]	54173	1,902
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	1,098
Advertising and related services	54180	12 i
Professional, scientific, and technical services (not listed elsewhere)	54190	272
Management of companies and enterprises	55100	0
Administrative and support services	56100	2
Waste management and remediation services	56200	1 i
Offices of physicians	62110	0
Medical and diagnostic laboratories	62150	564
Other ambulatory health care services (ambulance, dental, home health care)	62199	0
Hospitals and nursing care facilities	62200	3
Social assistance services	62400	0
Arts, entertainment, and recreation	71000	10
Accommodation and food services	72000	0
Other services (not listed elsewhere)	81000	89
Undistributed	–	1,294 i

* = 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.

[a] Data tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.

[b] Business codes and descriptions based on industry definitions in the 2007 North American Industry Classification System.

[c] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostics).

[d] Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013: 51801, Cloud computing applications and Internet-based software services.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in the United States that performed or funded R&D. For an R&D performer that did not report the R&D funders' business activities, no systematic imputation of these business activities was conducted. The business activities of the R&D funders may not be assumed to be the same as those of the R&D performer.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 44. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	29,362	1,196 i	6,028 i	22,137 i
Manufacturing industries	31–33	22,958	864 i	3,126 i	18,968 i
Food	311	1 i	*	* i	1 i
Beverage and tobacco products	312	* i	* i	* i	* i
Textile, apparel, and leather products	313–16	6 i	*	*	6 i
Wood products	321	1	* i	* i	1
Printing and related support activities	323	3 i	* i	1 i	2 i
Chemicals	325	356	23 i	72 i	261
Pharmaceuticals and medicines	3254	167	1	21	145
Other chemicals	other 325	189 i	22 i	51 i	116 i
Plastics and rubber products	326	11 i	*	* i	10 i
Nonmetallic mineral products	327	4 i	1 i	1 i	2 i
Primary metals	331	11	* i	1	10
Fabricated metal products	332	53 i	* i	3 i	50 i
Machinery	333	128	2	30	96
Computer and electronic products	334	4,866	350 i	745	3,772
Semiconductor and other electronic components	3344	60	5	10 i	45
Navigational, measuring, electromedical, and control instruments	3345	3,912	157	533	3,222
Other computer and electronic products	other 334	894 i	188 i	201 i	505 i
Electrical equipment, appliances, and components	335	129 i	10 i	27 i	92 i
Transportation equipment	336	17,312	470 i	2,234 i	14,608 i
Aerospace products and parts	3364	15,927	407 i	1,822 i	13,697 i
Other transportation equipment	other 336	1,385	62 i	412 i	911
Furniture and related products	337	* i	* i	* i	* i
Miscellaneous manufacturing	322, 324, 339	76	6	13	57 i
Nonmanufacturing industries	21–23, 42–81	6,404	332	2,903	3,169 i
Information	51	203	13 i	124	66 i
Publishing	511	173	6 i	112	56 i
Telecommunications	517	1 i	* i	* i	1 i
Data processing, hosting, and related services	518	29	7	12	9 i
Other information	other 51	* i	* i	* i	* i
Professional, scientific, and technical services	54	6,033	303	2,772	2,958 i
Architectural, engineering, and related services	5413	1,372	44 i	764	563 i
Computer systems design and related services	5415	809 i	11	108	689 i
Scientific research and development services	5417	3,288	230	1,781 i	1,277
Biotechnology research and development	541711	157	D	D	64
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,454	160	1,324	970
Social sciences and humanities research and development	541720	677	D	D	243 i
Other professional, scientific, and technical services	other 54	565	19	118 i	428 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	167	15	7	145 i

TABLE 44. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
All companies (number of domestic employees)	–	29,362	1,196 i	6,028 i	22,137 i
Small companies[a]					
5–499	–	4,114	301	994 i	2,818 i
5–99	–	2,337 i	143 i	461 i	1,734 i
5–49	–	1,662 i	115 i	347 i	1,200 i
5–9	–	576 i	27 i	92 i	456 i
10–24	–	615 i	53 i	144 i	418 i
25–49	–	471	35 i	110	325
50–99	–	675 i	28	114	534 i
100–249	–	1,161	107	292	762
250–499	–	615	52	241 i	322
Medium and large companies					
500–999	–	393	32 i	104	257
1,000–4,999	–	1,927	98 i	848 i	981 i
5,000–9,999	–	828	1 i	88 i	739 i
10,000–24,999	–	3,491	250 i	834 i	2,407 i
25,000 or more	–	18,609	514 i	3,161 i	14,935 i

* = 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.

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. 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, 2013.

TABLE 45. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	DHS	DOT	EPA	NSF	All other agencies
All industries	21–23, 31–33, 42–81	29,362	23,466 i	957	2,661 i	624	151	35	6	14	1,447
Manufacturing industries	31–33	22,958	18,944 i	585	2,254 i	90	48	D	*	3	D
Food	311	1 i	1 i	0	0	0	0	0	0	0	*
Beverage and tobacco products	312	* i	* i	0	0	0	0	0	0	0	0
Textile, apparel, and leather products	313–16	6 i	6 i	0	0	0	0	0	0	0	*
Wood products	321	1	* i	1	0	* i	0	0	0	0	1
Paper	322	0	0	0	0	0	0	0	0	0	0
Printing and related support activities	323	3 i	1 i	1 i	0	1 i	0	0	0	0	0
Petroleum and coal products	324	0	0	0	0	0	0	0	0	0	0
Chemicals	325	356	81	154 i	1	61	D	0	0	1	D
Basic chemicals	3251	163 i	18 i	142 i	0	1 i	0	0	0	1	1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1	*	1	0	0	0	0	0	0	0
Pesticide, fertilizer, and other agricultural chemicals	3253	3	3	* i	0	* i	0	0	0	0	*
Pharmaceuticals and medicines	3254	167	48	3	1	59	D	0	0	0	D
Soap, cleaning compound, and toilet preparation	3256	4 i	3	1 i	* i	1 i	0	0	0	0	0
Paint, coating, adhesive, and other chemicals	3255, 3259	18	9	8	0	0	0	0	0	0	1
Plastics and rubber products	326	11 i	5 i	6 i	0	0	0	0	0	*	0
Nonmetallic mineral products	327	4 i	2	1	* i	1 i	0	0	0	0	0
Primary metals	331	11	10	1	*	0	0	0	0	0	*
Fabricated metal products	332	53 i	45 i	1 i	7 i	* i	0	0	0	0	0
Machinery	333	128	41	86	*	0	0	0	0	*	*
Agricultural implement	33311	* i	* i	* i	0	0	0	0	0	0	0
Semiconductor machinery	333295	18	15	3	0	0	0	0	0	0	0
Engine, turbine, and power transmission equipment	3336	27	16	11	0	0	0	0	0	0	*
Other machinery	other 333	83	10 i	73	*	0	0	0	0	*	0
Computer and electronic products	334	4,866	4,373	33	270 i	16	23	D	0	1	D
Communications equipment	3342	864 i	677 i	1 i	187 i	* i	0	0	0	0	0
Semiconductor and other electronic components	3344	60	33 i	21	1	0	0	0	0	0	5
Navigational, measuring, electromedical, and control instruments	3345	3,912	3,634	11	82	16	23	D	0	1	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	20	8	*	0	10	1	0	0	*	*
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,812	3,570	2	75	0	22	D	0	0	D
Other measuring and controlling device	other 3345	80	55	9	7	6 i	*	0	0	1	3
Other computer and electronic products	other 334	29	29	0	* i	0	0	0	0	0	*
Electrical equipment, appliances, and components	335	129 i	77 i	49 i	2 i	0	0	0	0	0	0
Transportation equipment	336	17,312	14,266 i	D	1,961	D	D	D	0	0	D
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	304 i	106 i	D	* i	0	D	3	0	0	D
Aerospace products and parts	3364	15,927	13,081 i	D	1,959	D	D	D	0	0	D
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D	D	D	D	D	0	0	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D	D	0	0	0	0	0	0

TABLE 45. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	DHS	DOT	EPA	NSF	All other agencies
Military armored vehicle, tank, and tank components	336992	2 i	2 i	0	0	0	0	0	0	0	0
Other transportation	other 336	1,079	1,077	* i	1 i	0	0	0	0	0	0
Furniture and related products	337	* i	* i	* i	* i	0	0	0	0	0	0
Miscellaneous manufacturing	339	76	37 i	D	13 i	D	*	0	*	0	D
Medical equipment and supplies	3391	52	12	D	13 i	D	*	0	*	0	D
Other miscellaneous manufacturing	3399	24 i	24 i	0	0	0	0	0	0	0	0
Nonmanufacturing industries	21–23, 42–81	6,404	4,522	372	407	535	103 i	D	6	11	D
Mining, extraction, and support activities	21	2	0	2	0	0	0	0	0	0	0
Utilities	22	45	0	43	0	3	0	0	0	0	0
Wholesale trade	42	0	0	0	0	0	0	0	0	0	0
Electronic shopping and electronic auctions	454111–12	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48–49	D	D	0	D	0	0	0	0	0	0
Information	51	203	D	D	D	5	1	0	0	1	D
Publishing	511	173	147	22	0	D	1	0	0	0	D
Newspaper, periodical, book, and directory publishers	5111	* i	* i	* i	0	* i	0	0	0	0	0
Software publishers	5112	173	147	22	0	D	1	0	0	0	D
Telecommunications	517	1 i	1 i	* i	0	* i	0	0	0	0	0
Data processing, hosting, and related services	518	29	D	D	D	D	0	0	0	1	0
Other information	other 51	* i	* i	* i	0	* i	0	0	0	0	0
Finance and insurance	52	0	0	0	0	0	0	0	0	0	0
Real estate and rental and leasing	53	0	0	0	0	0	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	0	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	6,033	4,304	277	D	526	103 i	D	6	11	D
Architectural, engineering, and related services	5413	1,372	1,213	130	22	0	*	D	D	*	D
Computer systems design and related services	5415	809 i	726 i	7	0	12	52 i	D	0	1	D
Scientific research and development services	5417	3,288	2,054	124	175	474	36	8	4	10	404
Biotechnology research and development	541711	157	D	13	0	112	*	0	0	D	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,454	2,001	104	175	91	32	D	3	7	D
Social sciences and humanities research and development	541720	677	D	8	*	271	3	D	1	D	D
Other professional, scientific, and technical services	other 54	565	311	17 i	D	41	15	D	D	*	D
Health care services	621–23	1 i	0	0	0	1 i	0	0	0	0	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	D	0	0	0	0	0	0	0
All companies (number of domestic employees)	–	29,362	23,466 i	957	2,661 i	624	151	35	6	14	1,447
Small companies[a]											
5–499	–	4,114	3,066 i	284	164 i	388	43	19	2	11	136
5–99	–	2,337 i	1,615 i	196 i	107 i	295	32	19	1	10	62
5–49	–	1,662 i	1,091 i	137 i	90 i	271	31	16	*	8	18

TABLE 45. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	DHS	DOT	EPA	NSF	All other agencies
5–9	–	576 i	356 i	26 i	26	144	14	0	0	4	5
10–24	–	615 i	436 i	47 i	33 i	73	1	12	*	3	10
25–49	–	471	299	64	31 i	54	17	4	*	1	3
50–99	–	675 i	524 i	59	17 i	24	1	3	*	2	44
100–249	–	1,161	971	56	33	55	11	*	*	1	33
250–499	–	615	480	32	24	37	*	0	1	0	41
Medium and large companies											
500–999	–	393	236 i	21	80	47	*	0	0	0	8
1,000–4,999	–	1,927	997	207 i	D	D	5	D	1	D	D
5,000–9,999	–	828	642	59	D	D	0	1	0	D	D
10,000–24,999	–	3,491	2,566	63	809	1	20	D	3	D	D
25,000 or more	–	18,609	15,959 i	323	1,374 i	4	82 i	7	0	1	860

* = 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.

DOD = Department of Defense, DOE = Department of Energy, NASA = National Aeronautics and Space Administration, NIH = National Institutes of Health, DHS = Department of Homeland Security, DOT = Department of Transportation, EPA = Environmental Protection Agency, NSF = National Science Foundation.

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. 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, 2013.

TABLE 46. Domestic R&D paid for by sources located outside the United States and performed by the company, by source of funds, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign companies			Foreign governments	All other
			Subsidiaries	Company's parent	Unaffiliated companies		
All industries	21–23, 31–33, 42–81	19,353	5,005	10,445	3,346	526	31
Manufacturing industries	31–33	15,903	3,934	9,043	2,384	518	24
Food	311	208	31	176	1 i	0	0
Beverage and tobacco products	312	105 i	5	97 i	4	0	0
Textile, apparel, and leather products	313–16	D	3	D	0	0	*
Wood products	321	5	*	4	1 i	0	* i
Paper	322	D	*	3	D	0	0
Printing and related support activities	323	16 i	1	* i	15 i	0	* i
Petroleum and coal products	324	*	*	0	*	0	0
Chemicals	325	7,064	1,448	3,690	1,904	0	22
Basic chemicals	3251	183	63	92	29	0	0
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	122	17	104	1	0	0
Pesticide, fertilizer, and other agricultural chemicals	3253	D	*	D	D	0	* i
Pharmaceuticals and medicines	3254	6,353	1,343	3,162	1,825	0	22
Soap, cleaning compound, and toilet preparation	3256	20	18	D	D	0	0
Paint, coating, adhesive, and other chemicals	3255, 3259	D	7	D	D	0	0
Plastics and rubber products	326	D	1	10 i	D	0	0
Nonmetallic mineral products	327	13 i	3	1 i	9 i	0	* i
Primary metals	331	D	7	D	D	* i	0
Fabricated metal products	332	D	8	7 i	1 i	D	0
Machinery	333	1,531	1,222	253	56	*	*
Agricultural implement	33311	51	17	34	* i	0	0
Semiconductor machinery	333295	1,233	1,164	58	10	0	0
Engine, turbine, and power transmission equipment	3336	28	0	10	18	0	*
Other machinery	other 333	219	40	152 i	27 i	*	* i
Computer and electronic products	334	4,158	993	2,720	D	D	1 i
Communications equipment	3342	943	105	834	2 i	2 i	0
Semiconductor and other electronic components	3344	2,104	654	1,359	90	1	0
Navigational, measuring, electromedical, and control instruments	3345	873	111	420	D	D	1 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	164	45	88	30	0	1 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	511	15	195	D	D	0
Other measuring and controlling device	other 3345	199	52	136	10	1	0
Other computer and electronic products	other 334	237	123	107	7	* i	0
Electrical equipment, appliances, and components	335	269 i	9	258 i	1 i	0	0
Transportation equipment	336	D	14	1,676	D	D	0
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1,786	14	1,673	99 i	* i	0
Aerospace products and parts	3364	D	*	1	D	D	0
Aircraft, aircraft engine, and aircraft parts	336411–13	D	*	1	D	D	0
Guided missile, space vehicle, and related parts	336414–15, 336419	D	0	0	0	D	0

TABLE 46. Domestic R&D paid for by sources located outside the United States and performed by the company, by source of funds, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign companies: Subsidiaries	Foreign companies: Company's parent	Foreign companies: Unaffiliated companies	Foreign governments	All other
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0	0
Other transportation	other 336	2 i	0	1 i	* i	* i	0
Furniture and related products	337	* i	0	* i	* i	* i	0
Miscellaneous manufacturing	339	349	187	144	17	0	0
Medical equipment and supplies	3391	340	186	137	17	0	0
Other miscellaneous manufacturing	3399	8 i	1	7 i	* i	0	0
Nonmanufacturing industries	21–23, 42–81	3,450	1,071	1,402	962 i	8	7 i
Mining, extraction, and support activities	21	D	393	0	D	*	0
Utilities	22	3	0	3	0	0	0
Wholesale trade	42	14	*	13	0	0	0
Electronic shopping and electronic auctions	454111–12	0	0	0	0	0	0
Transportation and warehousing	48–49	0	0	0	0	0	0
Information	51	914	402	506	6	0	0
Publishing	511	871	397	468	6	0	0
Newspaper, periodical, book, and directory publishers	5111	* i	0	0	* i	0	0
Software publishers	5112	871	397	468	6	0	0
Telecommunications	517	1	*	*	* i	0	0
Data processing, hosting, and related services	518	39 i	3	36 i	0	0	0
Other information	other 51	3	2	1	*	0	0
Finance and insurance	52	52	52	0	0	0	0
Real estate and rental and leasing	53	0	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	0	0	0	0	0	0
Professional, scientific, and technical services	54	1,685 i	145	863	662 i	8	7 i
Architectural, engineering, and related services	5413	111	12	52	46	1 i	* i
Computer systems design and related services	5415	222	66	156 i	* i	*	0
Scientific research and development services	5417	1,184 i	44	578	549 i	6	7 i
Biotechnology research and development	541711	685 i	13	270	398 i	1	3 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	499	31	309 i	150	5	4
Social sciences and humanities research and development	541720	0	0	0	0	0	0
Other professional, scientific, and technical services	other 54	168	24	77	67	* i	* i
Health care services	621–23	18	0	D	D	0	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	78 i	D	0	0	0
All companies (number of domestic employees)	–	19,353	5,005	10,445	3,346	526	31
Small companies[a]							
5–499	–	3,321	624	2,106	551	11 i	29
5–99	–	1,414	216	874	308	6	10
5–49	–	771 i	145 i	455 i	156 i	5	10

TABLE 46. Domestic R&D paid for by sources located outside the United States and performed by the company, by source of funds, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign companies			Foreign governments	All other
			Subsidiaries	Company's parent	Unaffiliated companies		
5–9	–	79 i	8	42 i	24 i	1	3
10–24	–	280 i	24	172 i	77 i	2 i	6
25–49	–	412 i	113 i	240	55 i	3	* i
50–99	–	643	71	419	152	1 i	1
100–249	–	985	167	672	142	3	1 i
250–499	–	922	241	560 i	101	2 i	18
Medium and large companies							
500–999	–	880	220	593	66	1	* i
1,000–4,999	–	6,832	1,211	4,581	1,038	1 i	1 i
5,000–9,999	–	3,623	1,616	1,660	345	*	1 i
10,000–24,999	–	2,828	434	1,310	1,083	2	0
25,000 or more	–	1,868	900	195	263 i	510	0

* = 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.

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. 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, 2013.

TABLE 47. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States: Company's parent	Companies outside United States: Other	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other: In United States	All other: United States	Undistributed[a]
All industries	21–23, 31–33, 42–81	33,165	27,056	536	2,859	71	20	1	730	341	1,550 i
Manufacturing industries	31–33	29,974	25,075	506	2,565	49	12	1	584	D	D
Food	311	533	372 i	1	37	*	*	0	19 i	8 i	96 i
Beverage and tobacco products	312	217	199	0	4	0	0	0	2	0	12 i
Textile, apparel, and leather products	313–16	25	18	D	1	*	0	0	*	0	D
Wood products	321	9	D	0	0	0	*	0	*	0	D
Paper	322	17	D	8	1	0	0	0	*	0	D
Printing and related support activities	323	8	D	0	0	0	0	0	0	0	D
Petroleum and coal products	324	331	D	0	1	0	0	0	5	D	D
Chemicals	325	21,205	18,210	22	2,131	10	4	*	236	117	475 i
Basic chemicals	3251	163	81	5	7	0	1	*	56	0	11 i
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	54	38	1	10	0	*	0	1	1	3 i
Pesticide, fertilizer, and other agricultural chemicals	3253	32 i	23	5 i	*	0	0	0	1	*	2 i
Pharmaceuticals and medicines	3254	20,614	17,770	9	2,102	10	2	0	169	111	440 i
Soap, cleaning compound, and toilet preparation	3256	307	272	0	11	0	0	0	8	3	13 i
Paint, coating, adhesive, and other chemicals	3255, 3259	36	26	2	*	0	0	*	1	1	5 i
Plastics and rubber products	326	177	74	*	38	*	*	0	37	7	20 i
Nonmetallic mineral products	327	158 i	29	119 i	1	0	0	0	2	0	8 i
Primary metals	331	59	42	0	0	0	*	0	1	0	15 i
Fabricated metal products	332	39 i	23	0	*	0	0	0	0	0	16 i
Machinery	333	527	372	1	73	*	*	*	36	0	44 i
Agricultural implement	33311	296	212	0	48	0	0	0	26	0	10 i
Semiconductor machinery	333295	17	16	0	*	0	*	* i	*	0	1 i
Engine, turbine, and power transmission equipment	3336	40 i	39 i	0	*	* i	*	*	0	0	* i
Other machinery	other 333	174	106	1	24	*	0	0	10	0	33 i
Computer and electronic products	334	1,514	1,012	1	116	1 i	* i	0	193	D	D
Communications equipment	3342	571	374	0	65	0	0	0	D	D	D
Semiconductor and other electronic components	3344	396	232	* i	28	* i	* i	0	D	*	D
Navigational, measuring, electromedical, and control instruments	3345	347	260	1	16	1 i	0	0	23	*	46 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	162	112	1	9	0	0	0	14	*	26 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	90	78 i	0	7 i	1 i	0	0	0	0	5 i

TABLE 47. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States: Company's parent	Companies outside United States: Other	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other: In United States	All other: United States	Undistributed[a]
Other measuring and controlling device	other 3345	95	70	0	1	0	0	0	9	*	15 i
Other computer and electronic products	other 334	199	147	0	7	0	0	0	D	*	D
Electrical equipment, appliances, and components	335	106	83	*	4	0	*	0	2	0	16 i
Transportation equipment	336	4,269	3,670	D	138	36	6	*	16	2	D
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	2,405	1,925	D	109	D	2	0	2	1	D
Aerospace products and parts	3364	1,830	1,718	0	25	D	4	*	14	*	D
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	0	25	D	4	*	D	*	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	0	0	D	0	0	D	0	* i
Military armored vehicle, tank, and tank components	336992	*	*	0	0	0	0	0	0	0	* i
Other transportation	other 336	34	26	0	4	0	0	0	0	0	5 i
Furniture and related products	337	23	15	0	*	0	0	0	0	0	8 i
Miscellaneous manufacturing	339	758	624	*	21	1	1	0	32	2	76 i
Medical equipment and supplies	3391	594	486	*	20	1	1	0	32	2	53 i
Other miscellaneous manufacturing	3399	164	139	0	2	*	0	0	*	* i	23 i
Nonmanufacturing industries	21–23, 42–81	3,191	1,981	30	295	22	8	0	146	D	D
Mining, extraction, and support activities	21	390	195	0	D	D	0	0	23	D	D
Utilities	22	201	147	0	*	*	2	0	45	*	7 i
Wholesale trade	42	149 i	16	3	1	0	0	0	0	0	130 i
Electronic shopping and electronic auctions	454111–12	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48–49	27	25	0	0	0	0	0	0	0	2 i
Information	51	1,500	1,060	9	210	0	*	0	5	*	217 i
Publishing	511	1,058	701	9	188	0	*	0	5	*	156 i
Newspaper, periodical, book, and directory publishers	5111	17 i	3	0	0	0	0	0	0	0	14 i
Software publishers	5112	1,041	698	9	188	0	*	0	5	*	142 i
Telecommunications	517	162	134	0	9	0	0	0	0	0	19 i
Data processing, hosting, and related services	518	162	120	0	12	0	0	0	0	0	30 i
Other information	other 51	118	105	0	1	0	0	0	0	0	12 i
Finance and insurance	52	80	38	12	D	0	0	0	0	0	D
Real estate and rental and leasing	53	3	3	0	0	0	0	0	0	0	1 i
Lessors of nonfinancial intangible assets (except copyrighted works)	533	* i	0	0	0	0	0	0	0	0	* i
Other real estate and rental and leasing	other 53	3	3	0	0	0	0	0	0	0	1 i
Professional, scientific, and technical services	54	786	454	5	48	D	7	0	74	4	D
Architectural, engineering, and related services	5413	63	39	0	7	0	0	0	*	0	17 i
Computer systems design and related services	5415	166 i	86	1	9	0	0	0	*	2	68 i
Scientific research and development services	5417	471	267	5	33	D	7	0	73	2	D
Biotechnology research and development	541711	255	195	5	16	D	6	0	1	1	D

TABLE 47. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States: Company's parent	Companies outside United States: Other	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other: In United States	All other: United States	Undistributed[a]
Physical, engineering, and life sciences (except biotechnology) research and development	541712	216	72	0	17 i	10	*	0	71	2	44 i
Social sciences and humanities research and development	541720	0	0	0	0	0	0	0	0	0	0
Other professional, scientific, and technical services	other 54	87	61	0	*	0	0	0	2	*	23 i
Health care services	621–23	2 i	2 i	0	0	0	0	0	0	0	* i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	53 i	41	0	*	*	*	0	0	0	11 i
All companies (number of domestic employees)	–	33,165	27,056	536	2,859	71	20	1	730	341	1,550 i
Small companies[b]											
5–499	–	4,955	3,390	35	343	12	10	*	139	18	1,010 i
5–99	–	3,229	2,175	13	207	11	9	0	122	14	677 i
5–49	–	2,202	1,444	13	95	2 i	1 i	0	115	13	520 i
5–9	–	282 i	129	8	6	1 i	* i	0	8	10	119 i
10–24	–	984	693	5	15	* i	* i	0	29	1	241 i
25–49	–	936	622	* i	73	*	* i	0	78	3	159 i
50–99	–	1,026	732	* i	112	9	9	0	7	*	157 i
100–249	–	1,035	735	7	76	1	*	*	10	4	202 i
250–499	–	692	479	14	60	* i	* i	* i	6 i	* i	132 i
Medium and large companies											
500–999	–	814	631	29	41	*	2	0	14	1	95 i
1,000–4,999	–	5,762	5,265	123 i	96	*	*	*	149	5	123 i
5,000–9,999	–	1,148	907	D	75	9	1	0	42	1	D
10,000–24,999	–	9,830	8,745	2	834	1 i	2	0	145	27	74 i
25,000 or more	–	10,655	8,118	D	1,470	49	6	*	241	289	D

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] Detailed data were not collected on the BRD-1(S) questionnaire.

[b] 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. 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, 2013.

TABLE 48. Domestic R&D performance by performer and source of funds, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Performed by the company			Performed by others		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
All industries	21–23, 31–33, 42–81	322,528	264,913	57,615	43,102	33,165	9,938
Manufacturing industries	31–33	221,476	181,170	40,306	37,778	29,974	7,804
Food	311	5,028	4,801	227	541	533	8
Beverage and tobacco products	312	827	727	100 i	221	217	5
Textile, apparel, and leather products	313–16	662	642	21 i	25	25	* i
Wood products	321	220	209	11	10	9	1 i
Paper	322	920	907	13 i	18	17	1
Printing and related support activities	323	252 i	224 i	28 i	19 i	8	11 i
Petroleum and coal products	324	242	236	5	331	331	*
Chemicals	325	61,664	54,285	7,379	24,840	21,205	3,634
Basic chemicals	3251	2,658	2,341	317	174	163	10
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,065	954	111	54	54	*
Pesticide, fertilizer, and other agricultural chemicals	3253	1,691 i	1,325 i	366	32 i	32 i	1
Pharmaceuticals and medicines	3254	52,426	45,891	6,534	24,227	20,614	3,613
Soap, cleaning compound, and toilet preparation	3256	2,469	2,458	11 i	307	307	* i
Paint, coating, adhesive, and other chemicals	3255, 3259	1,355	1,315	40	45	36	10
Plastics and rubber products	326	3,650	3,496	154 i	190	177	14
Nonmetallic mineral products	327	1,329 i	1,303 i	26 i	162 i	158 i	4 i
Primary metals	331	624	605	19	60	59	*
Fabricated metal products	332	2,212 i	1,934 i	278 i	125 i	39 i	86 i
Machinery	333	12,650	12,092	558	566	527	39
Agricultural implement	33311	1,597	1,561	36	309	296	13
Semiconductor machinery	333295	3,194	3,097	97	20	17	3
Engine, turbine, and power transmission equipment	3336	1,448	1,336	113	54 i	40 i	14
Other machinery	other 333	6,411	6,098	312	183	174	9 i
Computer and electronic products	334	67,205	57,364	9,841	2,048	1,514	534
Communications equipment	3342	15,658	13,693	1,964 i	666	571	95 i
Semiconductor and other electronic components	3344	30,800	28,576	2,224	D	396	D
Navigational, measuring, electromedical, and control instruments	3345	14,478	9,001	5,477	704	347	357
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,634	2,470	164	170	162	8
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,106	3,037	5,069	430	90	339
Other measuring and controlling device	other 3345	3,738	3,494	245	104	95	9
Other computer and electronic products	other 334	6,269	6,093	176	D	199	D
Electrical equipment, appliances, and components	335	4,136	3,660	475 i	118	106	11 i
Transportation equipment	336	45,972	25,165	20,807 i	7,683	4,269	3,414 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	16,729	14,081	2,647	2,576	2,405	172
Aerospace products and parts	3364	27,114	10,042	17,072 i	5,068	1,830	3,239 i
Aircraft, aircraft engine, and aircraft parts	336411–13	D	9,765	D	D	D	3,238 i

TABLE 48. Domestic R&D performance by performer and source of funds, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Performed by the company			Performed by others		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
Guided missile, space vehicle, and related parts	336414–15, 336419	D	278	D	D	D	1
Military armored vehicle, tank, and tank components	336992	9 i	7 i	2 i	*	*	0
Other transportation	other 336	2,121	1,035	1,086	39	34	4
Furniture and related products	337	374	374	1 i	23	23	* i
Miscellaneous manufacturing	339	13,509	13,147	362	797	758	39
Medical equipment and supplies	3391	10,954	10,638	317	625	594	31
Other miscellaneous manufacturing	3399	2,555	2,509	46 i	172	164	8 i
Nonmanufacturing industries	21–23, 42–81	101,052	83,742	17,310	5,324	3,191	2,133
Mining, extraction, and support activities	21	3,997	3,602	395	634	390	244
Utilities	22	294	243	50	216	201	15
Wholesale trade	42	529 i	510 i	18 i	150 i	149 i	1
Electronic shopping and electronic auctions	454111–12	1,357 i	1,356 i	1 i	0	0	0
Transportation and warehousing	48–49	D	411	D	27	27	*
Information	51	57,207	56,039	1,168	1,536	1,500	36
Publishing	511	35,675	34,637	1,038	1,087	1,058	29
Newspaper, periodical, book, and directory publishers	5111	342 i	341 i	1 i	17 i	17 i	* i
Software publishers	5112	35,333	34,296	1,037	1,070	1,041	29
Telecommunications	517	3,041	3,037	4 i	163	162	* i
Data processing, hosting, and related services	518	6,446	6,333	113	168	162	7 i
Other information	other 51	12,046	12,032	14	118	118	* i
Finance and insurance	52	4,308	4,298	10	80	80	0
Real estate and rental and leasing	53	150	150	* i	3	3	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	58 i	0	* i	* i	0
Other real estate and rental and leasing	other 53	92	92	* i	3	3	0
Professional, scientific, and technical services	54	31,017	15,617 i	15,400	2,588	786	1,802
Architectural, engineering, and related services	5413	3,133	1,261	1,872	241	63	178
Computer systems design and related services	5415	9,268 i	8,107 i	1,161 i	276 i	166 i	110 i
Scientific research and development services	5417	14,201	2,838	11,363	1,873	471	1,402
Biotechnology research and development	541711	4,499	1,331	3,168 i	348	255	94
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,910	1,470	7,440	1,343	216	1,127
Social sciences and humanities research and development	541720	792	36 i	756	182	0	182
Other professional, scientific, and technical services	other 54	4,415	3,411	1,003	198	87	111
Health care services	621–23	526 i	430 i	96	6	2 i	4
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	1,086 i	D	85	53 i	32

TABLE 48. Domestic R&D performance by performer and source of funds, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Performed by the company			Performed by others		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
All companies (number of domestic employees)	–	322,528	264,913	57,615	43,102	33,165	9,938
Small companies[a]							
5–499	–	53,002	42,106	10,897	6,628	4,955	1,673
5–99	–	27,148 i	20,886 i	6,262 i	4,205	3,229	977
5–49	–	18,238 i	13,726 i	4,513 i	2,897	2,202	695
5–9	–	3,402 i	2,195 i	1,207 i	448 i	282 i	165 i
10–24	–	6,895 i	5,290 i	1,605 i	1,208	984	224 i
25–49	–	7,941 i	6,241 i	1,700	1,241	936	305
50–99	–	8,910	7,161	1,749	1,308	1,026	282
100–249	–	13,666	10,922	2,743	1,463	1,035	428
250–499	–	12,189	10,297	1,892	960	692	268
Medium and large companies							
500–999	–	12,002	10,280	1,722	1,067	814	253
1,000–4,999	–	55,517	45,342	10,175	7,868	5,762	2,106
5,000–9,999	–	31,514	25,009	6,505	2,376	1,148	1,228
10,000–24,999	–	51,218	44,275	6,942	10,679	9,830	848
25,000 or more	–	119,275	97,901	21,374 i	14,485	10,655	3,830 i

* = 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.

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. 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, 2013.

TABLE 49. Domestic R&D performance by source of funds and performer, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others				
							R&D performed by the company		
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted or passed through R&D costs)	Total	Paid for by the U.S. government	Paid for by non-U.S. government sources
All industries	21–23, 31–33, 42–81	298,077	33,165	264,913	67,553	9,938	57,615	29,362	28,254
Manufacturing industries	31–33	211,144	29,974	181,170	48,110	7,804	40,306	22,958	17,348
Food	311	5,334	533	4,801	235	8	227	1 i	226
Beverage and tobacco products	312	943	217	727	105 i	5	100 i	* i	100 i
Textile, apparel, and leather products	313–16	666	25	642	21 i	* i	21 i	6 i	15 i
Wood products	321	218	9	209	12	1 i	11	1	10
Paper	322	924	17	907	14 i	1	13 i	0	13 i
Printing and related support activities	323	232 i	8	224 i	39 i	11 i	28 i	3 i	25 i
Petroleum and coal products	324	567	331	236	6	*	5	0	5
Chemicals	325	75,490	21,205	54,285	11,013	3,634	7,379	356	7,023
Basic chemicals	3251	2,504	163	2,341	328	10	317	163 i	154
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,008	54	954	111	*	111	1	110
Pesticide, fertilizer, and other agricultural chemicals	3253	1,357 i	32 i	1,325 i	366	1	366	3	363
Pharmaceuticals and medicines	3254	66,505	20,614	45,891	10,148	3,613	6,534	167	6,368
Soap, cleaning compound, and toilet preparation	3256	2,765	307	2,458	11 i	* i	11 i	4 i	6 i
Paint, coating, adhesive, and other chemicals	3255, 3259	1,351	36	1,315	50	10	40	18	23
Plastics and rubber products	326	3,672	177	3,496	168 i	14	154 i	11 i	143 i
Nonmetallic mineral products	327	1,461 i	158 i	1,303 i	30 i	4 i	26 i	4 i	22 i
Primary metals	331	664	59	605	19	*	19	11	8
Fabricated metal products	332	1,972 i	39 i	1,934 i	364 i	86 i	278 i	53 i	225 i
Machinery	333	12,619	527	12,092	597	39	558	128	430
Agricultural implement	33311	1,857	296	1,561	49	13	36	* i	36
Semiconductor machinery	333295	3,114	17	3,097	100	3	97	18	78
Engine, turbine, and power transmission equipment	3336	1,376	40 i	1,336	127	14	113	27	86 i
Other machinery	other 333	6,272	174	6,098	321	9 i	312	83	230 i
Computer and electronic products	334	58,877	1,514	57,364	10,375	534	9,841	4,866	4,975
Communications equipment	3342	14,264	571	13,693	2,059 i	95 i	1,964 i	864 i	1,100 i
Semiconductor and other electronic components	3344	28,972	396	28,576	D	D	2,224	60	2,164
Navigational, measuring, electromedical, and control instruments	3345	9,348	347	9,001	5,834	357	5,477	3,912	1,565
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,632	162	2,470	172	8	164	20	144
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,128	90	3,037	5,408	339	5,069	3,812	1,257
Other measuring and controlling device	other 3345	3,588	95	3,494	254	9	245	80	164
Other computer and electronic products	other 334	6,292	199	6,093	D	D	176	29	146
Electrical equipment, appliances, and components	335	3,767	106	3,660	487 i	11 i	475 i	129 i	346 i
Transportation equipment	336	29,434	4,269	25,165	24,221 i	3,414 i	20,807 i	17,312	3,495
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	16,486	2,405	14,081	2,819	172	2,647	304 i	2,343

TABLE 49. Domestic R&D performance by source of funds and performer, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others				
							R&D performed by the company		
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted or passed through R&D costs)	Total	Paid for by the U.S. government	Paid for by non-U.S. government sources
Aerospace products and parts	3364	11,872	1,830	10,042	20,310 i	3,239 i	17,072 i	15,927	1,145
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	9,765	D	3,238 i	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	278	D	1	D	D	D
Military armored vehicle, tank, and tank components	336992	8 i	*	7 i	2 i	0	2 i	2 i	0
Other transportation	other 336	1,069	34	1,035	1,090	4	1,086	1,079	7
Furniture and related products	337	397	23	374	1 i	* i	1 i	* i	* i
Miscellaneous manufacturing	339	13,905	758	13,147	401	39	362	76	286
Medical equipment and supplies	3391	11,232	594	10,638	348	31	317	52	265
Other miscellaneous manufacturing	3399	2,674	164	2,509	53 i	8 i	46 i	24 i	22 i
Nonmanufacturing industries	21–23, 42–81	86,933	3,191	83,742	19,443	2,133	17,310	6,404	10,906
Mining, extraction, and support activities	21	3,992	390	3,602	639	244	395	2	394
Utilities	22	444	201	243	65	15	50	45	5
Wholesale trade	42	660 i	149 i	510 i	19 i	1	18 i	0	18 i
Electronic shopping and electronic auctions	454111–12	1,356 i	0	1,356 i	1 i	0	1 i	0	1 i
Transportation and warehousing	48–49	438	27	411	D	*	D	D	1 i
Information	51	57,538	1,500	56,039	1,204	36	1,168	203	965
Publishing	511	35,695	1,058	34,637	1,067	29	1,038	173	864
Newspaper, periodical, book, and directory publishers	5111	358 i	17 i	341 i	1 i	* i	1 i	* i	1 i
Software publishers	5112	35,337	1,041	34,296	1,066	29	1,037	173	864
Telecommunications	517	3,199	162	3,037	4 i	* i	4 i	1 i	3 i
Data processing, hosting, and related services	518	6,495	162	6,333	119	7 i	113	29	84 i
Other information	other 51	12,149	118	12,032	14	* i	14	* i	14
Finance and insurance	52	4,378	80	4,298	10	0	10	0	10
Real estate and rental and leasing	53	153	3	150	* i	0	* i	0	* i
Lessors of nonfinancial intangible assets (except copyrighted works)	533	58 i	* i	58 i	0	0	0	0	0
Other real estate and rental and leasing	other 53	95	3	92	* i	0	* i	0	* i
Professional, scientific, and technical services	54	16,403	786	15,617 i	17,202	1,802	15,400	6,033	9,367
Architectural, engineering, and related services	5413	1,323	63	1,261	2,050	178	1,872	1,372	500
Computer systems design and related services	5415	8,273 i	166 i	8,107 i	1,272 i	110 i	1,161 i	809 i	352 i
Scientific research and development services	5417	3,308	471	2,838	12,766	1,402	11,363	3,288	8,076
Biotechnology research and development	541711	1,585	255	1,331	3,262	94	3,168 i	157	3,011 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,687	216	1,470	8,566	1,127	7,440	2,454	4,986
Social sciences and humanities research and development	541720	36 i	0	36 i	938	182	756	677	79
Other professional, scientific, and technical services	other 54	3,498	87	3,411	1,114	111	1,003	565	438
Health care services	621–23	433 i	2 i	430 i	100	4	96	1 i	95

TABLE 49. Domestic R&D performance by source of funds and performer, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others				
							R&D performed by the company		
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted or passed through R&D costs)	Total	Paid for by the U.S. government	Paid for by non-U.S. government sources
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,139 i	53 i	1,086 i	D	32	D	D	50
All companies (number of domestic employees)	–	298,077	33,165	264,913	67,553	9,938	57,615	29,362	28,254
Small companies[a]									
5–499	–	47,061	4,955	42,106	12,569	1,673	10,897	4,114	6,783
5–99	–	24,115 i	3,229	20,886 i	7,238 i	977	6,262 i	2,337 i	3,924 i
5–49	–	15,928 i	2,202	13,726 i	5,207 i	695	4,513 i	1,662 i	2,851 i
5–9	–	2,477 i	282 i	2,195 i	1,373 i	165 i	1,207 i	576 i	632 i
10–24	–	6,274 i	984	5,290 i	1,829 i	224 i	1,605 i	615 i	990 i
25–49	–	7,177 i	936	6,241 i	2,006	305	1,700	471	1,229
50–99	–	8,187	1,026	7,161	2,031	282	1,749	675 i	1,074
100–249	–	11,957	1,035	10,922	3,171	428	2,743	1,161	1,582
250–499	–	10,989	692	10,297	2,160	268	1,892	615	1,277
Medium and large companies									
500–999	–	11,094	814	10,280	1,975	253	1,722	393	1,329
1,000–4,999	–	51,104	5,762	45,342	12,281	2,106	10,175	1,927	8,248
5,000–9,999	–	26,157	1,148	25,009	7,733	1,228	6,505	828	5,677
10,000–24,999	–	54,105	9,830	44,275	7,791	848	6,942	3,491	3,452
25,000 or more	–	108,556	10,655	97,901	25,204 i	3,830 i	21,374 i	18,609	2,765

* = 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.

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. 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, 2013.

TABLE 50. R&D paid for by the company and others and performed by the company outside of the United States, by selected location: 2013
(Millions of U.S. dollars)

Location	Total	Paid for by the company	Paid for by others
Total	73,100	67,128	5,973
Puerto Rico	69	59	10
Canada	5,265	4,916	349
Latin America and Other Western Hemisphere	3,320	3,068	252
Argentina	327	252	75
Brazil	1,584	1,486	98
Chile	46	31	15
Mexico	803	770	33
Other Latin American and Western Hemisphere locations	560	529	32
Africa	229	152	76
South Africa	156	87	69
Other African locations	73	66	7
Asia and Pacific	21,935	20,836	1,098
Australia	1,545	1,450	96
China	5,774	5,609	165
Hong Kong	173	151	21 i
India	5,860	5,689	170
Indonesia	29	27	2
Japan	2,761	2,439	322
Malaysia	803	785	18
New Zealand	140	106	33
Singapore	2,115	1,968	147
South Korea	1,195	1,124	71
Taiwan	682	662	20
Thailand	193	176	17
Other Asian or Pacific locations	665	649	15
Europe	35,398	31,775	3,623
Austria	229	197	33
Belgium	1,713	1,600	113
Czech Republic	353	314	39
Denmark	573	557	16
Finland	556	535	21
France	3,082	2,817	265
Germany	8,637	8,145	492
Hungary	121	92	29
Ireland	1,674	1,618	56
Italy	1,148	1,008	140
Luxembourg	41	41	0
Netherlands	1,052	942	110
Norway	421	414	7
Poland	430	353	77
Russia	462	379	83
Spain	560	424	136
Sweden	734	695	39
Switzerland	2,495	2,098	398
Turkey	93	76	17
United Kingdom	8,949	7,774	1,174
Other European locations	2,076	1,697	380 i
Middle East	4,192	4,114	78
Israel	4,086	4,027	60
Other Middle Eastern locations	106	88	18
Undistributed	2,692 i	2,206 i	486 i

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NOTES: Detail may not add to total because of rounding. Country detail was not asked for on Form BRD-1(S). 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, 2013.

