



## **Business Research and Development and Innovation: 2011**

Detailed Statistical Tables | NSF 15-307 | December 2014

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### **General Notes**

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The Business R&D and Innovation Survey (BRDIS), successor to the Survey of Industrial Research and Development, is the primary source of information on research and development expenditures and on the R&D workforces 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 National Center for Science and Engineering Statistics.

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, the 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 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 the BRDIS, data are collected from a probability sample of for-profit companies, which are classified in select manufacturing and nonmanufacturing industries. The BRDIS is administered both to companies known to have performed 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 (human resources, accounting, R&D managers, etc.) in the company. 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 the 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 or fund R&D in the United States. A company is defined as one or more establishments under common domestic ownership or control.

The Census Bureau's Business Register contains information on more than 3 million establishments with paid employees. It serves as the primary input to the sample 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 the BRDIS or have fewer than five employees, based on their prior year's aggregated annual payroll and employment data.

Terms used in business accounting and incorporated throughout the tables are defined in the technical notes.

The BRDIS reports and data can be found at <http://www.nsf.gov/statistics/industry/>.

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TABLE 1. Business R&amp;D and Innovation Survey aggregate estimates, by questionnaire reference: 2011

Question	Survey item	Aggregate amount
Company and financial information (US\$millions)		
1.8	Worldwide net sales and operating revenues	12,900,545
1.9	Net sales and operating revenues from domestic operations	9,107,507
2.4	Worldwide R&D paid for by the company	341,335
2.7a	Domestic R&D paid for by the company	268,376
2.7b	Foreign R&D paid for by the company	72,958
Domestic R&D paid for by the company		
2.10a(1)	Salaries, wages, and fringe benefits	141,487
2.10b(1)	Stock-based compensation	9,945
2.10c(1)	Temporary staffing	10,145
2.10d(1)	Expensed equipment	2,938
2.10e(1)	Materials and supplies	15,961
2.10f(1)	Lease and rental payments	3,677
2.10g(1)	Depreciation and amortization	9,796
2.10h(1)	Payments to business partners for collaborative R&D	5,617
2.10i(1)	Purchased R&D Services	23,991
2.10j(1)	All other purchased services except R&D	5,959
2.10k(1)	All other costs	38,860
2.11(3)	Worldwide R&D performed by others	37,529
2.11(1)	Domestic R&D performed by others	29,608
2.11(2)	Foreign R&D performed by others	7,921
2.12(3)	Worldwide R&D performance	303,806
2.12(1)	Domestic R&D performance	238,768
2.12(2)	Foreign R&D performance	65,038
2.12(1) + 3.9(1)	Total domestic R&D performance	294,093
Domestic R&D paid for by the company		
2.18	Performed at largest domestic location	142,897
2.20	Performed at second-largest domestic location	19,042
2.22	Domestic R&D paid for by foreign operations or subsidiaries	3,342
2.23	Foreign R&D paid for by domestic operations or subsidiaries	9,689
Domestic R&D performed by others		
2.25a	Companies in United States	21,921
2.25b	Your company's foreign owner	440
2.25c	Companies outside United States	4,269 i
2.25d	U.S. federal government	175
2.25e	U.S. state and local governments	10
2.25f	Foreign governments	8
2.25g	All other organizations in United States	688
2.25h	All other organizations outside United States	144
2.25	Undistributed (BRDI-1A)	1,953
Projected worldwide R&D expense for 2012		
2.26(1)	Domestic R&D incurred	293,157
2.26(2)	Foreign R&D incurred	72,054
2.26(3)	Worldwide R&D incurred	365,211
2.27	Projected R&D services and projected payments for collaborative R&D	35,114
2.28	Total domestic capital expenditures	477,001
2.29	Domestic capital expenditures for R&D	23,183
R&D paid for by others		
3.1j	Worldwide	72,185
3.4a	Domestic R&D paid for by others	66,847
3.4b	Foreign R&D paid for by others	5,340
Domestic R&D paid for by others		
3.7a(1)	Salaries, wages, and fringe benefits	33,003
3.7b(1)	Stock-based compensation	228
3.7c(1)	Temporary staffing	1,345
3.7d(1)	Expensed equipment	346 i
3.7e(1)	Materials and supplies	6,340

TABLE 1. Business R&amp;D and Innovation Survey aggregate estimates, by questionnaire reference: 2011