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Puerto Rico	Canada	Austria	Belgium	Czech Republic	Denmark
All industries	21–23, 31–33, 42–81	73,100	69	5,265	229	1,713	353	573
Manufacturing industries	31–33	51,104	69	3,318	151	1,482	132	444
Food	311	1,315	* i	99	0	6 i	*	171 i
Chemicals	325	12,733	40	712	52	1,137	42	103
Pharmaceuticals and medicines	3254	10,051	20	647	49	970	41	88
Other chemicals	other 325	2,682	20	65	2	167	2	15
Plastics and rubber products	326	931	13	27	1	17	1	4
Nonmetallic mineral products	327	249 i	0	33 i	0	0	*	*
Fabricated metal products	332	116	0	3	5	2	0	0
Machinery	333	2,852	*	53	9	36	4 i	3 i
Computer and electronic products	334	18,275	2	1,427	45	112	55	128
Electrical equipment, appliances, and components	335	1,605	0	130	13	38	7	4
Transportation equipment	336	9,219	*	626	17	74	22	1
Miscellaneous manufacturing	339	2,913	13	162 i	8	37	2	27
Other manufacturing	312–16, 321–24, 331, 337	896	0	46	*	24	0	4
Nonmanufacturing industries	21–23, 42–81	21,996	1	1,947	78	231	220	129
Wholesale trade	42	25 i	0	2	0	0	0	0
Information	51	13,650	* i	1,440	44	D	153	87
Telecommunications	517	63	0	4	0	0	0	0
Data processing, hosting, and related services	518	631	0	131	2	0	0	*
Other information	other 51	12,955	* i	1,305	42	D	153	87
Professional, scientific, and technical services	54	6,543	*	279	34	137	66	32
Architectural, engineering, and related services	5413	41	*	6	0	0	0	0
Scientific research and development services	5417	4,263	0	66	30	81	29	15
Biotechnology research and development	541711	1,400	0	13	0	31	4	6
Other scientific research and development	other 5417	2,863	0	53	30	49	25	9
Other professional, scientific, and technical services	other 54	2,239	*	207	4	56	37	18
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	1,778	0	225	0	D	1	9
All companies (number of domestic employees)	–	73,100	69	5,265	229	1,713	353	573
Small companies[a]								
5–499	–	4,170	1	376	7	37	105	12
5–99	–	1,522	0	69	1	4	105	*
5–49	–	1,177	0	47	*	3	105	0
5–9	–	52 i	0	*	0	*	0	0
10–24	–	685	0	14	*	*	5	0
25–49	–	440	0	33	*	3	100	0
50–99	–	344	0	22	*	2	*	*
100–249	–	1,275	1	75	2	17	*	7
250–499	–	1,373	*	232	5	15	*	5
Medium and large companies								
500–999	–	1,656	0	62	8	36	1	10
1,000–4,999	–	13,580	21	1,473	41	109	76	116

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Puerto Rico	Canada	Austria	Belgium	Czech Republic	Denmark
5,000–9,999	–	10,836	4	540	49	200	74	82
10,000–24,999	–	9,782	30	1,014	40	210	21	36
25,000 or more	–	33,076	14	1,800	84	1,120	76	317 i

Industry and company size	NAICS code	Finland	France	Germany	Hungary	Ireland	Italy	Luxembourg
All industries	21–23, 31–33, 42–81	556	3,082	8,637	121	1,674	1,148	41
Manufacturing industries	31–33	412	2,223	7,380	91	1,169	971	19
Food	311	0	37	116	3	0	8	0
Chemicals	325	61	632	965	26	616	256	8
Pharmaceuticals and medicines	3254	50	486	467	19	612	216	8
Other chemicals	other 325	11	146	499	7	5	40	*
Plastics and rubber products	326	D	59	116	3	D	41	4
Nonmetallic mineral products	327	0	9	73 i	0	0	0	0
Fabricated metal products	332	0	1	29	0	D	1	0
Machinery	333	29	96	672	4	5 i	59	1
Computer and electronic products	334	269	803	1,785	23	321	324	6
Electrical equipment, appliances, and components	335	D	54	232	2	5	53	0
Transportation equipment	336	D	336	2,803	D	D	198	0
Miscellaneous manufacturing	339	0	161	539 i	0	216	18	0
Other manufacturing	312–16, 321–24, 331, 337	11	35	49	D	D	13	0
Nonmanufacturing industries	21–23, 42–81	144	859	1,258	31	505	177	21
Wholesale trade	42	0	0	3	0	0	0	0
Information	51	40	508	737	2	436	77	18
Telecommunications	517	0	*	7	0	2	0	4
Data processing, hosting, and related services	518	0	22	5	0	28	* i	0
Other information	other 51	40	485	725	2	406	77	13
Professional, scientific, and technical services	54	105	338	406	29	59	97	0
Architectural, engineering, and related services	5413	17	0	6	0	*	0	0
Scientific research and development services	5417	14	187	304 i	29	46	76	0
Biotechnology research and development	541711	5	57	87	5	3	17	0
Other scientific research and development	other 5417	9	130	217 i	24	43	59	0
Other professional, scientific, and technical services	other 54	73	151	96	0	13	21	0
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	0	13	112	0	10	3	4
All companies (number of domestic employees)	–	556	3,082	8,637	121	1,674	1,148	41
Small companies[a]								
5–499	–	D	84	217	15	48	78	1
5–99	–	13	20	23	D	4	4	0
5–49	–	10	10	12	D	1	1	0
5–9	–	0	0	5	0	0	*	0
10–24	–	0	1	4	0	1	1	0
25–49	–	10	10	2	D	1	*	0
50–99	–	3	9	11	D	3	3	0
100–249	–	D	30	71	6	25	14	D
250–499	–	17	35	123	D	18	60	D

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Finland	France	Germany	Hungary	Ireland	Italy	Luxembourg
Medium and large companies								
500–999	–	D	58	102	4	11	15	4
1,000–4,999	–	94	790	1,774	18	597	112	13
5,000–9,999	–	94	373	853	33	179	329	*
10,000–24,999	–	55	549	968	23	232	122	5
25,000 or more	–	226	1,228	4,724	28	607	492	17

Industry and company size	NAICS code	Netherlands	Norway	Poland	Russia	Spain	Sweden	Switzerland
All industries	21–23, 31–33, 42–81	1,052	421	430	462	560	734	2,495
Manufacturing industries	31–33	810	365	314	263	473	576	1,649
Food	311	15	0	2	2	2	6 i	71 i
Chemicals	325	337	22	85	98	203	160	726
Pharmaceuticals and medicines	3254	191	18	79	95	178	147	665
Other chemicals	other 325	147	4	6	2	25	13	62
Plastics and rubber products	326	56	0	1	2	25	5	83
Nonmetallic mineral products	327	*	0	0	0	*	0	*
Fabricated metal products	332	0	0	*	0	0	0	6
Machinery	333	40	D	4	1	31	99	114
Computer and electronic products	334	137	284	109	114	43	97	168
Electrical equipment, appliances, and components	335	19	6	10	*	18	14	49
Transportation equipment	336	144	D	96	16	143 i	122	9
Miscellaneous manufacturing	339	53	D	3	20	4	68	158
Other manufacturing	312–16, 321–24, 331, 337	8	*	3	10	5	5	266
Nonmanufacturing industries	21–23, 42–81	242	55	116	199	87	159	846
Wholesale trade	42	0	0	0	0	0	0	0
Information	51	83	33	41	98	19	102	425
Telecommunications	517	0	0	0	0	*	0	0
Data processing, hosting, and related services	518	5	2	0	12	*	7	*
Other information	other 51	77	32	41	86	19	95	425
Professional, scientific, and technical services	54	109	15	71	96	64	47 i	400
Architectural, engineering, and related services	5413	0	0	*	*	*	0	0
Scientific research and development services	5417	66	5	57	83	52	31	370
Biotechnology research and development	541711	8	5	17	15	0	8	349
Other scientific research and development	other 5417	58	0	40	68	52	24	21
Other professional, scientific, and technical services	other 54	43	11	14	12	12	15 i	30 i
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	51	7	4	6	3	10	22
All companies (number of domestic employees)	–	1,052	421	430	462	560	734	2,495
Small companies[a]								
5–499	–	9	8	13	42	7	33	353
5–99	–	3	0	11	15	2	1	13
5–49	–	2	0	5	7	*	*	9
5–9	–	*	0	*	0	0	0	9
10–24	–	*	0	5	*	0	*	0
25–49	–	1	0	0	7	*	*	*
50–99	–	2	0	5	8	2	1	4

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Netherlands	Norway	Poland	Russia	Spain	Sweden	Switzerland
100–249	–	4	*	2	13	*	20	312
250–499	–	1	8	*	15	5	12	28
Medium and large companies								
500–999	–	50	8	12	13	18	36	5
1,000–4,999	–	295	15	55	63	78	211	479
5,000–9,999	–	253	11	126	82	133	82	554
10,000–24,999	–	140	26	43	32	117	120	299
25,000 or more	–	306	353	181	231	207	254	805

Industry and company size	NAICS code	Turkey	United Kingdom	Other European locations	Argentina	Brazil	Chile	Mexico
All industries	21–23, 31–33, 42–81	93	8,949	2,076	327	1,584	46	803
Manufacturing industries	31–33	70	4,489	1,476	235	1,388	22	732
Food	311	0	117	76	5	82 i	1 i	33
Chemicals	325	32	1,825	394	147	268	14	153
Pharmaceuticals and medicines	3254	30	1,540	199	118	159	11	104
Other chemicals	other 325	2	285	195	29 i	110 i	3 i	49 i
Plastics and rubber products	326	1	37	15	28	48	2	19
Nonmetallic mineral products	327	0	18 i	0	0	0	0	2
Fabricated metal products	332	0	42	3	0	*	*	1
Machinery	333	*	315	40	2	54	*	17
Computer and electronic products	334	5	676	355	31	46	*	116
Electrical equipment, appliances, and components	335	*	99	166	*	162	0	15
Transportation equipment	336	D	1,033	242 i	11	683	*	333
Miscellaneous manufacturing	339	D	238 i	134	7	26	3	8
Other manufacturing	312–16, 321–24, 331, 337	3	89	51	4	19	1	35
Nonmanufacturing industries	21–23, 42–81	23	4,460 i	600	92	196	24	71
Wholesale trade	42	0	*	0	0	0	0	0
Information	51	2	2,805 i	356	5	70	5	13
Telecommunications	517	0	11	4	0	0	0	0
Data processing, hosting, and related services	518	*	67	19	2	0	*	*
Other information	other 51	2	2,727 i	333	3	70	5	13
Professional, scientific, and technical services	54	14	1,245	219	76	100	15	28
Architectural, engineering, and related services	5413	*	0	*	0	0	*	*
Scientific research and development services	5417	13	1,023 i	188 i	67	67	15	25
Biotechnology research and development	541711	2	266	20	6	8	5	7
Other scientific research and development	other 5417	11	756 i	168 i	61	59	10	18
Other professional, scientific, and technical services	other 54	1	222	31	9	32	0	4
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	7	410	25	12	26	4	29
All companies (number of domestic employees)	–	93	8,949	2,076	327	1,584	46	803
Small companies[a]								
5–499	–	4	221	72	20	16	*	16
5–99	–	*	51	21	5	1	*	6
5–49	–	0	12	17	0	0	*	3
5–9	–	0	*	9	0	0	0	0

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Turkey	United Kingdom	Other European locations	Argentina	Brazil	Chile	Mexico
10–24	–	0	3	2	0	0	*	1
25–49	–	0	9	6	0	0	0	1
50–99	–	*	39	4	5	1	0	3
100–249	–	*	63	26	12	9	0	7
250–499	–	4	107	26	2	7	*	3
Medium and large companies								
500–999	–	*	153	29	6	13	*	11
1,000–4,999	–	5	1,610	474	20	95	5	70
5,000–9,999	–	17	1,240	262	74	153	15	106
10,000–24,999	–	20	925	548	142	355	10	153
25,000 or more	–	46	4,800	691	65	952	15	447

Industry and company size	NAICS code	Other Latin American locations	Australia	China	Hong Kong	India	Indonesia	Japan
All industries	21–23, 31–33, 42–81	560	1,545	5,774	173	5,860	29	2,761
Manufacturing industries	31–33	337	1,149	4,091	139	3,579	26	2,066
Food	311	29	86	60	8 i	13	5	48 i
Chemicals	325	115	279	617	26	245	3	1,139
Pharmaceuticals and medicines	3254	64	266	391	17	206	1	946
Other chemicals	other 325	51	13	225	10	39 i	2	193
Plastics and rubber products	326	10	9	109	7	8	1	66
Nonmetallic mineral products	327	0	*	21 i	0	*	0	*
Fabricated metal products	332	0	1	14	0	3	*	0
Machinery	333	*	76	292	3	131	*	93
Computer and electronic products	334	98	93	2,115	63	2,655	2	331
Electrical equipment, appliances, and components	335	15	42	240	3	23	*	76
Transportation equipment	336	29	417	334	14 i	383	D	123
Miscellaneous manufacturing	339	19	142	253	10	112 i	D	155
Other manufacturing	312–16, 321–24, 331, 337	23	4	37	5	7	11	36
Nonmanufacturing industries	21–23, 42–81	223	396	1,682	33	2,281	3	695
Wholesale trade	42	0	0	0	0	0	0	0
Information	51	185	189	1,229	19	1,826	1	339
Telecommunications	517	*	1	6	1	6	0	0
Data processing, hosting, and related services	518	17	12	24	5	149	0	4
Other information	other 51	168	176	1,199	13	1,670	1	335
Professional, scientific, and technical services	54	34	156	247	10	267	2	310
Architectural, engineering, and related services	5413	*	4	3	0	*	0	*
Scientific research and development services	5417	29	96	128	8	96	2	272
Biotechnology research and development	541711	7	49	47	2	2	0	8
Other scientific research and development	other 5417	21	47	80	6	95	2	264
Other professional, scientific, and technical services	other 54	5	56	116	2	171	*	38
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	4	51	206 i	4	187	*	46

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Other Latin American locations	Australia	China	Hong Kong	India	Indonesia	Japan
All companies (number of domestic employees)	–	560	1,545	5,774	173	5,860	29	2,761
Small companies[a]								
5–499	–	D	50	359	36	289	11	50
5–99	–	*	28	85	D	135	*	1
5–49	–	0	26	56	D	98	0	1
5–9	–	0	*	6	0	0	0	*
10–24	–	0	26	6	*	79	0	1
25–49	–	0	1	45	D	19	0	*
50–99	–	*	1	30	13	37	*	*
100–249	–	D	14	131	D	75	11	30
250–499	–	5	9	143	13	80	0	19
Medium and large companies								
500–999	–	D	181	199	7	65	*	19
1,000–4,999	–	236	128	1,013	30	838	3	252
5,000–9,999	–	71	280	703	19	1,176	4	564
10,000–24,999	–	60	210	531	18	338	3	509
25,000 or more	–	181	696	2,969	63	3,154	7	1,366

Industry and company size	NAICS code	Malaysia	New Zealand	Singapore	South Korea	Taiwan	Thailand	Other Asian or Pacific locations
All industries	21–23, 31–33, 42–81	803	140	2,115	1,195	682	193	665
Manufacturing industries	31–33	782	72	1,614	1,111	504	172	489
Food	311	2	7	32	3	7 i	5	17
Chemicals	325	6	4	191	85	67	11	68
Pharmaceuticals and medicines	3254	5	4	96	55	61	5	36
Other chemicals	other 325	1	*	95	30	6	6	31
Plastics and rubber products	326	5	5	4	55	13	4	14
Nonmetallic mineral products	327	0	0	0	0	0	0	0
Fabricated metal products	332	*	0	1	0	1	0	0
Machinery	333	*	7	12	37	21	3	2
Computer and electronic products	334	755	42	1,235	247	354	132 i	317
Electrical equipment, appliances, and components	335	*	1	50	35	9	1	3
Transportation equipment	336	1 i	*	4	608	13	15	24
Miscellaneous manufacturing	339	12	6	58	24	20	2	16
Other manufacturing	312–16, 321–24, 331, 337	1	0	28	16	*	1	29
Nonmanufacturing industries	21–23, 42–81	21	67	501	84	178	21	176
Wholesale trade	42	0	0	0	0	*	0	0
Information	51	5	46	190 i	30	127	7	158
Telecommunications	517	0	0	*	2	2	0	0
Data processing, hosting, and related services	518	1	11	2	2	0	0	2
Other information	other 51	4	35	188 i	26	125	7	156
Professional, scientific, and technical services	54	6	21	121	52	50	10	16
Architectural, engineering, and related services	5413	0	*	0	0	0	0	*
Scientific research and development services	5417	6	7	116	37	33	10	10
Biotechnology research and development	541711	1	2	7	8	15	1	0

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Malaysia	New Zealand	Singapore	South Korea	Taiwan	Thailand	Other Asian or Pacific locations
Other scientific research and development	other 5417	5	5	109	29	18	9	10
Other professional, scientific, and technical services	other 54	*	13	4	14	17	*	6
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	10	1	190	2	*	3	1
All companies (number of domestic employees)	–	803	140	2,115	1,195	682	193	665
Small companies[a]								
5–499	–	21 i	45	65	84	138	4	28
5–99	–	*	*	6	71	71	3	4
5–49	–	0	*	1	63	36	3	3
5–9	–	0	0	0	0	3	0	0
10–24	–	0	*	1	60	15	3	*
25–49	–	0	0	*	2	18	0	3
50–99	–	*	*	4	9	34	0	1
100–249	–	2	42	39	6	29	1	9
250–499	–	19 i	3	21	6	38	*	15
Medium and large companies								
500–999	–	84 i	14	31	8	12	3	5
1,000–4,999	–	111	26	463	120	118	24	233
5,000–9,999	–	226 i	37	402	175	113	129 i	213
10,000–24,999	–	15	7	697	107	77	11	69
25,000 or more	–	345	12	457 i	699	224	22	117

Industry and company size	NAICS code	Israel	Other Middle Eastern locations	South Africa	Other African locations	Undistributed
All industries	21–23, 31–33, 42–81	4,086	106	156	73	2,692 i
Manufacturing industries	31–33	2,357	50	69	38	1,733 i
Food	311	*	2 i	2	1	136 i
Chemicals	325	68	18	48	25	604 i
Pharmaceuticals and medicines	3254	38	15	33	21	585 i
Other chemicals	other 325	30	3	15 i	4 i	19 i
Plastics and rubber products	326	*	2	1	*	D
Nonmetallic mineral products	327	*	0	0	0	92 i
Fabricated metal products	332	0	0	*	0	D
Machinery	333	161 i	2	5	*	D
Computer and electronic products	334	2,015	19	*	10	314 i
Electrical equipment, appliances, and components	335	D	1	*	0	D
Transportation equipment	336	D	4	9	1	D
Miscellaneous manufacturing	339	61	3	1	0	D
Other manufacturing	312–16, 321–24, 331, 337	0	*	2	0	D
Nonmanufacturing industries	21–23, 42–81	1,730	56	87	35	960 i
Wholesale trade	42	0	0	0	0	20 i
Information	51	1,190 i	17	18	27	D
Telecommunications	517	0	0	0	0	12 i
Data processing, hosting, and related services	518	21	3	16	0	57 i
Other information	other 51	1,169 i	14 i	1	27	D

TABLE 51. R&D paid for by the company and others and performed by the company outside of the United States, by selected location, industry, and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Israel	Other Middle Eastern locations	South Africa	Other African locations	Undistributed
Professional, scientific, and technical services	54	523	8	69	5	556 i
Architectural, engineering, and related services	5413	0	*	1	*	1 i
Scientific research and development services	5417	48	5	66	5	351 i
Biotechnology research and development	541711	7	0	3	*	299 i
Other scientific research and development	other 5417	41	5	64	5	53 i
Other professional, scientific, and technical services	other 54	475	4	1	*	203 i
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	17	30	*	3	D
All companies (number of domestic employees)	–	4,086	106	156	73	2,692 i
Small companies[a]						
5–499	–	484	8	D	1	650 i
5–99	–	408	D	1	*	318 i
5–49	–	407	D	0	0	237 i
5–9	–	0	0	0	0	19 i
10–24	–	385	0	0	0	73 i
25–49	–	22	D	0	0	145 i
50–99	–	1	D	1	*	81 i
100–249	–	29	D	*	*	118 i
250–499	–	47	D	D	1	215 i
Medium and large companies						
500–999	–	78 i	0	D	0	225 i
1,000–4,999	–	457	13 i	19	17 i	773 i
5,000–9,999	–	430	25	75	5	272
10,000–24,999	–	67	22	31	7	767 i
25,000 or more	–	2,571 i	38	26	43	4

* = 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.

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. Country detail was not asked on Form BRD-1(S). 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, 2013.

TABLE 52. Capital expenditures in the United States and for domestic R&D, by type of expenditure, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Domestic R&D					
			Total	Structures	Equipment	Capitalized software	All other	Undistributed
All industries	21–23, 31–33, 42–81	508,722	31,145	1,941	8,150	4,448	2,349	14,257 i
Manufacturing industries	31–33	219,322	17,504	1,293	6,319	1,041	1,723	7,129 i
Food	311	18,388 i	320 i	20	132	9	9	150 i
Beverage and tobacco products	312	5,537	67	5	34	*	1	26 i
Textile, apparel, and leather products	313–16	1,803	41 i	D	13	2	D	D
Wood products	321	785	18	D	9	1	*	D
Paper	322	4,632	76 i	1	30	0	3	42 i
Printing and related support activities	323	1,500 i	59 i	0	9	18	5	28 i
Petroleum and coal products	324	6,406	55	D	14	*	1	D
Chemicals	325	58,877	3,231	637	1,214	303	144	934 i
Basic chemicals	3251	31,000	246	39	109	48	36	15 i
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	5,829	115	16	77	3	2	18 i
Pesticide, fertilizer, and other agricultural chemicals	3253	1,894	58 i	18	7	*	5	29 i
Pharmaceuticals and medicines	3254	14,295	2,542	553	859	242	91	796 i
Soap, cleaning compound, and toilet preparation	3256	4,515	209	6	134	6	7	57 i
Paint, coating, adhesive, and other chemicals	3255, 3259	1,344	61	6	29	4	4	18 i
Plastics and rubber products	326	11,629	393	39	147	4	59	145 i
Nonmetallic mineral products	327	2,733 i	51 i	2	15	2	3	29 i
Primary metals	331	8,943	101	11	55	*	5	31 i
Fabricated metal products	332	8,638 i	2,892 i	64	902	13	7	1,905 i
Machinery	333	12,479	1,507 i	150	651	41 i	43	622 i
Agricultural implement	33311	1,808	83	17	48	1	1	16 i
Semiconductor machinery	333295	583	209 i	8	80	1	12	108 i
Engine, turbine, and power transmission equipment	3336	1,541	302	62	161	3	12	63 i
Other machinery	other 333	8,547	914 i	62	363	36 i	18	434 i
Computer and electronic products	334	21,824	5,762	207	2,031	316	844	2,364 i
Communications equipment	3342	6,588	947	4	573	87	41	242 i
Semiconductor and other electronic components	3344	8,567	3,267	58	955	137	653	1,464 i
Navigational, measuring, electromedical, and control instruments	3345	4,415	723	44	300	57	76	246 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	759	100 i	1	30	4	8	56 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	1,591	194	4	146	25	4	16 i
Other measuring and controlling device	other 3345	2,065	428 i	39	124	28	63	173 i
Other computer and electronic products	other 334	2,254 i	825 i	101	203	35	74	413 i
Electrical equipment, appliances, and components	335	3,262	219 i	4	57	5	14	140 i
Transportation equipment	336	42,950	1,960	108	713	221	536	382 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	19,131	917	63	359	177	161	156 i

TABLE 52. Capital expenditures in the United States and for domestic R&D, by type of expenditure, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Domestic R&D					
			Total	Structures	Equipment	Capitalized software	All other	Undistributed
Aerospace products and parts	3364	21,471	934	40	348	43	367	136 i
Aircraft, aircraft engine, and aircraft parts	336411–13	20,878	906	40	D	43	361	D
Guided missile, space vehicle, and related parts	336414–15, 336419	593	28	0	D	0	6	D
Military armored vehicle, tank, and tank components	336992	4 i	* i	0	*	0	0	* i
Other transportation	other 336	2,343	108 i	4	5	1	8	90 i
Furniture and related products	337	1,035	48 i	6	17	*	*	24 i
Miscellaneous manufacturing	339	7,903	705	D	276	104	D	264 i
Medical equipment and supplies	3391	5,614	563	8	246	80	27	202 i
Other miscellaneous manufacturing	3399	2,289	142 i	D	30	23	D	62 i
Nonmanufacturing industries	21–23, 42–81	289,400	13,641 i	648	1,831	3,408	626	7,128 i
Mining, extraction, and support activities	21	79,674	413	34	163	41	49	125 i
Utilities	22	75,589	290	7	53	*	132	98 i
Wholesale trade	42	1,831 i	57 i	*	6	*	*	51 i
Electronic shopping and electronic auctions	454111–12	5,030 i	13 i	0	1	2	0	10 i
Transportation and warehousing	48–49	12,278	58	12	14	4	7	21 i
Information	51	75,624	5,413	398	1,074	549	259	3,134 i
Publishing	511	16,354	2,055	336	770	190	148	611 i
Newspaper, periodical, book, and directory publishers	5111	1,427 i	72 i	0	0	*	*	72 i
Software publishers	5112	14,927	1,983	336	770	189	148	539 i
Telecommunications	517	39,884	2,077 i	*	10	4	4	2,059 i
Data processing, hosting, and related services	518	4,428	690	D	177	159	79	D
Other information	other 51	14,959	592	D	118	197	27	D
Finance and insurance	52	15,036	3,549	122	100	2,195	4	1,127 i
Real estate and rental and leasing	53	2,932	6	1	1	1	*	2 i
Lessors of nonfinancial intangible assets (except copyrighted works)	533	12 i	2 i	*	*	*	*	1 i
Other real estate and rental and leasing	other 53	2,921	4	1	1	1	0	1 i
Professional, scientific, and technical services	54	10,878 i	3,711 i	70	402	587	165	2,486 i
Architectural, engineering, and related services	5413	1,007	60 i	19	11	6	3	20 i
Computer systems design and related services	5415	5,541 i	2,359 i	14	168	420	56	1,702 i
Scientific research and development services	5417	1,871 i	698 i	34	192	50	68	354 i
Biotechnology research and development	541711	612	322 i	17	60	1	15	230 i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,248 i	375 i	18	132	49	53	123 i
Social sciences and humanities research and development	541720	11 i	1	0	*	*	0	* i
Other professional, scientific, and technical services	other 54	2,460 i	594 i	4	31	111	38	410 i
Health care services	621–23	715 i	15 i	*	8	2	1	5 i

TABLE 52. Capital expenditures in the United States and for domestic R&D, by type of expenditure, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Domestic R&D					
			Total	Structures	Equipment	Capitalized software	All other	Undistributed
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	9,812 i	119 i	3	10	25	10	70 i
All companies (number of domestic employees)	–	508,722	31,145	1,941	8,150	4,448	2,349	14,257 i
Small companies[a]								
5–499	–	55,144 i	7,929 i	195	1,892	379	379	5,083 i
5–99	–	25,747 i	4,627 i	85	1,332	91	218	2,902 i
5–49	–	14,472 i	2,512 i	46	335	26	180	1,926 i
5–9	–	2,009 i	384 i	2	44	7	57	273 i
10–24	–	5,304 i	833 i	12	114	3	58	647 i
25–49	–	7,159 i	1,295 i	32	177	16	64	1,006 i
50–99	–	11,275 i	2,115 i	39	997	64	38	977 i
100–249	–	15,435 i	1,919 i	60	348	158	62	1,291 i
250–499	–	13,962 i	1,382 i	51	212	130	99	890 i
Medium and large companies								
500–999	–	19,971	1,267	72	379	177	108	531 i
1,000–4,999	–	65,449	4,324	499	1,514	630	324	1,357 i
5,000–9,999	–	64,716	3,069	426	1,177	514	154	799 i
10,000–24,999	–	93,450	4,009	330	889	331	1,008	1,451 i
25,000 or more	–	209,991	10,546	417	2,299	2,417	377	5,036 i

* = 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.

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. 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, 2013.

TABLE 53. Worldwide, domestic, and foreign total and R&D employment, by industry and company size: 2013
(Thousands)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		Total	R&D	% R&D employees	Total	R&D	% R&D employees	Total	R&D	% R&D employees
All industries	21–23, 31–33, 42–81	30,560	2,095	6.9	20,046	1,495	7.5	10,514	600	5.7
Manufacturing industries	31–33	17,661	1,267	7.2	10,457	898	8.6	7,204	368	5.1
Food	311	1,729	40	2.3	1,207	29	2.4	521	11	2.1
Beverage and tobacco products	312	978	6	0.6	412	4	0.9	567	3	0.5
Textile, apparel, and leather products	313–16	307	9	3.0	191	8	4.4	116 i	1	0.7
Wood products	321	115	3	2.4	93	3	2.9	23	*	0.3
Paper	322	319	10	3.0	195	9	4.4	123	1	0.8
Printing and related support activities	323	109	4	3.7	101	4	3.8	8	*	2.9
Petroleum and coal products	324	95	2	2.4	83	2	2.2	11	*	3.8
Chemicals	325	2,692	229	8.5	1,607	166	10.3	1,085	63	5.8
Basic chemicals	3251	626	19	3.1	460	13	2.9	167	6	3.6
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	247	12	4.8	140	7	5.2	107	5	4.3
Pesticide, fertilizer, and other agricultural chemicals	3253	84	8 i	10.0	58	6 i	10.6	26	2 i	8.8
Pharmaceuticals and medicines	3254	1,072	155	14.5	622	117	18.8	451	38	8.5
Soap, cleaning compound, and toilet preparation	3256	432	18	4.1	181	12	6.8	250	5	2.2
Paint, coating, adhesive, and other chemicals	3255, 3259	232	17	7.4	147	11	7.2	85	7	7.8
Plastics and rubber products	326	677	34	5.1	481	28	5.8	196	6	3.3
Nonmetallic mineral products	327	242	13	5.3	168	8	5.0	74	4	6.0
Primary metals	331	355	13	3.6	268	12	4.6	88	1	0.6
Fabricated metal products	332	623	36	5.8	497	33	6.6	125	3	2.5
Machinery	333	1,637	114	6.9	918	83	9.1	719	30	4.2
Agricultural implement	33311	168	15	8.9	112	10	9.1	56	5	8.6
Semiconductor machinery	333295	68	12	17.9	26	9	32.8	42	4	8.5
Engine, turbine, and power transmission equipment	3336	170	14	8.4	94	10	10.9	76	4	5.4
Other machinery	other 333	1,231	72	5.9	686	54	7.9	545	18	3.3
Computer and electronic products	334	2,716	395	14.6	1,277	255	20.0	1,438	140	9.7
Communications equipment	3342	371	86	23.3	225	57	25.2	146	30	20.4
Semiconductor and other electronic components	3344	1,055	183	17.4	336	109	32.4	719 i	74	10.4
Navigational, measuring, electromedical, and control instruments	3345	910	80	8.8	526	61	11.5	383	20	5.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	101	12	11.4	80	10	12.7	21	1	6.4
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	349	30	8.5	250	27	10.8	99	3	2.7
Other measuring and controlling device	other 3345	460	39	8.5	196	24	12.0	264	16	5.9
Other computer and electronic products	other 334	381	45	11.9	190	29	15.4	191	16	8.4
Electrical equipment, appliances, and components	335	705	54	7.7	327	30	9.3	378	24	6.3
Transportation equipment	336	3,111	215	6.9	1,854	157	8.5	1,257	58	4.6

TABLE 53. Worldwide, domestic, and foreign total and R&D employment, by industry and company size: 2013
(Thousands)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		Total	R&D	% R&D employees	Total	R&D	% R&D employees	Total	R&D	% R&D employees
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	1,906	119	6.2	930	83	8.9	975	36	3.7
Aerospace products and parts	3364	995	85	8.6	751	64	8.5	243	22	8.9
Aircraft, aircraft engine, and aircraft parts	336411–13	D	81	D	713	59	8.3	D	22	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	5	D	38	5	11.9	D	*	D
Military armored vehicle, tank, and tank components	336992	1	* i	9.7	1	* i	9.7	0	0	0.0
Other transportation	other 336	210	11	5.3	172	11	6.1	38	1	1.6
Furniture and related products	337	181	4	2.4	151	4	2.8	29	*	0.6
Miscellaneous manufacturing	339	1,070	84	7.9	625	62	10.0	445	22	5.0
Medical equipment and supplies	3391	701	65	9.2	399	47	11.7	302	18	5.9
Other miscellaneous manufacturing	3399	369	20	5.4	226	16	6.9	144	4 i	2.9
Nonmanufacturing industries	21–23, 42–81	12,899	828	6.4	9,589	597	6.2	3,310	231	7.0
Mining, extraction, and support activities	21	702	19	2.6	399	16	3.9	303	3	1.0
Utilities	22	392	2	0.5	381	2	0.4	11	* i	2.1
Wholesale trade	42	440 i	14	3.2	417 i	12	2.8	23 i	3	11.3
Electronic shopping and electronic auctions	454111–12	156	11	6.8	100	8	7.7	56	3	5.2
Transportation and warehousing	48–49	875 i	3	0.4	734	3	0.5	141 i	*	*
Information	51	3,353	406	12.1	2,182	277	12.7	1,171	129	11.0
Publishing	511	1,792	298	16.6	854	184	21.6	938	113	12.1
Newspaper, periodical, book, and directory publishers	5111	167 i	8 i	5.0	140 i	4	2.7	27 i	4 i	16.6
Software publishers	5112	1,625	289	17.8	714	181	25.3	911	109	11.9
Telecommunications	517	745	20	2.6	725	19	2.6	20	1	4.3
Data processing, hosting, and related services	518	422	50	11.9	288	42	14.5	135	9	6.3
Other information	other 51	393	38	9.7	316	32	10.1	77	6	7.8
Finance and insurance	52	1,603	30	1.9	1,325	25	1.9	278	4	1.5
Real estate and rental and leasing	53	46	1	2.2	43	1	2.1	3	*	3.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	2	*	23.4	1	*	21.2	*	*	43.4
Other real estate and rental and leasing	other 53	44	1	1.5	42	1	1.5	3	*	1.4
Professional, scientific, and technical services	54	1,993	310	15.6	1,430	223	15.6	562	87	15.4
Architectural, engineering, and related services	5413	395	47	11.8	270	44	16.5	125	2 i	1.7
Computer systems design and related services	5415	808	113	13.9	512	75	14.6	296	38	12.8
Scientific research and development services	5417	292	106	36.4	232	72	31.1	60	34	57.0
Biotechnology research and development	541711	104	28	26.5	91	19	20.4	13	9	67.9
Physical, engineering, and life sciences (except biotechnology) research and development	541712	179	74	41.2	133	49	36.8	46	25	53.8
Social sciences and humanities research and development	541720	8	5	57.7	8	5	57.7	*	*	49.2

TABLE 53. Worldwide, domestic, and foreign total and R&D employment, by industry and company size: 2013
(Thousands)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		Total	R&D	% R&D employees	Total	R&D	% R&D employees	Total	R&D	% R&D employees
Other professional, scientific, and technical services	other 54	498	45	9.0	416	32	7.7	82	13 i	15.7
Health care services	621–23	237	3	1.4	235	3	1.3	2	* i	5.9
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	3,102	30	1.0	2,342	27	1.2	760	2	0.3
All companies (number of domestic employees)	–	30,560	2,095	6.9	20,046	1,495	7.5	10,514	600	5.7
Small companies[a]										
5–499	–	4,326	506	11.7	3,762	442	11.7	564	64	11.3
5–99	–	2,077	281	13.5	1,934	251	13.0	143	30	21.2
5–49	–	1,243	192	15.5	1,145	170	14.9	98	22	22.8
5–9	–	171	37	21.9	167	36	21.4	5	2	38.8
10–24	–	445	75	16.8	411	62	15.1	34	12	36.9
25–49	–	626	80	12.8	567	72	12.7	59	8	13.5
50–99	–	835	89	10.7	790	81	10.3	45	8	17.6
100–249	–	1,218	128	10.5	986	112	11.4	233	16	6.8
250–499	–	1,031	96	9.3	842	79	9.3	188	18	9.3
Medium and large companies										
500–999	–	1,043	85	8.2	762	68	8.9	281	17	6.0
1,000–4,999	–	4,188	363	8.7	2,537	240	9.4	1,651	124	7.5
5,000–9,999	–	3,330	254	7.6	1,599	141	8.8	1,732	113	6.5
10,000–24,999	–	4,614	270	5.8	2,903	201	6.9	1,710	68	4.0
25,000 or more	–	13,060	618	4.7	8,482	403	4.8	4,577	215	4.7

* = < 500 employees or < 0.05%; 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.

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. 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, 2013.

TABLE 54. 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: 2013

Industry and company size	NAICS code	Company-performed R&D (US$millions)			R&D employment (thousands)			Company-performed R&D per R&D employee (thousands of U.S. dollars per employee)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	395,628	322,528	73,100	2,095	1,495	600	188.8	215.7	121.9
Manufacturing industries	31–33	272,580	221,476	51,104	1,267	898	368	215.2	246.6	138.7
Food	311	6,343	5,028	1,315	40	29	11	158.6	172.4	121.5
Beverage and tobacco products	312	1,358	827	531	6	4	3	218.4	226.3	207.1
Textile, apparel, and leather products	313–16	760	662	98	9	8	1	82.5	79.1	116.0
Wood products	321	222	220	2	3	3	*	80.8	81.9	36.1
Paper	322	1,022	920	103	10	9	1	107.5	108.0	103.3
Printing and related support activities	323	258 i	252 i	6	4	4	*	63.6	65.9	25.0
Petroleum and coal products	324	288	242	46	2	2	*	127.1	132.3	105.5
Chemicals	325	74,397	61,664	12,733	229	166	63	324.3	370.9	201.7
Basic chemicals	3251	3,373	2,658	715	19	13	6	175.7	200.3	120.5
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,570	1,065	506	12	7	5	132.5	145.6	111.4
Pesticide, fertilizer, and other agricultural chemicals	3253	1,966 i	1,691 i	275 i	8 i	6 i	2 i	233.5	276.0	119.9
Pharmaceuticals and medicines	3254	62,477	52,426	10,051	155	117	38	402.9	449.2	262.0
Soap, cleaning compound, and toilet preparation	3256	3,393	2,469	924	18	12	5	191.1	200.5	169.9
Paint, coating, adhesive, and other chemicals	3255, 3259	1,618	1,355	263	17	11	7	94.6	128.7	40.0
Plastics and rubber products	326	4,580	3,650	931	34	28	6	133.0	130.6	143.2
Nonmetallic mineral products	327	1,578	1,329 i	249 i	13	8	4	122.5	158.2	55.5
Primary metals	331	706	624	82	13	12	1	55.0	50.8	145.4
Fabricated metal products	332	2,328 i	2,212 i	116	36	33	3	64.9	67.6	36.6
Machinery	333	15,502	12,650	2,852	114	83	30	136.5	151.9	94.1
Agricultural implement	33311	2,243	1,597	646	15	10	5	150.1	157.2	135.2
Semiconductor machinery	333295	3,645	3,194	451	12	9	4	298.2	370.0	125.6
Engine, turbine, and power transmission equipment	3336	1,795	1,448	347	14	10	4	125.9	142.5	84.6
Other machinery	other 333	7,819	6,411	1,408	72	54	18	108.4	118.0	78.9
Computer and electronic products	334	85,480	67,205	18,275	395	255	140	216.3	263.1	130.8
Communications equipment	3342	20,353	15,658	4,696	86	57	30	235.9	276.7	158.2
Semiconductor and other electronic components	3344	40,609	30,800	9,809	183	109	74	221.5	282.9	131.8
Navigational, measuring, electromedical, and control instruments	3345	16,769	14,478	2,291	80	61	20	208.6	238.3	116.6
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,837	2,634	202	12	10	1	245.9	257.8	153.8
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	8,753	8,106	647	30	27	3	296.0	300.8	246.8
Other measuring and controlling device	other 3345	5,179	3,738	1,441	39	24	16	131.8	158.5	91.8

TABLE 54. 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: 2013

Industry and company size	NAICS code	Company-performed R&D (US$millions)			R&D employment (thousands)			Company-performed R&D per R&D employee (thousands of U.S. dollars per employee)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Other computer and electronic products	other 334	7,748	6,269	1,480	45	29	16	171.4	214.4	92.6
Electrical equipment, appliances, and components	335	5,741	4,136	1,605	54	30	24	105.6	136.2	66.8
Transportation equipment	336	55,191	45,972	9,219	215	157	58	256.3	292.8	158.2
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	23,605	16,729	6,877	119	83	36	198.3	201.7	190.2
Aerospace products and parts	3364	29,331	27,114	2,218	85	64	22	344.8	426.8	103.0
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	D	81	59	22	D	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	D	5	5	*	D	D	D
Military armored vehicle, tank, and tank components	336992	9 i	9 i	0	* i	* i	0	119.7	119.7	0.0
Other transportation	other 336	2,246	2,121	125	11	11	1	202.2	201.9	206.3
Furniture and related products	337	402	374	28	4	4	*	91.2	88.2	168.7
Miscellaneous manufacturing	339	16,422	13,509	2,913	84	62	22	194.8	217.2	131.7
Medical equipment and supplies	3391	13,456	10,954	2,502	65	47	18	208.5	234.8	139.9
Other miscellaneous manufacturing	3399	2,966	2,555	411	20	16	4 i	150.0	164.4	97.1
Nonmanufacturing industries	21–23, 42–81	123,048	101,052	21,996	828	597	231	148.5	169.2	95.2
Mining, extraction, and support activities	21	4,449	3,997	452	19	16	*	239.6	255.7	153.9
Utilities	22	317	294	23	2	2	D i	179.0	191.8	97.2
Wholesale trade	42	554 i	529 i	25 i	14	12	3	39.0	45.6	9.7
Electronic shopping and electronic auctions	454111–12	1,846	1,357 i	490	11	8	3	173.0	175.1	167.6
Transportation and warehousing	48–49	D	D	7	3	3	*	D	D	183.8
Information	51	70,857	57,207	13,650	406	277	129	174.7	206.6	106.1
Publishing	511	47,012	35,675	11,337	298	184	113	158.0	193.5	100.2
Newspaper, periodical, book, and directory publishers	5111	348 i	342 i	6 i	8 i	4	4 i	42.0	89.5	1.3
Software publishers	5112	46,664	35,333	11,331	289	181	109	161.3	195.7	104.2
Telecommunications	517	3,104	3,041	63	20	19	1	158.0	162.0	72.6
Data processing, hosting, and related services	518	7,077	6,446	631	50	42	9	140.7	154.3	74.0
Other information	other 51	13,665	12,046	1,619	38	32	6	358.9	376.4	266.9
Finance and insurance	52	5,011	4,308	703	30	25	4	168.7	169.3	165.0
Real estate and rental and leasing	53	161	150	11	1	1	*	157.5	163.4	106.3
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	58 I	D	*	*	*	D	193.1	D
Other real estate and rental and leasing	other 53	D	92	D	1	1	*	D	149.0	D
Professional, scientific, and technical services	54	37,560	31,017	6,543	310	223	87	121.1	138.9	75.4
Architectural, engineering, and related services	5413	3,174	3,133	41	47	44	2 i	68.1	70.5	19.2
Computer systems design and related services	5415	10,563 i	9,268 i	1,294	113	75	38	93.7	123.8	34.2

TABLE 54. 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: 2013

Industry and company size	NAICS code	Company-performed R&D (US$millions)			R&D employment (thousands)			Company-performed R&D per R&D employee (thousands of U.S. dollars per employee)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Scientific research and development services	5417	18,464	14,201	4,263	106	72	34	173.9	196.7	125.5
Biotechnology research and development	541711	5,899	4,499	1,400	28	19	9	213.9	242.9	154.6
Physical, engineering, and life sciences (except biotechnology) research and development	541712	11,771	8,910	2,861	74	49	25	159.3	181.8	114.9
Social sciences and humanities research and development	541720	795	792	3	5	5	*	169.4	169.3	185.6
Other professional, scientific, and technical services	other 54	5,359	4,415	944	45	32	13 i	119.9	138.6	73.5
Health care services	621–23	533 i	526 i	7	3	3	* i	161.9	166.1	56.5
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	D	85	30	27	2	D	D	34.1
All companies (number of domestic employees)	–	395,628	322,528	73,100	2,095	1,495	600	188.8	215.7	121.9
Small companies[a]										
5–499	–	57,172	53,002	4,170	506	442	64	113.1	119.9	65.5
5–99	–	28,670 i	27,148 i	1,522	281	251	30	101.9	108.1	50.4
5–49	–	19,415 i	18,238 i	1,177	192	170	22	100.9	107.2	52.7
5–9	–	3,454 i	3,402 i	52 i	37	36	2	92.2	95.7	27.3
10–24	–	7,580 i	6,895 i	685	75	62	12	101.5	110.7	55.1
25–49	–	8,381 i	7,941 i	440	80	72	8	104.4	109.9	55.1
50–99	–	9,254	8,910	344	89	81	8	104.0	109.8	43.7
100–249	–	14,941	13,666	1,275	128	112	16	116.7	121.8	80.4
250–499	–	13,562	12,189	1,373	96	79	18	141.1	155.1	78.1
Medium and large companies										
500–999	–	13,658	12,002	1,656	85	68	17	160.5	176.2	97.6
1,000–4,999	–	69,097	55,517	13,580	363	240	124	190.3	231.7	109.9
5,000–9,999	–	42,350	31,514	10,836	254	141	113	167.0	223.5	96.3
10,000–24,999	–	60,999	51,218	9,782	270	201	68	226.3	254.4	143.5
25,000 or more	–	152,351	119,275	33,076	618	403	215	246.4	295.6	154.0

* = < $500,000 or < 500 employees; 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.

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, 2013.

TABLE 55. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
All industries	21–23, 31–33, 42–81	2,095	1,547	548	1,495	1,124	371	600	423	177
Manufacturing industries	31–33	1,267	954	312	898	686	212	368	268	100
Food	311	40	23 i	17 i	29	17 i	12 i	11	6 i	5 i
Beverage and tobacco products	312	6	4	3	4	2	1	3	1	1
Textile, apparel, and leather products	313–16	9	5	4	8	5	3	1	1	*
Wood products	321	3	2	*	3	2	*	*	*	*
Paper	322	10	8	1	9	7	1	1	1	*
Printing and related support activities	323	4	3 i	1 i	4	3 i	1 i	*	*	*
Petroleum and coal products	324	2	2	1	2	1	*	*	*	*
Chemicals	325	229	129	100	166	95	72	63	35	28
Basic chemicals	3251	19	14	5	13	10	3	6	4	2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	12	9	2	7	6	2	5	4	1
Pesticide, fertilizer, and other agricultural chemicals	3253	8 i	5 i	3 i	6 i	4 i	2 i	2 i	1 i	1 i
Pharmaceuticals and medicines	3254	155	78	77	117	60	56	38	18	20
Soap, cleaning compound, and toilet preparation	3256	18	9	8	12	7	6	5	3	3
Paint, coating, adhesive, and other chemicals	3255, 3259	17	13	4	11	8	2	7	5	2
Plastics and rubber products	326	34	27 i	7	28	22 i	5	6	5	2
Nonmetallic mineral products	327	13	8 i	5 i	8	6 i	3	4	3 i	2 i
Primary metals	331	13	11 i	2 i	12	11 i	1 i	1	*	*
Fabricated metal products	332	36	32 i	4 i	33	30 i	3 i	3	3	1 i
Machinery	333	114	99	15	83	74	10	30	25	5
Agricultural implement	33311	15	14	1	10	9	1	5	4	*
Semiconductor machinery	333295	12	11	2	9	7	1	4	3	*
Engine, turbine, and power transmission equipment	3336	14	11	3	10	8	2	4	3	1
Other machinery	other 333	72	63	9	54	49	6 i	18	15	3 i
Computer and electronic products	334	395	312	83	255	206	50	140	106	34
Communications equipment	3342	86	68	19	57	45	11	30	22	8
Semiconductor and other electronic components	3344	183	142	41 i	109	86	22 i	74	56	18 i
Navigational, measuring, electromedical, and control instruments	3345	80	66	15	61	50	11	20	16 i	4 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	12	9	2 i	10	8	2	1	1 i	* i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	30	25	5	27	23	4	3	2	*
Other measuring and controlling device	other 3345	39	32 i	8	24	19	5	16	13 i	3 i
Other computer and electronic products	other 334	45	37	9	29	24	5	16	12	4
Electrical equipment, appliances, and components	335	54	47	7	30	27	4	24	20	4
Transportation equipment	336	215	178	37	157	131	26	58	47	11
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	119	103	16	83	71	12	36	31	5
Aerospace products and parts	3364	85	66	19	64	51	13	22	15	6
Aircraft, aircraft engine, and aircraft parts	336411–13	81	62	18	59	47	12	22	15	6
Guided missile, space vehicle, and related parts	336414–15, 336419	5	4	1	5	4	1	*	*	*

TABLE 55. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Military armored vehicle, tank, and tank components	336992	* i	* i	* i	* i	* i	* i	0	0	0
Other transportation	other 336	11	10 i	2 i	11	9 i	1 i	1	* i	* i
Furniture and related products	337	4	3	1	4	3 i	1	*	*	*
Miscellaneous manufacturing	339	84	59	26	62	44	19	22	15	7
Medical equipment and supplies	3391	65	44	21	47	32	15	18	12	6
Other miscellaneous manufacturing	3399	20	15	5	16	12	4	4 i	3 i	1 i
Nonmanufacturing industries	21–23, 42–81	828	593 i	236 i	597	438 i	159 i	231	154	77 i
Mining, extraction, and support activities	21	19	15	4	16	12	3	3	2	*
Utilities	22	2	2	*	2	1	*	* i	* i	* i
Wholesale trade	42	14	9 i	5 i	12	8 i	4 i	3	2 i	1 i
Electronic shopping and electronic auctions	454111–12	11	6	5	8	4	3	3	1	1
Transportation and warehousing	48–49	3	2	1 i	3	2	1 i	*	*	* i
Information	51	406	312	94	277	215 i	62	129	97	32
Publishing	511	298	228	69	184	143 i	41 i	113	85	28
Newspaper, periodical, book, and directory publishers	5111	8 i	6 i	3 i	4	2 i	2 i	4 i	3 i	1 i
Software publishers	5112	289	223	66	181	141 i	40	109	82	27
Telecommunications	517	20	16 i	3 i	19	16 i	3 i	1	1	* i
Data processing, hosting, and related services	518	50	37	13	42	31	11	9	6	2 i
Other information	other 51	38	30	9	32	25	7	6	5	1
Finance and insurance	52	30	18	12	25	15	10	4	2	2
Real estate and rental and leasing	53	1	1	*	1	1	*	*	*	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	*	*	*	*	*	*	*	*	*
Other real estate and rental and leasing	other 53	1	1	*	1	1	*	*	*	*
Professional, scientific, and technical services	54	310	205 i	106 i	223	158 i	65 i	87	47 i	40 i
Architectural, engineering, and related services	5413	47	37 i	10 i	44	35 i	10 i	2 i	2 i	* i
Computer systems design and related services	5415	113	86 i	27 i	75	61 i	14 i	38	25 i	13 i
Scientific research and development services	5417	106	49	57	72	38	34 i	34	10	24
Biotechnology research and development	541711	28	11	16	19	8	10	9	3	6
Physical, engineering, and life sciences (except biotechnology) research and development	541712	74	36	38	49	28	21 i	25	8	17
Social sciences and humanities research and development	541720	5	2 i	3 i	5	2 i	3 i	*	* i	* i
Other professional, scientific, and technical services	other 54	45	33 i	11 i	32	24 i	8 i	13 i	9 i	4 i
Health care services	621–23	3	1 i	2 i	3	1 i	2 i	* i	* i	* i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	30	23 i	7 i	27	21 i	7 i	2	2	1 i
All companies (number of domestic employees)	–	2,095	1,547	548	1,495	1,124	371	600	423	177
Small companies[a]										
5–499	–	506	387 i	119 i	442	346 i	96 i	64	41	23 i
5–99	–	281	211 i	71 i	251	195 i	56 i	30	15	15 i
5–49	–	192	141 i	52 i	170	132 i	39 i	22	9	13 i

TABLE 55. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
5–9	–	37	28 i	9 i	36	27 i	8 i	2	1 i	1 i
10–24	–	75	53 i	21 i	62	49 i	14 i	12	5	8 i
25–49	–	80	59 i	21 i	72	56 i	17 i	8	3	5 i
50–99	–	89	70 i	19 i	81	64 i	17 i	8	6	2 i
100–249	–	128	101 i	27 i	112	89 i	23 i	16	12	4 i
250–499	–	96	75	21	79	62	17	18	14	4
Medium and large companies										
500–999	–	85	64	21	68	52	16	17	12	5 i
1,000–4,999	–	363	272	91	240	179	60	124	92	31
5,000–9,999	–	254	171	83	141	99	42	113	72	40
10,000–24,999	–	270	191	78	201	144	58	68	48	21
25,000 or more	–	618	462	156	403	305	99	215	158	57

* = amount < 500; i = > 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. 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, 2013.

TABLE 56. Worldwide R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
All industries	21–23, 31–33, 42–81	2,095	1,438	412	245
Manufacturing industries	31–33	1,267	904	221	142
Food	311	40	26 i	8 i	6 i
Beverage and tobacco products	312	6	3	3	1
Textile, apparel, and leather products	313–16	9	4	4 i	1
Wood products	321	3	1	1 i	1
Paper	322	10	4	5	*
Printing and related support activities	323	4	2 i	1 i	1 i
Petroleum and coal products	324	2	1	1	1 i
Chemicals	325	229	148	36	46
Basic chemicals	3251	19	11	6	2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	12	7	3	2
Pesticide, fertilizer, and other agricultural chemicals	3253	8 i	5 i	2 i	1 i
Pharmaceuticals and medicines	3254	155	99	18	38
Soap, cleaning compound, and toilet preparation	3256	18	15	2	2
Paint, coating, adhesive, and other chemicals	3255, 3259	17	11	4	2
Plastics and rubber products	326	34	19	12 i	4
Nonmetallic mineral products	327	13	7 i	5	1
Primary metals	331	13	5 i	6 i	1
Fabricated metal products	332	36	16 i	13 i	7 i
Machinery	333	114	79	24	10 i
Agricultural implement	33311	15	10	4	1
Semiconductor machinery	333295	12	9	3	1
Engine, turbine, and power transmission equipment	3336	14	9	4	1 i
Other machinery	other 333	72	51	13	8 i
Computer and electronic products	334	395	318	44	33
Communications equipment	3342	86	72	9	5
Semiconductor and other electronic components	3344	183	147 i	17 i	19
Navigational, measuring, electromedical, and control instruments	3345	80	63	13	5
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	12	8	2 i	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	30	24	5	1
Other measuring and controlling device	other 3345	39	31	6 i	3 i
Other computer and electronic products	other 334	45	36	5	4 i
Electrical equipment, appliances, and components	335	54	37	14 i	4 i
Transportation equipment	336	215	174	24	17
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	119	98	13	8
Aerospace products and parts	3364	85	70	8	7

TABLE 56. Worldwide R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
Aircraft, aircraft engine, and aircraft parts	336411–13	81	66	8	6
Guided missile, space vehicle, and related parts	336414–15, 336419	5	4	*	*
Military armored vehicle, tank, and tank components	336992	* i	* i	* i	* i
Other transportation	other 336	11	6 i	3 i	3 i
Furniture and related products	337	4	2	2 i	1
Miscellaneous manufacturing	339	84	59	18 i	7
Medical equipment and supplies	3391	65	45	14 i	6
Other miscellaneous manufacturing	3399	20	14	4 i	2
Nonmanufacturing industries	21–23, 42–81	828	535	192 i	102 i
Mining, extraction, and support activities	21	19	11	6	2
Utilities	22	2	1	1	*
Wholesale trade	42	14	5 i	2 i	7 i
Electronic shopping and electronic auctions	454111–12	11	2 i	8 i	1 i
Transportation and warehousing	48–49	3	1 i	1	1 i
Information	51	406	294	62	50
Publishing	511	298	229	25	44
Newspaper, periodical, book, and directory publishers	5111	8 i	4 i	1 i	3 i
Software publishers	5112	289	225	24	41
Telecommunications	517	20	11 i	9 i	*
Data processing, hosting, and related services	518	50	26	20 i	5
Other information	other 51	38	29	8	1
Finance and insurance	52	30	9	19	2
Real estate and rental and leasing	53	1	1	* i	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	*	*	* i	*
Other real estate and rental and leasing	other 53	1	*	*	*
Professional, scientific, and technical services	54	310	193 i	86 i	31 i
Architectural, engineering, and related services	5413	47	29 i	15 i	3
Computer systems design and related services	5415	113	87 i	16 i	11 i
Scientific research and development services	5417	106	49	45	12 i
Biotechnology research and development	541711	28	21	6	1
Physical, engineering, and life sciences (except biotechnology) research and development	541712	74	28	37	9 i
Social sciences and humanities research and development	541720	5	*	2 i	2 i
Other professional, scientific, and technical services	other 54	45	29 i	11 i	5 i
Health care services	621–23	3	1 i	2 i	* i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	30	16 i	5 i	8 i

TABLE 56. Worldwide R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
All companies (number of domestic employees)	–	2,095	1,438	412	245
Small companies[a]					
5–499	–	506	314 i	126 i	66 i
5–99	–	281	173 i	67 i	41 i
5–49	–	192	121 i	42 i	30 i
5–9	–	37	23 i	8 i	7 i
10–24	–	75	48 i	15 i	12 i
25–49	–	80	50 i	20 i	11 i
50–99	–	89	52 i	25 i	12 i
100–249	–	128	77 i	37 i	14 i
250–499	–	96	63	22	11
Medium and large companies					
500–999	–	85	55	22	8
1,000–4,999	–	363	247	74	42
5,000–9,999	–	254	167	59	27
10,000–24,999	–	270	187	55	27
25,000 or more	–	618	468	76	74

* = amount < 500; i = > 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. 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, 2013.

TABLE 57. Domestic R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
All industries	21–23, 31–33, 42–81	1,495	1,014	308	174
Manufacturing industries	31–33	898	631	166	100
Food	311	29	19 i	6 i	5
Beverage and tobacco products	312	4	2	1	1
Textile, apparel, and leather products	313–16	8	3	4 i	1
Wood products	321	3	1	1 i	1
Paper	322	9	3	5	*
Printing and related support activities	323	4	2 i	1 i	1 i
Petroleum and coal products	324	2	1	*	1 i
Chemicals	325	166	110	27	29
Basic chemicals	3251	13	7	4	2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	7	4	2	1
Pesticide, fertilizer, and other agricultural chemicals	3253	6 i	4 i	2 i	* i
Pharmaceuticals and medicines	3254	117	78	16	23
Soap, cleaning compound, and toilet preparation	3256	12	10	1	1
Paint, coating, adhesive, and other chemicals	3255, 3259	11	7	2	1 i
Plastics and rubber products	326	28	15 i	10 i	3
Nonmetallic mineral products	327	8	5 i	3 i	1
Primary metals	331	12	5 i	6 i	1
Fabricated metal products	332	33	14 i	12 i	7 i
Machinery	333	83	56	18	9 i
Agricultural implement	33311	10	7	3	1
Semiconductor machinery	333295	9	6	2	*
Engine, turbine, and power transmission equipment	3336	10	6	3	1
Other machinery	other 333	54	37	10 i	7 i
Computer and electronic products	334	255	205	30	21
Communications equipment	3342	57	47	6	3
Semiconductor and other electronic components	3344	109	88	10 i	11 i
Navigational, measuring, electromedical, and control instruments	3345	61	47	10	4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	10	7	2 i	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	27	21	4	1
Other measuring and controlling device	other 3345	24	18	3	2
Other computer and electronic products	other 334	29	23	4	3 i
Electrical equipment, appliances, and components	335	30	21	7	2 i
Transportation equipment	336	157	123	19	14
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	83	67	10	6
Aerospace products and parts	3364	64	51	7	5
Aircraft, aircraft engine, and aircraft parts	336411–13	59	47	7	5

TABLE 57. Domestic R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
Guided missile, space vehicle, and related parts	336414–15, 336419	5	4	*	*
Military armored vehicle, tank, and tank components	336992	* i	* i	* i	* i
Other transportation	other 336	11	5 i	2 i	3 i
Furniture and related products	337	4	2	2 i	*
Miscellaneous manufacturing	339	62	44	13 i	5
Medical equipment and supplies	3391	47	33	10 i	4
Other miscellaneous manufacturing	3399	16	10	4 i	1
Nonmanufacturing industries	21–23, 42–81	597	382	142 i	73 i
Mining, extraction, and support activities	21	16	9	6	2
Utilities	22	2	1	*	*
Wholesale trade	42	12	4 i	* i	7 i
Electronic shopping and electronic auctions	454111–12	8	2 i	6 i	1 i
Transportation and warehousing	48–49	3	1 i	1	1 i
Information	51	277	199	49 i	28
Publishing	511	184	144	16	24
Newspaper, periodical, book, and directory publishers	5111	4	1 i	1 i	2 i
Software publishers	5112	181	143	16	22
Telecommunications	517	19	10 i	8 i	*
Data processing, hosting, and related services	518	42	20	18 i	4
Other information	other 51	32	24	7	1
Finance and insurance	52	25	8	16	1 i
Real estate and rental and leasing	53	1	1	* i	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	*	*	* i	*
Other real estate and rental and leasing	other 53	1	*	* i	*
Professional, scientific, and technical services	54	223	141 i	57 i	25 i
Architectural, engineering, and related services	5413	44	27 i	14 i	3
Computer systems design and related services	5415	75	55 i	11 i	9 i
Scientific research and development services	5417	72	38	24	9 i
Biotechnology research and development	541711	19	13	4	1
Physical, engineering, and life sciences (except biotechnology) research and development	541712	49	25	18	6 i
Social sciences and humanities research and development	541720	5	*	2 i	2 i
Other professional, scientific, and technical services	other 54	32	21 i	8 i	4 i
Health care services	621–23	3	1 i	2 i	* i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	27	15 i	4 i	8 i
All companies (number of domestic employees)	–	1,495	1,014	308	174
Small companies[a]					
5–499	–	442	269 i	113 i	60 i

TABLE 57. Domestic R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
5–99	–	251	151 i	61 i	38 i
5–49	–	170	103 i	39 i	27 i
5–9	–	36	21 i	7 i	7 i
10–24	–	62	38 i	14 i	11 i
25–49	–	72	44 i	18 i	10 i
50–99	–	81	48 i	22 i	11 i
100–249	–	112	66 i	33 i	13 i
250–499	–	79	51	19	9
Medium and large companies					
500–999	–	68	42	19	7
1,000–4,999	–	240	159	51	30
5,000–9,999	–	141	97	29	14
10,000–24,999	–	201	143	40	19
25,000 or more	–	403	304	56	43

* = amount < 500; i = > 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. 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, 2013.

TABLE 58. Foreign R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
All industries	21–23, 31–33, 42–81	600	425	104	71
Manufacturing industries	31–33	368	272	54	42
Food	311	11	7 i	2	2 i
Beverage and tobacco products	312	3	1	1	*
Textile, apparel, and leather products	313–16	1	*	*	*
Wood products	321	*	*	*	*
Paper	322	1	*	*	*
Printing and related support activities	323	*	*	*	*
Petroleum and coal products	324	*	*	*	*
Chemicals	325	63	37	8	17
Basic chemicals	3251	6	3	2	*
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	5	3	1	1
Pesticide, fertilizer, and other agricultural chemicals	3253	2 i	1 i	1 i	* i
Pharmaceuticals and medicines	3254	38	21	3	15
Soap, cleaning compound, and toilet preparation	3256	5	5	*	*
Paint, coating, adhesive, and other chemicals	3255, 3259	7	4	2	1
Plastics and rubber products	326	6	4	2	1
Nonmetallic mineral products	327	4	2 i	2	1
Primary metals	331	1	*	*	*
Fabricated metal products	332	3	2	1	1
Machinery	333	30	23	6	1
Agricultural implement	33311	5	4	1	*
Semiconductor machinery	333295	4	3	1	*
Engine, turbine, and power transmission equipment	3336	4	3	1 i	*
Other machinery	other 333	18	14	3	1
Computer and electronic products	334	140	113	14	12
Communications equipment	3342	30	25	3	1
Semiconductor and other electronic components	3344	74	59 i	7 i	8
Navigational, measuring, electromedical, and control instruments	3345	20	16 i	3 i	1 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1	1 i	* i	* i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3	2	*	*
Other measuring and controlling device	other 3345	16	12 i	2 i	1 i
Other computer and electronic products	other 334	16	12	2	2
Electrical equipment, appliances, and components	335	24	16	7 i	1
Transportation equipment	336	58	50	5	3
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	36	31	4	2
Aerospace products and parts	3364	22	19	1	1
Aircraft, aircraft engine, and aircraft parts	336411–13	22	19	1	1

TABLE 58. Foreign R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
Guided missile, space vehicle, and related parts	336414–15, 336419	*	*	*	0
Military armored vehicle, tank, and tank components	336992	0	0	0	0
Other transportation	other 336	1	* i	* i	* i
Furniture and related products	337	*	*	*	*
Miscellaneous manufacturing	339	22	15	5 i	2 i
Medical equipment and supplies	3391	18	12	4 i	2 i
Other miscellaneous manufacturing	3399	4 i	3 i	1	*
Nonmanufacturing industries	21–23, 42–81	231	152	50	29
Mining, extraction, and support activities	21	3	2	*	* i
Utilities	22	* i	* i	* i	* i
Wholesale trade	42	3	1 i	1 i	1 i
Electronic shopping and electronic auctions	454111–12	3	0	3 i	0
Transportation and warehousing	48–49	*	*	0	* i
Information	51	129	95	12	21
Publishing	511	113	85	8	20
Newspaper, periodical, book, and directory publishers	5111	4 i	3 i	* i	1 i
Software publishers	5112	109	81	8	19
Telecommunications	517	1	* i	* i	*
Data processing, hosting, and related services	518	9	5	2 i	1
Other information	other 51	6	5	1	*
Finance and insurance	52	4	1	3	*
Real estate and rental and leasing	53	*	*	*	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	*	*	0	*
Other real estate and rental and leasing	other 53	*	*	*	0
Professional, scientific, and technical services	54	87	52 i	28 i	6 i
Architectural, engineering, and related services	5413	2 i	2 i	* i	* i
Computer systems design and related services	5415	38	31 i	5 i	2 i
Scientific research and development services	5417	34	11	20	3 i
Biotechnology research and development	541711	9	8	1	* i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	25	3 i	19	3 i
Social sciences and humanities research and development	541720	*	* i	* i	* i
Other professional, scientific, and technical services	other 54	13 i	8 i	3 i	2 i
Health care services	621–23	* i	* i	*	* i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	2	1	1	* i
All companies (number of domestic employees)	–	600	425	104	71
Small companies[a]					
5–499	–	64	45 i	13	6 i

TABLE 58. Foreign R&D employment, by occupation, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	Total	R&D scientists and engineers and their managers	R&D technicians and technologists	R&D support staff (clerical and others)
5–99	–	30	22 i	6 i	3 i
5–49	–	22	17 i	3 i	2 i
5–9	–	2	1 i	* i	* i
10–24	–	12	10 i	1 i	1 i
25–49	–	8	6 i	1 i	1 i
50–99	–	8	4	3 i	1 i
100–249	–	16	11	4	1 i
250–499	–	18	12	4	2
Medium and large companies					
500–999	–	17	13	3	1
1,000–4,999	–	124	88	23	12
5,000–9,999	–	113	70	30	13
10,000–24,999	–	68	45	15 i	8
25,000 or more	–	215	165	20	31

* = amount < 500; i = > 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. 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, 2013.

TABLE 59. Domestic full-time equivalent R&D employees and R&D scientists and engineers, by work status, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	FTE R&D employees[a] Total	Full-time R&D employees	Full-time employees working on R&D part-time	Part-time employees working on R&D	FTE R&D scientists and engineers[b] Total	Full-time R&D employees	Full-time employees working on R&D part-time	Part-time employees working on R&D
All industries	21–23, 31–33, 42–81	1,318	1,171	124 i	22 i	914	833	70 i	12 i
Manufacturing industries	31–33	794	708	74	11	574	524	43	7 i
Food	311	26	24 i	2 i	* i	17 i	16 i	1 i	* i
Beverage and tobacco products	312	3	3	*	*	2	2	*	* i
Textile, apparel, and leather products	313–16	7	6	1	*	3	3	*	*
Wood products	321	2	2	* i	*	1	1	*	*
Paper	322	8	4 i	3 i	0	3 i	2 i	1 i	0
Printing and related support activities	323	3	2 i	1	*	2 i	1	* i	*
Petroleum and coal products	324	1	1	* i	*	1	1	* i	*
Chemicals	325	155	150	4	1	105	102	2	1
Basic chemicals	3251	13	12	1	*	7	7	*	*
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	7	6	1	*	4	4	*	*
Pesticide, fertilizer, and other agricultural chemicals	3253	6 i	6 i	* i	* i	4 i	4 i	* i	* i
Pharmaceuticals and medicines	3254	108	106	2	1	75	73	1	*
Soap, cleaning compound, and toilet preparation	3256	11	11	*	*	9	9	*	*
Paint, coating, adhesive, and other chemicals	3255, 3259	10	10	*	*	6	6	*	*
Plastics and rubber products	326	22	17 i	3 i	1	12 i	10	2 i	1 i
Nonmetallic mineral products	327	7 i	5 i	1 i	* i	4 i	3 i	1 i	* i
Primary metals	331	5	2	3 i	*	2	1	1 i	*
Fabricated metal products	332	22	14 i	8 i	1 i	11 i	7 i	3 i	* i
Machinery	333	72	63	8 i	1	51	46	5 i	* i
Agricultural implement	33311	9	9	*	*	6	6	*	*
Semiconductor machinery	333295	9	8	*	*	6	6	*	*
Engine, turbine, and power transmission equipment	3336	9	9	*	*	6	6	*	*
Other machinery	other 333	45	37	8 i	1	32	28	4 i	* i
Computer and electronic products	334	244	225	15	4	197	183	11	3 i
Communications equipment	3342	55	53	2	* i	46	44	1	* i
Semiconductor and other electronic components	3344	103	99 i	2	3	84 i	81 i	1 i	2 i
Navigational, measuring, electromedical, and control instruments	3345	57	46	10	1	44	36	8	*
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	9	9	*	*	7	7	*	*
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	26	17	8	*	21	14	7	*
Other measuring and controlling device	other 3345	22	20	1	*	17	16	1 i	*
Other computer and electronic products	other 334	29	28	1	*	23 i	22 i	1 i	* i

TABLE 59. Domestic full-time equivalent R&D employees and R&D scientists and engineers, by work status, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	FTE R&D employees[a] Total	Full-time R&D employees	Full-time employees working on R&D part-time	Part-time employees working on R&D	FTE R&D scientists and engineers[b] Total	Full-time R&D employees	Full-time employees working on R&D part-time	Part-time employees working on R&D
Electrical equipment, appliances, and components	335	27	24	2	*	19	18	1	* i
Transportation equipment	336	129	111	17	2 i	103	90	12	1 i
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	74	69	4 i	1 i	61	57	3 i	1 i
Aerospace products and parts	3364	47	37	9	1	38	30	8	*
Aircraft, aircraft engine, and aircraft parts	336411–13	44	35	9	1	35	27	7	*
Guided missile, space vehicle, and related parts	336414–15, 336419	3	2	*	*	3	2	*	*
Military armored vehicle, tank, and tank components	336992	* i	* i	0	0	* i	* i	0	0
Other transportation	other 336	8 i	5 i	3 i	*	4 i	3 i	1 i	* i
Furniture and related products	337	3	3	1	*	1	1 i	*	*
Miscellaneous manufacturing	339	57	52	5	1	41	38	3 i	*
Medical equipment and supplies	3391	44	40	3	1	31	29	2 i	*
Other miscellaneous manufacturing	3399	14	12 i	2	*	10 i	8	1 i	*
Nonmanufacturing industries	21–23, 42–81	524	463	50 i	11 i	341	309	27 i	5 i
Mining, extraction, and support activities	21	14	13	*	*	8	8	*	*
Utilities	22	1	*	*	*	1	*	*	* i
Wholesale trade	42	8	8 i	* i	* i	3 i	3 i	* i	*
Electronic shopping and electronic auctions	454111–12	2 i	2 i	* i	*	2 i	1 i	* i	0
Transportation and warehousing	48–49	3	3	* i	* i	1 i	1 i	* i	* i
Information	51	261	247	10	4	190	182	5 i	2
Publishing	511	177	170	4	2	139	135	3 i	2
Newspaper, periodical, book, and directory publishers	5111	3 i	3 i	* i	* i	1 i	1 i	0	0
Software publishers	5112	174	168	4	2	139	134	3 i	2
Telecommunications	517	14 i	14 i	* i	*	8 i	8 i	*	* i
Data processing, hosting, and related services	518	39	32	5 i	2 i	18	16	2	* i
Other information	other 51	31	31	*	*	24	24	* i	*
Finance and insurance	52	19	16	3	* i	8 i	7 i	*	* i
Real estate and rental and leasing	53	1	1	*	*	*	*	*	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	*	*	*	*	*	*	*	*
Other real estate and rental and leasing	other 53	1	1	*	* i	*	*	* i	0
Professional, scientific, and technical services	54	193	158 i	31 i	4 i	119 i	100 i	17 i	2 i
Architectural, engineering, and related services	5413	30	15 i	14 i	1 i	17 i	10 i	6 i	* i
Computer systems design and related services	5415	65	58 i	7 i	* i	49 i	44 i	4 i	* i
Scientific research and development services	5417	69	59	8	2 i	35	29	5	1 i
Biotechnology research and development	541711	18	17	*	*	10	10	* i	* i

TABLE 59. Domestic full-time equivalent R&D employees and R&D scientists and engineers, by work status, industry, and company size: 2013
(Thousands)

Industry and company size	NAICS code	FTE R&D employees[a] Total	Full-time R&D employees	Full-time employees working on R&D part-time	Part-time employees working on R&D	FTE R&D scientists and engineers[b] Total	Full-time R&D employees	Full-time employees working on R&D part-time	Part-time employees working on R&D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	47	39 i	6	1	24	18 i	5	1
Social sciences and humanities research and development	541720	4 i	3 i	1 i	1 i	* i	* i	* i	* i
Other professional, scientific, and technical services	other 54	29	26 i	3 i	*	19 i	17 i	2 i	*
Health care services	621–23	3	2 i	* i	*	1 i	1 i	*	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	19	11 i	5 i	3 i	9 i	4 i	3 i	1 i
All companies (number of domestic employees)	–	1,318	1,171	124 i	22 i	914	833	70 i	12 i
Small companies[c]									
5–499	–	357	295 i	55 i	7 i	225 i	193 i	29 i	3 i
5–99	–	205	170 i	30 i	4 i	126 i	108 i	16 i	2 i
5–49	–	140	118 i	18 i	3 i	86 i	74 i	11 i	1 i
5–9	–	28	25 i	2 i	*	17 i	15 i	2 i	* i
10–24	–	52	44 i	6 i	2 i	32 i	28 i	3 i	1 i
25–49	–	60	50 i	10 i	1 i	37 i	31 i	6 i	* i
50–99	–	65	52 i	12 i	1 i	40 i	34 i	5 i	* i
100–249	–	87	70 i	15 i	2 i	55 i	47 i	7 i	1 i
250–499	–	65	54	10	1 i	44	38	5	* i
Medium and large companies									
500–999	–	58	49	8	1	36	32	4	*
1,000–4,999	–	217	194	19	4	144	132	10	2 i
5,000–9,999	–	134	123	9	1 i	89	84	4 i	1 i
10,000–24,999	–	180	164	12 i	4	131	120	9 i	3 i
25,000 or more	–	372	346	21	4	289	272	14	3

* = amount < 500; i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

FTE = full-time equivalent; NAICS = 2007 North American Industry Classification System.

[a] Includes scientists and engineers and their managers, as well as technicians, technologists, and support staff.

[b] Includes scientists and engineers and their managers.

[c] 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. 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, 2013.

TABLE 60. U.S. patent applications and patents issued, by industry and company size: 2013
(Number)

Industry and company size	NAICS code	Applications: Total	Applications: To foreign jurisdictions[a]	Applications: From within organized R&D activity[b]	Patents issued[c]
All industries	21–23, 31–33, 42–81	149,818	60,923	101,589	98,370
Manufacturing industries	31–33	101,685	49,031	70,701	65,266
Food	311	2,617 i	390	491	1,378 i
Beverage and tobacco products	312	496	380	453	294
Textile, apparel, and leather products	313–16	850	198	665	596
Wood products	321	237	34	73	72
Paper	322	1,051	420	518	379
Printing and related support activities	323	204	68	135	113
Petroleum and coal products	324	135	98	115	66
Chemicals	325	17,004	11,148	13,674	11,024
Basic chemicals	3251	2,115	1,424	1,622	1,179
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,402	979	1,124	787
Pesticide, fertilizer, and other agricultural chemicals	3253	1,661	D	D	711 i
Pharmaceuticals and medicines	3254	8,991	6,247	7,881	6,383
Soap, cleaning compound, and toilet preparation	3256	1,795	1,386	1,591	1,513
Paint, coating, adhesive, and other chemicals	3255, 3259	1,040	D	D	449
Plastics and rubber products	326	3,915	2,151	2,845	2,355
Nonmetallic mineral products	327	1,503	898	1,236	658
Primary metals	331	372	167	153	202
Fabricated metal products	332	2,685	617	1,280	1,461
Machinery	333	7,933	3,319	5,190	4,779
Agricultural implement	33311	982	361	687	552
Semiconductor machinery	333295	2,132	529	893	1,148
Engine, turbine, and power transmission equipment	3336	659	339	576	372
Other machinery	other 333	4,159	2,089	3,033	2,707
Computer and electronic products	334	33,520	11,986	24,351	23,284
Communications equipment	3342	8,079	1,817	5,055	4,886
Semiconductor and other electronic components	3344	16,191	6,671	12,509	12,425
Navigational, measuring, electromedical, and control instruments	3345	6,220	2,582	4,477	4,179
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,391	734	1,088	833
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	2,253	883	1,813	1,873
Other measuring and controlling device	other 3345	2,576	965	1,576	1,472
Other computer and electronic products	other 334	3,029	916	2,310	1,795
Electrical equipment, appliances, and components	335	3,963	1,921	3,215	2,467
Transportation equipment	336	12,788	8,918	7,063	8,594
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	5,676	3,860	3,097	3,686
Aerospace products and parts	3364	6,766	4,899	3,745	4,771
Aircraft, aircraft engine, and aircraft parts	336411–13	6,632	4,838	3,678	4,660
Guided missile, space vehicle, and related parts	336414–15, 336419	134	61	67	112

TABLE 60. U.S. patent applications and patents issued, by industry and company size: 2013
(Number)

Industry and company size	NAICS code	Applications: Total	Applications: To foreign jurisdictions[a]	Applications: From within organized R&D activity[b]	Patents issued[c]
Military armored vehicle, tank, and tank components	336992	13	D	13	9
Other transportation	other 336	332	D	208	127
Furniture and related products	337	471	149	239	295
Miscellaneous manufacturing	339	11,945	6,169	9,006	7,249
Medical equipment and supplies	3391	8,864	5,066	6,881	5,306
Other miscellaneous manufacturing	3399	3,081	1,103	2,125	1,942
Nonmanufacturing industries	21–23, 42–81	48,133	11,893	30,888	33,104
Mining, extraction, and support activities	21	3,349	1,765	2,613	2,768
Utilities	22	81	25 i	60	36
Wholesale trade	42	1,452	35	66	1,022
Electronic shopping and electronic auctions	454111–12	2,471	D	D	710
Transportation and warehousing	48–49	142	42	99	89
Information	51	28,463	6,337	18,786	23,003
Publishing	511	15,136	5,017	10,341	15,072
Newspaper, periodical, book, and directory publishers	5111	49	0	0	40
Software publishers	5112	15,087	5,017	10,341	15,032
Telecommunications	517	3,199	216	1,492	3,263
Data processing, hosting, and related services	518	3,130	707	D	1,879
Other information	other 51	6,998	397	D	2,789
Finance and insurance	52	1,457	96	889	738
Real estate and rental and leasing	53	166	55	78	126
Lessors of nonfinancial intangible assets (except copyrighted works)	533	107	D	D	96
Other real estate and rental and leasing	other 53	59	D	D	30
Professional, scientific, and technical services	54	10,088	3,188	5,821	4,418
Architectural, engineering, and related services	5413	1,733	1,042	1,116	759
Computer systems design and related services	5415	2,648	352	1,242	1,196
Scientific research and development services	5417	3,961	1,547	2,855	1,698
Biotechnology research and development	541711	1,600	D	1,358	621
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,324	780	1,482	1,066
Social sciences and humanities research and development	541720	36	D	15	11
Other professional, scientific, and technical services	other 54	1,745	248	607	764
Health care services	621–23	177	33	52	26
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	288	D	D	166
All companies (number of domestic employees)	–	149,818	60,923	101,589	98,370
Small companies[d]					
5–499	–	37,862	10,054	17,727	19,098
5–99	–	24,179	5,483	8,934	10,842

TABLE 60. U.S. patent applications and patents issued, by industry and company size: 2013
(Number)

Industry and company size	NAICS code	Applications			Patents issued[c]
		Total	To foreign jurisdictions[a]	From within organized R&D activity[b]	
5–49	–	18,238	3,279	5,198	7,823
5–9	–	4,618	241	462	2,473
10–24	–	7,832	1,655	2,297	2,598
25–49	–	5,788	1,382	2,438	2,752
50–99	–	5,941	2,204	3,736	3,019
100–249	–	8,022	2,186	4,508	4,584
250–499	–	5,660	2,385	4,285	3,672
Medium and large companies					
500–999	–	5,694	2,552	4,815	3,259
1,000–4,999	–	21,943	10,347	17,329	13,826
5,000–9,999	–	14,359	4,556	9,586	10,630
10,000–24,999	–	22,223	14,793	19,376	13,821
25,000 or more	–	47,736	18,620	32,756	37,735

D = data withheld to avoid disclosing operations of individual companies.

NAICS = 2007 North American Industry Classification System.

[a] Also includes patent applications that company planned to apply for in foreign jurisdictions.

[b] Includes patent applications in which the named inventors were R&D employees.

[c] For a small number of companies issued more than 100 patents by the U.S. Patent and Trademark Office (USPTO), counts from USPTO.gov were used to supplement survey data.

[d] 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. 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. Statistics are based on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 61. New patent licensing agreements and total patent licensing revenue, by industry and company size: 2013

Industry and company size	NAICS code	Agreements[a] (number)	Revenue[b] (US$millions)
All industries	21–23, 31–33, 42–81	2,857	26,276
Manufacturing industries	31–33	2,235	24,553
Food	311	12	199 i
Beverage and tobacco products	312	D	10
Textile, apparel, and leather products	313–16	12	157
Wood products	321	3	771
Paper	322	7	31
Printing and related support activities	323	D	32
Petroleum and coal products	324	D	D
Chemicals	325	1,021	8,328
Basic chemicals	3251	D	230
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	43	121
Pesticide, fertilizer, and other agricultural chemicals	3253	D	D
Pharmaceuticals and medicines	3254	183	5,302
Soap, cleaning compound, and toilet preparation	3256	10	318
Paint, coating, adhesive, and other chemicals	3255, 3259	D	D
Plastics and rubber products	326	104	481
Nonmetallic mineral products	327	13	127 i
Primary metals	331	D	1
Fabricated metal products	332	6	39
Machinery	333	21	1,282
Agricultural implement	33311	D	20
Semiconductor machinery	333295	D	1,228
Engine, turbine, and power transmission equipment	3336	0	*
Other machinery	other 333	17	34
Computer and electronic products	334	666	10,345
Communications equipment	3342	68	654
Semiconductor and other electronic components	3344	213	9,231
Navigational, measuring, electromedical, and control instruments	3345	377	397
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	352	105
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	7	159
Other measuring and controlling device	other 3345	18	134
Other computer and electronic products	other 334	8	63
Electrical equipment, appliances, and components	335	36	1,208
Transportation equipment	336	136	924
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	D	553
Aerospace products and parts	3364	112	D
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D
Military armored vehicle, tank, and tank components	336992	0	0
Other transportation	other 336	D	D
Furniture and related products	337	D	11
Miscellaneous manufacturing	339	111	D
Medical equipment and supplies	3391	53	413
Other miscellaneous manufacturing	3399	58	D
Nonmanufacturing industries	21–23, 42–81	622	1,723
Mining, extraction, and support activities	21	23	233
Utilities	22	D	1
Wholesale trade	42	D	53
Electronic shopping and electronic auctions	454111–12	0	0
Transportation and warehousing	48–49	D	13
Information	51	153	601
Publishing	511	120	232
Newspaper, periodical, book, and directory publishers	5111	0	0
Software publishers	5112	120	232

TABLE 61. New patent licensing agreements and total patent licensing revenue, by industry and company size: 2013

Industry and company size	NAICS code	Agreements[a] (number)	Revenue[b] (US$millions)
Telecommunications	517	D	139
Data processing, hosting, and related services	518	D	32
Other information	other 51	D	198
Finance and insurance	52	11	12
Real estate and rental and leasing	53	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	D
Other real estate and rental and leasing	other 53	D	0
Professional, scientific, and technical services	54	201	652
Architectural, engineering, and related services	5413	D	196
Computer systems design and related services	5415	86	280
Scientific research and development services	5417	97	144
Biotechnology research and development	541711	D	55
Physical, engineering, and life sciences (except biotechnology) research and development	541712	48	89
Social sciences and humanities research and development	541720	D	0
Other professional, scientific, and technical services	other 54	D	31
Health care services	621–23	D	D
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	5
All companies (number of domestic employees)	–	2,857	26,276
Small companies[c]			
5–499	–	829	2,339
5–99	–	209	871
5–49	–	150	477
5–9	–	28	40
10–24	–	41	177
25–49	–	81	261
50–99	–	59	394
100–249	–	357	873
250–499	–	263	595
Medium and large companies			
500–999	–	112	1,371
1,000–4,999	–	297	3,364
5,000–9,999	–	78	2,985
10,000–24,999	–	441	13,414
25,000 or more	–	1,100	2,803

* = 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.

NAICS = 2007 North American Industry Classification System.

[a] New agreements entered into during 2013. Statistics are based on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse.

[b] Amounts received from all patent licensing activities during 2013.

[c] 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: Statistics are representative of companies in the United States that were eligible to receive Form BRDI-1 and performed or funded R&D. Detail may not add to total because of rounding. 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.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 62. Importance of utility patents, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	51.0	15.8	33.2
Manufacturing industries	31–33	57.2	16.4	26.4
Food	311	27.5	12.8	59.7
Beverage and tobacco products	312	42.2	26.4	31.4
Textile, apparel, and leather products	313–16	40.4	28.1	31.6
Wood products	321	50.0	22.2	27.8
Paper	322	36.8	33.8	29.4
Printing and related support activities	323	39.9	27.3	32.8
Petroleum and coal products	324	58.2	15.7	26.2
Chemicals	325	66.5	13.1	20.4
Basic chemicals	3251	71.0	8.2	20.8
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	63.1	16.5	20.3
Pesticide, fertilizer, and other agricultural chemicals	3253	26.6	39.2	34.1
Pharmaceuticals and medicines	3254	76.9	7.4	15.6
Soap, cleaning compound, and toilet preparation	3256	42.5	26.7	30.8
Paint, coating, adhesive, and other chemicals	3255, 3259	35.8	29.7	34.5
Plastics and rubber products	326	44.7	14.6	40.7
Nonmetallic mineral products	327	50.5	31.5	18.0
Primary metals	331	49.4	22.0	28.7
Fabricated metal products	332	38.0	18.9	43.1
Machinery	333	44.1	29.7	26.2
Agricultural implement	33311	31.8	59.3	8.9
Semiconductor machinery	333295	75.6	D	D
Engine, turbine, and power transmission equipment	3336	46.3	19.3	34.4
Other machinery	other 333	43.1	28.5	28.4
Computer and electronic products	334	55.9	15.2	28.9
Communications equipment	3342	50.5	27.0	22.5
Semiconductor and other electronic components	3344	70.1	12.4	17.5
Navigational, measuring, electromedical, and control instruments	3345	64.2	18.1	17.6
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	67.9	10.5	21.6
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	59.4	18.5	22.0
Other measuring and controlling device	other 3345	63.6	21.5	14.9
Other computer and electronic products	other 334	28.2	8.8	62.9
Electrical equipment, appliances, and components	335	60.0	22.0	18.0
Transportation equipment	336	59.6	13.3	27.1
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	70.9	11.8	17.3
Aerospace products and parts	3364	35.7	15.9	48.4
Aircraft, aircraft engine, and aircraft parts	336411–13	32.9	14.6	52.4
Guided missile, space vehicle, and related parts	336414–15, 336419	63.6	D	D
Military armored vehicle, tank, and tank components	336992	100.0	0.0	0.0
Other transportation	other 336	49.1	17.0	33.9
Furniture and related products	337	70.0	10.0	20.0
Miscellaneous manufacturing	339	80.5	7.9	11.6
Medical equipment and supplies	3391	77.3	8.9	13.8
Other miscellaneous manufacturing	3399	83.4	7.0	9.6
Nonmanufacturing industries	21–23, 42–81	43.2	15.0	41.8
Mining, extraction, and support activities	21	70.5	13.6	15.9
Utilities	22	33.6	36.1	30.3
Wholesale trade	42	S	S	S
Electronic shopping and electronic auctions	454111–12	33.3	D	D
Transportation and warehousing	48–49	21.4	21.4	57.1
Information	51	33.0	23.6	43.5
Publishing	511	29.8	24.5	45.8
Newspaper, periodical, book, and directory publishers	5111	0.0	0.0	100.0

TABLE 62. Importance of utility patents, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
Software publishers	5112	30.0	24.7	45.3
Telecommunications	517	52.5	16.6	30.9
Data processing, hosting, and related services	518	32.4	26.2	41.4
Other information	other 51	37.2	15.1	47.7
Finance and insurance	52	29.1	16.1	54.8
Real estate and rental and leasing	53	55.6	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	100.0	0.0	0.0
Other real estate and rental and leasing	other 53	D	D	50.0
Professional, scientific, and technical services	54	52.3	12.0	35.7
Architectural, engineering, and related services	5413	38.7	10.6	50.6
Computer systems design and related services	5415	40.0	23.4	36.7
Scientific research and development services	5417	57.5	8.2	34.3
Biotechnology research and development	541711	68.6	7.0	24.4
Physical, engineering, and life sciences (except biotechnology) research and development	541712	49.1	9.5	41.4
Social sciences and humanities research and development	541720	70.7	D	D
Other professional, scientific, and technical services	other 54	65.6	6.2	28.2
Health care services	621–23	31.4	39.4	29.1
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	7.5	7.7	84.7
All companies (number of domestic employees)	–	51.0	15.8	33.2
Small companies[b]				
5–499	–	49.0	15.0	36.0
5–99	–	52.2	13.4	34.3
5–49	–	56.1	9.7	34.2
5–9	–	69.1	8.5	22.5
10–24	–	65.4	8.6	26.1
25–49	–	44.0	11.0	45.0
50–99	–	41.8	23.6	34.6
100–249	–	41.3	16.5	42.2
250–499	–	44.6	20.7	34.6
Medium and large companies				
500–999	–	49.1	21.4	29.5
1,000–4,999	–	60.0	19.0	21.0
5,000–9,999	–	69.4	15.7	14.9
10,000–24,999	–	75.7	12.5	11.8
25,000 or more	–	71.2	17.5	11.3

D = data withheld to avoid disclosing operations of individual companies; S = data withheld as more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies in the United States that were eligible to receive Form BRDI-1 and performed or funded R&D. These statistics are not comparable to estimates prior to 2012 as those estimates are representative of all companies in the United States.

[b] 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: 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.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 63. Importance of design patents, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	24.3	27.4	48.3
Manufacturing industries	31–33	30.2	29.5	40.4
Food	311	17.4	21.6	61.0
Beverage and tobacco products	312	21.1	36.9	42.0
Textile, apparel, and leather products	313–16	42.9	35.7	21.4
Wood products	321	33.3	D	D
Paper	322	14.3	31.1	54.6
Printing and related support activities	323	20.0	27.3	52.7
Petroleum and coal products	324	26.2	26.2	47.7
Chemicals	325	18.1	23.3	58.6
Basic chemicals	3251	11.0	18.8	70.1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	30.8	23.0	46.2
Pesticide, fertilizer, and other agricultural chemical	3253	22.7	15.2	62.1
Pharmaceuticals and medicines	3254	17.3	23.7	59.0
Soap, cleaning compound, and toilet preparation	3256	35.9	36.5	27.6
Paint, coating, adhesive, and other chemicals	3255, 3259	11.9	22.9	65.2
Plastics and rubber products	326	27.5	28.2	44.2
Nonmetallic mineral products	327	26.4	38.2	35.4
Primary metals	331	27.6	23.8	48.6
Fabricated metal products	332	27.3	29.0	43.7
Machinery	333	23.5	37.0	39.5
Agricultural implement	33311	19.9	64.8	15.3
Semiconductor machinery	333295	21.1	25.5	53.4
Engine, turbine, and power transmission equipment	3336	24.4	26.0	49.6
Other machinery	other 333	24.2	35.3	40.6
Computer and electronic products	334	19.9	39.9	40.2
Communications equipment	3342	23.5	47.5	29.1
Semiconductor and other electronic components	3344	16.4	27.9	55.7
Navigational, measuring, electromedical, and control instruments	3345	24.2	33.1	42.7
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	33.6	40.4	26.0
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	30.4	31.6	38.0
Other measuring and controlling device	other 3345	18.6	30.1	51.3
Other computer and electronic products	other 334	17.1	61.4	21.5
Electrical equipment, appliances, and components	335	34.7	33.7	31.6
Transportation equipment	336	49.1	21.4	29.5
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	58.8	18.1	23.1
Aerospace products and parts	3364	29.7	27.8	42.5
Aircraft, aircraft engine, and aircraft parts	336411–13	31.1	28.2	40.7
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	60.2
Military armored vehicle, tank, and tank components	336992	D	D	D
Other transportation	other 336	42.0	22.6	35.4
Furniture and related products	337	60.0	23.3	16.7
Miscellaneous manufacturing	339	59.0	20.2	20.8
Medical equipment and supplies	3391	38.4	29.6	32.0
Other miscellaneous manufacturing	3399	77.7	11.7	10.6
Nonmanufacturing industries	21–23, 42–81	16.8	24.8	58.4
Mining, extraction, and support activities	21	18.4	33.0	48.6
Utilities	22	S	S	S
Wholesale trade	42	S	S	S
Electronic shopping and electronic auctions	454111–12	44.4	D	D
Transportation and warehousing	48–49	D	D	57.1
Information	51	14.0	27.2	58.8
Publishing	511	13.2	26.2	60.6
Newspaper, periodical, book, and directory publishers	5111	0.0	D	D

TABLE 63. Importance of design patents, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
Software publishers	5112	13.3	26.0	60.7
Telecommunications	517	12.7	35.5	51.7
Data processing, hosting, and related services	518	15.1	28.0	56.9
Other information	other 51	14.8	24.2	61.0
Finance and insurance	52	8.3	10.4	81.3
Real estate and rental and leasing	53	D	D	55.6
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	D	D
Other real estate and rental and leasing	other 53	D	D	D
Professional, scientific, and technical services	54	19.6	26.6	53.8
Architectural, engineering, and related services	5413	37.2	15.3	47.5
Computer systems design and related services	5415	19.3	29.7	51.0
Scientific research and development services	5417	20.6	15.1	64.2
Biotechnology research and development	541711	14.6	12.2	73.2
Physical, engineering, and life sciences (except biotechnology) research and development	541712	19.3	18.3	62.3
Social sciences and humanities research and development	541720	70.7	D	D
Other professional, scientific, and technical services	other 54	6.0	59.1	35.0
Health care services	621–23	D	D	71.6
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	5.2	8.6	86.2
All companies (number of domestic employees)	–	24.3	27.4	48.3
Small companies[b]				
5–499	–	23.9	26.1	50.1
5–99	–	24.3	26.7	48.9
5–49	–	24.2	27.6	48.2
5–9	–	22.8	29.0	48.2
10–24	–	19.2	34.6	46.2
25–49	–	28.3	22.0	49.6
50–99	–	24.7	24.4	50.9
100–249	–	21.3	24.2	54.5
250–499	–	25.8	25.8	48.4
Medium and large companies				
500–999	–	24.7	29.6	45.6
1,000–4,999	–	25.7	33.6	40.7
5,000–9,999	–	27.0	27.6	45.3
10,000–24,999	–	25.4	44.3	30.2
25,000 or more	–	31.1	37.8	31.1

D = data withheld to avoid disclosing operations of individual companies; S = data withheld as > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies in the United States that were eligible to receive Form BRDI-1 and performed or funded R&D. These statistics are not comparable to estimates prior to 2012 as those estimates are representative of all companies in the United States.

[b] 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: 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.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 64. Importance of trademarks, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	43.4	31.3	25.3
Manufacturing industries	31–33	49.5	30.8	19.7
Food	311	61.9	19.2	18.9
Beverage and tobacco products	312	84.2	D	D
Textile, apparel, and leather products	313–16	71.9	22.8	5.3
Wood products	321	66.7	D	D
Paper	322	47.4	33.5	19.1
Printing and related support activities	323	49.4	17.3	33.3
Petroleum and coal products	324	78.5	21.5	0.0
Chemicals	325	51.4	30.5	18.1
Basic chemicals	3251	49.1	37.2	13.7
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	66.2	21.2	12.5
Pesticide, fertilizer, and other agricultural chemicals	3253	66.4	33.6	0.0
Pharmaceuticals and medicines	3254	48.7	29.6	21.7
Soap, cleaning compound, and toilet preparation	3256	70.8	17.8	11.4
Paint, coating, adhesive, and other chemicals	3255, 3259	42.7	38.2	19.1
Plastics and rubber products	326	41.2	21.0	37.8
Nonmetallic mineral products	327	64.6	29.2	6.2
Primary metals	331	55.0	22.0	23.0
Fabricated metal products	332	38.2	26.7	35.1
Machinery	333	42.7	34.2	23.2
Agricultural implement	33311	70.2	20.5	9.3
Semiconductor machinery	333295	34.3	D	D
Engine, turbine, and power transmission equipment	3336	41.1	42.1	16.8
Other machinery	other 333	39.7	33.2	27.1
Computer and electronic products	334	38.6	39.7	21.6
Communications equipment	3342	59.9	30.7	9.4
Semiconductor and other electronic components	3344	24.1	30.0	45.8
Navigational, measuring, electromedical, and control instruments	3345	53.1	34.0	12.9
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	56.4	28.0	15.6
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	66.3	23.6	10.1
Other measuring and controlling device	other 3345	48.7	38.9	12.3
Other computer and electronic products	other 334	27.7	65.6	6.7
Electrical equipment, appliances, and components	335	50.9	36.8	12.2
Transportation equipment	336	41.3	33.7	25.0
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	35.7	44.1	20.2
Aerospace products and parts	3364	47.7	14.6	37.7
Aircraft, aircraft engine, and aircraft parts	336411–13	48.5	13.6	37.8
Guided missile, space vehicle, and related parts	336414–15, 336419	39.8	23.9	36.4
Military armored vehicle, tank, and tank components	336992	D	D	0.0
Other transportation	other 336	59.3	17.9	22.8
Furniture and related products	337	63.3	D	D
Miscellaneous manufacturing	339	73.1	21.3	5.6
Medical equipment and supplies	3391	59.0	34.4	6.6
Other miscellaneous manufacturing	3399	85.9	9.5	4.7
Nonmanufacturing industries	21–23, 42–81	35.8	31.9	32.3
Mining, extraction, and support activities	21	49.4	36.8	13.8
Utilities	22	35.1	35.4	29.5
Wholesale trade	42	S	S	S
Electronic shopping and electronic auctions	454111–12	55.6	44.4	0.0
Transportation and warehousing	48–49	57.1	21.4	21.4
Information	51	57.0	27.6	15.5
Publishing	511	59.6	31.1	9.3
Newspaper, periodical, book, and directory publishers	5111	D	D	0.0

TABLE 64. Importance of trademarks, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
Software publishers	5112	59.5	31.2	9.4
Telecommunications	517	54.5	16.5	29.0
Data processing, hosting, and related services	518	49.8	27.8	22.3
Other information	other 51	70.6	17.1	12.3
Finance and insurance	52	47.9	22.4	29.7
Real estate and rental and leasing	53	66.7	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	100.0	0.0	0.0
Other real estate and rental and leasing	other 53	50.0	D	D
Professional, scientific, and technical services	54	29.7	36.9	33.4
Architectural, engineering, and related services	5413	38.8	23.1	38.2
Computer systems design and related services	5415	42.3	40.7	17.0
Scientific research and development services	5417	24.5	28.5	47.0
Biotechnology research and development	541711	23.1	32.8	44.1
Physical, engineering, and life sciences (except biotechnology) research and development	541712	27.2	27.5	45.3
Social sciences and humanities research and development	541720	7.2	11.6	81.1
Other professional, scientific, and technical services	other 54	18.9	61.9	19.3
Health care services	621–23	31.2	42.7	26.1
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	12.1	10.9	77.1
All companies (number of domestic employees)	–	43.4	31.3	25.3
Small companies[b]				
5–499	–	37.8	33.7	28.5
5–99	–	33.3	35.7	31.0
5–49	–	31.3	33.9	34.7
5–9	–	23.0	29.7	47.3
10–24	–	26.5	43.3	30.1
25–49	–	38.1	28.8	33.1
50–99	–	38.8	40.3	20.9
100–249	–	45.3	28.1	26.6
250–499	–	49.0	32.6	18.4
Medium and large companies				
500–999	–	56.8	25.6	17.6
1,000–4,999	–	66.8	22.6	10.5
5,000–9,999	–	72.6	16.5	10.8
10,000–24,999	–	77.1	19.1	3.8
25,000 or more	–	86.2	6.7	7.0

D = data withheld to avoid disclosing operations of individual companies; S = data withheld as more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies in the United States that were eligible to receive Form BRDI-1 and performed or funded R&D. These statistics are not comparable to estimates prior to 2012 as those estimates are representative of all companies in the United States.

[b] 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: 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.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 65. Importance of copyrights, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	27.2	33.8	39.0
Manufacturing industries	31–33	23.5	36.3	40.2
Food	311	26.8	30.4	42.8
Beverage and tobacco products	312	36.9	24.5	38.5
Textile, apparel, and leather products	313–16	25.5	47.3	27.3
Wood products	321	22.2	44.4	33.3
Paper	322	19.1	37.8	43.0
Printing and related support activities	323	39.4	20.7	39.9
Petroleum and coal products	324	36.6	47.7	15.7
Chemicals	325	23.3	35.3	41.4
Basic chemicals	3251	17.1	39.9	43.0
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	34.2	24.8	41.0
Pesticide, fertilizer, and other agricultural chemicals	3253	26.1	64.0	10.0
Pharmaceuticals and medicines	3254	25.4	32.5	42.0
Soap, cleaning compound, and toilet preparation	3256	31.0	35.5	33.5
Paint, coating, adhesive, and other chemicals	3255, 3259	8.1	39.6	52.3
Plastics and rubber products	326	19.9	23.3	56.7
Nonmetallic mineral products	327	19.6	42.7	37.6
Primary metals	331	22.1	34.8	43.1
Fabricated metal products	332	16.4	27.4	56.2
Machinery	333	22.2	39.7	38.1
Agricultural implement	33311	20.8	57.7	21.5
Semiconductor machinery	333295	26.8	41.1	32.1
Engine, turbine, and power transmission equipment	3336	23.4	34.3	42.2
Other machinery	other 333	21.9	37.6	40.4
Computer and electronic products	334	29.4	39.6	31.0
Communications equipment	3342	59.3	23.5	17.2
Semiconductor and other electronic components	3344	18.4	30.7	50.8
Navigational, measuring, electromedical, and control instruments	3345	32.7	34.5	32.7
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	36.2	40.5	23.3
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	39.2	27.8	33.0
Other measuring and controlling device	other 3345	29.8	33.3	37.0
Other computer and electronic products	other 334	23.8	67.2	9.0
Electrical equipment, appliances, and components	335	28.2	37.1	34.6
Transportation equipment	336	19.3	43.1	37.6
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	22.4	51.2	26.4
Aerospace products and parts	3364	11.2	29.6	59.2
Aircraft, aircraft engine, and aircraft parts	336411–13	8.4	30.9	60.7
Guided missile, space vehicle, and related parts	336414–15, 336419	39.8	D	D
Military armored vehicle, tank, and tank components	336992	0.0	D	D
Other transportation	other 336	22.6	27.6	49.8
Furniture and related products	337	30.0	53.3	16.7
Miscellaneous manufacturing	339	18.0	32.5	49.5
Medical equipment and supplies	3391	24.0	52.1	23.9
Other miscellaneous manufacturing	3399	12.6	14.6	72.8
Nonmanufacturing industries	21–23, 42–81	31.8	30.6	37.6
Mining, extraction, and support activities	21	27.9	47.3	24.9
Utilities	22	20.0	50.5	29.5
Wholesale trade	42	S	S	S
Electronic shopping and electronic auctions	454111–12	44.4	D	D
Transportation and warehousing	48–49	21.4	35.7	42.9
Information	51	48.5	28.6	22.9
Publishing	511	59.3	29.1	11.5
Newspaper, periodical, book, and directory publishers	5111	D	D	0.0

TABLE 65. Importance of copyrights, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
Software publishers	5112	59.8	29.2	11.6
Telecommunications	517	39.8	23.1	37.1
Data processing, hosting, and related services	518	33.8	30.2	36.0
Other information	other 51	53.3	23.9	22.8
Finance and insurance	52	22.8	37.1	40.1
Real estate and rental and leasing	53	33.3	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0.0	D	D
Other real estate and rental and leasing	other 53	50.0	0.0	50.0
Professional, scientific, and technical services	54	29.2	34.1	36.7
Architectural, engineering, and related services	5413	43.8	24.2	32.0
Computer systems design and related services	5415	49.9	26.8	23.3
Scientific research and development services	5417	20.2	24.9	54.9
Biotechnology research and development	541711	12.7	28.4	58.9
Physical, engineering, and life sciences (except biotechnology) research and development	541712	18.7	24.2	57.0
Social sciences and humanities research and development	541720	79.8	9.8	10.4
Other professional, scientific, and technical services	other 54	13.3	74.4	12.4
Health care services	621–23	16.1	18.4	65.5
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	8.5	10.5	81.0
All companies (number of domestic employees)	–	27.2	33.8	39.0
Small companies[b]				
5–499	–	25.6	32.3	42.1
5–99	–	24.0	32.3	43.7
5–49	–	21.6	30.9	47.4
5–9	–	37.7	25.3	36.9
10–24	–	19.5	40.9	39.5
25–49	–	16.8	25.9	57.3
50–99	–	30.5	36.0	33.5
100–249	–	27.7	31.6	40.7
250–499	–	30.4	33.8	35.8
Medium and large companies				
500–999	–	28.9	36.6	34.5
1,000–4,999	–	33.4	39.1	27.5
5,000–9,999	–	35.7	45.4	18.9
10,000–24,999	–	36.7	49.9	13.4
25,000 or more	–	51.1	38.5	10.5

D = data withheld to avoid disclosing operations of individual companies; S = data withheld as more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies in the United States that were eligible to receive Form BRDI-1 and performed or funded R&D. These statistics are not comparable to estimates prior to 2012 as those estimates are representative of all companies in the United States.