Question	Survey item	Aggregate amount
3.7f(1)	Lease and rental payments	723 i
3.7g(1)	Depreciation and amortization	1,049
3.7h(1)	Payments to business partners for collaborative R&D	1,477
3.7i(1)	Purchased R&D services	10,043 i
3.7j(1)	All other purchased services except R&D	925
3.7k(1)	All other costs	11,364 i
3.8(3)	Worldwide R&D performed by others	12,667
3.8(1)	Domestic R&D performed by others	11,520 i
3.8(2)	Foreign R&D performed by others	1,147
3.9(3)	Worldwide R&D performance	59,517
3.9(1)	Domestic R&D performance	55,324
3.9(2)	Foreign R&D performance	4,193
	R&D performed in United States paid for by others	
3.14a	Companies in United States	11,124
3.14b	Your company's foreign owner	7,438
3.14c	Companies outside United States	4,569
3.14d	U.S. federal government	31,309 i
3.14e	U.S. state and local governments	321
3.14f	Foreign governments	63
3.14g	Other organizations in United States	369
3.14h	Other organizations outside United States	129
	Federally funded R&D	
3.16a	Department of Defense	26,350 i
3.16b	Department of Energy	881
3.16c	National Aeronautics and Space Administration	1,580
3.16d	National Institutes of Health	656
3.16e	Other U.S. federal agencies and undistributed	1,843
	Domestic R&D paid for by others	
3.20	Performed at largest domestic location	21,420
3.22	Performed at second-largest domestic location	4,758
	Projected R&D paid for by others in 2012	
3.23	Total worldwide	70,807
3.24	Performed by company in United States	60,820
3.25	Funded by U.S. federal government	36,005 i
	R&D paid for by the company, performed in United States	
	Character of work	
4.5b	Basic research	10,735
4.5a	Applied research	37,573
4.4b	Development	190,460
	Application areas	
4.6	Energy applications	18,413
4.7	Environmental protection applications	7,677
	Technology focus areas	
4.8	Software products	55,273
4.9	Software embedded in other projects	21,596
4.10	Biotechnology	20,336 i
4.11	Nanotechnology	11,613 i
	R&D paid for by others, performed in United States	
	Character of work	
4.15b	Basic research	2,285
4.15a	Applied research	9,613
4.14b	Development	43,426
	Application areas	
4.16	Energy applications	3,338
4.17	Environmental protection applications	1,926
	Technology focus areas	
4.18	Biotechnology	5,205

TABLE 1. Business R&amp;D and Innovation Survey aggregate estimates, by questionnaire reference: 2011

Question	Survey item	Aggregate amount
4.19	Nanotechnology	1,943
4.20	Software products	5,028
4.21	Software embedded in other projects	3,334
	Federally funded R&D	
4.25b	Basic research	677
4.25a	Applied research	4,404
4.24b	Development	26,228 i
Employees (thousands)		
	Worldwide	
5.1	Total employees	29,327
5.3b(3)	Non R&D employees	27,302
5.3a(3)	R&D employees	2,025
5.5a(3)	Female	504
5.5b(3)	Male	1,521
5.6a(3)	Scientists and engineers	1,398
5.6b(3)	Technicians	403
5.6c(3)	Support staff	225
	Domestic	
5.2(1)	Total employees	19,285
5.3b(1)	Non R&D employees	17,814
5.3a(1)	R&D employees	1,471
5.5a(1)	Female	352
5.5b(1)	Male	1,118
5.6a(1)	Scientists and engineers	1,003
5.6b(1)	Technicians	308
5.6c(1)	Support staff	160
	Foreign	
5.2(2)	Total employees	10,042
5.3b(2)	Non R&D employees	9,487
5.3a(2)	R&D employees	554
5.5a(2)	Female	151
5.5b(2)	Male	403
5.6a(2)	Scientists and engineers	395
5.6b(2)	Technicians	95
5.6c(2)	Support staff	65
	Full-time equivalent	
5.7d	R&D employees	1,231
5.7a	Full-time R&D employees	1,061
5.7b	Full-time employees not solely working on R&D	154 i
5.7c	Part-time employees working on R&D	17
5.8d	R&D scientists and engineers	853
5.8a	Full-time R&D employees	764
5.8b	Full-time employees not solely working on R&D	81 i
5.8c	Part-time employees working on R&D	7 i
U.S. patents (number) <sup>a</sup>		
6.1	Applied for	119,366
6.2	Applications, foreign	59,457
6.3	Applications originated from R&D	99,042

TABLE 1. Business R&D and Innovation Survey aggregate estimates, by questionnaire reference: 2011

Question	Survey item	Aggregate amount
6.4	Issued	79,215
6.7	New agreements to license patents to others (number)	4,098
6.6	Revenue from patent licensing (US\$millions) <sup>a</sup>	24,452

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

<sup>a</sup> 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, 2011.