[b] 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: 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.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 66. Importance of trade secrets, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	57.2	19.9	22.8
Manufacturing industries	31–33	59.4	20.7	19.8
Food	311	77.0	8.2	14.8
Beverage and tobacco products	312	63.3	D	D
Textile, apparel, and leather products	313–16	51.8	39.3	8.9
Wood products	321	72.2	D	D
Paper	322	60.8	19.6	19.6
Printing and related support activities	323	54.5	28.3	17.2
Petroleum and coal products	324	D	D	0.0
Chemicals	325	72.9	16.9	10.2
Basic chemicals	3251	81.0	10.8	8.2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	75.2	D	D
Pesticide, fertilizer, and other agricultural chemicals	3253	62.2	D	D
Pharmaceuticals and medicines	3254	71.4	16.5	12.1
Soap, cleaning compound, and toilet preparation	3256	59.6	26.6	13.8
Paint, coating, adhesive, and other chemicals	3255, 3259	80.1	12.4	7.5
Plastics and rubber products	326	56.0	18.8	25.1
Nonmetallic mineral products	327	73.0	D	D
Primary metals	331	58.4	23.8	17.9
Fabricated metal products	332	47.0	26.7	26.3
Machinery	333	54.1	31.3	14.6
Agricultural implement	33311	34.5	51.4	14.2
Semiconductor machinery	333295	77.6	D	D
Engine, turbine, and power transmission equipment	3336	55.3	18.9	25.7
Other machinery	other 333	54.8	31.0	14.3
Computer and electronic products	334	65.1	15.0	20.0
Communications equipment	3342	72.7	11.7	15.6
Semiconductor and other electronic components	3344	48.8	12.1	39.1
Navigational, measuring, electromedical, and control instruments	3345	66.1	21.1	12.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	70.8	19.3	9.9
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	73.9	10.1	16.0
Other measuring and controlling device	other 3345	62.3	24.3	13.4
Other computer and electronic products	other 334	81.9	12.4	5.8
Electrical equipment, appliances, and components	335	65.4	22.0	12.6
Transportation equipment	336	46.5	36.3	17.3
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	42.5	46.7	10.9
Aerospace products and parts	3364	50.8	18.9	30.2
Aircraft, aircraft engine, and aircraft parts	336411–13	49.6	20.8	29.6
Guided missile, space vehicle, and related parts	336414–15, 336419	63.6	0.0	36.4
Military armored vehicle, tank, and tank components	336992	D	0.0	D
Other transportation	other 336	58.3	19.2	22.5
Furniture and related products	337	50.0	33.3	16.7
Miscellaneous manufacturing	339	44.1	14.6	41.3
Medical equipment and supplies	3391	67.3	19.3	13.4
Other miscellaneous manufacturing	3399	23.1	10.2	66.6
Nonmanufacturing industries	21–23, 42–81	54.4	19.0	26.6
Mining, extraction, and support activities	21	74.6	18.7	6.8
Utilities	22	30.1	49.7	20.2
Wholesale trade	42	S	S	S
Electronic shopping and electronic auctions	454111–12	44.4	D	D
Transportation and warehousing	48–49	50.0	21.4	28.6
Information	51	55.5	21.2	23.3
Publishing	511	60.5	21.5	18.0
Newspaper, periodical, book, and directory publishers	5111	0.0	0.0	100.0

TABLE 66. Importance of trade secrets, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
Software publishers	5112	61.1	21.7	17.3
Telecommunications	517	39.3	25.3	35.4
Data processing, hosting, and related services	518	55.7	18.5	25.9
Other information	other 51	41.8	26.2	32.0
Finance and insurance	52	47.8	12.7	39.6
Real estate and rental and leasing	53	D	0.0	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	100.0	0.0	0.0
Other real estate and rental and leasing	other 53	D	0.0	D
Professional, scientific, and technical services	54	59.5	19.1	21.4
Architectural, engineering, and related services	5413	55.7	15.3	29.0
Computer systems design and related services	5415	65.5	19.3	15.2
Scientific research and development services	5417	51.1	20.3	28.6
Biotechnology research and development	541711	57.9	25.4	16.6
Physical, engineering, and life sciences (except biotechnology) research and development	541712	50.9	19.0	30.1
Social sciences and humanities research and development	541720	9.8	D	D
Other professional, scientific, and technical services	other 54	75.1	18.3	6.6
Health care services	621–23	55.5	18.4	26.1
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	17.6	9.5	72.9
All companies (number of domestic employees)	–	57.2	19.9	22.8
Small companies[b]				
5–499	–	55.1	19.4	25.5
5–99	–	53.9	18.5	27.7
5–49	–	53.5	15.0	31.5
5–9	–	46.7	20.6	32.7
10–24	–	69.2	15.3	15.5
25–49	–	45.0	12.7	42.4
50–99	–	54.9	27.8	17.3
100–249	–	56.3	20.5	23.2
250–499	–	59.4	22.7	17.8
Medium and large companies				
500–999	–	56.8	27.1	16.1
1,000–4,999	–	67.6	21.2	11.2
5,000–9,999	–	68.9	19.7	11.5
10,000–24,999	–	81.2	12.8	6.0
25,000 or more	–	79.7	13.6	6.8

D = data withheld to avoid disclosing operations of individual companies; S = data withheld as more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies in the United States that were eligible to receive Form BRDI-1 and performed or funded R&D. These statistics are not comparable to estimates prior to 2012 as those estimates are representative of all companies in the United States.

[b] 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: 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.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 67. Importance of mask works, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	4.9	8.4	86.7
Manufacturing industries	31–33	5.5	10.5	83.9
Food	311	0.0	5.4	94.6
Beverage and tobacco products	312	0.0	D	D
Textile, apparel, and leather products	313–16	D	D	D
Wood products	321	0.0	0.0	100.0
Paper	322	D	D	D
Printing and related support activities	323	D	D	89.3
Petroleum and coal products	324	0.0	0.0	100.0
Chemicals	325	2.8	5.0	92.2
Basic chemicals	3251	3.6	3.6	92.8
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	7.1	8.9	84.1
Pesticide, fertilizer, and other agricultural chemicals	3253	0.0	D	D
Pharmaceuticals and medicines	3254	1.9	5.4	92.8
Soap, cleaning compound, and toilet preparation	3256	D	0.0	D
Paint, coating, adhesive, and other chemicals	3255, 3259	4.9	5.1	90.0
Plastics and rubber products	326	1.8	2.8	95.4
Nonmetallic mineral products	327	D	D	84.9
Primary metals	331	9.1	9.1	81.7
Fabricated metal products	332	3.3	8.3	88.5
Machinery	333	3.0	11.9	85.1
Agricultural implement	33311	0.0	39.3	60.7
Semiconductor machinery	333295	19.4	12.0	68.6
Engine, turbine, and power transmission equipment	3336	0.0	6.7	93.3
Other machinery	other 333	2.5	8.6	88.9
Computer and electronic products	334	13.7	11.8	74.5
Communications equipment	3342	18.5	12.8	68.7
Semiconductor and other electronic components	3344	24.3	17.1	58.5
Navigational, measuring, electromedical, and control instruments	3345	6.3	12.2	81.5
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3.1	12.7	84.2
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	12.0	15.2	72.8
Other measuring and controlling device	other 3345	6.5	11.4	82.1
Other computer and electronic products	other 334	6.5	3.4	90.1
Electrical equipment, appliances, and components	335	8.6	15.3	76.1
Transportation equipment	336	4.3	29.6	66.1
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	5.8	42.1	52.1
Aerospace products and parts	3364	D	D	89.9
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	89.6
Guided missile, space vehicle, and related parts	336414–15, 336419	D	0.0	D
Military armored vehicle, tank, and tank components	336992	0.0	0.0	100.0
Other transportation	other 336	D	D	88.7
Furniture and related products	337	D	D	D
Miscellaneous manufacturing	339	2.1	7.2	90.7
Medical equipment and supplies	3391	2.7	12.5	84.9
Other miscellaneous manufacturing	3399	1.5	2.5	96.0
Nonmanufacturing industries	21–23, 42–81	4.1	5.7	90.3
Mining, extraction, and support activities	21	D	D	83.7
Utilities	22	D	D	76.9
Wholesale trade	42	D	D	S
Electronic shopping and electronic auctions	454111–12	D	D	D
Transportation and warehousing	48–49	0.0	0.0	100.0
Information	51	4.2	6.5	89.2
Publishing	511	1.7	5.1	93.2
Newspaper, periodical, book, and directory publishers	5111	0.0	D	D

TABLE 67. Importance of mask works, by industry and company size: 2013
(Percent)[a]

Industry and company size	NAICS code	Very important	Somewhat important	Not important
Software publishers	5112	1.7	4.9	93.3
Telecommunications	517	9.6	9.4	81.0
Data processing, hosting, and related services	518	5.7	6.3	87.9
Other information	other 51	7.5	12.1	80.4
Finance and insurance	52	0.0	D	D
Real estate and rental and leasing	53	D	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	D	D
Other real estate and rental and leasing	other 53	0.0	0.0	100.0
Professional, scientific, and technical services	54	4.4	5.5	90.1
Architectural, engineering, and related services	5413	7.5	6.4	86.1
Computer systems design and related services	5415	3.8	5.8	90.4
Scientific research and development services	5417	4.8	6.3	88.8
Biotechnology research and development	541711	5.0	5.2	89.8
Physical, engineering, and life sciences (except biotechnology) research and development	541712	5.2	7.7	87.1
Social sciences and humanities research and development	541720	0.0	0.0	100.0
Other professional, scientific, and technical services	other 54	2.0	2.4	95.6
Health care services	621–23	0.0	0.0	100.0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	2.8	1.8	95.4
All companies (number of domestic employees)	–	4.9	8.4	86.7
Small companies[b]				
5–499	–	4.9	7.6	87.5
5–99	–	5.1	6.9	88.0
5–49	–	4.3	4.2	91.5
5–9	–	5.4	3.6	91.0
10–24	–	4.5	4.3	91.2
25–49	–	3.7	4.3	92.0
50–99	–	7.1	14.4	78.5
100–249	–	4.2	7.9	87.9
250–499	–	5.4	10.8	83.8
Medium and large companies				
500–999	–	5.0	12.7	82.4
1,000–4,999	–	4.3	10.2	85.5
5,000–9,999	–	7.5	11.6	80.9
10,000–24,999	–	3.5	13.6	82.9
25,000 or more	–	D	D	87.1

D = data withheld to avoid disclosing operations of individual companies; S = data withheld as more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies in the United States that were eligible to receive Form BRDI-1 and performed or funded R&D. These statistics are not comparable to estimates prior to 2012 as those estimates are representative of all companies in the United States.

[b] 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: 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.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE 68. R&D costs paid for by the company and others projected for 2014, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
				Paid for by the company			Paid for by others			
		Paid for by the company	Paid for by others	Total	Purchased and collaborative R&D	R&D performed by the company	Total	U.S. government	Non-U.S. government sources	
All industries	21–23, 31–33, 42–81	392,477	71,130	314,549	28,998	285,551	60,399	31,559 i	28,840	77,928
Manufacturing industries	31–33	276,125	49,520	215,501	25,129	190,372	43,724	24,392 i	19,332	60,624
Food	311	7,276 i	230	5,971 i	513 i	5,458 i	230	4 i	225	1,305 i
Beverage and tobacco products	312	1,714	109 i	1,057	163	894	109 i	* i	109 i	657
Textile, apparel, and leather products	313–16	816	18 i	707	34	674	18 i	7 i	11 i	108
Wood products	321	225	10	219	10	209	9	1	8	6
Paper	322	1,118	13 i	999	7	991	13 i	9 i	5	120
Printing and related support activities	323	274 i	41 i	266 i	29	237 i	30 i	2 i	27 i	9
Petroleum and coal products	324	613	7	535	299	235 i	6	0	6	78
Chemicals	325	94,915	12,481	76,598	17,120	59,478	9,182	800	8,382	18,318
Basic chemicals	3251	3,491	335	2,718	186	2,532	313	182 i	131	773
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,605	213	1,072	32	1,041	127	1	126	533
Pesticide, fertilizer, and other agricultural chemicals	3253	1,669 i	308	1,434 i	43 i	1,390 i	303	2	302	235 i
Pharmaceuticals and medicines	3254	82,620	11,581	67,260	16,548	50,711	8,399	594	7,806	15,360
Soap, cleaning compound, and toilet preparation	3256	3,945	7 i	2,829	288	2,541	7 i	2 i	5 i	1,115
Paint, coating, adhesive, and other chemicals	3255, 3259	1,585	37	1,284	22	1,262	33	20	13	301
Plastics and rubber products	326	4,869	155 i	3,838	200	3,638	144 i	12 i	133 i	1,030
Nonmetallic mineral products	327	1,045	30 i	952 i	203 i	749 i	22 i	3 i	19 i	94 i
Primary metals	331	769 i	13	731 i	54 i	677 i	12	5	7	39
Fabricated metal products	332	2,126 i	390 i	2,005 i	70 i	1,935 i	277 i	106 i	171 i	121
Machinery	333	16,430	641	13,390	416	12,974	574	136 i	439	3,040
Agricultural implement	33311	2,520	53	2,010	203	1,806	38	0	38	510
Semiconductor machinery	333295	3,742	107	3,268	4	3,264	105	4	101	474
Engine, turbine, and power transmission equipment	3336	1,946	124	1,471	32 i	1,439	106	51 i	55	476 i
Other machinery	other 333	8,222	358 i	6,642	177	6,465	325 i	80 i	245 i	1,580
Computer and electronic products	334	83,192	9,976	61,670	1,897	59,773 i	9,509	4,849	4,660	21,522
Communications equipment	3342	20,795	1,625 i	15,750	730 i	15,020 i	1,558 i	976 i	582	5,045
Semiconductor and other electronic components	3344	42,479 i	2,415	29,695 i	594	29,101 i	2,273	58 i	2,215	12,783
Navigational, measuring, electromedical, and control instruments	3345	11,569	5,634	9,438	398	9,039	5,462	3,763	1,699	2,132
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,660	219	2,354	188	2,166	189	17	173	306 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,583 i	5,112	3,105	89	3,016	5,016	3,673	1,343	478
Other measuring and controlling device	other 3345	5,326	303	3,979	122 i	3,857	257	74	183	1,347
Other computer and electronic products	other 334	8,349	303	6,787	174 i	6,613	216	52 i	164	1,562
Electrical equipment, appliances, and components	335	5,708	479 i	3,957	125	3,831	478 i	173 i	305 i	1,751
Transportation equipment	336	36,777	24,419 i	26,772	3,276	23,496	22,639 i	18,216 i	4,423	10,005
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	23,161	3,587	15,135	2,274	12,861	3,105	198 i	2,907	8,026

TABLE 68. R&D costs paid for by the company and others projected for 2014, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
				Paid for by the company			Paid for by others			
		Paid for by the company	Paid for by others	Total	Purchased and collaborative R&D	R&D performed by the company	Total	U.S. government	Non-U.S. government sources	
Aerospace products and parts	3364	12,428	19,647 i	10,480	974	9,506	18,542 i	17,316 i	1,225	1,947
Aircraft, aircraft engine, and aircraft parts	336411–13	12,147	D	10,205	937	9,268	D	D	D	1,942
Guided missile, space vehicle, and related parts	336414–15, 336419	281	D	275	38	238 i	D	D	D	5 i
Military armored vehicle, tank, and tank components	336992	6 i	1 i	6 i	1 i	6 i	1 i	1 i	0	0
Other transportation	other 336	1,182	1,184 i	1,151	27	1,124	992 i	701 i	291 i	32
Furniture and related products	337	433	1 i	405	12 i	393	1 i	* i	* i	28
Miscellaneous manufacturing	339	17,824 i	507	15,431 i	702	14,728 i	470	68	402	2,393
Medical equipment and supplies	3391	14,588 i	453	12,594 i	654	11,941 i	430	38	392	1,994 i
Other miscellaneous manufacturing	3399	3,236	54 i	2,836	49 i	2,787	41 i	30 i	11 i	400
Nonmanufacturing industries	21–23, 42–81	116,352 i	21,611	99,048 i	3,869	95,179 i	16,675	7,168	9,507	17,304
Mining, extraction, and support activities	21	4,268	684	3,801	259	3,541	630	8 i	622	467
Utilities	22	462	70	433	185	248	70	64	6	29
Wholesale trade	42	782 i	12	735 i	104 i	631 i	12	0	12	47 i
Electronic shopping and electronic auctions	454111–12	3,214	0	D	D	1,882 i	0	0	0	D
Transportation and warehousing	48–49	433 i	D	420 i	42 i	378 i	D	D	D	13
Information	51	79,086 i	1,424	67,138 i	1,940	65,198 i	1,234	185	1,049	11,948
Publishing	511	50,796	1,240	41,512	1,602	39,910	1,067	127	940	9,283
Newspaper, periodical, book, and directory publishers	5111	299 i	1 i	290 i	15 i	276 i	1 i	* i	1 i	9 i
Software publishers	5112	50,496	1,239	41,222	1,588	39,635	1,066	127	939	9,274
Telecommunications	517	3,287 i	4 i	3,217 i	217 i	3,000 i	4 i	* i	3 i	70
Data processing, hosting, and related services	518	7,838	156 i	7,156	73 i	7,083	141	58 i	83 i	683
Other information	other 51	17,165 i	24	15,253 i	48	15,205 i	23	* i	22	1,912 i
Finance and insurance	52	5,533	12	4,767	57	4,710	12	0	12	766
Real estate and rental and leasing	53	154	0	143	1 i	142	0	0	0	11
Lessors of nonfinancial intangible assets (except copyrighted works)	533	41	0	D	* i	D	0	0	0	D
Other real estate and rental and leasing	other 53	113	0	D	* i	D	0	0	0	D
Professional, scientific, and technical services	54	20,878 i	19,116	18,292 i	1,211 i	17,081 i	14,477	6,809	7,668	2,586
Architectural, engineering, and related services	5413	1,380	2,228	1,350 i	60 i	1,290 i	2,212	1,775	437 i	30
Computer systems design and related services	5415	10,636 i	1,417 i	9,247 i	273 i	8,974 i	1,349 i	956 i	393 i	1,389 i
Scientific research and development services	5417	4,008	14,433	3,850	788 i	3,063 i	9,941	3,431	6,510	157
Biotechnology research and development	541711	2,120	4,257	2,013	466	1,547	2,546	196	2,350	107
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,851 i	9,287	1,800 i	322 i	1,478 i	6,616	2,567	4,048	51
Social sciences and humanities research and development	541720	37 i	889	37 i	* i	37 i	779	668	111	0
Other professional, scientific, and technical services	other 54	4,855	1,038	3,845 i	90	3,755 i	975	647	328	1,010
Health care services	621–23	310 i	94 i	308 i	16 i	291 i	94 i	3 i	91	2

TABLE 68. R&D costs paid for by the company and others projected for 2014, by industry and company size: 2013
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
				Paid for by the company			Paid for by others			
		Paid for by the company	Paid for by others	Total	Purchased and collaborative R&D	R&D performed by the company	Total	U.S. government	Non-U.S. government sources	
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,233 i	D	D	D	1,076 i	D	D	D	D
All companies (number of domestic employees)	–	392,477	71,130	314,549	28,998	285,551	60,399	31,559 i	28,840	77,928
Small companies[a]										
5–499	–	57,974	13,417	52,866 i	5,562	47,304 i	12,120	4,868 i	7,251 i	5,108
5–99	–	30,107 i	7,832 i	28,123 i	3,577	24,546 i	7,002 i	2,747 i	4,254 i	1,984
5–49	–	20,143 i	5,614 i	18,644 i	2,362	16,281 i	5,007 i	1,974 i	3,033 i	1,500
5–9	–	2,931 i	1,439 i	2,808 i	350 i	2,458 i	1,312 i	624 i	688 i	123
10–24	–	8,638 i	2,023 i	7,715 i	1,075	6,641 i	1,745 i	699 i	1,046 i	922
25–49	–	8,575 i	2,152	8,120 i	938	7,182 i	1,949	651	1,298	455
50–99	–	9,964	2,218	9,480	1,215	8,265 i	1,995	774 i	1,221	484
100–249	–	14,673	3,356	13,112	1,251 i	11,860	3,067	1,378	1,689 i	1,561
250–499	–	13,194	2,229	11,631	733	10,898	2,051	743	1,308	1,563
Medium and large companies										
500–999	–	13,984	2,160	12,191	849	11,342	1,968	469	1,499	1,794
1,000–4,999	–	65,885	11,864	52,074	3,940	48,134	9,662	2,340	7,322	13,810
5,000–9,999	–	37,265	10,885	26,734	1,084	25,650	6,625	849	5,776	10,531
10,000–24,999	–	65,870	7,951	52,823	8,043	44,780	6,923	3,484	3,439	13,047
25,000 or more	–	151,498	24,852 i	117,861	9,520	108,341 i	23,101 i	19,548 i	3,552	33,637

* = 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.

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. 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, 2013.

Appendix A. Technical Notes

Survey Description

The Business R&D and Innovation Survey (BRDIS) is the primary source of information on research and development expenditures and R&D workforce of businesses operating in the 50 states and the District of Columbia. The survey is conducted annually by the U.S. Census Bureau in accordance with an interagency agreement with the National Science Foundation's (NSF's) National Center for Science and Engineering Statistics (NCSES). BRDIS is successor to the Survey of Industrial Research and Development (SIRD), which produced statistics for 1953–2007 and was conducted by the U.S. Bureau of Labor Statistics (1953–56) and the U.S. Census Bureau (1957–2007).

The survey is administered both to companies known to have performed or funded R&D and to companies with no known history of R&D activity. BRDIS has been designed to provide detailed statistics on global and domestic R&D expenditures of companies located in the United States, as well as statistics on their R&D employees, intellectual property, technology transfer, and innovation activities. (Note that data on product and process innovation were collected for 2013 but only for selected companies because of a technical issue, consequently statistics were not prepared for 2013; BRDIS innovation statistics are available for 2008–11 and will be available annually beginning with the 2014 survey.)

The survey is sent to a single coordinator within each company, but it is organized into sections that help the coordinator collect specific types of information from different experts in the company (e.g., human resources, accounting, R&D managers). Foreign-owned companies are instructed to report only for company operations owned by the U.S. subsidiary and, for purposes of the survey, to treat their foreign owners as if they were unrelated third parties. Response to this annual survey is mandatory and confidential under Title 13 of the United States Code.

Coverage

Target Population

The target population for BRDIS consists of all for-profit companies that have five or more paid employees in the United States, have at least one establishment that is in business during the survey year and is located in the United States, and are classified in certain industries based on the 2007 North American Industry Classification System (NAICS), with a particular focus on those companies that perform R&D in the United States.

The Business Register, a U.S. Census Bureau compilation that contains information on more than 3 million establishments with paid employees, serves as the primary input to the sampling frame from which the sample is selected. For a given company with more than one establishment, the prior year's annual payroll and employment data for its active establishments are summed to the company level. Companies are excluded from the frame if they are classified in a NAICS industry that is outside the scope of BRDIS or have fewer than five employees, based on their prior year's aggregated annual payroll and employment data.

Sampling Frame

The scope of the 2013 BRDIS is limited to companies that (1) have a majority of their annual domestic payroll allocated to for-profit establishments, (2) are classified within a specific set of NAICS industries, (3) have five or more paid employees in the United States, based on employment on 12 March 2012, (4) have at least one in-scope establishment that is physically located in the United States and in business

at the end of calendar year 2013 (the time at which the U.S. Census Bureau finished the 2012 Business Register processing), and (5) are not federally funded research and development centers.

Single-unit company records were extracted from the 2012 Business Register if the company's 2012 payroll was greater than or equal to $250,000 or if the company had at least five paid employees in 2012. Companies were removed from the sampling frame if their NAICS codes were designated as crop production (NAICS 111), animal production (NAICS 112), postal service (NAICS 491), educational services (NAICS 61), private households (NAICS 814), or public administration (NAICS 92), or if they were no longer in business or were nonprofits. Companies were also removed from the sampling frame if they were not located in the 50 states or the District of Columbia.

Records for active establishments from multiunit companies were extracted from the 2012 Business Register if the given establishment's 2012 payroll was greater than $0 or if the establishment employed at least one person in 2012. Prior to creating records for multiunit companies from these establishments, establishments classified as postal service (NAICS 491), private households (NAICS 814), or public administration (NAICS 92) were removed, as were those that were not physically located in the 50 states or the District of Columbia. Unlike single-unit companies, establishments classified as crop production (NAICS 111), animal production (NAICS 112), or educational services (NAICS 61) were not removed during the construction of multiunit company records. From the resulting set of multiunit companies, companies were removed from the sampling frame if their payroll was less than $250,000 and they had fewer than five paid employees or if the payroll associated with their non-profit establishments was greater than the payroll of their for-profit establishments.

For each company on the sampling frame, a measure of size was assigned. The measure of size for a given company was based on R&D performance or funding activity, if R&D data from the past 5 years were available from (1) BRDIS, (2) online financial databases, (3) the Bureau of Economic Analysis' Benchmark Survey of U.S. Direct Investment Abroad (USDIA) or Annual Survey of Foreign Direct Investment in the United States (FDIUS), (4) the Report of Organization conducted as part of the Company Organization Survey (in years not ending in "2" or "7") or as a supplement to the Economic Census (in years ending in "2" or "7"), or (5) qualified R&D expenses from the Internal Revenue Service. For all other companies, the measure of size was based on total annual payroll for 2012 from the Business Register.

Industry Classification for Sampling

Each company was assigned to one of 62 industry sampling strata based on the reported business segment in which the company performed the largest amount of total domestic R&D as reported in the prior period (2009–12 BRDIS), if available. If these business segment data were not reported for a given company, assignment is based on the NAICS codes of its establishments in the U.S. Census Bureau's Business Register using the following method, with some adjustments made to take into account vertical integration of related business activities within the company. The company was first assigned to the economic sector, defined by a 2-digit NAICS code that accounted for the highest percentage of its aggregated annual payroll. Then the company was assigned to a subsector, defined by a 3-digit NAICS code that accounted for the highest percentage of its annual payroll within the economic sector. Then the company was assigned a 4-digit NAICS code within the subsector, again based on the highest percentage of its aggregated annual payroll within the subsector. Finally, the company was assigned a 6-digit NAICS code within the 4-digit NAICS, based on the highest percentage of its aggregated annual payroll within the 4-digit NAICS. The industry used for sampling purposes was not necessarily the same code used for publication; see the "Post-Sampling Industry Classification" section.

Stratification of the Sampling Frame

Each company in an industry sampling stratum was further assigned to one of three R&D groups based on information about its prior domestic R&D activity: (1) companies with a positive value for the measure of size based on R&D (known positive R&D group), (2) companies with a zero value for the measure of size based on R&D (known zero R&D group), and (3) companies with unknown R&D activity (unknown R&D group). For 2013, there were 34,482 companies in the first group, 70,032 companies in the second group, and 1,867,445 companies in the third group, for a total of 1,971,959 companies (appendix table A-1).

Sample Selection

In the known positive R&D group, Pareto probability-proportional-to-size sampling was used within each noncertainty industry stratum, where the probability of selection was proportional to the company's measure of size. In the unknown R&D group, Pareto sampling was typically used within each industry stratum, except simple random sampling was used for industries in which the number of companies in the sampling frame was high and the likelihood of R&D was low. In the known zero R&D group, a single simple random sample was selected across all industry strata. Each sample by group had a certainty and noncertainty portion (appendix table A-2). Companies that exhibited characteristics of large R&D companies, including those with the largest amounts of R&D or annual payroll, were selected for the sample with certainty (i.e., the probability of selection was equal to 1). The probability of selection for other companies in the known positive R&D and unknown R&D groups depended on their size, the number of companies selected, and the total size or number of companies in its industry stratum. The number of companies selected was based on a coefficient of variation constraint on the estimated sample total for the industry stratum and was increased, if necessary, to ensure that the minimum probability of selection is 0.05 for the known positive R&D group and one of three values for the unknown R&D group: (1) 0.004 or 0.01 for nonmanufacturing industries (NAICS other than 31–33) and for manufactures with an incomplete NAICS code that begins with "3," depending on the population size and likelihood of R&D and (2) 0.02 for manufacturing (NAICS 31–33); computer systems design and related services (NAICS 5415); management, scientific, and technical consulting services (5416); and scientific R&D services (NAICS 5417). Once selected, each company was assigned a sampling weight equal to the reciprocal of its probability of selection for the sample. Companies that were selected for the sample with certainty were assigned sampling weights equal to 1 and companies that were selected using random or Pareto sampling were assigned weights ranging from 1 to 250. A complete and detailed description of the sample design and estimation methodology is given in the annual BRDIS methodology report available from the NCSES project officer.

Sampling and Nonsampling Error

The estimates produced from BRDIS are subject to both sampling and nonsampling errors. Potential nonsampling errors include coverage error and various response and operational errors, such as errors during data collection, reporting errors, transcription errors, and bias due to nonresponse. These are all types of errors that could also occur if a complete enumeration of the sampling frame had been conducted under the same conditions as the sample survey. Most of the important operational errors were detected and corrected during the course of the reviewing data for reasonableness and consistency. Although nonsampling error is not measured directly, quality control procedures were employed throughout the survey process to minimize this type of error.

Sampling error is the difference between estimates obtained from the sample and results theoretically obtainable from a comparable complete enumeration of the sampling frame. This error results because only a subset of the sampling frame is measured in a sample survey. For published estimates from BRDIS, standard errors are produced for estimated percentages, while relative standard errors are

produced for all other estimates. Tables of the estimated measures of sampling variability corresponding to each data table are available from the NCSES project officer.

Standard errors may be used to define confidence intervals about the corresponding estimates with a desired level of confidence. If a confidence interval were constructed for each possible sample that could be selected, then it would be expected that the percentage of confidence intervals containing the result of a complete enumeration of the sampling frame would equal the percent of the level of confidence. For example, the interval defined by a margin of error of two standard errors yields an approximately 95% confidence interval.

Because relatively few companies perform R&D in the United States and because the amount of R&D they perform is quite variable, it is difficult to achieve control over the sampling error of survey estimates produced from BRDIS. This depends on the correlation between the measure of size on the sampling frame that was used to assign the selection probabilities and the actual data that are collected in BRDIS, which cannot be predicted accurately for all companies when the sample is designed. However, the largest companies known to perform R&D are included in the sample with certainty so that these companies will not contribute to the sampling error of the resulting estimates produced from BRDIS.

The sample size is sufficiently large to ensure that estimates based on the total sample are subject to low sampling error. However, because priority in designing the sample was given to industries that were identified in previous surveys as conducting large amounts of R&D expenditures, the sampling error may be larger for estimates for the lower-priority industries. The relative standard error (RSE) for the estimate of total domestic R&D performed by the company was 0.33% in 2013, although the RSE was over 10% for estimates for two manufacturing industries—printing and related support activities (NAICS 323) and petroleum and coal products (NAICS 324)—and some nonmanufacturing industries that were considered a lower priority.

Sample Size

With the above sample design parameters, a total of 45,089 companies were selected, of which 17,690 were in the known positive R&D group, 3,531 companies were in the known zero R&D group, and 23,868 companies were in the unknown R&D group (appendix tables A-3 and A-4).

During the survey's annual contact update procedures, 44 large R&D performers from the 2012 sample were found that were not included on the 2013 sampling frame. To follow up, records for these companies were added to the 2013 sample with certainty. Because it was expected that many of these records would not contribute to 2013 BRDIS tabulations due to changes in company structure, these companies are not included in sampling frame counts or sample sizes (appendix table A-5).

Methodology

Questionnaires and Electronic Reporting

For the 2013 cycle of BRDIS, two questionnaires were used to collect data for the survey. Companies with domestic R&D performance greater than or equal to $1.0 million in 2011 or 2012 were sent the detailed survey form, BRDI-1. All other companies were sent an abbreviated form, BRD-1(S) (appendix tables A-6 and A-7). A small number of companies with a history of chronic delinquency were sent the abbreviated form instead of the detailed questionnaire. Some companies requested multiple forms to facilitate subcompany reporting (appendix table A-8).

Because of the potential compartmentalization of organizational knowledge within companies (particularly in larger companies), the BRDIS questionnaire was organized into sections based on the subject matter of the questions. These sections included the following:

Section 1. Company Information. Includes basic questions about company ownership, lines of business, sales data, and measures of innovation.

Section 2. Financial Schedule A. Includes accounting questions about the company's R&D expenses and capital expenditures for R&D.

Section 3. Financial Schedule B. Includes accounting questions about R&D paid for by others, such as the company's customers or grant-giving organizations.

Section 4. Management and Strategy of R&D. Includes questions related to the nature of the company's R&D and how the R&D is being performed. This section was targeted toward company employees responsible for managing R&D departments or programs.

Section 5. Human Resources. Includes questions related to the human resources involved in the company's R&D activities.

Section 6. Intellectual Property and Technology Transfer. Includes questions on the company's production, use, acquisition, and disposition of intellectual property related to science and technology (S&T), with a focus on patents.

For specific year-to-year differences among the questionnaires, see the "Comparability" section.

In addition to paper questionnaires, an electronic mode of data reporting via the U.S. Census Bureau's Centurion data collection instrument was available to all BRDIS respondents. Respondents were made aware of Centurion in BRDIS-related correspondence and transmittals from the U.S. Census Bureau. For paper versus electronic response rates, see the "Response by mode" section.

Response Rates

Unit Response Rates

Of the companies surveyed for the 2013 survey, 25.7% did not submit any response, and an additional 0.7% did not provide enough information to be treated as responses. Nonresponse studies are conducted periodically to assess reasons for nonresponse and possible nonresponse bias. Three metrics used by NCSES and the U.S. Census Bureau to measure unit response to BRDIS were check-in rates, unit response rates, and coverage rates.

Check-in rate. The check-in rate is defined as the unweighted number of surveys that were either mailed in or submitted online by in-scope companies, divided by the unweighted total number of all in-scope companies in the sample. Response to individual questions did not factor into this metric.

Coverage rate. BRDIS managers track a coverage rate that is a weighted measure of survey response based on the measure of size at the time of sample selection. The coverage rate measures how much of the weighted measure of size for in-scope companies in the sample is accounted for by respondents to the survey. Because different units were used as measures of size (estimated R&D performance for the known R&D group and annual payroll for the unknown R&D and the known zero R&D groups) a single coverage rate is not calculated.

Unit response rate (URR). The unit response rate (URR) is the unweighted number of responding companies with positive data for at least one of the survey's key items (i.e., worldwide R&D expense or R&D costs funded by others, worldwide or domestic sales, or worldwide or domestic employees), divided by the unweighted total number of in-scope companies in the sample.

For the 2013 BRDIS, the check-in rate was 74.3% and the URR was 73.6%. The coverage rate for the 2013 BRDIS was 90.4% for the known positive R&D group, 77.7% for the unknown R&D group, and 80.7% for the known zero R&D group (appendix tables A-9 and A-10).

Item Response Rates

BRDIS collects data for over 500 variables, and the distribution of values reported by sample companies is highly skewed. Thus, rather than report unweighted item response rates, total quantity response rates are calculated, which are based on weighted data.

Total quantity response rate (TQRR). For a given published estimate other than count or ratio estimates, the total quantity response rate (TQRR) is the percentage of the weighted estimate based on data that were reported by units in the sample or that were obtained from other sources and were determined to be equivalent in quality to reported data. The TQRR for total R&D performed in the United States in 2013 was 70%.

Total quantity nonresponse rate (TQNR). For a given published estimate, the total quantity nonresponse rate (TQNR), defined as 100% - TQRR, is calculated for each tabulation cell from BRDIS, except for cells that contain count or ratio estimates. TQNR measures the combined effect of the procedures used to handle unit and item nonresponse on the weighted BRDIS estimate. TQNR tables corresponding to each data table are available from the NCSES project officer.

Response by Mode

Overall, 20% of checked-in cases responded to BRDIS by mailing in a paper form, and 80% responded using the online version of the survey via Centurion. However, companies receiving Form BRDI-1 were much more likely to respond online; 94% of all checked in BRDI-1 forms were submitted online, as opposed to 77% of checked-in BRD-1(S) forms. For account manager companies (i.e., large, usually complex R&D performers or funders), 94% of checked in companies responded via the Internet.

Editing

Given the size and complexity of BRDIS, many survey responses included errors that required correction or unusual patterns that required validation. Several hundred automated edit checks are used to improve the efficiency of analyst data review and correction (appendix table A-11).

Approximately two-thirds of these edit checks were designed to catch arithmetic errors and logically inconsistent responses (balance edits). The remaining edit checks were designed to flag outliers for further analyst review (analytical edits). Descriptions of the data edits and edit failure rates are in the annual BRDIS methodology report available from the NCSES project officer.

During the editing and review process, several cases were identified where companies reported zero R&D or a relatively small amount of R&D, even though subject matter experts expected large amounts of R&D to be reported. Some of these companies were contract research organizations or federal contractors that did not account for the R&D costs they incurred conducting customer-sponsored research, but rather they accounted for these as cost of sales. The largest of these companies were contacted by analysts and asked to resubmit their surveys. In rare cases, if no response could be elicited from the company and

public information was available related to costs for customer-sponsored R&D, those data were used to impute an R&D estimate for the company.

Techniques for Handling Unit and Item Nonresponse

For various reasons, many firms chose to return the survey questionnaire with one or more blank items. For some firms, internal accounting systems and procedures may not have allowed quantification of specific expenditures. Others may have refused to answer questions as a matter of company policy. Weighted estimates produced from BRDIS include adjustments to account for companies that did not respond to the survey (unit nonresponse), as well as companies that did respond but left some questions blank (item nonresponse).

Unit Nonresponse

Except for estimates of counts, patents, patent licensing agreements, product or process innovation (when tabulated), and intellectual property protection, unit nonresponse is handled by the use of a nonresponse adjustment factor in the estimation process. To calculate the adjustment factors, each company in the sample that is eligible for tabulation is assigned to only one adjustment cell. The adjustment cells are based on the three R&D groups, which are subdivided based on R&D size and certainty status, and the industry sampling strata described in the "Stratification of the Sampling Frame" section, which are updated using information on industry classification reported in BRDIS. For a given adjustment cell, the nonresponse adjustment factor is the ratio of the sum of the weighted measure of size for all companies in the cell to the sum of the weighted measure of size for all companies in the cell with reported or imputed data. The measure of size used to select the 2013 BRDIS sample was also used to adjust for unit nonresponse. For companies in the known positive R&D stratum, measure of size was based on U.S. R&D; in the unknown R&D stratum, measure of size was based on U.S. total annual payroll; and in the known zero R&D stratum, an arbitrary value of 1 was assigned as the measure of size.

For estimates of counts, patents, patent licensing agreements, and product or process innovation (when tabulated), the nonresponse adjustment described above is not performed. For count estimates for BRDIS check box items that involve intellectual property protection, both unit and item nonresponse are handled using a nonresponse weight adjustment that is different from the one described above. The adjustment cells for tabulating the item are based on the three R&D groups, industry sampling strata, and presence or absence of R&D activity. For a given adjustment cell and item, the nonresponse adjustment factor is a ratio. The numerator of the ratio is the sum of two components: the sum of the weights for the companies in the cell that reported the item, inflated to account for unit nonresponse, and the sum of the weights for the companies in the cell that reported to BRDIS but not the item. The denominator of the ratio is the sum of the weights for the companies in the cell that reported the item.

Item Nonresponse

Item nonresponse for a given company is handled by item imputation. For account manager companies, other large companies, and special cases, analysts impute these data using direct substitution of available company data (i.e., data from the company's website, annual Form 10-K report, or administrative sources) or ad hoc methods, which are approved by NCSES and U.S. Census Bureau subject-matter experts (e.g., donor imputation for missing data on federally funded R&D). For all other cases, including cases where analysts were unable to provide a superior estimate, these data are imputed by programmed item imputation procedures. Depending on the particular item being imputed for a company, these procedures are based on a combination of (1) direct substitution of available company data; (2) ratio imputation using the company's survey data for both current and prior year; and (3) ratio imputation using survey data from both the company and other similar companies, which reported both the survey item being imputed for the company, as well as the other survey item used in the ratio.

Estimation

The general methodology used to produce estimates from BRDIS involves sums of weighted data (reported or imputed), in which the weights are the product of the sampling weight and the nonresponse adjustment factor. However, there are some exceptions, which are described below.

Weighting

Estimates published for BRDIS are computed as sums of weighted data for sample companies that reported to the survey or sample companies for whom data could be reliably imputed based on prior reports or other information. Two types of weights are used for estimates of R&D: sampling weights and nonresponse adjustment factors. The sampling weight for a given company is calculated as the reciprocal of the company's probability of inclusion in the sample. Nonresponse adjustment factors are used to represent companies in the sample that did not provide sufficient response data to be directly tabulated and whose data could not be imputed. For information on the calculation of the nonresponse adjustment factors, see the "Unit Nonresponse" section.

Except for estimates of counts, patents, and patent licensing agreements, each value that contributes to a given BRDIS estimate is multiplied by both its sampling weight and its nonresponse adjustment factor, and these weighted values are then summed to create the estimate. For estimates of counts, patents, and patent licensing agreements, each value that contributes to a given BRDIS estimate is weighted only by its sampling weight.

Post-Sampling Industry Classification

As mentioned in the "Industry Classification for Sampling" section, the industry classification assigned to companies for sampling was based on either reported BRDIS business segment data from prior years or annual payroll. To produce more accurate estimates for the current survey year, a company's reported business code data, if available for the current survey year, was used to assign an updated industry code for tabulations. The company's response to the domestic R&D performance questions from the current survey year was used to classify each company into the business code that accounted for the largest amount of total domestic R&D performance. The business codes reported by companies with large amounts of R&D were validated, and in some cases corrected, by survey staff. If no business code data were available for a company's domestic R&D performance, the industry code used for sampling was also used for tabulations.

R&D, by State

The estimation methodology for state estimates takes the form of a hybrid estimator, combining the unweighted reported amount by state with a weighted amount apportioned (or raked) across states with relevant industrial activity. The hybrid estimator smooths the estimate over states with R&D activity by industry and accounts for real observed change within a state. However, as described in the "Weighting" section, the weighted estimator described above is not used to produce estimates of counts, such as estimates of the number of R&D performers by state.

R&D, by Business Segment Code

To provide increased granularity on R&D activities, BRDIS includes questions asking companies to report data for business units below the company level. To support subcompany reporting, a list of business codes based on NAICS was provided in BRDIS for companies to use to categorize their business operations. The list of business codes for the 2013 cycle of BRDIS was based on the 2007 NAICS. To assist companies in selecting appropriate business codes, likely business codes were provided to respondents by printing them on the forms mailed to companies and by pre-populating them on the online version of the survey. For companies that reported to the 2011 or 2012 BRDIS, the most recent

business codes reported by the company were used to provide the business codes for the 2013 survey forms. For companies that did not report to the 2011 or 2012 BRDIS, establishment payroll data from the Business Register were used to provide the business codes for the 2013 survey forms.

Sampling Variability

See the "Sampling and Nonsampling Error" section for information on the sampling variability of estimates produced from BRDIS.

Measurement Error

Variations in respondent interpretations of the definitions of R&D activities and variations in accounting procedures are of particular concern, specifically, the characterization and reporting of R&D activities by large defense contractors funded by the U.S. federal government; the reporting of R&D activities by companies classified in the R&D services industry, NAICS 5417; and the method used by companies, in general, to count and report numbers of employees in various categories, such as the number of employees who work full-time versus part-time on R&D. The sophistication and comprehensiveness of a company's accounting and personnel tracking systems often depend on its size and activities and its willingness to accommodate government-sponsored surveys. Although no measure of measurement error is produced, ongoing efforts to minimize measurement error include questionnaire pretesting, improvement of questionnaire wording and format, inclusion of more cues and examples in the questionnaire instructions, in-person and telephone interviews and consultations with respondents, and post-survey evaluations.

Survey Definitions

Capital expenditure. Capital expenditures are payments by a business for assets that usually have a useful life of more than 1 year, like buildings, equipment, or software. The value of assets acquired or improved through capital expenditures is recorded on a company's balance sheet. Expenditures for long-lived assets used in a company's R&D operations are not included in its R&D expense, but any depreciation recorded for those assets would be included in its R&D expense. Data are collected in BRDIS for capital expenditures for R&D operations for structures, equipment, capitalized software, and other items.

Employment, total and R&D. Category involves the number of people employed by R&D-performing or R&D-funding companies in all locations, both foreign and domestic, during the pay period that included 12 March of the survey year. (The date 12 March is when most employers pay first-quarter employment taxes to the IRS.) R&D employees are those who provide direct support to R&D, such as researchers, R&D managers, technicians, clerical staff, and others assigned to R&D groups. Those not included are employees who provide indirect support to R&D, such as corporate personnel, security guards, and cafeteria workers. In addition to headcounts of total and R&D employees, estimates of full-time-equivalent domestic R&D employment are produced from BRDIS. This is the number of persons employed who were assigned full time to R&D, plus a prorated number of employees who worked on R&D only part of the time.

Expense and R&D expense. These expenses involve money spent or costs incurred in an organization's efforts to generate revenue, representing the cost of doing business. Expenses may be in the form of actual cash payments (e.g., wages and salaries), a computed expired portion (depreciation) of an asset, or an amount taken out of earnings (e.g., bad debts). Expenses are summarized and charged in the income statement as deductions from the income before assessing income tax. Whereas all expenses are costs, not all costs are expenses (e.g., costs incurred in acquisition of income generating assets; see the definition for capital expenditure in the "Survey Definitions" section). R&D expense is the cost of R&D

funded by the company itself and performed within the respondent company's facilities, both foreign and domestic, or performed by others outside of the company under contract, subcontract, grant, or other funding arrangement.

Innovation. BRDIS questions on innovation activities refer only to *product* and *process innovations*. A product innovation is the market introduction of a new or significantly improved good or service with respect to its capabilities, user friendliness, components, or subsystems. A process innovation is the implementation of a new or significantly improved production process, distribution method, or support activity for the company's goods or services. Product and process innovations (new or improved) must be new to the respondent company, but they do not need to be new to the company's market, and the innovations could have been originally developed by the respondent company or by other companies. Purely organizational innovations (i.e., those of benefit only to the company) are excluded. (Note that data on product and process innovation were collected for 2013 but only for selected companies because of a technical issue, consequently statistics were not prepared for 2013. BRDIS innovation statistics are available for 2008–11 and will be available annually beginning with 2014.)

R&D and business R&D. R&D is planned, creative work aimed at discovering new knowledge or developing new or significantly improved goods and services. This includes (1) activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses (basic research), (2) activities aimed at solving a specific problem or meeting a specific commercial objective (applied research), and (3) systematic use of research and practical experience to produce new or significantly improved goods, services, or processes (development). R&D does not include expenditures for routine product testing, quality control, and technical services unless they are an integral part of an R&D project. R&D also does not include market research; efficiency surveys or management studies; literary, artistic, or historical projects, such as films, music, or books and other publications; and prospecting or exploration for natural resources.

R&D, biotechnology. R&D activity in biotechnology refers to activities involving the use of cellular and biomolecular processes to solve problems or make useful products. The following list provides examples of areas of biotechnology in which R&D may be performed.

- DNA or RNA: Genomics; pharmacogenomics; gene probes; genetic engineering; DNA or RNA sequencing, synthesis, or amplification; gene expression profiling; and use of antisense technology.

- Proteins and other molecules: Sequencing, synthesis, or engineering of proteins and peptides (including large molecule hormones); improved delivery methods for large molecule drugs; proteomics, protein isolation and purification; signaling; and identification of cell receptors.

- Cell and tissue culture and engineering: Cell or tissue culture, tissue engineering (including tissue scaffolds and biomedical engineering), cellular fusion, vaccine or immune stimulants, and embryo manipulation.

- Process biotechnology techniques: Fermentation using bioreactors, bioprocessing, bioleaching, biopulping, biobleaching, biodesulphurization, bioremediation, biofiltration, and phytoremediation.

- Gene and RNA vectors: Gene therapy and viral vectors.

- Bioinformatics: Construction of databases on genomes, protein sequences, and modeling complex biological processes, including systems biology.

- Nanobiotechnology: Applies the tools and processes of nano- or microfabrication to build devices for studying biosystems and applications in, for example, drug delivery or diagnostics.

R&D, nanotechnology. R&D activity in nanotechnology refers to activities involving S&T focused on the study, creation, or use of objects at the nanoscale, which is generally considered to be 100 nanometers or smaller. Many technologies related to conventional solid-state semiconductor manufacturing are capable of creating features smaller than 100 nanometers, and R&D involving these technologies is included in the BRDIS data collection.

R&D paid for by others, worldwide and domestic. The cost of R&D funded by others outside of the company, including the U.S. federal government, and performed within the respondent company's facilities, both foreign and domestic.

R&D paid for by the company and others, worldwide and domestic. Category involves the cost of R&D funded by the company itself or by others outside of the company and performed within the respondent company's facilities, both foreign and domestic, or performed by others outside of the company under contract, subcontract, grant, or other funding arrangement.

R&D performed by others, worldwide and domestic. Category involves the cost of R&D funded by the company itself or by others outside of the company and performed by others outside of the company under contract, subcontract, grant, or other funding arrangement.

R&D performed by the company and others, worldwide and domestic. The cost of R&D performed within the respondent company's facilities, both foreign and domestic, or performed by others outside of the company under contract, subcontract, grant, or other funding arrangement.

R&D performed by the company, worldwide and domestic. The cost of R&D performed within the respondent company's facilities, both foreign and domestic, funded by the company itself or by others outside of the company.

R&D, software and Internet. R&D activity in software and Internet applications refers only to activities with an element of uncertainty and that are intended to close knowledge gaps and meet scientific and technological needs. This item is reported in this survey regardless of the eventual user (internal or external). R&D activity in software includes software development or improvement activities that expand scientific or technological knowledge and construction of new theories and algorithms in the field of computer science. R&D activity in software excludes software development that does not depend on a scientific or technological advance, such as supporting or adapting existing systems, adding functionality to existing application programs, routine debugging of existing systems and software, creating new software based on known methods and applications, converting or translating existing software and software languages, and adapting a product to a specific client, unless knowledge that significantly improved the base program was added in that process.

Sales, worldwide and domestic. Involves dollar values for goods sold or services rendered by R&D-performing or R&D-funding companies to customers outside the company, including the U.S. federal government, less such items as returns, allowances, freight, charges, and excise taxes. Included are worldwide sales by a company's foreign operations and subsidiaries, as well as revenues from domestic operations located in the 50 states and the District of Columbia; intracompany transfers are excluded. If a

respondent company is owned by a foreign parent company, sales to the parent company and affiliates not owned by the respondent companies are included.

Comparability

Differences between the 2012 and 2013 BRDIS Questionnaires

The following changes were made to the 2013 BRDIS from the 2012 BRDIS:

- The list of countries for which foreign R&D performance data were collected was expanded by three: Hungary, Luxembourg, and Norway.
- A question was restored asking the amount of R&D the company plans to recoup through indirect R&D (IR&D), i.e., allowable charges for R&D under U.S. federal government contracts that do not relate directly to the contract activity. This question was last asked on the 2010 BRDIS.
- Questions on R&D for software products and R&D for embedded software were combined.
- A question on R&D for software products and embedded software paid for by the U.S. federal government was added.
- A question was restored related to educational attainment of scientists and engineers. This question was last asked on the 2010 BRDIS.
- Two business codes were added to the list of business codes collected on the survey: 32542, biotechnology-based pharmaceutical and biological products (except diagnostics), and 51801, cloud computing applications and Internet-based software services.
- Delinquent companies in the known positive R&D stratum for the past two survey cycles were sent a BRD-1(S) form to see if they report at least the high level numbers.

Differences between the 2011 and 2012 BRDIS Questionnaires

For 2012, a much shorter, 8-page version of the short form, BRD-1(S), was implemented. The new Form BRD-1(S) included 19 high-level detail items on worldwide sales; domestic sales; R&D funded by the company (expense) and funded by others; worldwide and domestic employment, including R&D employment; and patents applied for and issued. The Form BRD-1(S) was sent to companies in the unknown and known zero R&D strata as well as delinquent companies in the known positive R&D stratum identified during the past two survey cycles. Also, to make the new short form less burdensome on respondents, questions about new and improved products and processes (generically known as the innovation questions) were dropped for 2012 (and 2013). NSF intends to reinstate these questions for future cycles. Companies that reported $1 million or more of domestic R&D performance on Form BRD-1(S) were then sent the long form, BRDI-1, for additional details.

In section 2 of Form BRDI-1, categories for capital expenditures were added. In section 3, four agencies were added to the type of agency question in an attempt to reduce the amount reported in the "all other" category. In section 4, the percentage of R&D that was directed toward business areas or product lines new to the respondent's company and the percentages of R&D with defense, health or medical, or agricultural applications funded by the company and funded by others were added.

Differences between the 2010 and 2011 BRDIS Questionnaires

For 2011 data collection, the innovation questions and instructions in section 1 were changed based on the results of the 2010 experiment (added section to test various innovation questions and instructions; see "Differences between the 2009 and 2010 BRDIS Questionnaires" for more details). Cycling continued for data items not needed every year. The survey was expanded in several ways to address data gaps: the list of countries in which companies could report foreign R&D performance was expanded, a question was added to collect intracompany R&D transactions, and questions were added about companies' second-largest R&D location. In addition, questions pertaining to full-time-equivalent R&D scientists and engineers were revised in an attempt to improve respondent understanding of survey concepts.

Differences between the 2009 and 2010 BRDIS Questionnaires

For 2010 data collection, the most notable changes made to the questionnaire were the inclusion of a one-time section (section 7) on R&D timeframe and R&D product life, the inclusion of an experiment testing the impact of different innovation questions and instructions, and the addition of a survey supplement to collect detailed information from companies reporting R&D paid for by others. In addition, questions and instructions about company ownership were expanded to clarify, especially for foreign-owned companies, the information that should be reported on the survey. Cycling began for data items not needed every year from every company. These items will be returned to the questionnaire cyclically, depending on the demand for and quality of the collected data. Finally, data items poorly reported during the first two cycles of BRDIS were deleted.

The section entitled "R&D Time Frame and R&D Product Life" was added to the questionnaire for the 2010 cycle to aid in estimating the depreciation of R&D when it is treated as an investment in the U.S. System of National Accounts.

The experiment testing the impact of different innovation questions and instructions used two versions of the BRDIS short form. The innovation questions on the 2010 Form BRDI-1A were identical to questions used on the 2009 Form BRDI-1A, and the 2010 Form BRDI-1B had altered questions and instructions that replicated innovation questions on the European Union's Community Innovation Survey. The experiment did not produce statistically significant differences in measured rates of innovation.

Differences between the 2008 and 2009 BRDIS Questionnaires

Several changes were made to the 2009 BRDIS questionnaire, in part to address reporting errors observed during the 2008 survey cycle. Briefly, these changes included the following:

1. Removing a screening question at the beginning of the form asking companies whether they had R&D activity during the reporting period.

2. Replacing "exclude" instructions in the main R&D expense question with a series of targeted questions. This approach was based on the premise that the economic concepts requested by BRDIS do not always conform to the R&D measures tracked by companies. Rather than directly asking for concepts that may diverge from respondent preconceptions about R&D, the approach in 2009 guided respondents to derive amounts that conformed to the BRDIS definition of R&D.

3. Replacing "include" instructions in the main R&D paid for by others question with a series of targeted questions.

4. Deriving "R&D performed by others" rather than asking for the concept directly. For the 2009 cycle of BRDIS, the concept of "R&D performed by others" was derived from the sum of two R&D costs

known to be tracked by companies: payments to business partners for collaborative R&D, and purchased R&D services.

5. Switching the order of the Management and Strategy of R&D and Financial Schedule B (R&D paid for by others) sections.

Data Availability

Publications

The data from BRDIS can be found online at http://www.nsf.gov/statistics/industry/. Detailed historical statistics from the predecessor survey, the SIRD, can be obtained from NSF's Industrial Research and Development Information System (IRIS) at http://www.nsf.gov/statistics/iris/. Information from BRDIS is also included in *Science and Engineering Indicators* and in *National Patterns of R&D Resources*.

Electronic Access

BRDIS contains confidential data that are protected under Title 13 and Title 26 of the United States Code. BRDIS results are available in two forms: public-use tabular statistics, and restricted microdata. Detailed tabular statistics can be obtained by contacting the NCSES project officer. Microdata for SIRD and BRDIS can only be accessed at the U.S. Census Bureau's 15 secure Research Data Centers (RDCs). To learn more about RDCs and how to apply for data use, please visit the Center for Economic Studies' page on research opportunities (http://www.census.gov/ces/rdcresearch/index.html).

Table	Table Title
	Target population
A-1	counts, by frame partition: 2008–13
A-2	companies in and selected for the sample, by industry and company size: 2013
	Sample
A-3	size, by frame partition: 2008–13
A-4	companies, by sampling stratum: 2013
A-5	companies included that were not in the original sampling frame: 2008–13
	Survey forms
A-6	number and types mailed: 2008–13
A-7	mailed, by sampling stratum: 2013
A-8	mailed, for companies that requested subcompany reporting units, by sampling stratum: 2013
	Response
A-9	measures: 2008–13
A-10	unit rates, by industry and type of survey form: 2013
	Companies that required an analyst action
A-11	by sampling stratum: 2013

TABLE A-1. Target population counts, by frame partition: 2008–13
(Number of companies)

Year	Total[a]	Known positive R&D	Known zero R&D	Unknown R&D
2008	1,926,012	16,059	75,923	1,834,030
2009	2,090,181	22,181	79,031	1,988,969
2010	2,013,399	24,723	67,281	1,921,395
2011	1,964,757	27,049	73,930	1,863,778
2012	1,971,731	29,512	73,004	1,869,215
2013	1,971,959	34,482	70,032	1,867,445

[a] For each year, the estimate of the number of companies in the total target population is based on the original sampling frame that was created to select the sample. The target population estimates in this table do not include R&D performers from the previous year's sample, which were not on the original sampling frame but were found during the survey's annual contact update procedures. See table A-5 for the counts of companies that were added to each year's sample.

NOTES: Companies were said to be known to conduct R&D (known positive R&D) if they reported positive R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported zero R&D in at least 1 of the previous 5 survey years and no positive R&D in any of the 5 years. Companies were said to be unknown if no R&D information were available.

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

TABLE A-2. Companies in the target population and selected for the sample, by industry and company size: 2013

Industry and company size	NAICS code	Companies in target population[a]	Companies selected for the sample		
			All companies	Noncertainties	Certainties
All industries	21–23, 31–33, 42–81	1,971,959	45,089	24,657	20,432
Manufacturing industries	31–33	145,925	19,294	9,882	9,412
Food	311	12,470	1,042	535	507
Beverage and tobacco products	312	2,265	281	162	119
Textile, apparel, and leather products	313–16	7,030	742	432	310
Wood products	321	6,889	668	428	240
Paper	322	2,038	475	270	205
Printing and related support activities	323	11,842	844	556	288
Petroleum and coal products[b]	324	514	175	41	134
Chemicals	325	6,290	1,963	755	1,208
Basic chemicals	3251	937	341	137	204
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	612	226	81	145
Pesticide, fertilizer, and other agricultural chemicals	3253	380	110	28	82
Pharmaceuticals and medicines	3254	1,387	447	46	401
Soap, cleaning compound, and toilet preparation	3256	1,138	279	152	127
Paint, coating, adhesive, and other chemicals	3255, 3259	1,836	560	311	249
Plastics and rubber products	326	6,751	1,135	587	548
Nonmetallic mineral products	327	5,658	626	363	263
Primary metals	331	2,516	536	248	288
Fabricated metal products	332	31,240	2,136	1,189	947
Machinery	333	13,816	1,989	957	1,032
Agricultural implements	33311	767	219	96	123
Semiconductor machinery	333295	141	76	17	59
Engine, turbine, and power transmission equipment	3336	556	141	48	93
Other machinery	other 333	12,352	1,553	796	757
Computer and electronic products	334	7,440	2,065	865	1,200
Communications equipment	3342	891	297	107	190
Semiconductor and other electronic components	3344	2,679	572	238	334
Navigational, measuring, electromedical, and control instruments	3345	2,720	874	370	504
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	421	148	43	105
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	333	113	17	96
Other measuring and controlling devices	other 3345	1,966	613	310	303
Other computer and electronic products	other 334	1,150	322	150	172
Electrical equipment, appliances, and components	335	3,262	815	423	392
Transportation equipment	336	6,194	1,185	503	682
Motor vehicles, bodies, trailers, and parts	3361–63	3,916	608	261	347
Aerospace products and parts	3364	968	272	94	178
Aircraft, aircraft engine, and aircraft parts	336411–13	907	228	94	134
Guided missile, space vehicle, and related parts	336414, 336415, 336419	61	44	0	44
Military armored vehicle, tank, and tank components	336992	41	26	0	26
Other transportation equipment	other 336	1,269	279	148	131
Furniture and related products	337	7,218	766	487	279
Miscellaneous manufacturing	339	12,009	1,718	1,005	713

TABLE A-2. Companies in the target population and selected for the sample, by industry and company size: 2013

Industry and company size	NAICS code	Companies in target population[a]	Companies selected for the sample		
			All companies	Noncertainties	Certainties
Medical equipment and supplies	3391	4,460	780	436	344
Other miscellaneous manufacturing	3399	7,549	938	569	369
Unclassified	–	483	133	76	57
Nonmanufacturing industries	21–23, 42–81	1,826,034	25,795	14,775	11,020
Mining, extraction, and support activities[b]	21	9,578	759	433	326
Utilities	22	1,261	231	57	174
Wholesale trade	42	130,100	2,877	1,902	975
Electronic shopping and electronic auctions	454111–12	4,798	399	271	128
Transportation and warehousing	48–49	55,361	668	275	393
Information	51	26,097	2,823	1,461	1,362
Publishing	511	8,833	1,168	547	621
Newspaper, periodical, book, and directory publishers	5111	5,781	470	291	179
Software publishers	5112	3,052	698	256	442
Telecommunications	517	3,677	434	276	158
Data processing, hosting, and related services	518	3,677	703	327	376
Other information	other 51	9,910	518	311	207
Finance and insurance	52	64,684	1,114	492	622
Real estate and rental and leasing	53	56,014	599	270	329
Lessors of nonfinancial intangible assets (except copyrighted works)	533	858	92	6	86
Other real estate and rental and leasing	other 53	55,156	507	264	243
Professional, scientific, and technical services	54	218,488	9,070	3,648	5,422
Architectural, engineering, and related services	5413	31,920	1,522	673	849
Computer systems design and related services	5415	29,724	2,250	1,147	1,103
Scientific research and development services	5417	4,655	2,888	534	2,354
Biotechnology research and development	541711	1,362	950	189	761
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,968	1,672	319	1,353
Social sciences and humanities research and development	541720	325	266	26	240
Other professional, scientific, and technical services	other 54	152,189	2,410	1,294	1,116
Health care services	621–23	245,845	1,793	1,171	622
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,013,330	5,279	4,712	567
Unclassified	–	478	183	83	100
Company size (number of domestic employees)	–				
All companies	–	1,971,959	45,089	24,657	20,432
< 5[c]	–	118,800	2,207	1,366	841
5–9	–	846,742	7,191	6,331	860
10–24	–	616,763	8,278	6,819	1,459
25–49	–	212,664	6,171	4,206	1,965
50–99	–	97,645	5,994	3,033	2,961
100–249	–	50,997	6,610	1,901	4,709
250–499	–	14,499	3,254	532	2,722
500–999	–	6,822	2,057	225	1,832
1,000–4,999	–	5,450	2,328	191	2,137

TABLE A-2. Companies in the target population and selected for the sample, by industry and company size: 2013

Industry and company size	NAICS code	Companies in target population[a]	Companies selected for the sample		
			All companies	Noncertainties	Certainties
5,000–9,999	–	760	451	27	424
10,000–24,999	–	501	318	17	301
25,000 or more	–	316	230	9	221

NAICS = 2007 North American Industry Classification System.

[a] Estimates of the number of companies in the target population are based on the original sampling frame that was created to select the 2013 Business R&D and Innovation Survey sample. These estimates do not include 44 R&D performers from the previous year's sample, which were not on the original sampling frame but were found during the survey's annual contact update procedures. These companies were added to the 2013 sample with certainty, but are not reflected in the number of certainties selected for the sample.

[b] Because of the widespread practice of the larger petroleum extraction and refining companies vertically integrating their activities, petroleum refineries (NAICS 32411) and oil and gas extraction (NAICS 211) were combined during sampling.

[c] This category includes companies that are represented on the sampling frame as having missing or fewer than five paid employees, but these companies are in-scope to Business R&D Innovation Survey because they have at least $250,000 for annual payroll.

NOTES: Certainties are companies whose probability of selection is one based on prior-year R&D expenditures equal to or greater than $3 million as well as others included in the sample for analytical purposes (analytical certainties). Noncertainties are companies whose probability of selection is less than one. Companies that were missing or had an incomplete NAICS code at the time of sampling were assigned to an "unclassified" industry category temporarily. If an unclassified company reported R&D expenditures, its primary industrial activity was investigated and a NAICS code was assigned during statistical processing. The total sample size reflects the time between sample selection and survey mailout; that is, the sample was updated before actual mailout took place.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013

TABLE A-3. Sample size, by frame partition: 2008–13
(Number of companies)

Year	Total	Known positive R&D	Known zero R&D	Unknown R&D
2008	39,553	11,103	3,156	25,294
2009	43,002	14,343	3,443	25,216
2010	42,965	14,399	3,150	25,416
2011	43,108	14,941	3,385	24,782
2012	43,655	16,188	3,527	23,940
2013	45,089	17,690	3,531	23,868

NOTES: Companies were said to be known to conduct R&D (known positive R&D) if they reported positive R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported zero R&D in at least 1 of the previous 5 survey years and no positive R&D in any of the 5 years. Companies were said to be unknown if no R&D information were available.

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

TABLE A-4. Companies sampled, by sampling stratum: 2013
(Number of companies)

Stratum	Total
Total	45,089
Known positive R&D	17,690
Certainties	12,097
Noncertainties	5,593
Known zero R&D	3,531
Certainties	2,153
Noncertainties	1,378
Unknown R&D	23,868
Certainties	6,182
Noncertainties	17,686

NOTES: Companies were said to be known to conduct R&D (known positive R&D) if they reported positive R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported zero R&D in at least 1 of the previous 5 survey years and no positive R&D in any of the 5 years. Companies were said to be unknown if no R&D information were available.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE A-5. Companies included in the sample that were not in the original sampling frame: 2008–13
(Number of companies)

Year	Known positive R&D
2008	336
2009	18
2010	49
2011	42
2012	54
2013	44

NOTES: This table shows the counts of companies that were found during the update procedures and were added to each year's sample. These company counts are not in table A-2.

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

TABLE A-6. Number and type of survey forms mailed: 2008–13
(Number of forms)

Year	Total forms mailed[a]	BRDI-1	BRDI-1A/B or BRD-1(S)	BRDI-1 forms mailed due to reported data from BRD-1(S) forms	Total BRDI-1 forms mailed
2008	39,593	4,875	34,718	NA	NA
2009	42,826	2,501	40,325	NA	NA
2010	42,314	2,572	19,871 (19,871)	NA	NA
2011	42,389	2,708	39,681	NA	NA
2012	42,869	6,946	35,923	1,972	8,918
2013	44,769	6,655	38,114	1,924	8,579

NA = not applicable.

[a] For each year, the "Total forms mailed" is smaller than the sum of the "Total" sample size in appendix table A-3 plus the number of "Known positive R&D" companies added to the sample in appendix table A-5 because some companies selected for the sample went out of business or were merged with other companies between sample selection and survey mailout—that is, the sample was updated before actual mailout of the survey questionnaires.

NOTES: Companies were sent the detailed 2008 survey form (BRDI-1) if their R&D spending was at least $1.8 million in 2007, were sent the detailed 2010 and 2011 survey form if they spent at least $7.0 million in 2010, or were sent the detailed 2013 survey form if they spent at least $1.0 million in 2011 or 2012. All other companies and companies that did not respond in 2011 and 2012 received an abbreviated form (BRD-1(S)). For 2010, some companies received BRDI-1B, an abbreviated form that tested questions on innovation. In 2012, the BRD-1(S) form was used instead of BRDI-1A.

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

TABLE A-7. Survey forms mailed, by sampling stratum: 2013
(Number of forms)

Stratum	Total forms mailed initially			BRDI-1 forms mailed due to reported data from BRD-1(S) forms	Total BRDI-1 forms mailed
	Total	BRDI-1	BRD-1(S)		
Total	44,769	6,655	38,114	1,924	8,579
Known positive R&D	17,547	6,641	10,906	1,190	7,831
Certainties	11,974	5,903	6,071	781	6,684
Noncertainties	5,573	738	4,835	409	1,147
Known zero R&D	3,499	13	3,486	47	60
Certainties	2,127	13	2,114	43	56
Noncertainties	1,372	0	1,372	4	4
Unknown R&D	23,679	1	23,678	664	665
Certainties	6,046	1	6,045	470	471
Noncertainties	17,633	0	17,633	194	194
Cases not in the frame	44	0	44	23	23

NOTES: Companies were sent the detailed survey form (BRDI-1) if their R&D spending was at least $1.0 million in 2011 or 2012. All other companies and companies that did not respond in 2011 or 2012 received an abbreviated form (BRD-1(S)). Companies were said to be known to conduct R&D (known positive R&D) if they reported positive R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported zero R&D in at least 1 of the previous 5 survey years and no positive R&D in any of the 5 years. Companies were said to be unknown if no R&D information were available.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE A-8. Survey forms mailed for companies with subcompany reporting units, by sampling stratum: 2013
(Number of forms and number of companies)

Stratum	Sent one form		Sent multiple forms[a]		
	BRDI-1	BRD-1(S)	Number of companies	BRDI-1	BRDI-1S
Total	6,613	38,106	17	42	8
Known positive R&D	6,599	10,900	16	42	6
Certainties	5,862	6,070	13	41	1
Noncertainties	737	4,830	3	1	5
Known zero R&D	13	3,484	1	0	2
Certainties	13	2,112	1	0	2
Noncertainties	0	1,372	0	0	0
Unknown R&D	1	23,678	0	0	0
Certainties	1	6,045	0	0	0
Noncertainties	0	17,633	0	0	0
Cases not in the frame	0	44	0	0	0

[a] Under special arrangement with the U.S. Census Bureau, to facilitate reporting, portions of some companies are surveyed separately using multiple survey forms.

NOTES: Companies were sent the detailed survey form (BRDI-1) if their R&D spending was at least $1.0 million in 2011 or 2012. All other companies and companies that did not respond in 2011 or 2012 received an abbreviated form (BRD-1(S)). Companies were said to be known to conduct R&D (known positive R&D) if they reported positive R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported zero R&D in at least 1 of the previous 5 survey years and no positive R&D in any of the 5 years. Companies were said to be unknown if no R&D information were available.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE A-9. Response measures: 2008–13
(Percent of companies)

Measure	2008	2009	2010	2011	2012	2013
Check-in rate[a]	79.5	74.9	75.1	73.7	78.6	74.3
Unit response rate (unweighted)[b]	74.2	73.1	71.4	71.1	77.1	73.6
Coverage rate for known positive sampling strata (using weighted R&D)[c]	91.4	91.5	87.7	86.0	91.4	90.4
Coverage rate for unknown sampling strata (using weighted payroll)[c]	79.9	75.0	76.2	76.7	84.2	77.7
Coverage rate for known zero sampling strata (using unweighted counts)[c]	77.2	78.7	74.5	76.0	82.7	80.7

[a] The number of survey responses from in-scope companies divided by the total number of in-scope companies in the sample.

[b] The number of responding companies with worldwide R&D expenses or costs funded by others or the number of responding companies with worldwide or domestic sales or worldwide or domestic employees (if R&D was nonzero) divided by the total number of in-scope companies in the sample.

[c] Based on the same numerator and denominator as the response rate, but each company's measure of size at the time of sample selection is taken into account.

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

TABLE A-10. Unit response rates, by industry and survey form type: 2013

Industry	NAICS code	Active reporting units[a]	Reporting units that met the response criteria[b]	% of reporting units that met the response criteria
All companies				
All industries	21–23, 31–33, 42–81	41,588	30,609	73.6
Manufacturing industries	31–33	18,666	13,880	74.4
Food	311	987	728	73.8
Beverage and tobacco products	312	268	194	72.4
Textile, apparel, and leather products	313–16	689	479	69.5
Wood products	321	650	510	78.5
Paper	322	451	344	76.3
Printing and related support activities	323	786	598	76.1
Petroleum and coal products	324	169	127	75.1
Chemicals	325	2,054	1,560	75.9
Basic chemicals	3251	312	240	76.9
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	219	169	77.2
Pesticide, fertilizer, and other agricultural chemicals	3253	102	65	63.7
Pharmaceuticals and medicines	3254	625	516	82.6
Soap, cleaning compound, and toilet preparation	3256	272	191	70.2
Paint, coating, adhesive, and other chemicals	3255, 3259	524	379	72.3
Plastics and rubber products	326	1,091	826	75.7
Nonmetallic mineral products	327	597	445	74.5
Primary metals	331	512	383	74.8
Fabricated metal products	332	2,011	1,537	76.4
Machinery	333	1,954	1,458	74.6
Agricultural implement	33311	201	138	68.7
Semiconductor machinery	333295	68	46	67.6
Engine, turbine, and power transmission equipment	3336	134	96	71.6
Other machinery	other 333	1,551	1,178	76.0
Computer and electronic products	334	2,024	1,474	72.8
Communications equipment	3342	295	209	70.8
Semiconductor and other electronic components	3344	572	423	74.0
Navigational, measuring, electromedical, and control instruments	3345	869	635	73.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	173	122	70.5
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	113	80	70.8
Other measuring and controlling devices	other 3345	583	433	74.3
Other computer and electronic products	other 334	288	207	71.9
Electrical equipment, appliances, and components	335	784	553	70.5
Transportation equipment	336	1,136	867	76.3
Motor vehicles, bodies, trailers, and parts	3361–63	592	470	79.4
Aerospace products and parts	3364	259	198	76.4
Aircraft, aircraft engine, and aircraft parts	336411–13	228	176	77.2
Guided missile, space vehicle, and related parts	336414–15, 336419	31	22	71.0

TABLE A-10. Unit response rates, by industry and survey form type: 2013

Industry	NAICS code	Active reporting units[a]	Reporting units that met the response criteria[b]	% of reporting units that met the response criteria
Military armored vehicle, tank, and tank components	336992	22	14	63.6
Other transportation equipment	other 336	263	185	70.3
Furniture and related products	337	737	556	75.4
Miscellaneous manufacturing	339	1,766	1,241	70.3
Medical equipment and supplies	3391	746	540	72.4
Other miscellaneous manufacturing	3399	1,020	701	68.7
Nonmanufacturing industries	21–23, 42–81	22,922	16,729	73.0
Mining, extraction, and support activities	21	709	539	76.0
Utilities	22	205	166	81.0
Wholesale trade	42	2,672	1,850	69.2
Electronic shopping and electronic auctions	454111–12	365	253	69.3
Transportation and warehousing	48–49	630	458	72.7
Information	51	2,667	1,968	73.8
Publishing	511	1,090	815	74.8
Newspaper, periodical, book, and directory publishers	5111	451	371	82.3
Software publishers	5112	639	444	69.5
Telecommunications	517	407	299	73.5
Data processing, hosting, and related services	518	714	527	73.8
Other information	other 51	456	327	71.7
Finance and insurance	52	1,036	823	79.4
Real estate and rental and leasing	53	543	412	75.9
Lessors of nonfinancial intangible assets (except copyrighted works)	533	82	64	78.0
Other real estate and rental and leasing	other 53	461	348	75.5
Professional, scientific, and technical services	54	7,674	5,570	72.6
Architectural, engineering, and related services	5413	1,438	1,183	82.3
Computer systems design and related services	5415	2,044	1,407	68.8
Scientific research and development services	5417	2,273	1,476	64.9
Biotechnology research and development	541711	667	427	64.0
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,397	894	64.0
Social sciences and humanities research and development	541720	209	155	74.2
Other professional, scientific, and technical services	other 54	1,919	1,504	78.4
Health care services	621–23	1,519	1,172	77.2
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	4,902	3,518	71.8
Form BRDI-1 companies				
All industries	21–23, 31–33, 42–81	6,555	5,004	76.3
Manufacturing industries	31–33	3,908	3,133	80.2
Food	311	176	138	78.4
Beverage and tobacco products	312	26	18	69.2

TABLE A-10. Unit response rates, by industry and survey form type: 2013

Industry	NAICS code	Active reporting units[a]	Reporting units that met the response criteria[b]	% of reporting units that met the response criteria
Textile, apparel, and leather products	313–16	71	61	85.9
Wood products	321	23	19	82.6
Paper	322	49	41	83.7
Printing and related support activities	323	27	24	88.9
Petroleum and coal products	324	23	20	87.0
Chemicals	325	756	632	83.6
Basic chemicals	3251	123	104	84.6
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	58	50	86.2
Pesticide, fertilizer, and other agricultural chemicals	3253	29	23	79.3
Pharmaceuticals and medicines	3254	408	346	84.8
Soap, cleaning compound, and toilet preparation	3256	53	42	79.2
Paint, coating, adhesive, and other chemicals	3255, 3259	85	67	78.8
Plastics and rubber products	326	243	184	75.7
Nonmetallic mineral products	327	59	49	83.1
Primary metals	331	70	52	74.3
Fabricated metal products	332	238	189	79.4
Machinery	333	497	395	79.5
Agricultural implement	33311	43	33	76.7
Semiconductor machinery	333295	31	24	77.4
Engine, turbine, and power transmission equipment	3336	38	29	76.3
Other machinery	other 333	385	309	80.3
Computer and electronic products	334	691	560	81.0
Communications equipment	3342	102	81	79.4
Semiconductor and other electronic components	3344	200	160	80.0
Navigational, measuring, electromedical, and control instruments	3345	284	237	83.5
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	60	49	81.7
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	42	34	81.0
Other measuring and controlling devices	other 3345	182	154	84.6
Other computer and electronic products	other 334	105	82	78.1
Electrical equipment, appliances, and components	335	217	164	75.6
Transportation equipment	336	301	247	82.1
Motor vehicles, bodies, trailers, and parts	3361–63	173	146	84.4
Aerospace products and parts	3364	80	69	86.3
Aircraft, aircraft engine, and aircraft parts	336411–13	68	58	85.3
Guided missile, space vehicle, and related parts	336414–15, 336419	12	11	91.7
Military armored vehicle, tank, and tank components	336992	7	3	42.9
Other transportation equipment	other 336	41	29	70.7
Furniture and related products	337	39	30	76.9
Miscellaneous manufacturing	339	402	310	77.1
Medical equipment and supplies	3391	264	196	74.2

TABLE A-10. Unit response rates, by industry and survey form type: 2013

Industry	NAICS code	Active reporting units[a]	Reporting units that met the response criteria[b]	% of reporting units that met the response criteria
Other miscellaneous manufacturing	3399	138	114	82.6
Nonmanufacturing industries	21–23, 42–81	2,647	1,871	70.7
Mining, extraction, and support activities	21	46	40	87.0
Utilities	22	43	37	86.0
Wholesale trade	42	123	40	32.5
Electronic shopping and electronic auctions	454111–12	24	14	58.3
Transportation and warehousing	48–49	18	16	88.9
Information	51	620	455	73.4
Publishing	511	276	193	69.9
Newspaper, periodical, book, and directory publishers	5111	12	5	41.7
Software publishers	5112	264	188	71.2
Telecommunications	517	51	38	74.5
Data processing, hosting, and related services	518	216	169	78.2
Other information	other 51	77	55	71.4
Finance and insurance	52	70	53	75.7
Real estate and rental and leasing	53	11	10	90.9
Lessors of nonfinancial intangible assets (except copyrighted works)	533	3	3	100.0
Other real estate and rental and leasing	other 53	8	7	87.5
Professional, scientific, and technical services	54	1,503	1,081	71.9
Architectural, engineering, and related services	5413	175	139	79.4
Computer systems design and related services	5415	414	293	70.8
Scientific research and development services	5417	755	526	69.7
Biotechnology research and development	541711	282	177	62.8
Physical, engineering, and life sciences (except biotechnology) research and development	541712	450	330	73.3
Social sciences and humanities research and development	541720	23	19	82.6
Other professional, scientific, and technical services	other 54	159	123	77.4
Health care services	621–23	34	25	73.5
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	155	100	64.5
Form BRD-1(S) companies				
All industries	21–23, 31–33, 42–81	35,033	25,605	73.1
Manufacturing industries	31–33	14,758	10,747	72.8
Food	311	811	590	72.7
Beverage and tobacco products	312	242	176	72.7
Textile, apparel, and leather products	313–16	618	418	67.6
Wood products	321	627	491	78.3
Paper	322	402	303	75.4
Printing and related support activities	323	759	574	75.6
Petroleum and coal products	324	146	107	73.3

TABLE A-10. Unit response rates, by industry and survey form type: 2013

Industry	NAICS code	Active reporting units[a]	Reporting units that met the response criteria[b]	% of reporting units that met the response criteria
Chemicals	325	1,298	928	71.5
Basic chemicals	3251	189	136	72.0
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	161	119	73.9
Pesticide, fertilizer, and other agricultural chemicals	3253	73	42	57.5
Pharmaceuticals and medicines	3254	217	170	78.3
Soap, cleaning compound, and toilet preparation	3256	219	149	68.0
Paint, coating, adhesive, and other chemicals	3255, 3259	439	312	71.1
Plastics and rubber products	326	848	642	75.7
Nonmetallic mineral products	327	538	396	73.6
Primary metals	331	442	331	74.9
Fabricated metal products	332	1,773	1,348	76.0
Machinery	333	1,457	1,063	73.0
Agricultural implement	33311	158	105	66.5
Semiconductor machinery	333295	37	22	59.5
Engine, turbine, and power transmission equipment	3336	96	67	69.8
Other machinery	other 333	1,166	869	74.5
Computer and electronic products	334	1,333	914	68.6
Communications equipment	3342	193	128	66.3
Semiconductor and other electronic components	3344	372	263	70.7
Navigational, measuring, electromedical, and control instruments	3345	585	398	68.0
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	113	73	64.6
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	71	46	64.8
Other measuring and controlling devices	other 3345	401	279	69.6
Other computer and electronic products	other 334	183	125	68.3
Electrical equipment, appliances, and components	335	567	389	68.6
Transportation equipment	336	835	620	74.3
Motor vehicles, bodies, trailers, and parts	3361–63	419	324	77.3
Aerospace products and parts	3364	179	129	72.1
Aircraft, aircraft engine, and aircraft parts	336411–13	160	118	73.8
Guided missile, space vehicle, and related parts	336414–15, 336419	19	11	57.9
Military armored vehicle, tank, and tank components	336992	15	11	73.3
Other transportation equipment	other 336	222	156	70.3
Furniture and related products	337	698	526	75.4
Miscellaneous manufacturing	339	1,364	931	68.3
Medical equipment and supplies	3391	482	344	71.4
Other miscellaneous manufacturing	3399	882	587	66.6
Nonmanufacturing industries	21–23, 42–81	20,275	14,858	73.3
Mining, extraction, and support activities	21	663	499	75.3
Utilities	22	162	129	79.6
Wholesale trade	42	2,549	1,810	71.0

TABLE A-10. Unit response rates, by industry and survey form type: 2013

Industry	NAICS code	Active reporting units[a]	Reporting units that met the response criteria[b]	% of reporting units that met the response criteria
Electronic shopping and electronic auctions	454111–12	341	239	70.1
Transportation and warehousing	48–49	612	442	72.2
Information	51	2,047	1,513	73.9
Publishing	511	814	622	76.4
Newspaper, periodical, book, and directory publishers	5111	439	366	83.4
Software publishers	5112	375	256	68.3
Telecommunications	517	356	261	73.3
Data processing, hosting, and related services	518	498	358	71.9
Other information	other 51	379	272	71.8
Finance and insurance	52	966	770	79.7
Real estate and rental and leasing	53	532	402	75.6
Lessors of nonfinancial intangible assets (except copyrighted works)	533	79	61	77.2
Other real estate and rental and leasing	other 53	453	341	75.3
Professional, scientific, and technical services	54	6,171	4,489	72.7
Architectural, engineering, and related services	5413	1,263	1,044	82.7
Computer systems design and related services	5415	1,630	1,114	68.3
Scientific research and development services	5417	1,518	950	62.6
Biotechnology research and development	541711	385	250	64.9
Physical, engineering, and life sciences (except biotechnology) research and development	541712	947	564	59.6
Social sciences and humanities research and development	541720	186	136	73.1
Other professional, scientific, and technical services	other 54	1,760	1,381	78.5
Health care services	621–23	1,485	1,147	77.2
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	4,747	3,418	72.0

NAICS = 2007 North American Industry Classification System.

[a] Active reporting units are defined as reporting units of active companies that are in scope of the survey (for-profit companies with locations in the United States, five or more employees, business activities in the survey year, and primary business activities in the NAICS codes listed above) after all of the data have been processed. Because of special handling requests made by company respondents, some sampled companies were mailed more than one form. For the calculation of the unit response rates, these reporting units remained disaggregated.

[b] Reporting units were considered to have fulfilled the response criteria if they reported that they performed or funded R&D. If not, a reporting unit fulfilled the response criteria if they reported a value for worldwide sales or domestic sales, or if they reported a positive value for paid worldwide employees or paid domestic employees. Form type breakout is based on the status at the time of the initial mailout.

NOTES: Companies were sent the detailed survey form (BRDI-1) if their R&D spending was at least $1.0 million in 2011 or 2012. All other companies and companies that did not respond in 2011 or 2012 received an abbreviated form (BRD-1(S)).

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

TABLE A-11. Companies that required an analyst action, by sampling stratum: 2013
(Number of companies)

Stratum	Total	Companies deleted[a]	Companies requiring action due to merger or acquisition[b]	Companies requiring action due to analyst review[c]
Total	3,641	3,283	88	270
Known positive R&D	642	538	28	76
Certainties	350	292	14	44
Noncertainties	292	246	14	32
Known zero R&D	199	157	6	36
Certainties	136	97	5	34
Noncertainties	63	60	1	2
Unknown R&D	2,790	2,578	54	158
Certainties	782	625	20	137
Noncertainties	2,008	1,953	34	21
Cases not in the frame	10	10	0	0

[a] Companies are deleted when they are found to be out of business or out of scope for the survey during the reporting period.

[b] Information regarding mergers and acquisitions comes from several sources. The information is collected on the form, and there is a presurvey letter that requests the information from top R&D performing companies. Information may also come from the company profiles that are maintained by survey staff.

[c] These companies are added based on a review of historic R&D and reported to the Business R&D Innovation Survey and public information available on the companies' R&D expenses.

NOTES: Companies were said to be known to conduct R&D (known positive R&D) if they reported positive R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported zero R&D in at least 1 of the previous 5 survey years and no positive R&D in any of the 5 years. Companies were said to be unknown if no R&D information were available.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

Appendix B. Survey Instruments

- BRDI-1
- BRD-1(S)

11013018

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

FORM
BRDI-1 (12-17-2013)

2013 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 01/31/2015

DUE DATE:

Report electronically:
econhelp.census.gov/brdis
User ID:

Password:

Reporting electronically allows you to save your work as you go through the form and could save you time.

Report by mail:
If you report online, please do ***not*** mail in the paper form.

U.S. CENSUS BUREAU
1201 East 10th Street
Jeffersonville, IN
47132-0001

For information or assistance:
- econhelp.census.gov/brdis
- Call 1-800-772-7851, option "5" (8 a.m.–5 p.m. EST, M-F)
- Write to the address above. Include your 11-digit ID printed on the mailing label.

INFORMATION COPY ONLY

(Please correct any errors in this mailing address)

Your Response is Required by Law

Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the U.S. Census Bureau.

Respondents are not required to respond to any information collection unless it displays a valid approval number from the Office of Management and Budget (OMB). The OMB number appears at the top of this page.

Your Response is Confidential by Law

Title 13, United States Code, requires that your response be seen only by persons sworn to uphold the confidentiality of Census Bureau information and may be used only for statistical purposes. The law also provides that copies retained in your company's files are immune from legal process.

About the Business R&D and Innovation Survey

The Business R&D and Innovation Survey is a national survey that collects critical information about research and development (R&D) and innovation at businesses operating in the U.S. Policy makers and data users in industry and academia make use of this information for short- and long-term planning.

Better information about R&D and innovation in the U.S. business sector will help leaders make better decisions to strengthen American competitiveness.

Thank You – Your Response is Important

Accurate and timely statistical information could not be produced without your continued cooperation and goodwill. Thank you.

~ This survey is jointly conducted by the U.S. Census Bureau and the National Science Foundation ~

Table of Contents

Survey Overview and Table of Contents

The survey is divided into six sections. Each section asks questions about different aspects of R&D or innovation at your company. Due to the specialized nature of each section, it may be necessary to collaborate with colleagues in different departments to answer the questions. The sections are color coded and cover the following topical areas:

Section 1: Company Information p.4

Topics: company ownership, business(es), revenues, and innovation
Requires: knowledge of the company's sales and revenues

Section 2: Financial Schedule A p.10

Topics: R&D expenses and capital expenditures for R&D
Requires: knowledge of your company's accounting concepts and access to financial records

Section 3: Financial Schedule B p.21

Topics: costs for work that was funded, paid for, or reimbursed by others
Requires: knowledge of your company's financial records related to R&D activities

Section 4: Management and Strategy of R&D p.35

Topics: characteristics of R&D reported in Sections 2 and 3
Requires: familiarity with the technical and strategic aspects of your company's R&D

Section 5: Human Resources p.40

Topics: your company's employees, focusing on those who work on R&D activities
Requires: familiarity with human resources (HR) concepts and access to HR records

Section 6: Intellectual Property and Technology Transfer p.44

Topics: intellectual property and technology transfer
Requires: knowledge of your company's general business strategy, patenting, and licensing

Changes from the 2012 survey

On the basis of extensive conversations with many of the 2012 survey respondents, the 2013 survey has been improved. Sections and questions have been modified to make the concepts presented easier to understand. For a list of specific changes, go to **econhelp.census.gov/brdis**.

Filing electronically

You may submit your survey online via a secure website. Online submission allows you to save the data on secure Census Bureau servers as you go, so you can save, exit, and resume later without losing any of your data. It also allows you to save a paper or electronic copy of your completed survey. To submit online, follow the instructions at **econhelp.census.gov/brdis**.

Electronic materials

Electronic versions of the questionnaire and related documents are available to print or share with others in your company via e-mail. They can be found at **econhelp.census.gov/brdis**.

You can:

- Print and download copies of the questionnaire in PDF format
- Download Excel worksheets for each section
- Get question-by-question instructions, definitions, and examples that provide clarification
- Get answers to frequently asked questions, including how the data will be used

What is Research and Development (R&D)?

R&D is planned, creative work aimed at discovering new knowledge or developing new or significantly improved goods and services. This includes a) activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses (basic research); b) activities aimed at solving a specific problem or meeting a specific commercial objective (applied research); and c) systematic use of research and practical experience to produce new or significantly improved goods, services, or processes (development).

The term R&D does NOT include expenditures for:

- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Market research
- Efficiency surveys or management studies
- Literary, artistic, or historical projects, such as films, music, or books and other publications
- Prospecting or exploration for natural resources

Does R&D include development of software and Internet applications?

Research and development activity in software and Internet applications refers only to activities with an element of uncertainty and that are intended to close knowledge gaps and meet scientific and technological needs. Report in this survey all software R&D as defined here regardless of the eventual user (internal or external).

R&D activity in software includes:

- Software development or improvement activities that expand scientific or technological knowledge
- Construction of new theories and algorithms in the field of computer science

R&D activity in software EXCLUDES:

- Software development that does not depend on a scientific or technological advance, such as
  - supporting or adapting existing systems
  - adding functionality to existing application programs, and
  - routine debugging of existing systems and software
- Creation of new software based on known methods and applications
- Conversion or translation of existing software and software languages
- Adaptation of a product to a specific client, unless knowledge that significantly improved the base program was added in that process

Reporting unit

The reporting unit is your company, including all subsidiaries and divisions regardless of location. Include only subsidiary companies where there is more than 50 percent ownership. If you are owned by a foreign parent, the reporting unit for the survey is your U.S.-located company, including all your majority-owned subsidiaries and divisions regardless of location. For reporting purposes, your foreign parent and any foreign affiliates your company does not own should be treated the same as any business partner, customer, or supplier you do not own.

Reporting period

Report data for the calendar year 2013, if possible, or for your company's fiscal year ending between April 2013 and March 2014.

Estimates are acceptable

Please report all items to the best of your ability.

To speak with a survey specialist, call 1-800-772-7851, option '1' for English, then option '5'.

Survey specialists are available 8 a.m. to 5 p.m. EST, M-F to help with any questions you may have.

SECTION 1
Company Information

1-1 **Did another company other than a holding company own more than 50 percent of voting interest in your company during 2013?**

☐ Yes ➔ **Please provide the following information:**

Name of parent company

Date parent company purchased your company (MM) (DD) (YYYY)

☐ No ➔ **Skip to Question 1-3**

1-2 **If you answered "Yes" to Question 1-1, is your company's owner a foreign company?**

☐ Yes (foreign owner) ➔ **Please follow these instructions:**

REPORTING INSTRUCTIONS FOR FOREIGN-OWNED COMPANIES:
If you are owned by a foreign parent, the reporting unit for the survey is your U.S.-located company, including all your majority-owned subsidiaries and divisions regardless of location. For reporting purposes, your foreign parent and any foreign affiliates your company does not own should be treated the same as any business partner, customer, or supplier you do not own.

If you pay your foreign parent for R&D services, those costs should be included in your responses in Section 2 as "costs for purchased R&D services."

If your foreign parent pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in Section 3 as "costs funded, paid for, or reimbursed by others."

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you estimate any adjustments that would be required to conform to U.S. GAAP.

☐ No (U.S. owner) ➔ **Please provide the following information:**

EIN of owner (9 digits)

REPORTING INSTRUCTIONS FOR U.S.-OWNED COMPANIES:
If your company was purchased between April 1, 2013 and December 31, 2013, report only for the period January 1, 2013 to the date of purchase. If your company was purchased before April 1, 2013, complete Question 1-6 and return this form to the Census Bureau – you are not required to complete the rest of this survey unless your owner instructs you to complete this survey.

1-3 **Did your company own more than 50 percent of any company operations or subsidiaries outside the 50 United States and D.C. during 2013?**

☐ Yes ➔ **Include data for these operations/subsidiaries in your survey responses**

☐ No

1-4 **Has your company ceased operations?**

☐ Yes ➔ **Please provide the following information:**

Date your company ceased operations (MM) (DD) (YYYY)

REPORTING INSTRUCTIONS:
If your company ceased operations between April 1, 2013 and December 31, 2013, report only for the period January 1, 2013 to the date your company ceased operations. If your company ceased operations before April 1, 2013, complete Question 1-6 and return this form to the Census Bureau – you are not required to complete the rest of this survey.

☐ No

1-5 **Did your company have discontinued operations in 2013?**

☐ Yes ➔ **Include data for these operations in your survey responses**

☐ No

1-6 **Who is the survey coordinator?**

The survey coordinator is the person at your company responsible for gathering all requested information, ensuring instructions are followed, and submitting the completed survey. The survey coordinator may not be able to personally complete the entire survey and may need to request information from other knowledgeable resources concerning your company's R&D, accounting, human resources, and legal matters.

Name

Title

Telephone
Area code Number Extension

Fax
Area code Number

E-mail address

Business Codes

1-7 **Do the business code(s) listed below reflect all applicable codes from the list on pages 46-47 in which your company operated worldwide during 2013?**

NOTE: These codes will be used to describe both business activities and R&D activities and may differ from industry codes used by other government surveys and reports.

If no business codes are printed below, please write in the codes from pages 46-47 that apply to your company.

☐ Yes ➔ **Continue with Question 1-8**

☐ No ➔ **Draw a line through codes that are incorrect. As needed, enter additional codes and descriptions from pages 46-47 in the spaces provided.**

Business code (see pages 46-47)	Description

1-8 **What was the amount of your company's worldwide sales and revenues during 2013?**

Include:
- Sales and operating revenues from discontinued operations

$Bil.	Mil.	Thou.

1-9 **How much of the amount reported in Question 1-8 was attributable to or originated from domestic operations?**

Include:
- Sales and operating revenues to foreign customers, including foreign subsidiaries

Example: U.S. Manufacturing Corporation sells parts to customers around the world. However, because all its operations are located inside the United States it reports 100% of its sales in this question.

$Bil.	Mil.	Thou.

1-10 **How much of the 2013 sales and operating revenue amounts was for each business code listed or amended in Question 1-7:**
(1) Worldwide sales and operating revenues reported in Question 1-8
(2) Domestic sales and operating revenues reported in Question 1-9

	Business code (see page 6)	(1) Worldwide sales and operating revenues $Bil.	Mil.	Thou.	(2) Domestic sales and operating revenues $Bil.	Mil.	Thou.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.	Less eliminations – the sales and revenues that are eliminated in order to consolidate the business codes. . . .	(		)	(		)
j.	**Total**.						
		Total equals Question 1-8			*Total equals Question 1-9*		

Product (good or service) innovation

A product innovation is the market introduction of a **new** or **significantly** improved good or service with respect to its capabilities, user friendliness, components, or sub-systems.