TABLE 2. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	12,900,545	9,107,507	3,793,038
Manufacturing industries	31–33	7,930,166	5,135,539	2,794,626
Food	311	817,312	574,343	242,969
Beverage and tobacco products	312	314,808	133,065	181,743
Textile, apparel, and leather products	313–316	61,694	54,305	7,389
Wood products	321	D	27,510	D
Paper	322	147,333	101,969	45,365
Printing and related support activities	323	29,004	24,395	4,608
Petroleum and coal products	324	D	171,881	D
Chemicals	325	1,777,652	1,157,864	619,788
Basic chemicals	3251	650,113	438,884	211,229
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	202,420	147,690	54,730
Pesticide, fertilizer, and other agricultural chemical	3253	33,509	25,865	7,645
Pharmaceuticals and medicines	3254	599,139	388,664	210,475
Soap, cleaning compound, and toilet preparation	3256	199,350	89,162	110,188
Paint, coating, adhesive, and other chemicals	3255, 3259	93,121	67,599	25,522
Plastics and rubber products	326	203,963	166,394	37,569
Nonmetallic mineral products	327	67,269	51,459	15,810
Primary metals	331	187,688	155,008	32,680
Fabricated metal products	332	148,408	118,576	29,833
Machinery	333	644,642	392,078	252,564
Agricultural implement	33311	52,383	35,557	16,826
Semiconductor machinery	333295	26,425	15,399	11,026
Engine, turbine, and power transmission equipment	3336	201,270	118,651	82,620
Other machinery	other 333	364,563	222,471	142,092
Computer and electronic products	334	1,138,053	633,006	505,046
Communications equipment	3342	155,987	109,315	46,672
Semiconductor and other electronic components	3344	299,377	145,869	153,508
Navigational, measuring, electromedical, and control instruments	3345	279,167	191,540	87,627
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	58,549	44,924	13,625
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	112,897	86,569	26,328
Other measuring and controlling device	other 3345	107,720	60,046	47,674
Other computer and electronic products	other 334	403,523	186,283	217,239
Electrical equipment, appliances, and components	335	181,787	107,583	74,204
Transportation equipment	336	1,183,305	850,469	332,836
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	839,868	562,786	277,082
Aerospace products and parts	3364	269,764	231,137	38,627
Aircraft, aircraft engine, and aircraft parts	336411–13	D	213,879	D
Guided missile, space vehicle, and related parts	336414–15, 336419	D	17,258	D
Military armored vehicle, tank, and tank component	336992	1,466	1,466	0
Other transportation equipment	other 336	72,207	55,079	17,127
Furniture and related products	337	39,972	33,369	6,602
Miscellaneous manufacturing	339	D	382,263	D
Medical equipment and supplies	3391	343,297	299,860	43,437
Other miscellaneous manufacturing	3399	D	82,404	D
Nonmanufacturing industries	21–23, 42–81	4,970,379	3,971,968	998,412
Mining, extraction, and support activities	21	901,977	563,681	338,296
Utilities	22	350,792	345,080	5,713
Wholesale trade	42	237,106	176,985	60,122
Electronic shopping and electronic auctions	454111–12	D	40,728	D
Transportation and warehousing	48–49	151,604	119,929	31,675
Information	51	1,151,044	916,379	234,665
Publishing	511	483,539	309,710	173,829
Newspaper, periodical, book, and directory publishers	5111	23,499	16,303	7,197
Software publishers	5112	460,040	293,407	166,632

TABLE 2. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by industry and company size: 2011 (Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
Telecommunications	517	469,021	460,575	8,446
Data processing, hosting, and related services	518	44,157	38,954	5,203
Other information	other 51	154,327	107,140	47,187
Finance and insurance	52	1,018,252	942,891	75,360
Real estate and rental and leasing	53	10,354	8,774	1,580
Lessors of nonfinancial intangible assets (except copyrighted works)	533	3,485	2,557	928
Other real estate and rental and leasing	other 53	6,869	6,216	652
Professional, scientific, and technical services	54	610,237	443,343	166,895 i
Architectural, engineering, and related services	5413	150,313	93,960	56,353
Computer systems design and related services	5415	253,696 i	169,229 i	84,467 i
Scientific research and development services	5417	69,796	62,620	7,176
Biotechnology research and development	541711	14,721	14,239	482
Physical, engineering, and life sciences (except biotechnology) research and development	541712	54,062	47,371	6,692
Social sciences and humanities research and development	541720	1,013	1,010	3
Other professional, scientific, and technical services	other 54	136,432	117,534	18,899
Health care services	621-23	51,533	50,728	805
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	363,449	D
All companies (number of domestic employees)	-	12,900,545	9,107,507	3,793,038
Small companies <sup>a</sup>				
5-499	-	1,384,778	1,141,706	243,072
5-99	-	473,322	453,940	19,382
5-49	-	293,351	284,690	8,661
5-9	-	36,341	36,228	114
10-24	-	105,712	103,133	2,579
25-49	-	151,297	145,329	5,969 i
50-99	-	179,971	169,250	10,721
100-249	-	433,441	297,813	135,628
250-499	-	478,015	389,954	88,061
Medium and large companies				
500-999	-	444,552	384,006	60,546
1,000-4,999	-	1,632,224	1,188,739	443,486
5,000-9,999	-	1,406,201	1,032,304	373,897
10,000-24,999	-	2,650,868	1,934,059	716,809
25,000 or more	-	5,381,921	3,426,693	1,955,228

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 3. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Sales		
		Worldwide	Domestic	Foreign
All business activities	21100–81000	12,900,545	9,107,507	3,793,038
Oil and gas extraction	21100	330,736	178,872 i	151,864
Mining	21200	50,655	34,037	16,618
Support activities for mining, including oil and gas	21300	68,157	42,512	25,645
Utilities	22100	364,737	353,405	11,332
Construction	23000	110,783	92,625	18,159
Food manufacturing	31100	691,937	495,942	195,995
Beverage manufacturing	31210	155,427	94,281	61,146
Tobacco manufacturing	31220	140,998	29,645	111,353
Textiles, apparel, and leather products manufacturing	31990	66,478	53,095	13,383
Wood products manufacturing	32100	23,978	21,974	2,004
Paper manufacturing	32200	139,691	100,865	38,825
Printing and related support activities	32300	33,928	27,601	6,328
Petroleum refineries	32401	973,865	579,292	394,572
Asphalt paving, roofing, and saturated materials manufacturing	32402	8,385	8,298	87
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	43,103	20,053	23,050
Basic chemicals manufacturing	32510	322,646	206,414	116,232
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	88,795	58,254	30,541
Pesticide, fertilizer, and other agricultural chemical manufacturing	32530	47,006	33,161	13,844
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing	32541	580,712	417,030	163,683
In-vitro diagnostic substances manufacturing	32542	24,779	13,575	11,204
Soap, cleaning compound, and toilet preparation manufacturing	32591	167,472	70,026	97,446
Paint, adhesive, and other chemical manufacturing	32592	119,607	63,913	55,693
Plastics and rubber products manufacturing	32600	243,199	172,112	71,086
Clay and glass products manufacturing	32710	34,227	21,889	12,338
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	32,860	23,279	9,581
Primary metal manufacturing	33100	171,350	141,749	29,601
Fabricated metal products manufacturing	33200	177,229	128,246	48,983
Agricultural machinery and equipment manufacturing	33311	43,418	29,232	14,185
Construction machinery manufacturing	33312	43,248	25,910	17,338
Mining, oil, and gas field machinery and equipment manufacturing	33319	101,756	48,915	52,841
Semiconductor machinery manufacturing	33321	25,961	15,012	10,949
Industrial machinery manufacturing, except semiconductor machinery	33322	46,018	30,136	15,883
Photographic and photocopying equipment manufacturing	33331	D	4,808 i	D
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	73,989	43,573	30,416
Engine, turbine, and power transmission equipment manufacturing	33360	112,783	67,551	45,233
Metalworking and other general purpose machinery manufacturing	33390	112,910	71,109	41,801
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	344,137	176,412	167,725
Telephone apparatus manufacturing including routers, modems, and gateways	33421	114,746	54,607	60,139
Radio, television, and wireless communication equipment manufacturing	33422	44,111	33,911	10,200
Other communication equipment manufacturing, except radio, television, and wireless communication equipment	33429	20,748	12,277	8,471
Audio and video equipment manufacturing	33430	11,277	7,163	4,113
Semiconductor and other electronic components manufacturing	33440	336,583	156,217	180,366
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	36,973	23,826	13,147
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments manufacturing	33452	47,413	40,087	7,327
Measuring and control instruments manufacturing (not listed elsewhere)	33459	84,096	48,441	35,655
Electrical equipment, appliances, and components manufacturing	33500	163,227	103,327	59,900
Motor vehicles manufacturing	33610	539,665	373,208	166,457

TABLE 3. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Sales		
		Worldwide	Domestic	Foreign
Motor vehicle body and trailer manufacturing	33620	15,348	14,442	906
Motor vehicle parts manufacturing	33630	217,371	122,397	94,974
Aircraft manufacturing	33641	121,348	111,615	9,733 i
Aircraft engine and engine parts manufacturing	33642	42,511	27,490	15,021
Other aircraft parts and auxiliary equipment manufacturing	33643	55,795	43,202	12,593
Guided missiles, space vehicles and parts manufacturing	33644	D	35,893	D
Railroad rolling stock manufacturing	33651	8,913	7,226	1,688
Ship and boat building	33660	D	11,648	D
Motorcycle, bicycle, and parts manufacturing	33691	8,948	7,422	1,526
Military armored vehicle, tank, and tank component manufacturing	33692	6,247	5,763	484
All other transportation equipment manufacturing	33699	13,416	11,068	2,349
Furniture and related products manufacturing	33700	39,074	32,810	6,264
Medical equipment and supplies manufacturing	33910	304,491	229,809 i	74,682
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	D	79,830	D
Merchant wholesalers, durable goods	42300	186,118	167,733	18,386
Merchant wholesalers, nondurable goods	42400	496,971	267,153	229,817
Wholesale electronic markets and agents and brokers (business to business)	42500	4,245	2,750	1,495 i
Retail trade, except electronic shopping and electronic auctions	44000	105,133	70,581	34,552
Electronic shopping and electronic auctions	45411	D	40,334	D
Transportation	48000	104,959	83,142	21,817
Couriers, messengers, and express delivery services	49200	D	D	D
Warehousing and storage	49300	22,945	21,972	973
Newspaper, periodical, book, and directory publishers (except Internet)	51110	30,941	22,597	8,344
Software publishers (except Internet)	51120	231,276	132,300	98,976
Motion picture and sound recording (except Internet)	51200	14,965	9,824	5,141
Broadcasting (except Internet)	51500	44,052	39,586	4,467
Wired telecommunications carriers	51710	248,913	242,050	6,863
Wireless telecommunications carriers (except satellite)	51720	156,728	156,556	171
Satellite telecommunications	51740	2,710	2,428	282 i
Other telecommunications (not listed elsewhere)	51790	18,817	15,941	2,876
Data processing, hosting, and related services	51800	45,256	36,551	8,706
Other information services including Internet publishing, broadcasting, and Web search portals	51910	39,558	27,907	11,652
Finance: banking and credit intermediation	52200	631,140	601,627	29,513
Securities, commodity contracts, and other financial investments and related activities (including funds and trusts)	52310	152,689	117,234	35,455
Insurance carriers and related activities	52400	276,492	261,417	15,074
Real estate	53100	D	4,719	D
Rental and leasing services	53200	25,888	20,137	5,751 i
Lessors of nonfinancial intangible assets (including patent licensing)	53300	3,216	2,316	900
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	D	7,259	D
Architectural, engineering, and related services	54130	108,305	70,557	37,747
Specialized design services	54140	2,409	2,235	174
Computer systems design and related services	54150	375,823	222,036	153,787
Management, scientific, and technical consulting services	54160	77,905	52,458	25,447
Research and development services in social sciences and humanities	54172	828	821	7
Research and development services in biotechnology	54173	9,043	7,740	1,303
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	23,414	19,066	4,348
Advertising and related services	54180	D	40,184	D
Professional, scientific, and technical services (not listed elsewhere)	54190	49,463	44,642	4,821
Management of companies and enterprises	55100	17,544	12,090	5,454
Administrative and support services	56100	58,607	47,183	11,424
Waste management and remediation services	56200	7,450	6,561	889