- Product innovations (new or improved) must be new to your company, but they do not need to be new to your market.
- Product innovations could have been originally developed by your company or by other companies.

1-11 During the three years 2011 to 2013, did your company introduce:

a. New or significantly improved goods (Exclude the simple resale of new goods purchased from other companies and changes of a solely aesthetic nature)? . . . . . ☐ Yes ☐ No

b. New or significantly improved services? . . . . . ☐ Yes ☐ No

1-12 If you answered "yes" to either 1-11, line a, or 1-11, line b, were any of your product innovations during the three years 2011 to 2013:

a. New to your market?. . . . . ☐ Yes ☐ No

Your company introduced a new or significantly improved good or service to your market before your competitors. (It may have been available in other markets.)

b. New only to your company?. . . . . ☐ Yes ☐ No

Your company introduced a new or significantly improved good or service that was already available from your competitors in your market.

1-13 Using the definitions above, please give the percentage of your total sales in 2013 from:

a. New or significantly improved goods and services introduced during 2011 to 2013 that were **new to your market** . . . . . ___ %

b. New or significantly improved goods and services introduced during 2011 to 2013 that were **new only to your company**. . . . . ___ %

c. Goods and services that were **unchanged or only marginally modified** during 2011 to 2013 (include the resale of new goods or services purchased from other companies) . . . . . ___ %

d. **Total sales in 2013** . . . . . 1 0 0 %

Process innovation

A process innovation is the implementation of a **new** or **significantly** improved production process, distribution method, or support activity for your goods or services.

- Process innovations must be new to your company, but they do not need to be new to your market.
- The innovation could have been originally developed by your company or by other companies.
- Exclude purely organizational innovations.

1-14 During the three years 2011 to 2013, did your company introduce:

a. New or significantly improved methods of manufacturing or producing goods or services? . . . . . ☐ Yes ☐ No

b. New or significantly improved logistics, delivery or distribution methods for your inputs, goods, or services? . . . . . ☐ Yes ☐ No

c. New or significantly improved supporting activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing? . . . . . ☐ Yes ☐ No

SECTION 2

SECTION 2
Financial Schedule A

Who should answer this section?
Persons familiar with accounting concepts and with access to financial records related to your company's R&D activities should complete this section.

What does this section cover?
This section requests financial information about your company's R&D expenses and capital expenditures for R&D. This section requests information about your company's R&D at multiple levels of detail: for your worldwide consolidated enterprise, for units or parts of your company defined by geography (countries, states, specific location), and for parts of your company defined by business code.

2-1 What was the total worldwide R&D expense for your company in 2013?

If your company is publicly traded, this amount is equivalent to that disclosed on SEC Form 10-K as defined in FASB ASC Topic 730, Research and Development (FASB Statement No. 2, "Accounting for Research and Development Costs.")
If your company is foreign-owned, refer to the instructions on page 4. Additional guidance, such as for **privately owned companies,** is available online at econhelp.census.gov/brdis.

NOTE: Report your company's R&D expense even if the amount is not considered material for your company's financial statements.

$Bil. Mil. Thou.

2-2 Does the amount reported in Question 2-1 include any of the following costs?

a. Collaborative R&D that was reimbursed by business partners, such as through cost-sharing agreements . . . . . ☐ Yes ☐ No

b. R&D paid for by government or private foundation grants . . . . . ☐ Yes ☐ No

c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees) . . . . . ☐ Yes ☐ No

d. Bid and proposal costs . . . . . ☐ Yes ☐ No

e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (in-process R&D) . . . . . ☐ Yes ☐ No

2-3 If you answered "Yes" to any of the costs in Question 2-2, what was the amount of these costs that was included in your response to Question 2-1?

$Bil. Mil. Thou.

2-4 Subtract Question 2-3 from Question 2-1 and enter the result here. This is the <u>total R&D paid for by your company</u> in 2013.

$Bil. Mil. Thou.

2-5 Is the amount entered in Question 2-4 greater than zero?

☐ Yes → **Continue with Question 2-6**

☐ No → **Skip to Section 3 on page 21**

R&D paid for by your company

2-6 **Of the amount reported in Question 2-4, what were the costs for each business code listed or amended on page 6 of this form?**

Allocate R&D that is applicable to more than one business code on a reasonable basis. Allocation in proportion to operating revenues is acceptable unless some alternative allocation basis is more appropriate.

	Business code (see page 6)		$Bil.	Mil.	Thou.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.		**Total** (equals Question 2-4)			

2-7 **Of the amount reported in Question 2-4, what costs were incurred by your company in the following locations?**

		$Bil.	Mil.	Thou.
a.	Domestic United States (50 states and D.C.) [Include R&D performed by domestic operations that is paid for by foreign subsidiaries]			
b.	All other countries (also, Puerto Rico) [Include R&D performed by foreign subsidiaries that is paid for by domestic operations]			
c.	**Total** (equals Question 2-4)			

2-8 **Copy the amount from Question 2-7, line a. This is the total domestic R&D paid for by your company in 2013.**

$Bil.	Mil.	Thou.

2-9 **Copy the amount from Question 2-7, line b. This is the total foreign R&D paid for by your company in 2013.**

$Bil.	Mil.	Thou.

SECTION 2

SECTION 2

2-10 How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2013 was for each of the following types of costs?

	(1) Domestic			(2) Foreign			(3) Total worldwide		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
a. Salaries, wages, and fringe benefits									
b. Stock-based compensation									
c. Temporary staffing, including on-site consultants									
d. Expensed equipment									
e. Materials and supplies									
f. Leased facilities and equipment									
g. Depreciation and amortization on R&D property and equipment									
h. Payments to business partners for collaborative R&D									
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)									
j. All other purchased services except R&D									
k. All other costs									
l. **Total**									
	Total equals Question 2-8			*Total equals Question 2-9*			*Total equals Question 2-4*		

SECTION 2

2-11 **Add 2-10, lines h and i for each column, and enter the result here. This is R&D performed by others.**

(1) Domestic			(2) Foreign			(3) Total worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-12 **Subtract 2-11 from 2-10, line l, for each column and enter the result here. This is R&D performed by your company.**

(1) Domestic			(2) Foreign			(3) Total worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-13 **Copy the amount from Question 2-12, column 2. This is the foreign R&D paid for and performed by your company in 2013.**

$Bil.	Mil.	Thou.

2-14 **Of the amount reported in Question 2-13, how much R&D was performed in the following locations?** For full list of countries in each region see Question by Question Guidance at econhelp.census.gov/brdis.

	$Bil.	Mil.	Thou.
a. Canada			
b. Puerto Rico			
Europe	$Bil.	Mil.	Thou.
a. Austria			
b. Belgium			
c. Czech Rep.			
d. Denmark			
e. Finland			
f. France			
g. Germany			
h. Hungary			
i. Ireland			
j. Italy			
k. Luxembourg			
l. Netherlands			
m. Norway			
n. Poland			
o. Russia			
p. Spain			
q. Sweden			
r. Switzerland			
s. Turkey			
t. United Kingdom			

Question continues on next page

SECTION 2

2-14 (Continued)

	$Bil.	Mil.	Thou.
u. Other Europe			

Latin America/ Other Western Hemisphere

	$Bil.	Mil.	Thou.
a. Argentina . . .			
b. Brazil.			
c. Chile.			
d. Mexico			
e. Other Latin America/OWH			

Asia and Pacific

	$Bil.	Mil.	Thou.
a. Australia			
b. China			
c. Hong Kong . .			
d. India			
e. Indonesia . . .			
f. Japan			
g. Malaysia			
h. New Zealand. .			
i. Singapore			
j. South Korea . .			
k. Taiwan			
l. Thailand			
m. Other Asia/ Pacific			

Middle East

	$Bil.	Mil.	Thou.
a. Israel.			
b. Other Middle East. . .			

Africa

	$Bil.	Mil.	Thou.
a. South Africa . .			
b. Other Africa. . .			
Total (equals Question 2-13) . . .			

2-15 Copy the amount from Question 2-12, column 1. This is the <u>domestic R&D paid for and performed by your company</u> in 2013.

$Bil.	Mil.	Thou.

2-16 **How much of the amount reported in Question 2-15 was performed in each state (including D.C.) in 2013?**

	$Bil.	Mil.	Thou.		$Bil.	Mil.	Thou.
Alabama				Maine			
Alaska				Maryland			
Arizona				Massachusetts			
Arkansas				Michigan			
California				Minnesota			
Colorado				Mississippi			
Connecticut				Missouri			
Delaware				Montana			
District of Columbia				Nebraska			
Florida				Nevada			
Georgia				New Hampshire			
Hawaii				New Jersey			
Idaho				New Mexico			
Illinois				New York			
Indiana				North Carolina			
Iowa				North Dakota			
Kansas				Ohio			
Kentucky				Oklahoma			
Louisiana				Oregon			

Question continues on next page

SECTION 2

SECTION 2

2-16 **(Continued)**

	$Bil.	Mil.	Thou.		$Bil.	Mil.	Thou.
Pennsylvania . . .				Vermont			
Rhode Island . . .				Virginia			
South Carolina . .				Washington			
South Dakota . . .				West Virginia			
Tennessee				Wisconsin			
Texas				Wyoming			
Utah				**Total** (equals Question 2-15) . . .			

2-17 **At what domestic location did your company perform the largest dollar amount of R&D in 2013?**

Address 1

Address 2

City **State** **ZIP**

2-18 **How much of the amount reported in Question 2-15 was from the location identified in Question 2-17?**

$Bil.	Mil.	Thou.

2-19 **At what domestic location did your company perform the second largest dollar amount of R&D in 2013?**

Address 1

Address 2

City **State** **ZIP**

2-20 **How much of the amount reported in Question 2-15 was from the location identified in Question 2-19?**

$Bil. Mil. Thou.

2-21 **Of the domestic R&D performed by your company reported in Question 2-15, how much was for each business code reported in Question 2-6?**

	Business code (see page 6)		**(1) Domestic R&D performed by your company** $Bil. Mil. Thou.
a.		. . . . .	
b.		. . . . .	
c.		. . . . .	
d.		. . . . .	
e.		. . . . .	
f.		. . . . .	
g.		. . . . .	
h.		. . . . .	
i.	**Total**	. . . . .	

Total equals Question 2-15

SECTION 2

SECTION 2

R&D transactions between legal entities under common ownership

2-22 How much of the amount reported in Question 2-15 (domestic R&D performance) was paid for by your company's foreign subsidiaries through inter-company transactions?

Example: Company Y owns a subsidiary in France. In order to complete the development of a product in 2013, the French subsidiary paid for R&D performed at Company Y's U.S. R&D center. The cost of the U.S. R&D that was paid for by the French subsidiary would be included in this item.

$Bil.	Mil.	Thou.

2-23 How much of the amount reported in Question 2-13 (foreign R&D performance) was paid for by your company's domestic operations through inter-company transactions?

Example: Company Z owns a subsidiary in France. In order to complete the development of a product in 2013, the domestic operations paid for R&D performed at its subsidiary's R&D center in France. The cost of the French subsidiary's R&D that was paid for by the domestic operations would be included in this item.

$Bil.	Mil.	Thou.

R&D performed by others

2-24 Copy the amount from Question 2-11, column 1. This is the domestic R&D paid for by your company in 2013 that was performed by others.

$Bil.	Mil.	Thou.

2-25 How much of the amount reported in Question 2-24, was performed by the following types of organizations?

	$Bil.	Mil.	Thou.
a. Companies located inside the United States			
b. Your company's foreign parent (if you are owned by a foreign parent)			
c. Other companies located outside the United States			
d. U.S. federal government agencies or laboratories			
e. U.S. state and local government agencies or laboratories			
f. Foreign government agencies or laboratories			
g. All other organizations inside the United States			
h. All other organizations outside the United States			
i. **Total domestic R&D paid for by your company that was performed by others** (equals Question 2-24)			

Indirect R&D charges

2-26 **How much of the amount reported in Question 2-4 was for R&D costs your company plans to recoup through indirect charges on U.S. federal government contracts (IR&D or independent R&D)?**

$Bil. Mil. Thou.

Projected R&D for 2014

2-27 **What are your company's projected 2014 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?**

NOTE: These amounts are the 2014 projections for the amounts reported in Question 2-10, line I.

(1) Domestic			(2) Foreign			(3) Total worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-28 **How much of the amount reported in Question 2-27, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?**

Domestic

$Bil. Mil. Thou.

Capital expenditures

2-29 **What was the amount of your company's capital expenditures in the domestic United States in 2013?**

$Bil. Mil. Thou.

2-30 **How much of the amount reported in Question 2-29 was for R&D operations?**

$Bil. Mil. Thou.

2-31 **How much of the amount reported in Question 2-30 was for the following?**

$Bil. Mil. Thou.

a. Structures . . . . . .

b. Equipment . . . . . .

c. Capitalized software . . . . . .

d. All other capital expenditures for R&D operations . . . . . .

e. **Total domestic capital expenditures for R&D** (equals Question 2-30) . . . . . .

SECTION 2

SECTION 2

Reporting information

2-32 Is the information in this section reported for the 2013 calendar year?

☐ Yes

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) to (MM) (YYYY)

SECTION 3
Financial Schedule B

Who should answer this section?
Persons familiar with accounting concepts and with access to financial records related to your company's R&D activities should complete this section.

What does this section cover?
This section requests financial information about your company's costs for work that was funded, paid for, or reimbursed by others. This section requests information about these costs at multiple levels of detail: for your worldwide consolidated enterprise, for units or parts of your company defined by geography (countries, states), and for parts of your company defined by business code.

3-1 **What were your company's total worldwide costs (both direct and indirect) in 2013 for the following that were funded, paid for, or reimbursed by others not owned by your company?**

Exclude:
- Costs that were paid for by your company, such as those reported in Question 2-4
- Payments in excess of the actual cost of the work performed (such as profit or fees)

	$Bil.	Mil.	Thou.
a. R&D that was reimbursed by your company's foreign parent (if you are owned by a foreign parent)			
b. Collaborative R&D that was reimbursed by business partners, such as through cost-sharing agreements			
c. R&D paid for by government or private foundation grants			
d. Defense RDT&E goods or services (including DOD 6.1 through 6.7 funding), provided as a prime or as a sub, to the government and/or government contractors			
e. Medical nonclinical R&D services provided to others not owned by your company			
f. Medical clinical trial Phase I-III services provided to others not owned by your company (include pass-through costs)			
g. Nondefense custom software development and/or computer systems designed for others not owned by your company			
h. Prototype development, production, and testing for customer's products prior to their introduction to the market (excluding defense-related prototyping reported in line d)			
i. All other R&D services, not included above, provided to the Federal Government or to others not owned by your company			
j. **Total**			

Exclude:
- Software development that does not depend on a scientific or technological advance, such as adding functionality to existing application programs, debugging systems, and adapting existing software

SECTION 3

SECTION 3

3-2 **Copy the amount from Question 3-1, line j. This is the total R&D paid for by others in 2013.**

$Bil.	Mil.	Thou.

3-3 **Is the amount entered in Question 3-2 greater than zero?**

☐ Yes → **Continue with Question 3-4**

☐ No → **Skip to Section 4 on page 35**

R&D paid for by others

3-4 **Of the amount reported in Question 3-2, what costs were incurred by your company in the following locations?**

	$Bil.	Mil.	Thou.
a. Domestic United States (50 states and D.C.)			
b. All other countries (also, Puerto Rico)			
c. **Total** (equals Question 3-2).			

3-5 **Copy the amount from Question 3-4, line a. This is the total domestic R&D paid for by others in 2013.**

$Bil.	Mil.	Thou.

3-6 **Copy the amount from Question 3-4, line b. This is the total foreign R&D paid for by others in 2013.**

$Bil.	Mil.	Thou.

3-7 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2013 was for each of the following types of costs?**

	(1) Domestic			(2) Foreign			(3) Total worldwide		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
a. Salaries, wages, and fringe benefits									
b. Stock-based compensation									
c. Temporary staffing, including on-site consultants									
d. Expensed equipment									
e. Materials and supplies									
f. Leased facilities and equipment									
g. Depreciation and amortization on R&D property and equipment									
h. Payments to business partners for collaborative R&D									
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)									
j. All other purchased services except R&D									
k. All other costs									
l. **Total**									
	Total equals Question 3-5			*Total equals Question 3-6*			*Total equals Question 3-2*		

SECTION 3

SECTION 3

3-8 **Add 3-7, lines h and i for each column, and enter the result here. This is R&D performed by others (e.g., subcontracted/passed-through R&D costs).**

(1) Domestic			(2) Foreign			(3) Total worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

3-9 **Subtract 3-8 from 3-7, line l, for each column and enter the result here. This is R&D performed by your company that was paid for by others.**

(1) Domestic			(2) Foreign			(3) Total worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

3-10 **Copy the amount from Question 3-9, column 2. This is the foreign R&D performed by your company that was paid for by others.**

$Bil.	Mil.	Thou.

3-11 **Of the amount reported in Question 3-10, how much R&D was performed in the following locations?** For full list of countries in each region see Question by Question Guidance at econhelp.census.gov/brdis.

	$Bil.	Mil.	Thou.
a. Canada			
b. Puerto Rico			
Europe	$Bil.	Mil.	Thou.
a. Austria			
b. Belgium			
c. Czech Rep.			
d. Denmark			
e. Finland			
f. France			
g. Germany			
h. Hungary			
i. Ireland			
j. Italy			
k. Luxembourg			
l. Netherlands			
m. Norway			
n. Poland			
o. Russia			
p. Spain			
q. Sweden			
r. Switzerland			
s. Turkey			
t. United Kingdom			

Question continues on next page

3-11 **(Continued)**

	$Bil.	Mil.	Thou.
u. Other Europe			

Latin America/ Other Western Hemisphere

	$Bil.	Mil.	Thou.
a. Argentina . . .			
b. Brazil.			
c. Chile.			
d. Mexico			
e. Other Latin America/OWH			

Asia and Pacific

	$Bil.	Mil.	Thou.
a. Australia			
b. China			
c. Hong Kong . .			
d. India			
e. Indonesia . . .			
f. Japan			
g. Malaysia			
h. New Zealand. .			
i. Singapore			
j. South Korea . .			
k. Taiwan			
l. Thailand			
m. Other Asia/ Pacific			

Middle East

	$Bil.	Mil.	Thou.
a. Israel.			
b. Other Middle East. . .			

Africa

	$Bil.	Mil.	Thou.
a. South Africa . .			
b. Other Africa. . .			
Total (equals Question 3-10) . . .			

Domestic R&D performed by your company that was paid for by others

3-12 **Copy the amount from Question 3-9, column 1. This is the <u>domestic R&D performed by your company that was paid for by others</u>.**

$Bil.	Mil.	Thou.

SECTION 3

SECTION 3

3-13 **How much of the domestic R&D performed by your company that was paid for by others reported in Question 3-12 was for each business code listed or amended on page 6 of this form?**

Allocate R&D that is applicable to more than one business code on a reasonable basis. Allocation in proportion to operating revenues is acceptable unless some alternative allocation basis is more appropriate.

	Business code (see page 6)		$Bil.	Mil.	Thou.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.	**Total** (equals Question 3-12)				

3-14 **How much of the amount reported in Question 3-12 was paid for by each of the following?**

If your company is a subcontractor or subgrantee, report the original source of funds.

Example: Company Sub Inc. performs custom software development for a large defense company as a subcontractor on a contract with the U.S. Dept. of Defense. Even though Sub Inc. is working directly for the defense company, it reports the cost of this development in line d because the Dept. of Defense was the original source of funds.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States			
b. Your company's foreign parent (if you are owned by a foreign parent)			
c. Other companies located outside the United States			
d. U.S. federal government agencies or laboratories			

Question continues on next page

3-14 **(Continued)**

	$Bil.	Mil.	Thou.
e. U.S. state government agencies or laboratories			
f. Foreign government agencies or laboratories			
g. All other organizations inside the United States			
h. All other organizations outside the United States			
i. **Total** (equals Question 3-12)			

3-15 **Add Question 3-14, lines a, b, and c, and enter the result here. This is the R&D that was paid for by other companies.**

$Bil.	Mil.	Thou.

3-16 **Using the list of business codes printed below, allocate the amount reported in Question 3-15 based on the industries of the companies that paid for the R&D. As needed, enter additional codes from pages 46-47 in the spaces provided.**

	Business code	Description	$Bil.	Mil.	Thou.
a.	32541	Pharmaceutical, medicinal, and botanical products manufacturing			
b.	33910	Medical equipment and supplies manufacturing			
c.	33200	Fabricated metal products manufacturing			
d.	32600	Plastics and rubber products manufacturing			
e.	33500	Electrical equipment, appliances, and components manufacturing			
f.	51120	Software publishers (except Internet)			
g.					
h.					
i.					
j.					

Question continues on next page

SECTION 3

SECTION 3

3-16 **(Continued)**

	Business code	Description	$Bil.	Mil.	Thou.
k.					
l.					
m.					
n.					
o. **Total** (equals Question 3-15)					

3-17 **Copy the amount from Question 3-14, line d. This is domestic R&D performed by your company that was paid for by the U.S. federal government.**

$Bil.	Mil.	Thou.

3-18 **How much of the amount reported in Question 3-17 was paid for by the following agencies?**

	$Bil.	Mil.	Thou.
a. Department of Defense			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. Department of Homeland Security			
f. Department of Transportation			
g. Environmental Protection Agency			
h. National Science Foundation			
i. All other, please specify:			
j. **Total** (equals Question 3-17)			

3-19 **How much of the amount reported in Question 3-17 was performed under the following types of agreements?**

	$Bil.	Mil.	Thou.
a. Contracts (include direct or prime contracts and subcontracts)			
b. Grants, reimbursements, and all other agreements			
c. **Total** (equals Question 3-17)			

3-20 **Subtract Question 3-17 from Question 3-12 and enter the result here. This is the domestic R&D performed by your company that was paid for by nonfederal sources.**

$Bil.	Mil.	Thou.

3-21 **How much of the following three amounts was performed in each state (including D.C.):**
(1) Domestic R&D paid for by the U.S. federal government reported in Question 3-17
(2) Domestic R&D paid for by nonfederal sources reported in Question 3-20
(3) Total domestic R&D performed by your company that was paid for by others reported in Question 3-12

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Alabama									
Alaska									
Arizona									
Arkansas									
California									
Colorado									
Connecticut									

Question continues on next page

SECTION 3

SECTION 3

3-21 (Continued)

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Delaware									
District of Columbia									
Florida									
Georgia									
Hawaii									
Idaho									
Illinois									
Indiana									
Iowa									
Kansas									
Kentucky									
Louisiana									
Maine									

Question continues on next page

3-21 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Maryland									
Massachusetts									
Michigan									
Minnesota									
Mississippi									
Missouri									
Montana									
Nebraska									
Nevada									
New Hampshire									
New Jersey									
New Mexico									
New York									

Question continues on next page

SECTION 3

SECTION 3

3-21 (Continued)

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
North Carolina									
North Dakota									
Ohio									
Oklahoma									
Oregon									
Pennsylvania									
Rhode Island									
South Carolina									
South Dakota									
Tennessee									
Texas									
Utah									
Vermont									

Question continues on next page

3-21 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Virginia									
Washington									
West Virginia									
Wisconsin									
Wyoming									
Total									
	Total equals Question 3-17			*Total equals Question 3-20*			*Total equals Question 3-12*		

3-22 **At what domestic location did your company perform the largest dollar amount of R&D that was paid for by others in 2013?**

Address 1

Address 2

City **State** **ZIP**

3-23 **How much of the amount reported in Question 3-12 was from the location identified in Question 3-22?**

$Bil. Mil. Thou.

SECTION 3

SECTION 3

3-24 **At what domestic location did your company perform the second largest dollar amount of R&D that was paid for by others in 2013?**

Address 1

Address 2

City | State | ZIP

3-25 **How much of the amount reported in Question 3-12 was from the location identified in Question 3-24?**

$Bil. Mil. Thou.

Projected R&D paid for by others in 2014

3-26 **What are your company's projected 2014 costs for R&D that will be paid for by others?**

NOTE: This amount is the 2014 projection for what is reported in Question 3-2.

$Bil. Mil. Thou.

3-27 **How much of the projected costs in 2014 for R&D that will be paid for by others reported in Question 3-26 will be performed by your company in the United States?**

NOTE: This amount is the 2014 projection for what is reported in Question 3-12.

$Bil. Mil. Thou.

3-28 **How much of the projected costs in 2014 for domestic R&D performed by your company that will be paid for by others reported in Question 3-27 will be paid for by the U.S. federal government?**

NOTE: This amount is the 2014 projection for what is reported in Question 3-17.

$Bil. Mil. Thou.

SECTION 4
Management and Strategy of R&D

Who should answer this section?
Persons familiar with the technical, managerial, and strategic aspects of your company's R&D should complete this section.

What does this section cover?
This section requests information about the characteristics of the R&D reported in Sections 2 and 3. This section requests information about your company's worldwide consolidated R&D and the R&D your company performs in the domestic United States.

4-1 **Copy the amount from Question 2-4. This is the total R&D paid for by your company in 2013.**

$Bil.	Mil.	Thou.

4-2 **Is the amount entered in Question 4-1 greater than zero?**

☐ Yes ➔ **Continue with Question 4-3**

☐ No ➔ **Skip to Question 4-17 on page 37**

4-3 **What percentage of the amount reported in Question 4-1 was directed toward business areas or product lines that are new to your company?**

Example: Company A manufactures laptop computers. In 2013 Company A's management decided to attempt to enter the cellular phone market and used a portion of the company's R&D budget to develop cellular phones. Because this was a new line of business in 2013, Company A reports this R&D in this question.

%

Characteristics of domestic R&D paid for and performed by your company

4-4 **Copy the amount from Question 2-15. This is the domestic R&D paid for and performed by your company.**

$Bil.	Mil.	Thou.

4-5 **How much of the amount reported in Question 4-4 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-4)			

SECTION 4

4-6 **If you reported any research in Question 4-5, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective.			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-5, line a)			

Areas of application for domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-7 to 4-11.

4-7 **What percentage of the amount reported in Question 4-4 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?**

Example: Company B is a semiconductor manufacturer. Its products are not designed specifically for energy applications. In 2013, 10% of the domestic R&D performed by the company was focused on improving the energy efficiency of its products. Based on this, Company B reports "10%" for this question.

%

4-8 **What percentage of the amount reported in Question 4-4 had environmental protection applications, including pollution abatement?**

%

4-9 **What percentage of the amount reported in Question 4-4 had defense applications, including military applications and general security-related R&D?**

%

4-10 **What percentage of the amount reported in Question 4-4 had health or medical applications?**

%

4-11 **What percentage of the amount reported in Question 4-4 had agricultural applications?**

%

Technology focus of domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-12 to 4-16.

4-12 **What percentage of the amount reported in Question 4-4 was for software products or software embedded in other projects or products?**

%

4-13 **What percentage of the amount reported in Question 4-4 was for optics and photonics—science and technology involving the emission, processing, and detection of light, or of the information carried by light?**

%

SECTION 4

4-14 **What percentage of the amount reported in Question 4-4 was for other projects or products enabled by optics and photonics science and technology?** %

4-15 **What percentage of the amount reported in Question 4-4 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** %

4-16 **What percentage of the amount reported in Question 4-4 was for nanotechnology—the science and technology involving work at the nanometer scale?** %

Domestic R&D performed by your company that was paid for by others

4-17 **Copy the amount from Question 3-12. This is the domestic R&D performed by your company that was paid for by others.**

	$Bil.	Mil.	Thou.

4-18 **Is the amount entered in Question 4-17 greater than zero?**

☐ Yes → **Continue with Question 4-19**

☐ No → **Skip to Section 5 on page 40**

4-19 **How much of the amount reported in Question 4-17 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-17)			

4-20 **If you reported any research in Question 4-19, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-19, line a)			

SECTION 4

NOTE: You may report the same R&D in multiple areas for Questions 4-21 to 4-25.

4-21 What percentage of the amount reported in Question 4-17 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)? ___ %

4-22 What percentage of the amount reported in Question 4-17 had environmental protection applications, including pollution abatement? ___ %

4-23 What percentage of the amount reported in Question 4-17 had defense applications, including military applications and general security-related R&D? ___ %

4-24 What percentage of the amount reported in Question 4-17 had health or medical applications? ___ %

4-25 What percentage of the amount reported in Question 4-17 had agricultural applications? ___ %

Technology focus of domestic R&D performed by your company that was paid for by others

NOTE: You may report the same R&D in multiple areas for Questions 4-26 to 4-30.

4-26 What percentage of the amount reported in Question 4-17 was for software products or software embedded in other projects or products? ___ %

4-27 What percentage of the amount reported in Question 4-17 was for optics and photonics—science and technology involving the emission, processing, and detection of light, or of the information carried by light? ___ %

4-28 What percentage of the amount reported in Question 4-17 was for other projects or products enabled by optics and photonics science and technology? ___ %

4-29 What percentage of the amount reported in Question 4-17 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products? ___ %

4-30 What percentage of the amount reported in Question 4-17 was for nanotechnology—the science and technology involving work at the nanometer scale? ___ %

Domestic R&D performed by your company that was paid for by the U.S. federal government

4-31 **Copy the amount from Question 3-17. This is domestic R&D performed by your company that was paid for by the U.S. federal government.**

$Bil.	Mil.	Thou.

4-32 **Is the amount entered in Question 4-31 greater than zero?**

☐ Yes → **Continue with Question 4-33**

☐ No → **Skip to Section 5 on page 40**

4-33 **How much of the amount reported in Question 4-31 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding.			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes.			
c. **Total** (equals Question 4-31).			

4-34 **If you reported any research in Question 4-33, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective.			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-33, line a).			

4-35 **What percentage of the amount reported in Question 4-31 was for software products or software embedded in other projects or products?** %

SECTION 4

SECTION 5
Human Resources

Who should answer this section?
Persons familiar with human resources concepts and with access to records related to your company's employees should complete this section.

What does this section cover?
This section requests information about your company's employees, focusing on those who worked on R&D activities either full-time or part-time. Include employment data for operations or subsidiaries for which your company owned more than 50 percent.

5-1 **What was the total number of worldwide employees working at your company for the pay period that included March 12, 2013?**

Include:
- Full- and part-time employees

Exclude:
- Leased or temporary employees and on-site consultants

Number

5-2 **How many of the employees reported in Question 5-1 were employees of your company's domestic operations and foreign operations?**

Domestic operations employees include all employees whose payroll was reported on the first quarter filing of IRS Form 941, Employer's Quarterly Tax Return.

	(1) Domestic operations	(2) Foreign operations	(3) Total employees
Employees			

Total equals Question 5-1

5-3 **How many employees reported in Question 5-2 were R&D employees and how many were all other employees?**

R&D employees include all employees who work on R&D or who provide direct support to R&D, such as researchers, R&D managers, technicians, clerical staff, and others assigned to R&D groups. **Exclude** employees who provide only indirect support to R&D, such as corporate personnel, security guards, and cafeteria workers.

	(1) Domestic operations	(2) Foreign operations	(3) Total employees
a. R&D employees			
b. All other employees . . .			
c. **Total employees**.			

Total line equals Question 5-2

SECTION 5

R&D employees

5-4 **Copy the numbers from Question 5-3, line a. These are your company's R&D employees.**

	(1) Domestic operations	(2) Foreign operations	(3) Total R&D employees
R&D employees			

5-5 **How many of the R&D employees reported in Question 5-4 were female employees and male employees?**

	(1) Domestic operations	(2) Foreign operations	(3) Total R&D employees
a. Female R&D employees			
b. Male R&D employees . .			
c. **Total R&D employees**			

Total line equals Question 5-4

5-6 **How many of the R&D employees reported in Question 5-4 worked in the occupations listed below?**

	(1) Domestic operations	(2) Foreign operations	(3) Total R&D employees
a. R&D scientists, engineers, and managers			
b. R&D technicians and technologists.			
c. R&D support staff (clerical and other)			
d. **Total R&D employees**			

Total line equals Question 5-4

5-7 **How many of the R&D scientists, engineers, and managers reported in Question 5-6, line a, had the following level of education?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total
PhD (excluding MD, JD, and EdD)			

SECTION 5

Domestic full-time equivalents (FTEs)

5-8 **Of the domestic R&D employees reported in Question 5-4, column 1, what was the number of full-time equivalents (FTEs) for R&D activity for full-time R&D employees, other full-time employees not working solely on R&D, and part-time employees?**

Number

a. FTEs for full-time R&D employees

Count the number of full-time employees who work only on R&D. . . . .

Example:
50 full-time R&D employees worked only on R&D = 50 FTEs

b. FTEs for other full-time employees not working solely on R&D

Use the share of the time they work on R&D to calculate the number of FTEs. . . . . .

Example:
60 full-time employees averaged one-fourth of their time on R&D = 15 FTEs

c. FTEs for part-time employees working on R&D

Use the share of a full-time week (such as 40 hours) that they work on R&D to calculate the FTEs. . . . . .

Example:
20 part-time employees averaged 20 hours a week on R&D activities = 10 FTEs

d. **Total FTEs** . . . . . .

Total FTEs should not exceed Question 5-4, column 1.

SECTION 5

5-9 **Of the domestic R&D scientists, engineers, and managers reported in Question 5-6, row a, column 1, what was the number of full-time equivalents (FTEs) for R&D activity for full-time R&D employees, other full-time employees not working solely on R&D, and part-time employees?**

Number

a. FTEs for full-time R&D scientists, engineers, and managers

Count the number of full-time employees who work only on R&D. . . . .

Example:
50 full-time R&D scientists worked only on R&D = 50 FTEs

b. FTEs for other full-time scientists, engineers, and managers not working soley on R&D

Use the share of the time they work on R&D to calculate the number of FTEs. . . . . .

Example:
60 full-time managers averaged one-fourth of their time on R&D = 15 FTEs

c. FTEs for part-time scientists, engineers, and managers working on R&D

Use the share of a full-time week (such as 40 hours) that they work on R&D to calculate the FTEs. . . . . .

Example:
20 part-time employees averaged 20 hours a week on R&D activities = 10 FTEs

d. **Total FTEs** . . . . . .

Total FTEs should not exceed Question 5-6, line a, column 1.

5-10 **How many of the R&D scientists, engineers, and managers reported in Question 5-6, line a, column 1, were non-U.S. citizens employed in the United States under a temporary visa, such as H-1B or L-1?**

(1) Domestic Operations

R&D scientists, engineers, and managers employed under a temporary visa. . . . . .

SECTION 5

SECTION 6
Intellectual Property and Technology Transfer

Who should answer this section?
Persons with an understanding of your company's general business strategy and knowledge of its patenting, licensing, and other activities related to intellectual property should complete this section.

What does this section cover?
This section requests information about intellectual property and technology transfer activities such as:
- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property

Are responses to this survey confidential?
Yes. Your responses are completely confidential under Title 13, United States Code, and are seen only by persons sworn to uphold the confidentiality of Census Bureau information. Data provided will be used only to publish summary statistics that do not identify individual companies. Title 13 also provides that copies of reports retained in your files are immune from legal process. In addition, reported data are exempt from requests made under the Freedom of Information Act.

Patents

6-1 **How many patents did your company apply for in 2013 from the U.S. Patent and Trademark Office (USPTO)?** Number

6-2 **What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?** %

6-3 **What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&D activities?** %

6-4 **How many patents were issued to your company in 2013 by the USPTO?** Number

6-5 **What percentage of your company's inventions considered for patenting in 2013 resulted in patent applications?** %

Patent licensing

6-6 **What was the amount of your company's patent licensing revenue in 2013?** $Bil. Mil. Thou.

SECTION 6

6-7 **How many new agreements did your company enter into during 2013 to license patents to others not owned by your company?**

Number

Intellectual property transfer activities

6-8 **Did your company perform the following activities in 2013?**

a. Transferred intellectual property (IP) to others not owned by your company through participation in technical assistance or "know how" agreements	☐ Yes	☐ No
b. Received IP from others not owned by your company through participation in technical assistance or "know how" agreements	☐ Yes	☐ No
c. Transferred IP to a spin-off or spin-out of your company	☐ Yes	☐ No
d. Received IP from a parent company as part of a spin-off or spin-out	☐ Yes	☐ No
e. Acquired more than 50% ownership in another company for the primary purpose of acquiring their IP	☐ Yes	☐ No
f. Acquired any financial interest in another company in order to gain access to their IP	☐ Yes	☐ No
g. Participated in cross-licensing agreements—the agreements in which two or more parties grant a license to each other for the use of the subject matter claimed in one or more of the patents owned by each party	☐ Yes	☐ No
h. Allowed free use of patents or other IP owned by your company (for example, allowing free use of software patents by the open source community)	☐ Yes	☐ No
i. Made use of open source patents or other freely available IP not owned by your company	☐ Yes	☐ No

Intellectual property protection

6-9 **During 2013, how important to your company were the following types of intellectual property protection?**

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance)	☐	☐	☐
c. Trademarks	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

SECTION 6

Business codes
(used in Sections 1, 2, and 3)

Aerospace and Defense

33642 Aircraft engine and engine parts manufacturing
33641 Aircraft manufacturing
33644 Guided missiles, space vehicles, and parts manufacturing
33692 Military armored vehicle, tank, and tank components manufacturing
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33660 Ship and boat building
33643 Other aircraft parts and auxiliary equipment manufacturing

Automobiles, Motorcycles, and Components

33620 Motor vehicle body and trailer manufacturing
33630 Motor vehicle parts manufacturing
33610 Motor vehicles manufacturing
33691 Motorcycle, bicycle, and parts manufacturing
33651 Railroad rolling stock manufacturing
33660 Ship and boat building
33699 All other transportation equipment manufacturing

Capital Equipment

33311 Agricultural machinery and equipment manufacturing
33332 Commercial, service industry, temperature control, and airflow control machinery manufacturing
33312 Construction machinery manufacturing
33500 Electrical equipment, appliances, and components manufacturing
33360 Engine, turbine, and power transmission equipment manufacturing
33322 Industrial machinery manufacturing, except semiconductor machinery
33390 Metalworking and other general purpose machinery manufacturing
33319 Mining, oil, and gas field machinery and equipment manufacturing
33331 Photographic and photocopying equipment manufacturing

Chemicals and Materials

32402 Asphalt paving, roofing, and saturated materials manufacturing
32510 Basic chemicals manufacturing
32790 Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing
32710 Clay and glass products manufacturing
21200 Mining
32592 Paint, adhesive, and other chemical manufacturing
32200 Paper manufacturing
32530 Pesticide, fertilizer, and other agricultural chemical manufacturing
32600 Plastics and rubber products manufacturing
33100 Primary metal manufacturing
32520 Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing
32591 Soap, cleaning compound, and toilet preparations manufacturing
32100 Wood products manufacturing
32403 Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal

Consumer Goods

33430 Audio and video equipment manufacturing
31210 Beverage manufacturing
33200 Fabricated metal products manufacturing
31100 Food manufacturing
33700 Furniture and related products manufacturing
32300 Printing and related support activities
32591 Soap, cleaning compound, and toilet preparations manufacturing
31990 Textile, apparel, and leather products manufacturing
31220 Tobacco manufacturing
33990 Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)

Energy and Mining

33360 Engine, turbine, and power transmission equipment manufacturing
21200 Mining
33319 Mining, oil, and gas field machinery and equipment manufacturing
21100 Oil and gas extraction
32401 Petroleum refineries
21300 Support activities for mining, including oil and gas

Finance, Insurance, and Real Estate

52200 Finance: banking and credit intermediation
52400 Insurance carriers and related activities
53100 Real estate
52310 Securities, commodity contracts, and other financial investments and related activities (including funds and trusts)

Healthcare

32543 Biotechnology-based pharmaceutical and biological products (except diagnostics)
33451 Electromedical, electrotherapeutic, and irradiation apparatus manufacturing
62200 Hospitals and nursing care facilities
32542 In vitro diagnostic substances manufacturing
62150 Medical and diagnostic laboratories
33910 Medical equipment and supplies manufacturing
62110 Offices of physicians
32541 Pharmaceutical, medicinal, and botanical products manufacturing
54173 Research and development services in biotechnology
54174 Research and development services in physical, engineering, and life sciences (except biotechnology)
62199 Other ambulatory health care services (ambulance, dental, home health care)

Information Technology - Goods and Services

51801	Cloud computing applications and internet based software services
54150	Computer systems design and related services
33412	Computers and peripheral equipment manufacturing, including magnetic and optical media
51800	Data processing, hosting, and related services
33500	Electrical equipment, appliances, and components manufacturing
45411	Electronic shopping and electronic auctions
33459	Measuring and control instruments manufacturing (not listed elsewhere)
33422	Radio, television, and wireless communication equipment manufacturing
33440	Semiconductor and other electronic components manufacturing
33321	Semiconductor machinery manufacturing
51120	Software publishers (except Internet)
33421	Telephone apparatus manufacturing including routers, modems, and gateways
42500	Wholesale electronic markets and agents and brokers (business to business)
33429	Other communication equipment manufacturing (except radio, television, and wireless communication equipment)
51910	Other information services, including Internet publishing, broadcasting, and web search portals

Professional, Scientific, and Technical Services

54180	Advertising and related services
54130	Architectural, engineering, and related services
54150	Computer systems design and related services
54111	Legal, accounting, tax preparation, bookkeeping and payroll services
54160	Management, scientific, and technical consulting services
54190	Professional, scientific, and technical services (not listed elsewhere)
54173	Research and development services in biotechnology
54174	Research and development services in physical, engineering, and life sciences (except biotechnology)
54172	Research and development services in social sciences and humanities
54140	Specialized design services

Telecommunications and Utilities

51500	Broadcasting (except Internet)
51740	Satellite telecommunications
22100	Utilities
56200	Waste management and remediation services
51710	Wired telecommunications carriers
51720	Wireless telecommunications carriers (except satellite)
51790	Other telecommunications (not listed elsewhere)

Other Services

72000	Accommodation and food services
56100	Administrative and support services
71000	Arts, entertainment, and recreation
23000	Construction
49200	Couriers, messengers, and express delivery services
53300	Lessors of nonfinancial intangible assets (including patent licensing)
55100	Management of companies and enterprises
42300	Merchant wholesalers, durable goods
42400	Merchant wholesalers, nondurable goods
51200	Motion picture and sound recording (except Internet)
51110	Newspaper, periodical, book, and directory publishers (except Internet)
53200	Rental and leasing services
44000	Retail trade, except electronic shopping and electronic auctions
62400	Social assistance services
21300	Support activities for mining, including oil and gas
48000	Transportation
49300	Warehousing and storage
81000	Other services (not listed elsewhere)

Remarks (Please use the space below for any explanations that may help us understand your reported data.)

We estimate that it will take from .5 to 25 hours to complete this form, with 14.3 hours being the average. This includes time to read instructions, develop or assemble materials, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2013 Business R&D and Innovation Survey** ~

PLEASE MAKE A COPY OF THIS FORM FOR YOUR RECORDS AND RETURN THE ORIGINAL

2013 BRDIS - Guidelines

General guidelines for reporting inter-company transactions in this survey:

Reporting for "worldwide activities"- The reporting unit is your company, including all domestic and foreign subsidiaries that are more than 50% owned by your company for financial reporting purposes. All transactions between subdivisions within this reporting unit should be eliminated as inter-company transactions. For reporting purposes, your foreign parent (if you are foreign owned) and any foreign affiliates your company does not own by more than 50% should not be treated as part of 'your company' in your report. Transactions with these units should be treated the same as with any unrelated third parties such as business partners, customers, or suppliers you do not own.

Reporting for "domestic operations"- In this survey "domestic operations" refers to your company's operations located in the 50 United States and D.C. When reporting for your domestic operations, include transactions with foreign subsidiaries. For example, Question 1-9 asks how much of your company's total sales and revenues were from your company's domestic operations. All revenue from the domestic operations, including sales to subsidiaries or affiliated companies overseas, should be reported in this question.

Section 1: Company Information

1-1 Did another company other than a holding company own more than 50 percent of voting interest in your company during 2013?

Question 1-1 asks about the ownership of the company receiving the survey. Special reporting instructions apply to companies that have been acquired by another company. If your answer is "No" skip to question 1-3. If your answer is "Yes" continue to question 1-2.

1-2 If you answered "Yes" to Question 1-1, is your company's owner a foreign company?

<u>If your company is owned by a foreign parent</u>, the reporting unit for the survey is your U.S.-located company, including all your majority-owned subsidiaries and divisions regardless of location. For reporting purposes, your foreign owner and any foreign affiliates your company does not own should be treated the same as any business partner, customer, or supplier you do not own.

If you pay your foreign parent for R&D services, those costs should be included in your responses in Section 2 as "costs for purchased R&D services."

If your foreign parent pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in Section 3 as "costs funded, paid for, or reimbursed by others."

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you make adjustments in order to conform to U.S. GAAP.

If your company is owned by a U.S. based company, check "No" and enter the owner's EIN. If your company was purchased before April 1, 2013, answer question 1-6 on page 5 and return the survey to the Census Bureau. If your company was purchased between April 1, 2013 and December 31, 2013, report only for the period January 1, 2013 to the date of purchase.

Example 1: Company A was acquired by Company P (a US company) on Feb. 1, 2013. Because Company A was acquired by a US company prior to April 1, 2013, Company A is not required to complete this survey. Company A will answer question 1-6 and return the form to the Census Bureau.

Example 2: Company B is acquired by Company P (a US company) on July 1, 2013. Because Company B was acquired by a US company on or after April 1, 2013, Company B is instructed to complete the survey, reporting data for the period January 1, 2013 through July 1, 2013.

Why April 1?
The Census Bureau has determined that for this survey the benefit of collecting data from a company for a period less than one quarter of a year does not outweigh the burden placed on the company to report the data.

Why is this important?
Companies are asked this question for three reasons: to eliminate double counting in cases where both parties in a business acquisition receive the survey; to guide foreign-owned companies to special instructions; and to reduce the burden on companies who would otherwise be reporting data for a period less than one quarter of the year.

1-3 Did your company own more than 50 percent of any company operations or subsidiaries outside the 50 United States and D.C. during 2013?

Companies are instructed to include/consolidate data for their foreign subsidiaries on this survey. The reporting unit is your company, including all domestic and foreign subsidiaries in which your company owns more than 50 percent of the voting interest.

Entities in which your company does not have more than 50% ownership stake should not be included in this report as part of 'your company'. Transactions with entities in which your company does not have more than 50% ownership stake should be reported as if they were unrelated, third parties

Why is this important? This information is needed in order to accurately measure the impact of globalization on R&D and innovation.

1-4 Has your company ceased operations?

Scenario 1: Your company ceased operations before April 1, 2013. Complete questions 1-1 through 1-4 and question 1-6 on page 5 and return the survey to the Census Bureau.

Scenario 2: Your company ceased operations between April 1, 2013 and December 31, 2013. You should complete the survey as instructed and report for the period from January 1, 2013 to the date your company ceased operations.

Why April 1?
The Census Bureau has determined that for this survey the benefit of collecting data from a company for a period less than one quarter of a year does not outweigh the burden placed on the company to report the data.

Why is this important?
Data from companies that have ceased operations during 2013 are needed in order to accurately measure the total activity of companies operating in the United States during 2013.

1-5 Did your company have discontinued operations in 2013?

Companies are instructed to include data for discontinued operations on this survey.

Why is this important?
This information is needed in order to accurately measure the total activity of companies operating in the United States in 2013.

1-6 Who is the survey coordinator?

The survey coordinator is the person who is in charge of managing your company's responses to this survey and submitting the survey to the U.S. Census Bureau. The survey coordinator will need to collaborate with employees from other divisions/departments within your company such as the product development, R&D, human resources, finance and legal departments.

Why is this important?
This information gives the Census Bureau a single point of contact at each company surveyed in case questions arise about survey responses. The point of contact for this survey may differ from that for other Census Bureau surveys.

Business codes

1-7 Do the business code(s) listed below reflect all applicable codes from the list on pages 46-47 in which your company operated worldwide during 2013?

Question 1-7 asks the company receiving the survey to identify all of its worldwide businesses in 2013 (Form BRDI-1) or identify the one business that accounted for the most of its worldwide activity in 2013 (Forms BRD-1S). Most companies only have one business (such as making engine parts or providing tax preparation services) and so would only report one code for Question 1-7. Larger companies, however, sometimes operate in more than one business. These larger companies should pick the business codes from the list that best match how they define their various businesses.

If more than one of the company's businesses falls under one of the listed business codes, the company should group those businesses together on the survey. For example, a company may have an office software business and a video game software business. For the purpose of this survey the company would group those two businesses together and report using the code for "Software publishers (except Internet)" (51120).

If more than one of the listed business codes applies to one of the company's businesses the company should estimate what percentage of its business falls under each applicable codes. If this is not possible the company may pick the one code that is the closest match or that accounts for the largest share of its business. In either case, companies should note what action was taken in the space for "Remarks" at the end of the survey.

Scenario 1: The business code(s) provided are incorrect. Check the "no' box, then find the correct code(s) on pages 46-47 and write the codes and descriptions in the boxes. Draw a line through the ones that are incorrect.

Scenario 2: No business code(s) are provided. Find the correct code(s) on pages 46-47 and write the codes and descriptions in the boxes.

For further assistance on identifying the appropriate business codes, visit the "Business Code Search Page" located on the Business Help Site at econhelp.census.gov/brdis

Why is this important?
This information is needed in order to tabulate more accurate and useful industry-level data.

1-8 What was the amount of your company's worldwide sales and revenues during 2013?

Your company's worldwide sales and revenue would include sales by your foreign operations and subsidiaries, as well as, revenues from domestic operations. If your company is owned by a foreign parent, report sales to your parent and those affiliates not owned by your company.