TABLE 3. Worldwide, domestic, and foreign sales for companies located in the United States that performed or funded R&D, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Sales		
		Worldwide	Domestic	Foreign
Offices of physicians	62110	23,981	23,981	0
Medical and diagnostic laboratories	62150	17,489	16,183	1,305
Other ambulatory health care services (ambulance, dental, home health care)	62199	D	D	D
Hospitals and nursing care facilities	62200	D	16,123	D
Social assistance services	62400	327	327	0
Arts, entertainment, and recreation	71000	16,039	12,741	3,298
Accommodation and food services	72000	39,530	27,571	11,959
Other services (not listed elsewhere)	81000	151,533	138,442	13,091
Less: intersegment eliminations		303,144 S	125,034 S	178,110 S
Undistributed		630,831 i	481,275 i	149,556 i

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

<sup>a</sup> 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.

<sup>b</sup> Business codes and descriptions based on industry definitions from the 2007 North American Industry Classification System.

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.

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

TABLE 4. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by source of funds, industry, and company size: 2011  
(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 company	Paid for by others	Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others
All industries	21–23, 31–33, 42–81	363,323	303,806	59,517	294,093	238,768	55,324	69,231	65,038	4,193
Manufacturing industries	31–33	253,231	213,911	39,320	201,361	163,340	38,021	51,870	50,571	1,299
Food	311	5,597	5,399	198	4,399	4,204	196	1,197	1,195	2
Beverage and tobacco products	312	D	1,509	D	D	684	D	825	825	0
Textile, apparel, and leather products	313–316	683	648	34	634	600	34	48	48	*
Wood products	321	212	203	9	211	202	9	1	1	0
Paper	322	1,725	1,703	23	1,346	1,323	23	380	380	0
Printing and related support activities	323	207	206	1	175	174	1	32	32	0
Petroleum and coal products	324	1,271	D	D	D	1,025	D	D	D	D
Chemicals	325	71,718	66,154	5,563	55,324	49,988	5,337	16,393	16,167	226
Basic chemicals	3251	5,162	D	D	D	3,674	D	D	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,117	1,104	13	798	787	12	319	318	1
Pesticide, fertilizer, and other agricultural chemical	3253	2,049	D	D	D	703	D	D	D	D
Pharmaceuticals and medicines	3254	58,528	53,477	5,051	45,949	41,111	4,838	12,578	12,365	213
Soap, cleaning compound, and toilet preparation	3256	3,387	3,381	6	2,477	2,471	6	910	910	0
Paint, coating, adhesive, and other chemicals	3255, 3259	1,475	1,436	40	1,281	1,242	40	194	194	*
Plastics and rubber products	326	2,641	2,329	312 i	2,280	1,973	307 i	362	356	6 i
Nonmetallic mineral products	327	1,431	1,398	34	1,179	1,145	33	253	252	*
Primary metals	331	764	699	65	655	591	64	108	108	1
Fabricated metal products	332	1,990	1,875	115	1,853	1,738	115	137	137	*
Machinery	333	18,234	16,942	1,292	14,709	13,578	1,131	3,524	3,364	161
Agricultural implement	33311	1,570	1,546	24	1,277	1,255	22	293	291	2
Semiconductor machinery	333295	2,735	2,591	144	2,359	2,220	139	376	371	5
Engine, turbine, and power transmission equipment	3336	D	D	D	4,292	3,599	693	D	D	D
Other machinery	other 333	D	D	D	6,781	6,503	278	D	D	D
Computer and electronic products	334	79,998	70,637	9,361	62,704	53,664	9,040	17,294	16,973	321
Communications equipment	3342	15,549	13,680	1,868 i	12,655	10,796	1,858 i	2,894	2,884	10
Semiconductor and other electronic components	3344	32,015	30,697	1,318	24,100	22,855	1,245	7,915	7,842	73
Navigational, measuring, electromedical, and control instruments	3345	19,027	13,439	5,588	16,094	10,643	5,451	2,932	2,795	137
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,926	4,678	247	4,379	4,135	243	547	543	4
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	8,506	3,285	5,221	7,935	2,823	5,111	572	462	110
Other measuring and controlling device	other 3345	5,595	5,475	119	3,781	3,684	97	1,814	1,791	23
Other computer and electronic products	other 334	13,408	12,822	586	9,855	9,370	485	3,553	3,452	101
Electrical equipment, appliances, and components	335	5,299	5,119	180	3,595	3,417	178	1,704	1,702	2

TABLE 4. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by source of funds, industry, and company size: 2011  
(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 company	Paid for by others	Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others
Transportation equipment	336	48,813	27,677	21,135 i	40,880	20,275	20,605 i	7,933	7,402	531
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	18,499	D	D	11,737	D	D	6,762	D
Aerospace products and parts	3364	26,825	8,125	18,700 i	26,054 i	7,585	18,469 i	771	540	231
Aircraft, aircraft engine, and aircraft parts	336411–13	D	D	17,711 i	24,808 i	7,328	17,480 i	D	D	231
Guided missile, space vehicle, and related parts	336414–15, 336419	D	D	989	1,246	257	989	D	D	0
Military armored vehicle, tank, and tank component	336992	31	29	2	30	28	2	1	1	0
Other transportation equipment	other 336	D	1,024	D	D	925	D	D	100	D
Furniture and related products	337	347	346	2	319	317	2	28	28	0
Miscellaneous manufacturing	339	D	D	D	D	8,442	D	D	D	D
Medical equipment and supplies	3391	D	7,414	D	6,686	6,279	406	D	1,134	D
Other miscellaneous manufacturing	3399	D	D	D	D	2,163	D	D	D	D
Nonmanufacturing industries	21–23, 42–81	110,092	89,895	20,197	92,731	75,428	17,303	17,361	14,467	2,894
Mining, extraction, and support activities	21	2,965	2,641	324	2,733	2,425	307	232	215	17
Utilities	22	425	325	99	386	302	84	39	23	16 i
Wholesale trade	42	1,957 i	1,708 i	249	1,668 i	1,419 i	248	289 i	288 i	1
Electronic shopping and electronic auctions	454111–12	D	D	*	949 i	949 i	0	D	D	*
Transportation and warehousing	48–49	109	109	*	81	81	*	28 i	28 i	0
Information	51	51,451	50,551	900	41,865	41,014	851	9,586	9,537	49
Publishing	511	36,312	35,579	733	28,435	27,748	687	7,877	7,831	47
Newspaper, periodical, book, and directory publishers	5111	499	497	1	470	468	1	29	29	0
Software publishers	5112	35,814	35,082	732	27,965	27,280	685	7,849	7,802	47
Telecommunications	517	2,254	2,137	117	2,157	2,040	117	97	97	0
Data processing, hosting, and related services	518	4,591	4,561	29	4,285	4,257	28	306	305	1
Other information	other 51	8,293	8,273	20	6,988	6,969	19	1,305	1,304	1
Finance and insurance	52	3,950	3,804	146	3,457	3,310	146	493	493	0
Real estate and rental and leasing	53	D	D	0	395	395	0	D	D	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	365	365	0	324	324	0	41	41	0
Other real estate and rental and leasing	other 53	D	D	0	71	71	0	D	D	0
Professional, scientific, and technical services	54	44,110	26,464	17,646	38,219	23,368	14,851	5,892	3,097	2,795
Architectural, engineering, and related services	5413	D	1,916	D	3,774	1,808	1,966	D	108	D
Computer systems design and related services	5415	15,530	13,962	1,568	13,259	11,706	1,553	2,272 i	2,257 i	15
Scientific research and development services	5417	17,651	6,483	11,167	15,301	6,170	9,131	2,350	313	2,037
Biotechnology research and development	541711	6,267	4,347	1,920	6,017	4,283	1,735	250	64	185
Physical, engineering, and life sciences (except biotechnology) research and development	541712	10,766	2,119	8,647	8,667	1,871	6,797	2,099	249	1,850