Include sales and operating revenues for discontinued operations.

Exclude non-operating income such as dividends and interest as well as excise, sales, and other revenue-based taxes.

1-9 How much of the amount reported in Question 1-8 was attributable to or originated from domestic operations?

"Domestic sales" does not mean sales to customers located in the United States. If your company is owned by a foreign parent, then sales to your parent and those affiliates not owned by your company are included.

1-10 How much of the 2013 sales and operating revenue amounts was for each business code listed or amended in Question 1-7?

Transactions between one business code and another should be reported as would normally be reflected in segmental reporting. Use Line i to eliminate inter-company sales.

See also:
Question 1-7.

Product (good or service) innovation

1-11 During the three years 2011 to 2013, did your company introduce:

a. New or significantly improved goods (Exclude the simple resale of new goods purchased from other companies and changes of a solely aesthetic nature)?

b. New or significantly improved services?

For the purpose of this question, "new or significantly improved" is in reference to the company's prior experience. For example, a computer manufacturer that introduced its first cell phone in 2011 would answer, "Yes" to line a, "New or significantly improved goods".

1-12 If you answered "yes" to either 1-11, line a, or 1-11, line b, were any of your product innovations during the three years 2011 to 2013: new to your market or new only to your company?

Question 1-12 asks whether any of the new or significantly improved product indicated in Question 1-11, lines a and b, were new or significantly improved to one of the company's markets (i.e. first to market with a new or significantly improved product) or were only new to the company.

1-13 Using the definitions above, please give the percentage of your total sales in 2013.

Question 1-13 asks how much of the company's total worldwide sales in 2013 are attributable to different types of product innovations. Specifically, it asks what percent of the company's total worldwide sales in 2013 that were from:

a. Goods and services introduced during 2011 to 2013 that were new to one of your markets
b. Goods and services introduced during 2011 to 2013 that were only new to your firm
c. Goods and services that were unchanged or only marginally modified during 2011 to 2013 (include the resale of new goods or services purchased from other companies).

Process innovation

1-14 During the three years 2011 to 2013, did your company introduce:

a. **New or significantly improved methods of manufacturing or producing goods or services?**
b. **New or significantly improved logistics, delivery or distribution methods for your inputs, goods, or services?**
c. **New or significantly improved supporting activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing?**

Question 1-14 asks whether the company introduced any process innovations over the past three years. For the purpose of this question, "new of significantly improved" is in reference to the company's prior experience.

Section 2: Financial Schedule A

2-1 What was the total worldwide R&D expense for your company in 2013?

Question 2-1 requests total worldwide R&D expense. The reporting unit is your company, including all domestic and foreign subsidiaries that are more 50% owned by your company for financial reporting purposes. All transactions between subdivisions within this reporting unit should be eliminated as inter-company transactions. Total worldwide R&D expense also includes payments by your company for R&D services performed by (i) unrelated third parties, (ii) affiliates for which your company has less than a 50% ownership stake and/or (iii) your foreign parent, if your company is foreign owned.

Scenario 1: Your company is publicly traded. Report worldwide R&D expense as reported on SEC Form 10-K as defined in FASB ASC Topic 730, Research and Development (FASB Statement No. 2, "Accounting for Research and Development Costs.")

Scenario 2: Your company is foreign-owned. Report the R&D expense figure of the U.S.-located company and domestic and foreign subsidiaries that are more than 50% owned by your U.S.-located company, if any. Do not include expenses by your foreign parent or by any foreign affiliate your U.S.-located company does not own. For reporting purposes, these entities should be treated the same as any unrelated third party such as a customer or supplier you do not own.

Scenario 3: Your company is privately owned. You should follow the same procedures as public companies when reporting R&D expense and follow the guidance in FASB ASC Topic 730, Research and Development (FASB Statement No. 2, "Accounting for Research and Development Costs."). Privately held companies that cannot report on this basis should note reporting principles and difficulties in the space for "Remarks" at the end of the survey.

The following are examples of activities that typically would be **excluded** from research and development in accordance with FASB Statement No. 2, "Activities Constituting Research and Development" (http://www.fasb.org/pdf/fas2.pdf) :

a. Engineering follow-through in an early phase of commercial production.
b. Quality control during commercial production including routine testing of products.
c. Trouble-shooting in connection with break-downs during commercial production.
d. Routine, on-going efforts to refine, enrich, or otherwise improve upon the qualities of an existing product.
e. Adaptation of an existing capability to a particular requirement or customer's need as part of a continuing commercial activity.
f. Seasonal or other periodic design changes to existing products.
g. Routine design of tools, jigs, molds, and dies.
h. Activity, including design and construction engineering, related to the construction, relocation, rearrangement, or start-up of facilities or equipment other than (1) pilot plants (see paragraph 9(h)) and (2) facilities or equipment whose sole use is for a particular research and development project (see paragraph 11(a)).
i. Legal work in connection with patent applications or litigation, and the sale or licensing of patents.

Exclude from worldwide R&D expense:

- Costs for R&D that was paid for by a 3rd party such as R&D performed under contract.
- For medical products companies, exclude costs for phase IV clinical trials since these trials take place after products have achieved technical and market feasibility.

Research and development activity in software:

Does R&D include development of software and Internet applications?

- Yes, as long as the research and development activities include an element of uncertainty, are intended to close knowledge gaps, and meet scientific and technological needs.
- Report in this survey all software R&D as defined here regardless of the eventual user (internal or external).

R&D activity in software includes:

- Software development or improvement activities that expand scientific or technological knowledge
- Construction of new theories and algorithms in the field of computer science

R&D activity in software EXCLUDES:

- Software development that does not depend on a scientific or technological advance, such as:
    - supporting or adapting existing systems
    - adding functionality to existing application programs, and
    - routine debugging of existing systems and software

- Creation of new software based on known methods and applications
- Conversion or translation of existing software and software languages
- Adaptation of a product to a specific client, unless knowledge that significantly improved the base program was added in that process

For further guidance on accounting for software development costs see FASB Statement No. 86 (Accounting for the Costs of Computer Software to Be Sold, Leased); and FASB Interpretation No. 6 (Applicability of FASB Statement No. 2 to Computer Software).

2-2 Does the amount reported in Question 2-1 include any of the following costs?

Although most companies share a general framework for R&D, we request that certain items be excluded for the sake of consistency. Certain costs and expenses are to be reported in Section 3 reflecting your company's R&D activities that was paid for by others.

Question 2-2 asks whether the company's R&D expense figure reported in Question 2-1 included costs for five specific categories:

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements
   - These agreements are very common in the biotechnology and pharmaceutical industries, but less so in other industries.
b. R&D paid for by government or private foundation grants
   - Examples include Small Business Innovation and Research (SBIR) grants, Department of Energy demonstration grants, and Gates Foundation research grants.
c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees)
   - This category most often applies to software and service companies where R&D staff also provide technical support and/or services to customers
d. Bid and proposal costs
   - This category represents the costs a company incurs applying to win a contract. Some government contractors group these costs with their R&D spending.
e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (In-process R&D).

<u>Why is this important?</u>
Not all companies treat the five cost categories listed in this question consistently with respect to their inclusion or exclusion from R&D expense figures. This question allows the survey to measure and correct for these inconsistencies
<u>See also:</u> Question 2-3, Question 2-4

2-3 If you answered "Yes" to any of the costs in Question 2-2, what was the amount of these costs that was included in your response to Question 2-1?

Question 2-3 asks the company to estimate the amount of its R&D expense figure reported in Question 2-1 that was from the categories listed in Question 2-2.

Why is this important?
The five cost categories listed in Question 2-2 are not treated consistently by all companies with respect to their inclusion or exclusion from R&D expense figures. This question allows the survey to measure and correct these inconsistencies.

See also: Question 2-2, Question 2-4

2-4 Subtract Question 2-3 from Question 2-1 and enter the result here. This is the total R&D paid for by your company in 2013.

Question 2-4 asks the company to subtract the amount reported in Question 2-3 from the amount reported in Question 2-1. The resulting figure is the starting point for the subsequent questions in Section 2. This survey refers to this amount as "total R&D paid for by your company".

Why is this important?
The five cost categories listed in Question 2-2 are not treated consistently by all companies with respect to their inclusion or exclusion from R&D expense figures. This question allows the survey to measure and correct for these inconsistencies.

See also: Question 2-2, Question 2-3

2-5 Is the amount entered in Question 2-4 greater than zero?

Question 2-5 instructs the company to skip to Section 3 on page 21 if its response to Question 2-4 is zero.

R&D paid for by your company

2-6 Of the amount reported in Question 2-4, what were the costs for each business code listed or amended on page 6 of this form?

If the company does not track its R&D costs by line of business or product line, it should make a reasonable estimate.

If the company has R&D that applies to more than one business code, such as basic or applied research conducted by a central R&D group, it should allocate this R&D to all applicable business codes on a reasonable basis. Examples of allocation methods include allocating in proportion to sales by business code and allocating in proportion to R&D employees working for each business code.

See also: Question 1-7.

2-7 Of the amount reported in Question 2-4, what costs were incurred by your company in the following locations?

This question requires the company to report where R&D costs were incurred, even in the case of purchased R&D services where the R&D may be performed in a different location.

This survey defines the domestic United States as the 50 states and the District of Columbia only. Costs incurred in Puerto Rico, Guam, and other U.S. territories should be reported in the category for "All other countries".

Report R&D performed by domestic operations that are paid for by foreign subsidiaries in line a (Domestic U.S.).

Report R&D performed by foreign subsidiaries that are paid for by domestic operations in line b (All other countries).

Scenario 1: Your company has R&D operations in Washington state and in your subsidiary in Canada. All of the R&D costs (such as salaries of R&D employees) from the Washington R&D operations should be reported in the line for "Domestic U.S." even if a portion of this R&D is for the benefit of your Canadian subsidiary.

2-8 Copy the amount from Question 2-7, line a. This is the total domestic R&D paid for by your company in 2013.

Question 2-8 asks the company to copy the amount reported in Question 2-7 for R&D costs incurred in the domestic United States. This survey defines this amount as "total domestic R&D paid for by your company in 2013".

2-9 Copy the amount from Question 2-7, line b. This is the total foreign R&D paid for by your company in 2013.

Question 2-9 asks the company to copy the amount reported in Question 2-7 for R&D costs incurred in countries outside the domestic United States. This survey defines this amount as "total foreign R&D paid for by your company in 2013".

2-10 How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2013 was for each of the following types of costs?

Question 2-10 asks the company to report its domestic, foreign, and total worldwide R&D that it paid for in 2013 broken into 11 categories:

a. Salaries, wages, and fringe benefits
   - Include costs for all compensation and benefits of R&D employees and officers that are included in the R&D paid for by the company.
   - Stock-based compensation should be reported in line b
   - Include payroll taxes such as Social Security and Medicare
b. Stock-based compensation
   - Include the cost of both stock options and stock grants.
c. Temporary staffing including on-site consultants
   - Include costs paid to Professional Employer Organizations (PEOs), staffing agencies, and on-site consultants for personnel contributing to R&D.
d. Expensed equipment
   - Include all equipment purchases for R&D that are beneath the company's capitalization threshold.
e. Materials and supplies
   - Costs for materials and supplies consumed for R&D.
f. Leased facilities and equipment
   - Costs for leased facilities and equipment used in the company's R&D.
g. Depreciation and amortization on R&D property and equipment
   - Includes depreciation on tangible R&D assets such as buildings or equipment as well as the amortization of intangible assets such as patents and capitalized in-process R&D used only for the company's R&D activities.
h. Payments to business partners for collaborative R&D
   - Include milestone payments and payments made under cost sharing agreements for joint R&D projects.
   - Payments made to contract research organizations or other parties performing R&D under contract for the company should be reported in line i, "Purchased R&D services".
i. Purchased R&D services
   - Include payments made to contract research organizations or other parties performing R&D under contract for the company.
j. All other purchased services except R&D
   - Include payments for purchased services that support the company's R&D, but are not themselves R&D.

- Examples of costs to report in this category include hazardous waste disposal services at the company's R&D lab and purchased computing time to run simulations for the company's R&D.

k. All other costs
   - Include all other costs supporting the R&D the company paid for.
   - Examples of costs to report in this category include: travel and training, journal subscriptions, royalties or licenses paid for patents or software used in the company's R&D

2-11 Add 2-10, lines h and i for each column, and enter the result here. This is R&D performed by others.

Question 2-11 asks the company to add the amounts reported in Question 2-10, lines h and i for each column. This survey defines this amount as "R&D performed by others".

Why is this important?
The costs reported in lines h and i of Question 2-10 represent payments to 3rd parties (outsourcing) for R&D. Because the reporting company is not directly involved in the conduct of this R&D, it may not be able to provide the same amount of information on these costs as it could for the R&D it performs itself. This question allows the survey to address this limitation as well as address an interest in the nature of collaborative and contract R&D.

See also: Question 2-10

2-12 Subtract 2-11 from 2-10, line l, for each column and enter the result here. This is R&D performed by your company.

Question 2-12 asks the company to subtract the amounts reported in Question 2-11 from those reported in Question 2-10, line l for each column. This survey defines this amount as "R&D performed by your company".

Why is this important?
The costs reported in lines h and i of Question 2-10 represent payments to 3rd parties (outsourcing) for R&D. Because the reporting company is not directly involved in the conduct of this R&D, it may not be able to provide the same amount of information on these costs as it could for the R&D it performs itself. This question allows the survey to address this limitation as well as address an interest in the differences between R&D companies perform themselves versus R&D that is performed by collaborators and contractors.

See also: Question 2-11

2-13 Copy the amount from Question 2-12, column 2. This is the foreign R&D paid for and performed by your company in 2013.

Question 2-13 asks the company to copy the amount reported in Question 2-12 for foreign R&D costs performed by the company. This survey defines this amount as "foreign R&D performed by your company in 2013".

2-14 Of the amount reported in Question 2-13, how much R&D was performed in the following locations?

Question 2-14 asks the company to report how much of the foreign R&D performed by the company in 2013 was performed in specific countries, including Puerto Rico.

Why is this important?
This information is needed in order to accurately measure the impact of globalization on R&D.

Country/Territory Name	Region
Afghanistan	Asia and Pacific
Albania	Europe
Algeria	Africa
American Samoa (U.S.)	Asia and Pacific
Andorra	Europe
Angola	Africa
Antigua and Barbuda	Latin America/OWH
Argentina	Latin America/OWH
Armenia	Asia and Pacific
Aruba (Neth.)	Latin America/OWH
Australia	Asia and Pacific
Austria	Europe
Azerbaijan	Asia and Pacific
Bahamas, The	Latin America/OWH
Bahrain	Middle East
Bangladesh	Asia and Pacific
Barbados	Latin America/OWH
Belarus	Europe
Belgium	Europe
Belize	Latin America/OWH
Benin	Africa
Bermuda (U.K.)	Latin America/OWH
Bhutan	Asia and Pacific
Bolivia	Latin America/OWH
Bosnia and Herzegovina	Europe
Botswana	Africa
Brazil	Latin America/OWH
Brunei	Asia and Pacific

Bulgaria	Europe
Burkina Faso	Africa
Burma	Asia and Pacific
Burundi	Africa
Cambodia	Asia and Pacific
Cameroon	Africa
Canada	Not assigned to a region in this survey.
Cape Verde	Africa
Cayman Islands (U.K.)	Latin America/OWH
Central African Republic	Africa
Chad	Africa
Chile	Latin America/OWH
China	Asia and Pacific
Colombia	Latin America/OWH
Comoros	Africa
Congo (Brazzaville)	Africa
Democratic Republic of the Congo	Africa
Costa Rica	Latin America/OWH
Côte d'Ivoire/Ivory Coast	Africa
Croatia	Europe
Cuba	Latin America/OWH
Cyprus	Europe
Czech Republic	Europe
Denmark	Europe
Djibouti	Africa
Dominica	Latin America/OWH
Dominican Republic	Latin America/OWH
Ecuador	Latin America/OWH
Egypt	Africa
El Salvador	Latin America/OWH
Equatorial Guinea	Africa
Eritrea	Africa
Estonia	Europe
Ethiopia	Africa
Fiji	Asia and Pacific
Finland	Europe
France	Europe
Gabon	Africa
Gambia, The	Africa
Georgia	Europe
Germany	Europe
Ghana	Africa
Greece	Europe
Greenland (Denmark)	Europe
Grenada	Latin America/OWH
Guam (U.S.)	Asia and Pacific

Guatemala	Latin America/OWH
Guinea	Africa
Guinea-Bissau	Africa
Guyana	Latin America/OWH
Haiti	Latin America/OWH
Holy See	Europe
Honduras	Latin America/OWH
Hong Kong	Asia and Pacific
Hungary	Europe
Iceland	Europe
India	Asia and Pacific
Indonesia	Asia and Pacific
Iran	Middle East
Iraq	Middle East
Ireland	Europe
Israel	Middle East
Italy	Europe
Jamaica	Latin America/OWH
Japan	Asia and Pacific
Jordan	Middle East
Kazakhstan	Asia and Pacific
Kenya	Africa
Kiribati	Asia and Pacific
Kosovo	Europe
Kuwait	Middle East
Kyrgyzstan	Asia and Pacific
Laos	Asia and Pacific
Latvia	Europe
Lebanon	Middle East
Lesotho	Africa
Liberia	Africa
Libya	Africa
Liechtenstein	Europe
Lithuania	Europe
Luxembourg	Europe
Macau	Asia and Pacific
Macedonia	Europe
Madagascar	Africa
Malawi	Africa
Malaysia	Asia and Pacific
Maldives	Asia and Pacific
Mali	Africa
Malta	Europe
Marshall Islands	Asia and Pacific
Mauritania	Africa
Mauritius	Africa

Mexico	Latin America/OWH
Micronesia, Federated States of	Asia and Pacific
Moldova	Europe
Monaco	Europe
Mongolia	Asia and Pacific
Montenegro	Europe
Morocco	Africa
Mozambique	Africa
Namibia	Africa
Nauru	Asia and Pacific
Nepal	Asia and Pacific
Netherlands	Europe
New Zealand	Asia and Pacific
Nicaragua	Latin America/OWH
Niger	Africa
Nigeria	Africa
North Korea	Asia and Pacific
Norway	Europe
Oman	Middle East
Pakistan	Asia and Pacific
Palau	Asia and Pacific
Panama	Latin America/OWH
Papua New Guinea	Asia and Pacific
Paraguay	Latin America/OWH
Peru	Latin America/OWH
Philippines	Asia and Pacific
Poland	Europe
Portugal	Europe
Puerto Rico (U.S.)	Not assigned to a region in this survey.
Qatar	Middle East
Romania	Europe
Russia	Europe
Rwanda	Africa
Saint Kitts and Nevis	Latin America/OWH
Saint Lucia	Latin America/OWH
Saint Vincent and the Grenadines	Latin America/OWH
Samoa	Asia and Pacific
San Marino	Europe
Sao Tome and Principe	Africa
Saudi Arabia	Middle East
Senegal	Africa
Serbia	Europe
Seychelles	Africa
Sierra Leone	Africa
Singapore	Asia and Pacific
Slovakia	Europe

Slovenia	Europe
Solomon Islands	Asia and Pacific
Somalia	Africa
South Africa	Africa
South Korea	Asia and Pacific
South Sudan	Africa
Spain	Europe
Sri Lanka	Asia and Pacific
Sudan	Africa
Suriname	Latin America/OWH
Swaziland	Africa
Sweden	Europe
Switzerland	Europe
Syria	Middle East
Taiwan	Asia and Pacific
Tajikistan	Asia and Pacific
Tanzania	Africa
Thailand	Asia and Pacific
Timor-Leste	Asia and Pacific
Togo	Africa
Tonga	Asia and Pacific
Trinidad and Tobago	Latin America/OWH
Tunisia	Africa
Turkey	Europe
Turkmenistan	Asia and Pacific
Turks and Caicos Islands (U.K.)	Latin America/OWH
Tuvalu	Asia and Pacific
Uganda	Africa
Ukraine	Europe
United Arab Emirates	Middle East
United Kingdom	Europe
Uruguay	Latin America/OWH
Uzbekistan	Asia and Pacific
Vanuatu	Asia and Pacific
Venezuela	Latin America/OWH
Vietnam	Asia and Pacific
Virgin Islands (U.K.)	Latin America/OWH
Virgin Islands (U.S.)	Latin America/OWH
Yemen	Middle East
Zambia	Africa
Zimbabwe	Africa

Note: OWH = Other Western Hemisphere. ‘Latin America/OWH’ includes Bermuda and the geographical regions of the Caribbean, Central America, and South America.

2-15 Copy the amount from Question 2-12, column 1. This is the domestic R&D paid for and performed by your company in 2013.

Question 2-15 asks the company to copy the amount reported in Question 2-12 for domestic R&D costs performed by the company. This survey defines this amount as "domestic R&D paid for and performed by your company in 2013".

"Domestic R&D paid for and performed by your company" is the portion of your company's total R&D expense associated with R&D performed by your company's full-time, part-time, and temporary employees in the domestic United States. This amount excludes R&D performed by others not owned by your company, such as contract research organizations and universities.

2-16 How much of the amount reported in Question 2-15 was performed in each state (including D.C.) in 2013?

If the company is unable to assign all its R&D costs to specific states, it should use a reasonable allocation method to report R&D by state. Companies should note their allocation method in the space for "Remarks" at the end of the survey.

Why is this important?
This information is very important to policy makers who are interested in the geographic distribution of R&D activity and its role in regional economic development.

2-17 At what domestic location did your company perform the largest dollar amount of R&D in 2013?

Question 2-17 asks the company to identify the location where the largest dollar value of the domestic R&D it performed in 2013 took place.

2-18 How much of the amount reported in Question 2-15 was from the location identified in Question 2-17?

If the company is unable to allocate its R&D costs to a specific location, it should provide a reasonable estimate. Companies should note their allocation method in the space for "Remarks" at the end of the survey.

2-19 At what domestic location did your company perform the second largest dollar amount of R&D in 2013?

Question 2-19 asks the company to identify the location where the second largest dollar value of the domestic R&D it performed in 2013 took place.

2-20 How much of the amount reported in Question 2-15 was from the location identified in 2-19?

If the company is unable to allocate its R&D costs to a specific location, it should provide a reasonable estimate. Companies should note their allocation method in the space for "Remarks" at the end of the survey.

2-21 Of the domestic R&D performed by your company reported in Question 2-15, how much was for each business code reported in Question 2-6?

If the company does not track its R&D costs by line of business or product line it should make a reasonable estimate.

If the company has R&D that applies to more than one business code, such as basic or applied research conducted by a central R&D group, it should allocate this R&D to all applicable business codes on a reasonable basis. Examples of allocation methods include allocating in proportion to sales by business code and allocating in proportion to R&D employees working for each business code.

See also: Question 1-7; Question 2-6

R&D transactions between legal entities under common ownership

Questions 2-22 and 2-23 are intended only for companies that own more than 50 percent of any operations or subsidiaries located outside the 50 United States and D.C. during 2013 (that is, your company provided a "Yes" response to Question 1-3).

2-22 How much of the amount reported in Question 2-15 (domestic R&D performance) was paid for by your company's foreign subsidiaries through inter-company transactions?

Example: If an R&D activity were performed by employees in Texas U.S. [reported in 2-15], and charged both to operating units in the U.S. and to majority-owned subsidiaries in Belgium, then the costs charged to majority-owned subsidiaries in Belgium would be reported in 2-22.

Special Instruction for Foreign Owned Companies: Do not include payments from your company's foreign parent. R&D costs associated with these payments should be reported in Section 3.

2-23 How much of the amount reported in Question 2-13 (foreign R&D performance) was paid for by your company's domestic operations through inter-company transactions?

Example: If an R&D activity were performed by employees of your majority-owned subsidiaries in Berlin, Germany [reported in 2-13], and charged both to operating units in the U.S. and in Berlin, then the costs charged to operating units in the U.S. would be reported in 2-23.

R&D performed by others

2-24 Copy the amount from Question 2-11, column 1. <u>This is the domestic R&D paid for by your company in 2013 that was performed by others.</u>

This survey defines this amount as "total R&D performed by others in 2013". This amount represents the R&D that your company outsourced or paid to third parties during 2013.

2-25 How much of the amount reported in Question 2-24, was performed by the following types of organizations?

Question 2-25 asks the company to report how much of the domestic R&D paid for by your company in 2013 that was performed by eight specific types of organizations:

a. Companies located inside the United States
   - Include for-profit hospitals
b. Your company's foreign parent (if you are owned by a foreign parent)
c. Other companies located outside the United States
d. U.S. federal government agencies or laboratories
e. U.S. state and local government agencies or laboratories
f. Foreign government agencies or laboratories
g. All other organizations inside the United States
h. All other organizations outside the United States

Indirect R&D charges

2-26 How much of the amount reported in Question 2-4 was for R&D costs your company plans to recoup through indirect charges on U.S. federal government contracts (IR&D or independent R&D)?

Question 2-26 asks how much of the amount reported in Question 2-4 was a special category of R&D costs tracked by government contractors. In order to encourage business R&D in certain areas of interest to the government, federal agencies such as the Department of Defense allow companies to recoup certain R&D costs through indirect charges on government contracts. These R&D costs, called IR&D or independent R&D should only apply to Federal government contractors.

Projected R&D for 2014

2-27 What are your company's projected 2014 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?

Question 2-27 asks the company to project its domestic, foreign, and total worldwide R&D costs for 2014.

2-28 How much of the amount reported in Question 2-27, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?

Question 2-28 asks the company to project how much of the domestic R&D paid for by the company in 2014 will be for purchased R&D services and payments to business partners for collaborative R&D.

Capital expenditures

2-29 What was the amount of your company's capital expenditures in the domestic United States in 2013?

Exclude the cost of purchased land.

Assets acquired through merger and acquisition activities should not be included in your report.

2-30 How much of the amount reported in Question 2-29 was for R&D operations?

Companies should allocate capital expenditures that benefit both R&D operations and other company operations on a reasonable basis. Companies should note their allocation method in the space for "Remarks" at the end of the survey.

2-31 How much of the amount reported in Question 2-30 was for the following?

Question 2-31 asks the company to report how much of the domestic capital expenditures for R&D operations may be classified in four specific types or capital expenditures:

a. Structures
   - Include the costs of purchased or improved buildings and other facilities such as signal towers or windmills that are fixed to the land.
b. Equipment
c. Capitalized software
d. All other capital expenditures for R&D operations
   - Include the costs of purchased patents or other intangible assets.

Reporting Information

2-32 Is the information in this section reported for the 2013 calendar year?

If your company is reporting on a fiscal year that does not end Dec. 31, 2013, write what time period you are covering in the designated boxes.

Section 3: Financial Schedule B

3-1 What were your company's <u>total worldwide costs</u> (both direct and indirect) in 2013 for the following that were funded, paid for, or reimbursed by others not owned by your company?

Costs should be considered "funded, paid for, or reimbursed by others" if the company has been or expects to be paid for the costs by a customer, business partner, or grant-making organization.

Note: Foreign-owned companies should report costs that are funded, paid for, or reimbursed by their foreign parent in this question.

Exclude payments in excess of the actual cost of the work performed (such as profits or fees).

Costs that were reported in Question 2-4 should not be double counted in this question.

If your company administers a federally-funded research and development center (FFRDC) for an agency of the federal government, all such R&D costs should be excluded for reporting to this survey. For a complete list of FFRDCs, see http://www.nsf.gov/statistics/ffrdclist/.

The categories in this question, listed below, define what the survey terms, "R&D paid for by others":

a. R&D that was reimbursed by your company's foreign parent (if you are owned by a foreign parent)

b. Collaborative R&D that was reimbursed by business partners, such as through cost-sharing agreements
   - These agreements are very common in the biotechnology and pharmaceutical industries, but less so in other industries.
c. R&D paid for by government or private foundation grants
   - Examples include Small Business Innovation and Research (SBIR) grants, Department of Energy demonstration grants, and Gates Foundation research grants.
d. Defense RDT&E goods or services (including DOD 6.1 through 6.7 funding), provided as a prime or as a sub, to the government and/or government contractors
   - This category most often applies to defense contractors and subcontractors performing tasks such as designing, building, and testing prototypes of new military weapon systems and developing custom software for defense applications.
   - Include all defense R&D funded by the Department of Defense (DOD), the Department of Energy's weapons programs, the Department of Homeland Security, and other Federal agencies.
   - R&D funds from DOD include all funds for research, development, test, and evaluation (RDT&E) activities (6.1 through 6.7 budget appropriations).
   - Include defense R&D performed as a prime contractor and/or as a subcontractor.
e. Medical nonclinical R&D services provided to others not owned by your company
   - Nonclinical (also known as preclinical) research and development involves research on potential medical products that does not involve human subjects. This R&D consists of both *in vitro* studies as well as studies using animal subjects.
f. Medical clinical trial Phase I-III services provided to others not owned by your company (include pass-through costs)
   - This category involves the testing of potential medical products in human subjects. Phase I – III clinical trials must be successfully passed in order for a product to be approved for use in the general population.
   - Exclude costs for Phase IV clinical trials because these trials take place after a product has been approved for sale.
g. Nondefense custom software development and/or computer systems designed for others not owned by your company
   - See definitions in "Research and development activity in software" under guidance for Question 2-1.
   - This category includes the development of new or significantly improved software, both as an end product and for use embedded in other products.
   - Exclude: Software development that does not depend on a scientific or technological advance such as adding functionality to existing application programs, debugging systems, and adapting existing software.
   - Software development for defense-related applications should be reported in line d.
h. Prototype development, production, and testing for customer's products prior to their introduction to the market (excluding defense-related prototyping reported in line d)
   - Exclude quality control testing and other testing services for products already on the market.
i. All other R&D, not included above, provided to the Federal Government or to others not owned by your company

3-2 Copy the amount from 3-1, line j. This is the total R&D paid for by others in 2013.

Question 3-2 asks the company to copy the amount reported in Question 3-1, line j. This survey defines this amount as "total R&D paid for by others" in 2013.

3-3 Is the amount entered in Question 3-2 greater than zero?

Question 3-3 instructs the company to skip to Section 4 on page 35 if its response to Question 3-2 is zero.

R&D paid for by others

3-4 Of the amount reported in Question 3-2, what costs were incurred by your company in the following locations?

This question requires the company to report where R&D costs were incurred, even in the case of purchased R&D services where the R&D may be performed in a different location.

This survey defines the domestic United States as the 50 states and the District of Columbia only. Costs incurred in Puerto Rico, Guam, and other U.S. territories should be reported in the category for "All other countries".

3-5 Copy the amount from Question 3-4, line a. This is the total domestic R&D paid for by others in 2013.

Question 3-5 asks the company to copy the amount reported in Question 3-4, line a, for R&D costs in the domestic United States. This survey defines this amount as "total domestic R&D paid for by others" in 2013.

3-6 Copy the amount from Question 3-4, line b. This is the total foreign R&D paid for by others in 2013.

Question 3-6 asks the company to copy the amount reported in Question 3-4, line b, for R&D costs in countries outside the domestic United States. This survey defines this amount as "total foreign R&D paid for by others" in 2013.

3-7 How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2013 was for each of the following types of costs?

Question 3-7 asks the company to report its domestic, foreign, and total worldwide R&D paid for by others in 2013 broken into 11 categories:

a. Salaries, wages, and fringe benefits
   - Include costs for all compensation and benefits of R&D employees and officers that are included in the R&D paid for by others.
   - Stock-based compensation should be reported in line b.
   - Include payroll taxes such as Social Security and Medicare
b. Stock-based compensation
   - Includes the cost of both stock options and stock grants.
c. Temporary staffing, including on-site consultants
   - Include costs paid to Professional Employer Organizations (PEOs), staffing agencies, and on-site consultants for personnel contributing to R&D
d. Expensed equipment
   - Include all equipment purchases for R&D that are beneath the company's capitalization threshold.
e. Materials and supplies
   - Costs for materials and supplies consumed for R&D.
f. Leased facilities and equipment
   - Costs for leased facilities and equipment used in the R&D.
g. Depreciation and amortization on R&D property and equipment
   - Include depreciation on tangible R&D assets such as buildings or equipment as well as the amortization of intangible assets such as patents and capitalized in-process R&D used only for the company's R&D activities.
h. Payments to business partners for collaborative R&D
   - Include payments made to business partners for collaborative R&D, including milestone payments and payments made under cost sharing agreements for joint R&D projects.
   - Payments made to contract research organizations or other parties performing R&D under contract for the company should be reported in line i, "Purchased R&D services".
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)
   - Include payments made to contract research organizations or other parties performing R&D under contract for the company.
   - Include defense R&D funding that your company received as a prime that is subcontracted to others not owned by your company
j. All other purchased services except R&D
   - Include payments for purchased services that support the company's R&D, but are not themselves R&D.
   - Examples of costs to report in this category include hazardous waste disposal services at the company's R&D lab and purchased computing time to run simulations for the company's R&D.
k. All other costs

- Include all other costs supporting the R&D the company paid for.
- Examples of costs to report in this category include: travel and training, journal subscriptions, royalties or licenses paid for patents or software used in the company's R&D.

3-8 Add 3-7, lines h and i for each column, and enter the result here. This is R&D performed by others (e.g. subcontracted/passed-through R&D costs).

Question 3-8 asks the company to add the amounts reported in Question 3-7, lines h and i for each column. This survey defines this amount as "R&D performed by others".

Why is this important?
The costs reported in lines h and i of Question 3-7 represent payments to 3rd parties for R&D. Because the reporting company is not directly involved in the conduct of this R&D, it may not be able to provide the same amount of information on these costs as it could for the R&D it performs itself. This question allows the survey to address this limitation as well as address an interest in the nature of collaborative and contract R&D.

See also: Question 3-7, Question 3-9

3-9 Subtract 3-8 from 3-7, line l, for each column and enter the result here. This is R&D performed by your company that was paid for by others.

Question 3-9 asks the company to subtract the amounts reported in Question 3-8 from those reported in Question 3-7, line m for each column. This survey defines this amount as "R&D performed by your company that was paid for by others".

Why is this important?
The costs reported in lines h and i of Question 3-7 represent payments to 3rd parties for R&D. Because the reporting company is not directly involved in the conduct of this R&D, it may not be able to provide the same amount of information on these costs as it could for the R&D it performs itself. This question allows the survey to address this limitation as well as address an interest in the differences between R&D companies perform themselves versus R&D that is performed by collaborators and contractors.

See also: Question 3-7, Question 3-8

3-10 Copy the amount from Question 3-9, column 2. This is the foreign R&D performed by your company that was paid for by others.

Question 3-10 asks the company to copy the amount reported in Question 3-9 for foreign R&D costs performed by the company. This survey defines this amount as "foreign R&D performed by your company that was paid for by others".

3-11 Of the amount reported in Question 3-10, how much R&D was performed in the following locations?

Question 3-11 asks the company to report how much of the foreign R&D performed by the company that was paid for by others was performed in specific countries, including Puerto Rico.

Why is this important?
This information is needed in order to accurately measure the impact of globalization on R&D.

Countries and territories by region
As defined by the Business R&D and Innovation Survey

Country/Territory Name	Region
Afghanistan	Asia and Pacific
Albania	Europe
Algeria	Africa
American Samoa (U.S.)	Asia and Pacific
Andorra	Europe
Angola	Africa
Antigua and Barbuda	Latin America/OWH
Argentina	Latin America/OWH
Armenia	Asia and Pacific
Aruba (Neth.)	Latin America/OWH
Australia	Asia and Pacific
Austria	Europe
Azerbaijan	Asia and Pacific
Bahamas, The	Latin America/OWH
Bahrain	Middle East
Bangladesh	Asia and Pacific
Barbados	Latin America/OWH
Belarus	Europe
Belgium	Europe
Belize	Latin America/OWH
Benin	Africa
Bermuda (U.K.)	Latin America/OWH
Bhutan	Asia and Pacific
Bolivia	Latin America/OWH
Bosnia and Herzegovina	Europe
Botswana	Africa
Brazil	Latin America/OWH
Brunei	Asia and Pacific
Bulgaria	Europe
Burkina Faso	Africa
Burma	Asia and Pacific
Burundi	Africa
Cambodia	Asia and Pacific

Cameroon	Africa
Canada	Not assigned to a region in this survey.
Cape Verde	Africa
Cayman Islands (U.K.)	Latin America/OWH
Central African Republic	Africa
Chad	Africa
Chile	Latin America/OWH
China	Asia and Pacific
Colombia	Latin America/OWH
Comoros	Africa
Congo (Brazzaville)	Africa
Democratic Republic of the Congo	Africa
Costa Rica	Latin America/OWH
Côte d'Ivoire/Ivory Coast	Africa
Croatia	Europe
Cuba	Latin America/OWH
Cyprus	Europe
Czech Republic	Europe
Denmark	Europe
Djibouti	Africa
Dominica	Latin America/OWH
Dominican Republic	Latin America/OWH
Ecuador	Latin America/OWH
Egypt	Africa
El Salvador	Latin America/OWH
Equatorial Guinea	Africa
Eritrea	Africa
Estonia	Europe
Ethiopia	Africa
Fiji	Asia and Pacific
Finland	Europe
France	Europe
Gabon	Africa
Gambia, The	Africa
Georgia	Europe
Germany	Europe
Ghana	Africa
Greece	Europe
Greenland (Denmark)	Europe
Grenada	Latin America/OWH
Guam (U.S.)	Asia and Pacific
Guatemala	Latin America/OWH
Guinea	Africa
Guinea-Bissau	Africa
Guyana	Latin America/OWH
Haiti	Latin America/OWH

Holy See	Europe
Honduras	Latin America/OWH
Hong Kong	Asia and Pacific
Hungary	Europe
Iceland	Europe
India	Asia and Pacific
Indonesia	Asia and Pacific
Iran	Middle East
Iraq	Middle East
Ireland	Europe
Israel	Middle East
Italy	Europe
Jamaica	Latin America/OWH
Japan	Asia and Pacific
Jordan	Middle East
Kazakhstan	Asia and Pacific
Kenya	Africa
Kiribati	Asia and Pacific
Kosovo	Europe
Kuwait	Middle East
Kyrgyzstan	Asia and Pacific
Laos	Asia and Pacific
Latvia	Europe
Lebanon	Middle East
Lesotho	Africa
Liberia	Africa
Libya	Africa
Liechtenstein	Europe
Lithuania	Europe
Luxembourg	Europe
Macau	Asia and Pacific
Macedonia	Europe
Madagascar	Africa
Malawi	Africa
Malaysia	Asia and Pacific
Maldives	Asia and Pacific
Mali	Africa
Malta	Europe
Marshall Islands	Asia and Pacific
Mauritania	Africa
Mauritius	Africa
Mexico	Latin America/OWH
Micronesia, Federated States of	Asia and Pacific
Moldova	Europe
Monaco	Europe
Mongolia	Asia and Pacific

Montenegro	Europe
Morocco	Africa
Mozambique	Africa
Namibia	Africa
Nauru	Asia and Pacific
Nepal	Asia and Pacific
Netherlands	Europe
New Zealand	Asia and Pacific
Nicaragua	Latin America/OWH
Niger	Africa
Nigeria	Africa
North Korea	Asia and Pacific
Norway	Europe
Oman	Middle East
Pakistan	Asia and Pacific
Palau	Asia and Pacific
Panama	Latin America/OWH
Papua New Guinea	Asia and Pacific
Paraguay	Latin America/OWH
Peru	Latin America/OWH
Philippines	Asia and Pacific
Poland	Europe
Portugal	Europe
Puerto Rico (U.S.)	Not assigned to a region in this survey.
Qatar	Middle East
Romania	Europe
Russia	Europe
Rwanda	Africa
Saint Kitts and Nevis	Latin America/OWH
Saint Lucia	Latin America/OWH
Saint Vincent and the Grenadines	Latin America/OWH
Samoa	Asia and Pacific
San Marino	Europe
Sao Tome and Principe	Africa
Saudi Arabia	Middle East
Senegal	Africa
Serbia	Europe
Seychelles	Africa
Sierra Leone	Africa
Singapore	Asia and Pacific
Slovakia	Europe
Slovenia	Europe
Solomon Islands	Asia and Pacific
Somalia	Africa
South Africa	Africa
South Korea	Asia and Pacific

South Sudan	Africa
Spain	Europe
Sri Lanka	Asia and Pacific
Sudan	Africa
Suriname	Latin America/OWH
Swaziland	Africa
Sweden	Europe
Switzerland	Europe
Syria	Middle East
Taiwan	Asia and Pacific
Tajikistan	Asia and Pacific
Tanzania	Africa
Thailand	Asia and Pacific
Timor-Leste	Asia and Pacific
Togo	Africa
Tonga	Asia and Pacific
Trinidad and Tobago	Latin America/OWH
Tunisia	Africa
Turkey	Europe
Turkmenistan	Asia and Pacific
Turks and Caicos Islands (U.K.)	Latin America/OWH
Tuvalu	Asia and Pacific
Uganda	Africa
Ukraine	Europe
United Arab Emirates	Middle East
United Kingdom	Europe
Uruguay	Latin America/OWH
Uzbekistan	Asia and Pacific
Vanuatu	Asia and Pacific
Venezuela	Latin America/OWH
Vietnam	Asia and Pacific
Virgin Islands (U.K.)	Latin America/OWH
Virgin Islands (U.S.)	Latin America/OWH
Yemen	Middle East
Zambia	Africa
Zimbabwe	Africa

Note: OWH = Other Western Hemisphere. 'Latin America/OWH' includes Bermuda and the geographical regions of the Caribbean, Central America, and South America.

Domestic R&D performed by your company that was paid for by others

3-12 Copy the amount from Question 3-9, column 1. This is the domestic R&D performed by your company that was paid for by others.

Question 3-12 asks the company to copy the amount reported in Question 3-9 for domestic R&D costs performed by the company that was paid for by others. This survey defines this amount as "domestic R&D performed by your company that was paid for by others".

3-13 How much of the domestic R&D performed by your company that was paid for by others reported in Question 3-12 was for each business code listed or amended on page 6 of this form?

If the company does not track its R&D costs by line of business or product line, it should make a reasonable estimate.

If the company has R&D that applies to more than one business code, such as basic or applied research conducted by a central R&D group, it should allocate this R&D to all applicable business codes on a reasonable basis. Examples of allocation methods include allocating in proportion to sales by business code and allocating in proportion to R&D employees working for each business code.

3-14 How much of the amount reported in Question 3-12, was paid for by each of the following?

Question 3-14 asks the company to report how much of the domestic R&D paid for by your company in 2013 that was performed by nine specific types of organizations:

a. Other companies located inside the United States
   - Include for-profit hospitals
b. Your company's foreign parent (if you are owned by a foreign parent)
c. Other companies located outside the United States
d. U.S. federal government agencies or laboratories
e. U.S. state and local government agencies or laboratories
f. Foreign government agencies or laboratories
g. All other organizations inside the United States
h. All other organizations located outside the United States

3-15 Add Question 3-14, lines a, b, and c, and enter the result here. This is the R&D that was paid for by other companies.

Question 3-15 asks the company to enter the sum of Question 3-14, lines a, b, and c. This survey defines this amount as "R&D that was paid for by other companies".

3-16 Using the included list of business codes printed below, allocate the amount reported in Question 3-15 based on the industries of the companies that paid for the R&D. As needed, enter additional codes from pages 46-47 in the spaces provided.

These business codes should represent the industry of the company that is funding the R&D.

For example, if Company A specializes in R&D services in biotechnology (business code 54173) and is performing research and development for Company B, a pharmaceutical company (business code 32541), Company B's business code (32541) should be listed here.

3-17 Copy the amount from Question 3-14, line d. This is domestic R&D performed by your company that was paid for by the U.S. federal government.

Question 3-17 asks the company to copy the amount reported in Question 3-14, line d. This survey defines this amount as "domestic R&D performed by your company that was paid for by the U.S. federal government".

3-18 How much of the amount reported in Question 3-17 was paid for by the following agencies?

Question 3-18 asks the company to report the amount of R&D it performed in the domestic U.S. that was paid for by the U.S. Federal Government specific funding agencies.

3-19 How much of the amount reported in Question 3-17 was performed under the following types of agreements?

a. Contracts (include direct or prime contracts and subcontracts)
b. Grants, reimbursements, and all other agreements

Question 3-19 asks the company to identify the amounts by type of agreements used for the company's domestic R&D paid for by the U.S. federal government.

3-20 Subtract Question 3-17 from Question 3-12 and enter the result here. This is the domestic R&D performed by your company that was paid for by nonfederal sources.

Question 3-20 asks the company to subtract the amount reported in Question 3-17 from that reported in Question 3-12. This survey defines this amount as "domestic R&D performed by your company that was paid for by nonfederal sources".

3-21 How much of the following three amounts was performed in each state (including D.C.): (1) Domestic R&D paid for by the U.S. federal government reported in Question 3-17, (2) Domestic R&D paid for by nonfederal sources reported in Question 3-20, (3) Total domestic R&D performed by your company that was paid for by others reported in Question 3-12.

Question 3-21 asks the company to report how much of the domestic R&D it performed that was paid for by others was performed in each state (including D.C.) in 2013. The question asks the company to report how much of the R&D in each state was paid for by the U.S. federal government as opposed to all other sources. If the company is unable to assign all its R&D costs to specific states, it should use a reasonable allocation method to report R&D by state. Companies should note their allocation method in the space for "Remarks" at the end of the survey.

Why is this important?
This information is very important to policy makers who are interested in the geographic distribution of R&D activity and its role in regional economic development.

3-22 At what domestic location did your company perform the largest dollar amount of R&D that was paid for by others in 2013?

Question 3-22 asks the company to identify the location where the largest dollar value of the domestic R&D it performed that was paid for by others in 2013 took place.

3-23 How much of the amount reported in Question 3-12 was from the location identified in Question 3-22?

If the company is unable to allocate its R&D costs to a specific location, it should provide a reasonable estimate. Companies should note their allocation method in the space for "Remarks" at the end of the survey.

3-24 At what domestic location did your company perform the second largest dollar amount of R&D that was paid for by others in 2013?

Question 3-24 asks the company to identify the location where the second largest dollar value of the domestic R&D it performed that was paid for by others in 2013 took place.

3-25 How much of the amount reported in Question 3-12 was from the location identified in Question 3-24?

If the company is unable to allocate its R&D costs to a specific location, it should provide a reasonable estimate. Companies should note their allocation method in the space for "Remarks" at the end of the survey.

Projected R&D paid for by others in 2014

3-26 What are your company's projected 2014 costs for R&D that will be paid for by others?

Question 3-26 asks the company to project its 2014 costs for R&D that will be paid for by others. This amount is the 2014 projection for what is reported in Question 3-2.

3-27 How much of the projected costs in 2014 for R&D that will be paid for by others reported in Question 3-26 will be performed by your company in the United States?

Question 3-27 asks the company to project its 2014 costs for R&D it will perform in the domestic U.S. that will be paid for by others. This amount is the 2014 projection for what is reported in Question 3-12.

3-28 How much of the projected costs in 2014 for domestic R&D performed by your company that will be paid for by others reported in Question 3-27 will be paid for by the U.S. federal government?

Question 3-28 asks the company to project its 2014 costs for R&D it will perform in the domestic U.S. that will be paid for by the U.S. federal government. This amount is the 2014 projection for what is reported in Question 3-17.

Section 4: Management and Strategy of R&D

4-1 Copy the amount from Question 2-4. This is the <u>total R&D paid for by your company</u> in 2013.

This number can be found on page 10 of Form BRDI-1.

4-2 Is the amount entered in Question 4-1 greater than zero?

If no, questions 4-3 through 4-11 do not apply to your company. Please do not complete these questions. Skip to question 4-16 on page 37.

4-3 What percentage of the amount reported in Question 4-1 was directed toward business areas or product lines that are new to your company?

Question 4-3 asks what percent of the R&D the company paid for in 2013 was aimed at expanding the company's areas of business or product lines outside of its existing areas of expertise. The characteristics that define a business area or product line as "new" may differ from company to company and industry to industry, but they generally involve technologies and customers that are new to the company. The following are examples of R&D projects that would be reported in this question:

- A pharmaceutical company that specializes in anti-viral medications invests in a research project to develop a cancer treatment.
- A computer manufacturer invests in a project to develop a smart phone.
- A software company that specializes in anti-virus software invests in an R&D project to develop office productivity software.
- A semiconductor company that specializes in central processing units for computers invests in an R&D project to develop graphics processors.
- A manufacturer and distributor of beer invests in an R&D project to develop an energy drink.

Characteristics of domestic R&D paid for and performed by your company

4-4 Copy the amount from Question 2-15. This is the <u>domestic R&D paid for and performed by your company</u>.

This number can be found on page 14 of Form BRDI-1.

4-5 How much of the amount reported in Question 4-4 was for the following categories?

Research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge or understanding of phenomena and observable facts. Research may be either "basic", where the goal is primarily to increase understanding of a given topic without a specific commercial application in mind, or "applied", there the goal is to solve a specific problem or achieve a specific commercial objective.

Development is defined as the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes. In simple terms, the intended output of research is ideas and the intended output of development is products.

4-6 If you reported any research in Question 4-5, line a, how much of that research was for the following categories?

Research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge or understanding of phenomena and observable facts. Applied research has the goal of solving a specific problem or achieving a specific commercial objective. Basic research has the goal of increasing understanding of a given topic without a specific commercial application in mind.

For example, a project that aims to investigate the influence of different materials on fuel cell efficiency would be classified as basic research. A project that aims to improve fuel cell efficiency using new materials would be classified as applied research.

Areas of application for domestic R&D paid for and performed by your company

4-7 What percentage of the amount reported in Question 4-4 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?

The intent of this question is to measure the amount of R&D companies are investing in energy-related applications.

Only include costs for R&D projects where energy was an intended area of application from its inception. Do not include costs for R&D projects where energy was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with energy applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-7 through 4-11 could add to more than 100%.