TABLE 4. Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by source of funds, industry, and company size: 2011  
(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 company	Paid for by others	Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others
Social sciences and humanities research and development	541720	618	17 i	601	616	17 i	599	1	0	1
Other professional, scientific, and technical services	other 54	D	4,103	D	5,885	3,684	2,202	D	419	D
Health care services	621-23	D	573	D	741	558	183	D	15	D
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	D	D	2,239	1,607	632	D	D	D
All companies (number of domestic employees)	-	363,323	303,806	59,517	294,093	238,768	55,324	69,231	65,038	4,193
Small companies <sup>a</sup>										
5-499	-	60,802	50,323	10,479	56,793	46,509	10,283	4,010	3,814	196
5-99	-	32,719	26,215	6,504	31,310	24,928	6,382	1,409	1,287	122
5-49	-	22,748	18,132	4,615	21,842	17,317	4,525	905	815	90
5-9	-	4,285	3,019	1,267	4,202	2,981	1,221	83	37	46
10-24	-	7,312	5,416	1,896	6,779	4,907	1,872	533	510	23
25-49	-	11,150	9,698	1,453	10,861	9,429	1,432	289	269	21
50-99	-	9,972	8,083	1,889	9,468	7,611	1,857	504	472	32
100-249	-	13,594	11,472	2,121	12,528	10,433	2,095	1,066	1,040	26
250-499	-	14,489	12,636	1,854	12,955	11,149	1,806	1,534	1,487	48
Medium and large companies										
500-999	-	11,475	10,144	1,331	10,027	8,739	1,288	1,448	1,405	43
1,000-4,999	-	63,451	55,250	8,201	50,485	42,905	7,579	12,967	12,345	622
5,000-9,999	-	32,656	23,858	8,798	24,951	18,659	6,292	7,705	5,199	2,506
10,000-24,999	-	61,773	54,770	7,003	49,214	42,585	6,630	12,559	12,185	373
25,000 or more	-	133,166	109,460	23,706 i	102,623	79,370	23,253 i	30,543	30,090	454

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 5. Companies with worldwide, domestic, or foreign R&D paid for by the company and others and performed by the company, by source of funds, industry, and company size: 2011

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others
All industries	21–23, 31–33, 42–81	52,013	47,918	8,748	51,736	47,662	8,639	2,932	2,703	421
Manufacturing industries	31–33	22,939	22,253	2,603	22,860	22,195	2,545	1,372	1,327	174
Food	311	1,593	1,541	D	1,593	1,541	112	57	57	D
Chemicals	325	D	D	397	2,545	2,488	392	185	177	37
Pharmaceuticals and medicines	3254	639	610	D	639	610	168	82	D	23
Other chemicals	other 325	D	D	D	1,906	1,878	224	104	D	14
Plastics and rubber products	326	1,442	1,416	150	1,442	1,416	147	49	D	4
Nonmetallic mineral products	327	D	D	13	348	D	13	24	24	D
Fabricated metal products	332	D	D	D	2,565	2,422	335	47	D	D
Machinery	333	D	D	203	3,409	D	199	139	136	19
Computer and electronic products	334	D	3,098	629	3,250	3,098	615	347	340	44
Electrical equipment, appliances, and components	335	1,294	1,277	102	1,294	1,277	99	167	D	7
Transportation equipment	336	D	D	D	1,414	1,382	172	92	D	24
Miscellaneous manufacturing	339	2,409	2,301	331	2,366	2,275	308	155	134	30
Other manufacturing	312–316, 321–324, 331, 337	2,653	2,603	D	2,633	2,583	153	110	D	5
Nonmanufacturing industries	21–23, 42–81	29,074	25,665	6,145	28,876	25,467	6,093	1,560	1,376	246
Wholesale trade	42	D	D	D	3,935	3,605	612	46	D	D
Information	51	4,095	4,050	155	4,067	4,022	146	483	479	21
Telecommunications	517	232	D	9	232	D	9	19	19	0
Data processing, hosting, and related services	518	D	D	35	1,004	D	35	139	139	D
Other information	other 51	D	2,813	111	2,832	2,799	102	325	321	D
Professional, scientific, and technical services	54	12,717	10,837	3,807	12,550	10,670	3,800	941	799	180
Architectural, engineering, and related services	5413	D	D	D	2,666	2,150	1,152	267	163	108
Scientific research and development services	5417	2,190	1,540	1,361	2,184	1,534	1,357	94	62	47
Biotechnology research and development	541711	D	D	D	765	671	372	42	34	16
Other scientific research and development	other 5417	D	D	D	1,419	863	985	52	29	31
Other professional, scientific, and technical services	other 54	D	D	D	7,700	6,987	1,290	581	574	25
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	D	D	D	8,323	7,170	1,536	90	D	D
All companies (number of domestic employees)	–	52,013	47,918	8,748	51,736	47,662	8,639	2,932	2,703	421
Small companies <sup>a</sup>										
5–499	–	49,394	45,371	8,286	49,122	45,120	8,206	2,048	1,835	284
5–99	–	42,021	38,570	6,871	41,762	38,331	6,813	1,452	1,269	232
5–49	–	36,654	33,379	6,253	36,399	33,145	6,198	1,245	1,079	207
5–9	–	12,666	11,517	2,283	12,656	11,510	2,262	244	112	135
10–24	–	14,468	13,133	D	14,248	12,931	2,384	641	619	48
25–49	–	9,519	8,728	D	9,495	8,704	1,552	360	348	24
50–99	–	5,367	5,191	618	5,362	5,186	615	207	190	25
100–249	–	D	D	839	5,001	4,568	820	338	315	31
250–499	–	D	D	576	2,359	2,220	573	258	251	21
Medium and large companies										
500–999	–	D	D	134	864	D	126	174	169	17
1,000–4,999	–	1,266	1,235	185	1,263	1,232	170	399	390	62