4-8 What percentage of the amount reported in Question 4-4 had environmental protection applications, including pollution abatement?

The intent of this question is to measure the amounts of R&D companies are investing in environmental protection applications.

Only include costs for R&D projects where environmental protection was an intended area of application from its inception. Do not include costs for R&D projects where environmental protection was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with environmental protection applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-7 through 4-11 could add to more than 100%.

4-9 What percentage of the amount reported in Question 4-4 had defense applications, including military applications and general security-related R&D?

The intent of this question is to measure the amount of R&D companies are investing in defense applications. Defense applications include military applications and other national security applications. Exclude R&D for computer security applications such as anti-virus software unless it is intended for military/national security use.

Only include costs for R&D projects where defense was an intended area of application from its inception. Do not include costs for R&D projects where defense was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with defense applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-7 through 4-11 could add to more than 100%.

4-10 What percentage of the amount reported in Question 4-4 had health or medical applications?

Question 4-10 asks the company to report what percent of the domestic R&D it performed in 2013 had health or medical applications. The intent of this question is to measure the amount of R&D companies are investing in health-related applications.

Only include costs for R&D projects where health was an intended area of application from its inception. Do not include costs for R&D projects where health was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with health/medical applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-7 through 4-11 could add to more than 100%.

Note: Include clinical trials.

4-11 What percentage of the amount reported in Question 4-4 had agricultural applications?

This includes R&D into new and significantly improved fertilizers, pesticides, farm equipment, and crop management techniques. The intent of this question is to measure the amount of R&D companies are investing in agricultural-related applications.

Only include costs for R&D projects where agriculture was an intended area of application from its inception. Do not include costs for R&D projects where agriculture was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with agricultural applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-7 through 4-11 could add to more than 100%.

Technology focus of domestic R&D paid for and performed by your company

4-12 What percentage of the amount reported in Question 4-4 was for software products or software embedded in other projects or products?

See definitions in "Research and development activity in software" under guidance for Question 2-1. Include R&D in software for both packaged software that is sold/licensed to consumers as well as R&D in software for internet applications that generate revenue. This includes R&D in software developed specifically for an R&D project that has no alternative future use as well as R&D in software that is developed to be installed or run in other products sold by the company.

Include the total cost of an R&D project with software applications in the calculation for this question, even if the project has other applications. This means that the percentages reported in Questions 4-12 through 4-16 could add to more than 100%.

4-13 What percentage of the amount reported in Question 4-4 was for optics and photonics- science and technology involving the emission, processing, and detection of light, or the information carried by light?

Optics and photonics can encompass any R&D project involved in the study of the emission, processing, and detection of light, or of the information carried by light. This includes the spectrum ranging from the far infrared to x-rays. The R&D may be directed at the manufacturing of the optics and photonics product itself, or to any level of the application supply chain in which they are used (from materials studies to systems development or even the end-use application). The following list provides examples of optics and photonics technologies. The list is not intended to be exhaustive, but it is indicative of the types of activities included in the definition of optics and photonics.

- Optical semiconductor components, such as LEDs, laser diodes, image sensors, focal plane arrays, point detectors, and integrated photonics
- Solar (photovoltaic) cells and panels
- Displays, display components and subassemblies
- Lasers and laser systems
- LEDs, LED backlights, LED lamps, and LED lighting
- Optical fiber, cabled fiber, and optical fiber devices, such as fiber sensors
- Passive optics, such as lenses, mirrors, prisms, and crystals
- Coatings and coating services for optics and optical devices
- Optical assemblies, such as lens systems, sensor subsystems, and camera modules
- Hardware and software design of the above products

Include the total cost of an R&D project with optics and photonics applications in the calculation for this question, even if the project has other applications. This means that the percentages reported in Questions 4-12 through 4-16 could add to more than 100%.

See also: Question 4-14.

4-14 What percentage of the amount reported in Question 4-4 was for other projects or products enabled by optics and photonics science and technology?

This is meant to include any R&D investment that goes toward the design of photonics in a way that fundamentally enables a product or service. This definition is to be inclusive, not overly restrictive, and the product may be fundamentally dependent on other factors, too (such as electronics and software). It would not include R&D investment that adds no new value from the optics and photonics.

For example, it would include R&D invested to develop new LED lighting products, medical imaging systems based on new optical methods, or optical networking equipment. However, it would not include R&D for designing equipment that uses commodity LEDs as indicator lights, conventional displays that are used in conventional ways, or electronics and software development for IT systems that use optical transceivers only in a peripheral, conventional manner.

Include the total cost of an R&D project with optics and photonics enabled applications in the calculation for this question, even if the project has other applications. This means that the percentages reported in Questions 4-12 through 4-16 could add to more than 100%.

See also: Question 4-13

4-15 What percentage of the amount reported in Question 4-4 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?

The following list provides examples of biotechnology techniques. The list is not intended to be exhaustive, but it is indicative of the types of activities included in the definition of biotechnology.

- DNA/RNA: Genomics, pharmacogenomics, gene probes, genetic engineering, DNA/RNA sequencing/synthesis/amplification, gene expression profiling, and use of antisense technology.
- Proteins and other molecules: Sequencing/synthesis/engineering of proteins and peptides (including large molecule hormones); improved delivery methods for large molecule drugs; proteomics, protein isolation and purification, signaling, identification of cell receptors.

- Cell and tissue culture and engineering: Cell/tissue culture, tissue engineering (including tissue scaffolds and biomedical engineering), cellular fusion, vaccine/immune stimulants, embryo manipulation.
- Process biotechnology techniques: Fermentation using bioreactors, bioprocessing, bioleaching, biopulping, biobleaching, biodesulphurisation, bioremediation, biofiltration and phytoremediation.
- Gene and RNA vectors: Gene therapy, viral vectors.
- Bioinformatics: Construction of databases on genomes, protein sequences; modeling complex biological processes, including systems biology.
- Nanobiotechnology: Applies the tools and processes of nano/microfabrication to build devices for studying biosystems and applications in drug delivery, diagnostics, etc.

Include the total cost of an R&D project with biotechnology applications in the calculation for this question, even if the project has other applications. This means that the percentages reported in Questions 4-12 through 4-16 could add to more than 100%.

4-16 What percentage of the amount reported in Question 4-4 was for nanotechnology—the science and technology involving work at the nanometer scale?

Nanotechnology can encompass any R&D project involved in the study, creation, or use of objects at the nanoscale, which is generally considered to be 100 nanometers or smaller.

Many technologies related to conventional solid-state semiconductor manufacturing are capable of creating features smaller than 100 nanometers, so R&D involving these technologies should be included in this question.

Include the total cost of an R&D project with nanotechnology applications in the calculation for this question, even if the project has other applications. This means that the percentages reported in Questions 4-12 through 4-16 could add to more than 100%.

Domestic R&D performed by your company that was paid for by others

4-17 Copy the amount from Question 3-12. This is the domestic R&D performed by your company that was paid for by others.

This number can be found on page 25 of your survey.

4-18 Is the amount entered in Question 4-17 greater than zero?

If no, the rest of section 4 does not apply to your company. Please skip to section 5 on page 40.

4-19 How much of the amount reported in Question 4-17 was for the following categories?

Research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge or understanding of phenomena and observable facts. Research may be either "basic", where the goal is primarily to increase understanding of a given topic without a specific commercial application in mind, or "applied", there the goal is to solve a specific problem or achieve a specific commercial objective.

Development is defined as the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes. In simple terms, the intended output of research is ideas and the intended output of development is products.

4-20 If you reported any research in Question 4-19, line a, how much of that research was for the following categories?

Research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge or understanding of phenomena and observable facts. Applied research has the goal of solving a specific problem or achieving a specific commercial objective. Basic research has the goal of increasing understanding of a given topic without a specific commercial application in mind.

4-21 What percentage of the amount reported in Question 4-17 had <u>energy applications</u>, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?

The intent of this question is to measure the amount of R&D companies are investing in energy-related applications.

Only include costs for R&D projects where energy was an intended area of application from its inception. Do not include costs for R&D projects where energy was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with energy applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-21 through 4-25 could add to more than 100%.

4-22 What percentage of the amount reported in Question 4-17 had environmental protection applications, including pollution abatement?

Only include costs for R&D projects where environmental protection was an intended area of application from its inception. Do not include costs for R&D projects where environmental protection was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with environmental protection applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-21 through 4-25 could add to more than 100%.

4-23 What percentage of the amount reported in Question 4-17 had defense applications, including military applications and general security-related R&D?

Defense applications include military applications and other national security applications. Exclude R&D for computer security applications such as anti-virus software unless it is intended for military/national security use.

Only include costs for R&D projects where defense was an intended area of application from its inception. Do not include costs for R&D projects where defense was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with defense applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-21 through 4-25 could add to more than 100%.

4-24 What percentage of the amount reported in Question 4-17 had health or medical applications?

The intent of this question is to measure the amount of R&D companies are investing in health-related applications.

Only include costs for R&D projects where health was an intended area of application from its inception. Do not include costs for R&D projects where health was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with health/medical applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-21 through 4-25 could add to more than 100%.

Note: Include clinical trials.

4-25 What percentage of the amount reported in Question 4-17 had agricultural applications?

Question 4-25 asks the company to report what percent of the domestic R&D performed in 2013 that was paid for by others had agricultural applications. This includes R&D into new and significantly improved fertilizers, pesticides, farm equipment, and crop management techniques. The intent of this question is to measure the amount of R&D companies are investing in agricultural-related applications.

Only include costs for R&D projects where agriculture was an intended area of application from its inception. Do not include costs for R&D projects where agriculture was not an intended area of application until after the project was completed.

Include the total cost of an R&D project with agricultural applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-21 through 4-25 could add to more than 100%.

Technology focus of domestic R&D performed by your company that was paid for by others

4-26 What percentage of the amount reported in Question 4-17 was for software products or software embedded in other projects or products?

See definitions in "Research and development activity in software" under guidance for Question 2-1. Include R&D in software for both packaged software that is sold/licensed to consumers as well as R&D in software for internet applications that generate revenue. This includes R&D in software developed specifically for an R&D project that has no alternative future use as well as R&D in software that is developed to be installed or run in other products sold by the company.

Include the total cost of an R&D project with software applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-26 through 4-30 could add to more than 100%.

4-27 What percentage of the amount reported in Question 4-17 was for optics and photonics- science and technology involving the emission, processing, and detection of light, or the information carried by light?

Optics and photonics can encompass any R&D project involved in the study of the emission, processing, and detection of light, or of the information carried by light. This includes the spectrum ranging from the far infrared to x-rays. The R&D may be directed at the manufacturing of the optics and photonics product itself, or to any level of the application supply chain in which they are used (from materials studies to systems development or even the end-use application).

The following list provides examples of optics and photonics technologies. The list is not intended to be exhaustive, but it is indicative of the types of activities included in the definition of optics and photonics.

- Optical semiconductor components, such as LEDs, laser diodes, image sensors, focal plane arrays, point detectors, and integrated photonics
- Solar (photovoltaic) cells and panels
- Displays, display components and subassemblies
- Lasers and laser systems
- LEDs, LED backlights, LED lamps, and LED lighting
- Optical fiber, cabled fiber, and optical fiber devices, such as fiber sensors
- Passive optics, such as lenses, mirrors, prisms, and crystals
- Coatings and coating services for optics and optical devices
- Optical assemblies, such as lens systems, sensor subsystems, and camera modules
- Hardware and software design of the above products

Include the total cost of an R&D project with optics and photonics applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-26 through 4-30 could add to more than 100%.

See also: Question 4-28.

4-28 What percentage of the amount reported in Question 4-17 was for other projects or products enabled by optics and photonics science and technology?

This is meant to include any R&D investment that goes toward the design of photonics in a way that fundamentally enables a product or service. This definition is to be inclusive, not overly restrictive, and the product may be fundamentally dependent on other factors, too (such as electronics and software). It would not include R&D investment that adds no new value from the optics and photonics.

For example, it would include R&D invested to develop new LED lighting products, medical imaging systems based on new optical methods, or optical networking equipment. However, it would not include R&D for designing equipment that uses commodity LEDs as indicator lights, conventional displays that are used in conventional ways, or electronics and software development for IT systems that use optical transceivers only in a peripheral, conventional manner.

Include the total cost of an R&D project with optics and photonics applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-26 through 4-30 could add to more than 100%.

See also: Question 4-27.

4-29 What percentage of the amount reported in Question 4-16 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?

The following list provides examples of biotechnology techniques. The list is not intended to be exhaustive, but it is indicative of the types of activities included in the definition of biotechnology.

- DNA/RNA: Genomics, pharmacogenomics, gene probes, genetic engineering, DNA/RNA sequencing/synthesis/amplification, gene expression profiling, and use of antisense technology.
- Proteins and other molecules: Sequencing/synthesis/engineering of proteins and peptides (including large molecule hormones); improved delivery methods for large molecule drugs; proteomics, protein isolation and purification, signaling, identification of cell receptors.
- Cell and tissue culture and engineering: Cell/tissue culture, tissue engineering (including tissue scaffolds and biomedical engineering), cellular fusion, vaccine/immune stimulants, embryo manipulation.
- Process biotechnology techniques: Fermentation using bioreactors, bioprocessing, bioleaching, biopulping, biobleaching, biodesulphurisation, bioremediation, biofiltration and phytoremediation.
- Gene and RNA vectors: Gene therapy, viral vectors.
- Bioinformatics: Construction of databases on genomes, protein sequences; modeling complex biological processes, including systems biology.
- Nanobiotechnology: Applies the tools and processes of nano/microfabrication to build devices for studying biosystems and applications in drug delivery, diagnostics, etc.

Include the total cost of an R&D project with biotechnology applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-26 through 4-30 could add to more than 100%.

4-30 What percentage of the amount reported in Question 4-17 was for nanotechnology—the science and technology involving work at the nanometer scale?

Nanotechnology can encompass any R&D project involved in the study, creation, or use of objects at the nanoscale, which is generally considered to be 100 nanometers or smaller.

Many technologies related to conventional solid-state semiconductor manufacturing are capable of creating features smaller than 100 nanometers, so R&D involving these technologies should be included in this question.

Include the total cost of an R&D project with nanotechnology applications in the calculation for this question even if the project has other applications. This means that the percentages reported in Questions 4-26 through 4-30 could add to more than 100%.

Domestic R&D performed by your company that was paid for by the U.S. federal government

4-31 Copy the amount from Question 3-17. This is <u>domestic R&D performed by your company that was paid for by the U.S. federal government.</u>

This number can be found on page 27 of your survey.

4-32 Is the amount entered in Question 4-31 greater than zero?

If no, skip to section 5 on page 40. The rest of section 4 does not apply to your company; please do not complete these questions.

4-33 How much of the amount reported in Question 4-31 was for the following categories?

Research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge or understanding of phenomena and observable facts. Research may be either "basic", where the goal is primarily to increase understanding of a given topic without a specific commercial application in mind, or "applied", there the goal is to solve a specific problem or achieve a specific commercial objective.

Development is defined as the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes. In simple terms, the intended output of research is ideas and the intended output of development is products.

4-34 If you reported any research in Question 4-33, line a, how much of that research was for the following categories?

Research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge or understanding of phenomena and observable facts. Applied research has the goal of solving a specific problem or achieving a specific commercial objective. Basic research has the goal of increasing understanding of a given topic without a specific commercial application in mind.

For example, a project that aims to investigate the influence of different materials on fuel cell efficiency would be classified as basic research. A project that aims to improve fuel cell efficiency using new materials would be classified as applied research.

4-35 What percentage of the amount reported in Question 4-31 was for software products or software embedded in other projects or products?

See definitions in "Research and development activity in software" under guidance for Question 2-1. Include R&D in software for both packaged software that is sold/licensed to consumers as well as R&D in software for internet applications that generate revenue. This includes R&D in software developed specifically for an R&D project that has no alternative future use as well as R&D in software that is developed to be installed or run in other products sold by the company.

Section 5: Human Resources

5-1 What was the total number of worldwide employees working at your company for the pay period that included March 12, 2013?

In order to collect consistent data from all companies, the employment figure reported should be for the pay period that included March 12, 2013. If this is not possible, companies should report employment for the date closest to March 12, 2013 possible.

Leased and temporary employees and consultants should be excluded from this question because this survey does not consider them employees of the reporting company.

5-2 How many of the employees reported in Question 5-1 were employees of your company's domestic operations and foreign operations?

Question 5-2 asks the company to report, of the employees reported in Question 5-1, the number of employees employed by domestic operations and the number of employees that were employed by operations outside of the United States.

5-3 How many employees reported in Question 5-2 were R&D employees and how many were all other employees?

R&D employees include employees who work on R&D or who provide direct support to R&D such as researchers, R&D managers, technicians, clerical staff, and others assigned to R&D groups.

R&D employees exclude employees who provide indirect support to R&D, such as corporate personnel, security guards, and cafeteria workers.

The wages of the R&D employees reported in this question are included in the costs reported in sections 2 and 3 of this survey.

R&D Employees

5-4 Copy the numbers from 5-3, line a. These are your company's R&D employees.

Copy the number from 5-3, line a on page 40.

5-5 How many of the R&D employees reported in Question 5-4 were female employees and male employees?

Question 5-5 asks the company to report its total R&D employees based on their sex and location.

5-6 How many of the R&D employees reported in Question 5-4 worked in the occupations listed below?

The distinction between the different occupation categories is defined primarily by the nature of the employee's work, not the employee's level of education. The occupation categories "R&D scientists, engineers, and [their] managers" can be grouped together under the more generic category "Researchers". Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned.

R&D technicians and technologists are persons whose main tasks require technical knowledge and experience in one or more fields of science or engineering, but who contribute to R&D by performing technical tasks under the supervision of researchers. Biostatisticians supporting clinical trials would be reported in this category even though they may hold PhDs in their field.

The main distinction between researchers and technicians is that researchers contribute more to the creative aspects of R&D whereas technicians provide technical support. For example, a researcher (scientist or engineer) would design an experiment and a technician would run the experiment and assist in analyzing results.

R&D support staff is not directly involved with the conduct of a research project, but support the researchers and technicians. These employees might include clerical staff, report writers, regulatory experts, quality assurance, safety trainers, and other related employees.

Many Contract Research Organizations provide largely technical, regulatory, and administrative support to their customers for clinical trials. Most of these companies' R&D employees would be reported as R&D technicians or R&D support staff.

5-7 How many of the R&D scientists, engineers, and managers reported in Question 5-6, line a, had the following level of education?

Question 5-7 asks the company to specify how many of the employed R&D scientists, engineers, and managers have a PhD.

Domestics full-time equivalents (FTEs)

5-8 Of the domestic R&D employees reported in Question 5-4, column 1, what was the number of full-time equivalents (FTEs) for R&D activity for full-time R&D employees, other full-time employees not working solely on R&D, and part time employees?

The headcount of full-time equivalent R&D employees should be adjusted to account for employees who work part time as well as those employees who split their time between R&D and other activities. The purpose of this question is to accurately measure the amount of effort employees are devoting to R&D in the business sector.

5-9 Of the domestic R&D scientists, engineers, and their managers reported in Question 5-6, row a, column 1, what was the number of full-time equivalents (FTEs) for R&D activity for full-time R&D employees, other full-time employees not working solely on R&D, and part time employees?

The headcount of scientists and engineers should be adjusted to account for employees who work part time as well as those employees who split their time between R&D and other activities. The purpose of this question is to accurately measure the amount of effort scientists, engineers, and their managers are devoting to R&D in the business sector.

5-10 How many of the R&D scientists, engineers, and managers reported in Question 5-8, line a, were non-U.S. citizens employed in the United States under a temporary visa such as H-1B or L-1?

Question 5-10 asks how many domestic R&D FTE employees are employed under a temporary visa.

Section 6: Intellectual Property and Technology Transfer

Patents

6-1 How many patents did your company apply for in 2013 from the U.S. Patent and Trademark Office (USPTO)?

The intent of this question is to gather information about the output of companies' patenting activities. It is recognized that companies do not attempt to patent every invention, and that not every patent application results from an organized R&D activity.

Exclude the following types of continuing patent applications that do not add subject matter claimed in the parent patent application: continuation applications, requests for continued examination, divisional patent applications, and reissue applications. These types of patent applications are excluded to avoid double counting applications for the same subject matter. Continuation-in-part applications should be included because they add subject matter not claimed in the parent patent application.

Exclude provisional patent applications.

Foreign-owned companies that apply for U.S. patents on behalf of their foreign parents should only report the patent applications originating from its own operations. Patents filed on behalf of others not owned by the company (such as a foreign parent) should be excluded.

6-2 What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?

This information is useful as a measure of innovation both because it is an indicator of the potential global import of an invention and because it may indicate that the subject matter of the patent application is of high value.

6-3 What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&D activities?

Exclude patent applications where none of the named inventors are R&D employees.

6-4 How many patents were issued to your company in 2013 by the USPTO?

The intent of this question is to gather information about the output of companies' patenting activities. It is recognized that companies do not attempt to patent every invention, and that not every patent application results from an organized R&D activity.

Foreign-owned companies that apply for U.S. patents on behalf of their foreign parents should only report the patent grants that originated from its own operations. Patents filed on behalf of others not owned by the company (such as a foreign parent) should be excluded. In general, the company should only report patents for which it (the reporting company including its subsidiaries) is an assignee.

6-5 What percentage of your company's inventions considered for patenting in 2013 resulted in patent applications?

Many companies track this information through formal invention disclosure reports. This information is important because it provides a means to evaluate how useful patent applications are as a measure of innovation when comparing industries.

Exclude provisional patent applications.

Patent Licensing

6-6 What was the amount of your company's patent licensing revenue in 2013?

Question 6-6 asks the company to report the revenue it earned in 2013 from licensing its patents. Companies should only report revenue from the licensing of patents it (the reporting company) owns. Exclude revenue from sub-licensing.

Companies should only report revenue from licensing of patents to companies/organizations not owned by the reporting company. If a reporting company is foreign-owned, it should report revenue generated from licensing patents to its foreign owner and to other affiliated companies it does not own.

6-7 How many new agreements did your company enter into during 2013 to license patents to others not owned by your company?

Question 6-7 asks the company to report how many new licensing agreements it entered into in 2013 to license its patents to other parties.

Intellectual property transfer activities

6-8 Did your company perform the following activities in 2013?

Question 6-8 asks the company to indicate whether or not it performed any of a specific list of technology transfer activities in 2013.

Intellectual property protection

6-9 During 2013, how important to your company were the following types of intellectual property protection?

Question 6-9 asks the company to indicate the importance of different methods of intellectual property protection to its business.

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U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

FORM
BRD-1(S) (11-05-2013)

2013 BUSINESS R&D SURVEY

OMB No. 0607-0912: Approval Expires 01/31/2015

DUE DATE:

Need help or have questions about filling out the form?

Visit econhelp.census.gov/brdscr Here, you can access helpful tools, get question-by-question detailed instructions and learn more about the survey.

Call 1-800-772-7851, between 8:00 a.m. and 5:00 p.m. Eastern time, Monday through Friday. Choose option '1' for English, then option '5' to speak with a survey specialist.

Or write to the address below. Include your 11-digit ID printed on the mailing label.

Please file your form electronically (see details below).

Or mail your completed form to:

U.S. CENSUS BUREAU
1201 East 10th Street
Jeffersonville, IN 47132-0001

INFORMATION COPY ONLY

(Please correct any errors in this mailing address)

YOUR RESPONSE IS REQUIRED BY LAW. Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the U.S. Census Bureau. Respondents are not required to respond to any information collection unless it displays a valid approval number from the Office of Management and Budget (OMB). The OMB number appears at the top of this page.

YOUR RESPONSE IS CONFIDENTIAL BY LAW. Title 13, United States Code, requires that your response be seen only by persons sworn to uphold the confidentiality of Census Bureau information and may be used only for statistical purposes. Further, copies retained in respondents' files are immune from legal process.

Why did your company receive this survey?

The Census Bureau surveys a broad cross section of U.S. businesses to better identify which companies engage in R&D activities. Even companies that have no R&D activity are required to complete the survey. The data all companies provide are used to produce economic indicators related to sales, employment and patenting.

INTERNET REPORTING OPTION AVAILABLE – We encourage you to complete this survey online at: econhelp.census.gov/brdscr

User ID: **Password:**

You may submit your survey online via a secure website. Online submission allows you to save the data on secure Census Bureau servers as you go, so you can save, exit, and resume later without losing any of your data. It also allows you to save a paper or electronic copy of your completed survey.

~ This survey is jointly conducted by the U.S. Census Bureau and the National Science Foundation ~

What is Research and Development (R&D)?

R&D is planned, creative work aimed at discovering new knowledge or developing new or significantly improved goods and services. This includes a) activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses (basic research); b) activities aimed at solving a specific problem or meeting a specific commercial objective (applied research); and c) systematic use of research and practical experience to produce new or significantly improved goods, services, or processes (development).

The term R&D does NOT include expenditures for:

- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Market research
- Efficiency surveys or management studies
- Literary, artistic, or historical projects, such as films, music, or books and other publications
- Prospecting or exploration for natural resources

Does R&D include development of software and Internet applications?

Only development of software and Internet applications that include an element of uncertainty and that are intended to close gaps and meet scientific and technological needs should be reported as R&D on this survey.

R&D activity in software includes:

- Development of new software
- Significant improvement of existing software based on new/novel methods and applications
- Construction of new theories and algorithms in the field of computer science

R&D activity in software does NOT include:

- Creation of new software based on known methods and applications
- Support for existing systems
- Conversion or translation of existing software and software languages
- Adaptation of a product to a specific client, unless knowledge that significantly improved the base program was added in that process
- Routine debugging of existing systems and software

Reporting unit

The reporting unit is your company, including all subsidiaries and divisions. Include subsidiary companies where there is more than 50 percent ownership.

Reporting period

Report data for the calendar year 2013, if possible, or for your company's fiscal year ending between April 2013 and March 2014.

Estimates are acceptable

Please report all items to the best of your ability.

For further instructions, please visit: econhelp.census.gov/brdscr

Company Information

1 **Please provide the name and phone number of the person completing this survey.**

Name

Telephone

Area code Number Extension

E-mail address

2 **Did another company other than a holding company own more than 50 percent of your company during 2013?**

☐ Yes ➔ **Please provide the following information:**

Name of parent company

Date parent company purchased your company (MM) (DD) (YYYY)

Is your Parent Company located outside the United States?

☐ Yes (foreign owner) ➔ **Please follow these instructions:**

REPORTING INSTRUCTIONS FOR FOREIGN-OWNED COMPANIES:
If your company is foreign-owned, the reporting unit for the survey is your U.S.-based company, including all its majority-owned subsidiaries and divisions regardless of location. For reporting purposes, your foreign owner and any other foreign affiliates your company does not own should be treated the same as any other customer or business partner you do not own.

If you pay your foreign owner for R&D services, those costs should be included in your response to Question 7.

If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your response to Question 12, line a.

☐ No (U.S. owner) ➔ **Please provide the following information:**

EIN of parent company (9 digits)

REPORTING INSTRUCTIONS FOR U.S.-OWNED COMPANIES:
If your company was purchased between April 1, 2013 and December 31, 2013, report only for the period January 1, 2013 to the date of purchase. If your company was purchased before April 1, 2013, return this form to the Census Bureau – you are not required to complete the rest of this survey.
Disregard these instructions if your owner instructs you to complete this survey.

☐ No

3 **Has your company ceased operations?**

☐ Yes ➔ **Please provide the following information:**

Date your company ceased operations (MM) (DD) (YYYY)

REPORTING INSTRUCTIONS:
If your company ceased operations between April 1, 2013 and December 31, 2013, report only for the period January 1, 2013 to the date your company ceased operations. If your company ceased operations before April 1, 2013, return this form to the Census Bureau – you are not required to complete the rest of this survey.

☐ No

4 **Please describe your company's primary business activity during 2013.**

5 **What was the amount of your company's worldwide sales and revenues during 2013?**

Include:
- Sales and operating revenues for discontinued operations

$Bil. Mil. Thou.

6 **How much of the amount reported in Question 5 was attributable to or originated from domestic operations?**

Include:
- Sales and operating revenues to foreign customers, including foreign subsidiaries

Example: US Manufacturing Corporation sells parts to customers around the world. However, because all its operations are located inside the United States it reports 100% of its sales in this question.

$Bil. Mil. Thou.

R&D paid for by your company

7 **What was the total worldwide R&D expense for your company in 2013?**

If your company is publicly traded, this amount is equivalent to that disclosed on SEC Form 10-K as defined in FASB ASC Topic 730, Research and Development (FASB Statement No. 2, "Accounting for Research and Development Costs.")
If your company is foreign-owned, refer to the instructions on page 3. Additional guidance, such as for **privately owned companies,** is available online at econhelp.census.gov/brdscr.

NOTE: Report your company's R&D expense even if the amount is not considered material for your company's financial statements.

$Bil. Mil. Thou.

8 **Is the amount entered in Question 7 greater than zero?**

☐ Yes ➔ **Continue with Question 9**

☐ No ➔ **Skip to Question 12 on page 6**

9 **Does the amount reported in Question 7 include any of the following costs?**

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements . . . . . ☐ Yes ☐ No

b. R&D paid for by government or private foundation grants . . . . . ☐ Yes ☐ No

c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees) . . . . . ☐ Yes ☐ No

d. Bid and proposal costs . . . . . ☐ Yes ☐ No

e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (in-process R&D) . . . . . ☐ Yes ☐ No

10 **If you answered "Yes" to any of the costs in Question 9, what was the amount of these costs that was included in your response to Question 7?**

$Bil. Mil. Thou.

11 **Subtract Question 10 from Question 7 and enter the result here. This is the <u>total R&D paid for by your company</u> in 2013.**

$Bil. Mil. Thou.

R&D paid for by others

12 **What were your company's total worldwide costs (both direct and indirect) in 2013 for the following that were funded, paid for, or reimbursed by others not owned by your company?**

Exclude:
- Costs that were paid for by your company, such as those reported in Question 11
- Payments in excess of the actual cost of the work performed (such as profit or fees)

	$Bil.	Mil.	Thou.
a. R&D that was reimbursed by your company's foreign parent (if you are owned by a foreign parent)			
b. Collaborative R&D that was reimbursed by business partners, such as through cost-sharing agreements			
c. R&D paid for by government or private foundation grants			
d. Defense RDT&E goods or services (including DOD 6.1 through 6.7 funding), provided as a prime or as a sub, to the government and/or government contractors			
e. Medical nonclinical R&D services provided to others not owned by your company			
f. Medical clinical trial Phase I-III services provided to others not owned by your company (include pass-through costs)			
g. Nondefense custom software development and/or computer systems designed for others not owned by your company			
h. Prototype development, production, and testing for customer's products prior to their introduction to the market (excluding defense-related prototyping reported in line d)			
i. All other R&D services, not included above, provided to the Federal Government or to others not owned by your company			
j. **Total**			

Exclude:
- Software development that does not depend on a scientific or technological advance, such as adding functionality to existing application programs, debugging systems, and adapting existing software

Employees

13 **What was the total number of worldwide employees working at your company for the pay period that included March 12, 2013?**

Include:
- Full- and part-time employees

Exclude:
- Leased or temporary employees and on-site consultants

Number

14 **How many of the employees reported in Question 13 were employees of your company's domestic operations and foreign operations?**

Domestic operations employees include all employees whose payroll was reported on the first quarter filing of IRS Form 941, Employer's Quarterly Tax Return.

	(1) Domestic operations	(2) Foreign operations	(3) Total employees
Employees			

Total equals Question 13

15 **How many employees reported in Question 14 were R&D employees and how many were all other employees?**

R&D employees include all employees who work on R&D or who provide direct support to R&D, such as researchers, R&D managers, technicians, clerical staff, and others assigned to R&D groups. **Exclude** employees who provide only indirect support to R&D, such as corporate personnel, security guards, and cafeteria workers.

	(1) Domestic operations	(2) Foreign operations	(3) Total employees
a. R&D employees			
b. All other employees . . .			
c. **Total employees**.			

Total line equals Question 14

16 **Of the domestic R&D employees reported in Question 15, line a, what was the number of full-time equivalent (FTE) R&D employees working at your company for the pay period that included March 12, 2013?**

Full-time equivalent (FTE) R&D employees are an estimate of the manpower devoted to R&D activities. Count each full-time R&D employee as 1 FTE and all other employees based on the fraction of their time devoted to R&D. These amounts may be less than those reported in Question 15, line a.

	(1) Domestic operations
FTE R&D employees.	

Patents

17 **How many patents did your company apply for in 2013 from the U.S. Patent and Trademark Office (USPTO)?**

Number

18 **How many patents were issued to your company in 2013 by the USPTO?**

Number

19 **Approximately how long did it take to complete this survey?**

Hours Minutes

:

Remarks (Please use the space below for any explanations that may help us understand your reported data.)

Thank You – Your Response is Important

Accurate and timely statistical information could not be produced without your continued cooperation and goodwill. Thank you.

We estimate that it will take from .5 to 6 hours to complete this form, with 1.5 hours being the average. This includes time to read instructions, develop or assemble materials, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

PLEASE MAKE A COPY OF THIS FORM FOR YOUR RECORDS AND RETURN THE ORIGINAL

2013 BRDS - Guidelines

General guidelines for reporting inter-company transactions in this survey:

Reporting for "worldwide activities"- The reporting unit is your company, including all domestic and foreign subsidiaries that are more than 50% owned by your company for financial reporting purposes. All transactions between subdivisions within this reporting unit should be eliminated as inter-company transactions. For reporting purposes, your foreign parent (if you are foreign owned) and any foreign affiliates your company does not own by more than 50% should not be treated as part of 'your company' in your report. Transactions with these units should be treated the same as with any unrelated third parties such as business partners, customers, or suppliers you do not own.

Reporting for "domestic operations"- In this survey "domestic operations" refers to your company's operations located in the 50 United States and D.C. When reporting for your domestic operations, include transactions with foreign subsidiaries. For example, Question 6 asks how much of your company's total sales and revenues were from your company's domestic operations. All revenue from the domestic operations, including sales to subsidiaries or affiliated companies overseas, should be reported in this question.

Company Information

1 Please provide the name and phone number of the person completing this survey.

The survey coordinator is the person who is in charge of managing your company's responses to this survey and submitting the survey to the U.S. Census Bureau. The survey coordinator will need to collaborate with employees from other divisions/departments within your company such as the product development, R&D, human resources, finance and legal departments.

Why is this important?
This information gives the Census Bureau a single point of contact at each company surveyed in case questions arise about survey responses. The point of contact for this survey may differ from that for other Census Bureau surveys.

2 Did another company other than a holding company own more than 50 percent of your company during 2013?

Question 2 asks about the ownership of the company receiving the survey. Special reporting instructions apply to companies that have been acquired by another company. If your answer is "No" skip to question 3. If your answer is "Yes" continue with question 2.

Is your Parent Company located outside of the United States?

If your company is owned by a foreign company, check "Yes" and follow these instructions: If your company is foreign-owned, the reporting unit for this survey is your U.S.-based company, including all its majority-owned subsidiaries and divisions regardless of location. For reporting purposes, your foreign owner and any foreign affiliates your company does not own should be treated the same as any other customer or business partner you do not own.

If you pay your foreign owner for R&D services, those costs should be included in your responses as "costs for purchased R&D services."

If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses as "costs funded, paid for, or reimbursed by others."

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you make adjustments in order to conform to U.S. GAAP.

If your company is owned by a U.S. based company, check "No" and enter the owner's EIN. If your company was purchased before April 1, 2013, stop here and return the survey to the Census Bureau. If your company was purchased between April 1, 2013 and December 31, 2013, report only for the period January 1, 2013 to the date of purchase.

Example 1: Company A was acquired by Company P (a US company) on Feb. 1, 2013. Because Company A was acquired by a US company prior to April 1, 2013, Company A is not required to complete this survey. Company A will stop here and return the form to the Census Bureau.

Example 2: Company B is acquired by Company P (a US company) on July 1, 2013. Because Company B was acquired by a US company on or after April 1, 2013, Company A is instructed to complete the survey, reporting data for the period January 1, 2013 through July 1, 2013.

Why April 1?
The Census Bureau has determined that for this survey the benefit of collecting data from a company for a period less than one quarter of a year does not outweigh the burden placed on the company to report the data.

Why is this important?
Companies are asked this question for three reasons: to eliminate double counting in cases where both parties in a business acquisition receive the survey; to guide foreign-owned companies to special instructions; and to reduce the burden on companies who would otherwise be reporting data for a period less than one quarter of the year.

3 Has your company ceased operations?

Scenario 1: Your company ceased operations before April 1, 2013. Complete questions 1 through 3 and return the survey to the Census Bureau.
Scenario 2: Your company ceased operations between April 1, 2013 and December 31, 2013. You should complete the survey as instructed and report for the period from January 1, 2013 to the date your company ceased operations.

Why April 1?
The Census Bureau has determined that for this survey the benefit of collecting data from a company for a period less than one quarter of a year does not outweigh the burden placed on the company to report the data.

Why is this important?
Data from companies that have ceased operations during 2013 are needed in order to accurately measure the total activity of companies operating in the United States during 2013.

4 Please describe your company's primary business activity during 2013.

This information is needed in order to tabulate more accurate and useful industry-level data.

5 What was the amount of your company's worldwide sales and revenues during 2013?

Your company's worldwide sales and revenue would include sales by your foreign operations and subsidiaries, as well as, revenues from domestic operations. If your company is owned by a foreign parent, report sales to your parent and those affiliates not owned by your company.

Include sales and operating revenues for discontinued operations.

Exclude non-operating income such as dividends and interest as well as excise, sales, and other revenue-based taxes.

6 How much of the amount reported in Question 5 was attributable to or originated from domestic operations?

Question 6 asks for the company's sales and revenues generated by domestic operations regardless of where the customers are located. "Domestic sales" does not mean sales to customers located in the United States. If your company is owned by a foreign parent, then sales to your parent and those affiliates not owned by your company are included

R&D paid for by your company

7 What was the total worldwide R&D expense for your company in 2013?

Question 7 requests total worldwide R&D expense. The reporting unit is your company, including all domestic and foreign subsidiaries that are more 50% owned by your company for financial reporting purposes. All transactions between subdivisions within this reporting unit should be eliminated as inter-company transactions. Total worldwide R&D expense also includes payments by your company for R&D services performed by (i) unrelated third parties, (ii) affiliates for which your company has less than a 50% ownership stake and/or (iii) your foreign parent, if your company is foreign owned.

Scenario 1: Your company is publicly traded. Report worldwide R&D expense as reported on SEC Form 10-K as defined in FASB ASC Topic 730, Research and Development (FASB Statement No. 2, "Accounting for Research and Development Costs.")

Scenario 2: Your company is foreign-owned. Report the R&D expense figure of the U.S.-located company and domestic and foreign subsidiaries that are more than 50% owned by your U.S.-located company, if any. Do not include expenses by your foreign parent or by any foreign affiliate your U.S.-located company does not own. For reporting purposes, these entities should be treated the same as any unrelated third party such as a customer or supplier you do not own.

Scenario 3: Your company is privately owned. You should follow the same procedures as public companies when reporting R&D expense and follow the guidance in FASB ASC Topic 730, Research and Development (FASB Statement No. 2, "Accounting for Research and Development Costs."). Privately held companies that cannot report on this basis should note reporting principles and difficulties in the space for "Remarks" at the end of the survey.

The following are examples of activities that typically would be **excluded** from research and development in accordance with FASB Statement No. 2, "Activities Constituting Research and Development" (http://www.fasb.org/pdf/fas2.pdf) :

a. Engineering follow-through in an early phase of commercial production.
b. Quality control during commercial production including routine testing of products.
c. Trouble-shooting in connection with break-downs during commercial production.
d. Routine, on-going efforts to refine, enrich, or otherwise improve upon the qualities of an existing product.
e. Adaptation of an existing capability to a particular requirement or customer's need as part of a continuing commercial activity.
f. Seasonal or other periodic design changes to existing products.
g. Routine design of tools, jigs, molds, and dies.
h. Activity, including design and construction engineering, related to the construction, relocation, rearrangement, or start-up of facilities or equipment other than (1) pilot plants (see paragraph 9(h)) and (2) facilities or equipment whose sole use is for a particular

research and development project (see paragraph 11(a)).

i. Legal work in connection with patent applications or litigation, and the sale or licensing of patents.

Exclude from worldwide R&D expense:

- Costs for R&D that was paid for by a 3rd party such as R&D performed under contract.
- For medical products companies, exclude costs for phase IV clinical trials since these trials take place after products have achieved technical and market feasibility.

Research and development activity in software:

Does R&D include development of software and Internet applications?

- Yes, as long as the research and development activities include an element of uncertainty, are intended to close knowledge gaps, and meet scientific and technological needs.
- Report in this survey all software R&D as defined here regardless of the eventual user (internal or external).

R&D activity in software includes:

- Software development or improvement activities that expand scientific or technological knowledge
- Construction of new theories and algorithms in the field of computer science

R&D activity in software EXCLUDES:

- Software development that does not depend on a scientific or technological advance, such as:
  - supporting or adapting existing systems
  - adding functionality to existing application programs, and
  - routine debugging of existing systems and software
- Creation of new software based on known methods and applications
- Conversion or translation of existing software and software languages
- Adaptation of a product to a specific client, unless knowledge that significantly improved the base program was added in that process

For further guidance on accounting for software development costs see FASB Statement No. 86 (Accounting for the Costs of Computer Software to Be Sold, Leased); and FASB Interpretation No. 6 (Applicability of FASB Statement No. 2 to Computer Software).

8 Is the amount entered in Question 7 greater than zero?

Question 8 instructs the company to skip to Question 12 on page 6 if its response to Question 7 is zero.

9 Does the amount reported in Question 7 include any of the following costs?

Although most companies share a general framework for R&D, we request that certain items be excluded for the sake of consistency. Certain costs and expenses are to be reported in Question 12 reflecting your company's R&D activities that was paid for by others.

Question 9 asks whether the company's R&D expense figure reported in Question 7 included costs for five specific categories:

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements
   - These agreements are very common in the biotechnology and pharmaceutical industries, but less so in other industries.
b. R&D paid for by government or private foundation grants
   - Examples include Small Business Innovation and Research (SBIR) grants, Department of Energy demonstration grants, and Gates Foundation research grants.
c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees)
   - This category most often applies to software and service companies where R&D staff also provide technical support and/or services to customers
d. Bid and proposal costs
   - This category represents the costs a company incurs applying to win a contract. Some government contractors group these costs with their R&D spending.
e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (In-process R&D).

Why is this important?
Not all companies treat the five cost categories listed in this question consistently with respect to their inclusion or exclusion from R&D expense figures. This question allows the survey to measure and correct for these inconsistencies.

10 If you answered "Yes" to any of the costs in Question 9, what was the amount of these costs that was included in your response to Question 7?

Question 10 asks the company to estimate the amount of its R&D expense figure reported in Question 7 that was from the categories listed in Question 9.

Why is this important?
The five cost categories listed in Question 9 are not treated consistently by all companies with respect to their inclusion or exclusion from R&D expense figures. This question allows the survey to measure and correct for these inconsistencies.

See also: Question 9, Question 11

11 Subtract Question 10 from Question 7 and enter the result here. This is the total R&D paid for by your company in 2013.

Question 11 asks the company to subtract the amount reported in Question 10 from the amount reported in Question 7. This survey refers to this amount as "total R&D paid for by your company".

Why is this important?
The five cost categories listed in Question 9 are not treated consistently by all companies with respect to their inclusion or exclusion from R&D expense figures. This question allows the survey to measure and correct for these inconsistencies.

See also: Question 9, Question 10

R&D paid for by others

12 What were your company's total worldwide costs (both direct and indirect) in 2013 for the following that were funded, paid for, or reimbursed by others not owned by your company?

Costs should be considered "funded, paid for, or reimbursed by others" if the company has been or expects to be paid for the costs by a customer, business partner, or grant-making organization.

Note: Foreign-owned companies should reports costs that are funded, paid for, or reimbursed by their foreign owner in this question.

Exclude payments in excess of the actual cost of the work performed (such as profits or fees).

Costs that were reported in Question 11 should not be double counted in this question.

If your company administers a federally-funded research and development center (FFRDC) for an agency of the federal government, all such R&D costs should be excluded for reporting to this survey. For a complete list of FFRDCs, see http://www.nsf.gov/statistics/ffrdclist/.

The categories in this question, listed below, define what the survey terms, "R&D paid for by others":

a. R&D that was reimbursed by your company's foreign parent (if you are owned by a foreign parent)
b. Collaborative R&D that was reimbursed by business partners, such as through cost-sharing agreements
    - These agreements are very common in the biotechnology and pharmaceutical industries, but less so in other industries.
c. R&D paid for by government or private foundation grants
    - Examples include Small Business Innovation and Research (SBIR) grants, Department of Energy demonstration grants, and Gates Foundation research grants.

d. Defense RDT&E goods or services (including DOD 6.1 through 6.7 funding), provided as a prime or as a sub, to the government and/or government contractors
   - This category most often applies to defense contractors and subcontractors performing tasks such as designing, building, and testing prototypes of new military weapon systems and developing custom software for defense applications.
   - Include all defense R&D funded by the Department of Defense (DOD), the Department of Energy's weapons programs, the Department of Homeland Security, and other Federal agencies.
   - R&D funds from DOD include all funds for research, development, test, and evaluation (RDT&E) activities (6.1 through 6.7 budget appropriations).
   - Include defense R&D performed as a prime contractor and/or as a subcontractor.
e. Medical nonclinical R&D services provided to others not owned by your company
   - Nonclinical (also known as preclinical) research and development involves research on potential medical products that does not involve human subjects. This R&D consists of both *in vitro* studies as well as studies using animal subjects.
f. Medical clinical trial Phase I-III services provided to others not owned by your company (include pass-through costs)
   - This category involves the testing of potential medical products in human subjects. Phase I – III clinical trials must be successfully passed in order for a product to be approved for use in the general population.
   - Exclude costs for Phase IV clinical trials because these trials take place after a product has been approved for sale.
g. Nondefense custom software development and/or computer systems designed for others not owned by your company
   - See definitions in "Research and development activity in software" under guidance for Question 2-1.
   - This category includes the development of new or significantly improved software, both as an end product and for use embedded in other products.
   - Exclude: Software development that does not depend on a scientific or technological advance such as adding functionality to existing application programs, debugging systems, and adapting existing software.
   - Software development for defense-related applications should be reported in line d.
h. Prototype development, production, and testing for customer's products prior to their introduction to the market (excluding defense-related prototyping reported in line d)
   - Exclude quality control testing and other testing services for products already on the market.
i. All other R&D, not included above, provided to the Federal Government or to others not owned by your company

Employees

13 What was the total number of worldwide employees working at your company for the pay period that included March 12, 2013?

Question 13 asks the company to report its total number of employees (both R&D and non-R&D employees) for all locations, both foreign and domestic. In order to collect consistent data from all companies, the employment figure reported should be for the pay period that included March 12, 2013. If this is not possible, companies should report employment for the date closest to March 12, 2013 possible.

Leased and temporary employees and consultants should be excluded from this question because this survey does not consider them employees of the reporting company.

14 How many of the employees reported in Question 13 were employees of your company's domestic operations and foreign operations?

Question 14 asks the company to report, of the employees reported in Question 13, the number of employees employed by domestic operations and the number of employees that were employed by operations outside of the United States.

15 How many employees reported in Question 14 were R&D employees and how many were all other employees?

Question 15 asks the company to report how many of its employees were R&D employees.

R&D employees include employees who work on R&D or who provide direct support to R&D such as researchers, R&D managers, technicians, clerical staff, and others assigned to R&D groups.

R&D employees exclude employees who provide indirect support to R&D, such as corporate personnel, security guards, and cafeteria workers.

16 Of the domestic R&D employees reported in Question 15, line a, what was the number of full-time equivalent (FTE) R&D employees working at your company for the pay period that included March 12, 2013?

Question 16 asks the company to report the number of full-time equivalent employees engaged in R&D using the same reference period as the earlier employee questions. The headcount of full-time equivalent R&D employees should be adjusted to account for employees who work part time as well as those employees who split their time between R&D and other activities. The purpose of this question is to accurately measure the amount of effort employees are devoting to R&D in the business sector.

Patents

17 How many patents did your company apply for in 2013 from the U.S. Patent and Trademark Office (USPTO)?

Question 17 asks the company to report the number of U.S. patents it applied for in 2013. The intent of this question is to gather information about the output of companies' patenting activities. It is recognized that companies do not attempt to patent every invention, and that not every patent application results from an organized R&D activity.

Exclude the following types of continuing patent applications that do not add subject matter claimed in the parent patent application: continuation applications, requests for continued examination, divisional patent applications, and reissue applications. These types of patent applications are excluded to avoid double counting applications for the same subject matter. Continuation-in-part applications should be included because they add subject matter not claimed in the parent patent application.

Exclude provisional patent applications.

Foreign-owned companies that apply for U.S. patents on behalf of their foreign parents should only report the patent applications originating from its own operations. Patents filed on behalf of others not owned by the company (such as a foreign parent) should be excluded. In general, the company should only report patent applications for which it (the reporting company) is an assignee.

18 How many patents were issued to your company in 2013 by the USPTO?

Question 18 asks the company to report the number of U.S. patents it was granted in 2013. The intent of this question is to gather information about the output of companies' patenting activities. It is recognized that companies do not attempt to patent every invention, and that not every patent application results from an organized R&D activity.

Foreign-owned companies that apply for U.S. patents on behalf of their foreign parents should only report the patent grants that originated from its own operations. Patents filed on behalf of others not owned by the company (such as a foreign parent) should be excluded. In general, the company should only report patents for which it (the reporting company including its subsidiaries) is an assignee.

19 Approximately how long did it take to complete this survey?

Question 19 asks you to estimate the time in hours and minutes that it took to complete this survey. This helps us understand the amount of burden the survey averages for companies.

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