TABLE 5. Companies with worldwide, domestic, or foreign R&D paid for by the company and others and performed by the company, by source of funds, industry, and company size: 2011

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by	Paid for by	Total	Paid for by	Paid for by	Total	Paid for by	Paid for by
			company	others		company	others		company	others
5,000–9,999	–	239	235	50	239	235	46	155	D	17
10,000–24,999	–	D	D	D	143	138	51	88	D	17
25,000 or more	–	105	D	D	105	D	40	69	D	24

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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. Industry classification based on dominant business code for domestic R&D performance where available. For companies that did not report business codes, classification used for sampling was assigned. Statistics are representative of companies located in the United States that performed or funded R&D.

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

TABLE 6. Worldwide R&D paid for by the company and performed by the company and others, by industry and company size: 2011  
(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	341,335	303,806	37,529
Manufacturing industries	31–33	244,877	213,911	30,966
Food	311	5,850	5,399	451
Beverage and tobacco products	312	1,808	1,509	298
Textile, apparel, and leather products	313–316	670	648	22
Wood products	321	215	203	12
Paper	322	1,785	1,703	82
Printing and related support activities	323	212	206	6
Petroleum and coal products	324	1,447	D	D
Chemicals	325	86,832	66,154	20,678
Basic chemicals	3251	5,403	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,175	1,104	70
Pesticide, fertilizer, and other agricultural chemical	3253	1,804	D	D
Pharmaceuticals and medicines	3254	73,096	53,477	19,619
Soap, cleaning compound, and toilet preparation	3256	3,807	3,381	426
Paint, coating, adhesive, and other chemicals	3255, 3259	1,548	1,436	112
Plastics and rubber products	326	2,412	2,329	84
Nonmetallic mineral products	327	1,617	1,398	219
Primary metals	331	837	699	138
Fabricated metal products	332	1,934	1,875	59
Machinery	333	17,957	16,942	1,016
Agricultural implement	33311	1,792	1,546	246
Semiconductor machinery	333295	2,626	2,591	35
Engine, turbine, and power transmission equipment	3336	5,377	D	D
Other machinery	other 333	8,162	D	D
Computer and electronic products	334	72,827	70,637	2,190
Communications equipment	3342	14,527	13,680	847
Semiconductor and other electronic components	3344	31,118	30,697	421
Navigational, measuring, electromedical, and control instruments	3345	13,944	13,439	506
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,871	4,678	192
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	3,470	3,285	185
Other measuring and controlling device	other 3345	5,604	5,475	128
Other computer and electronic products	other 334	13,238	12,822	416
Electrical equipment, appliances, and components	335	5,317	5,119	198
Transportation equipment	336	32,154	27,677	4,477
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	21,921	18,499	3,422
Aerospace products and parts	3364	9,036	8,125	911
Aircraft, aircraft engine, and aircraft parts	336411–13	8,682	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	354	D	D
Military armored vehicle, tank, and tank component	336992	D	29	D
Other transportation equipment	other 336	D	1,024	D
Furniture and related products	337	353	346	8
Miscellaneous manufacturing	339	10,649	D	D
Medical equipment and supplies	3391	8,033	7,414	620
Other miscellaneous manufacturing	3399	2,615	D	D
Nonmanufacturing industries	21–23, 42–81	96,458	89,895	6,563
Mining, extraction, and support activities	21	2,998	2,641	358
Utilities	22	603	325	277
Wholesale trade	42	2,020	1,708	313
Electronic shopping and electronic auctions	454111–12	1,610	D	D
Transportation and warehousing	48–49	121	109	12
Information	51	52,939	50,551	2,388
Publishing	511	36,779	35,579	1,200
Newspaper, periodical, book, and directory publishers	5111	511	497	14
Software publishers	5112	36,268	35,082	1,186

TABLE 6. Worldwide R&D paid for by the company and performed by the company and others, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Performed by the company	Performed by others
Telecommunications	517	3,147	2,137	1,010 i
Data processing, hosting, and related services	518	4,665	4,561	104
Other information	other 51	8,348	8,273	75
Finance and insurance	52	3,944	3,804	140
Real estate and rental and leasing	53	465	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	365	D
Other real estate and rental and leasing	other 53	D	D	D
Professional, scientific, and technical services	54	29,367	26,464	2,902
Architectural, engineering, and related services	5413	2,020	1,916	104
Computer systems design and related services	5415	14,169	13,962	207
Scientific research and development services	5417	8,786	6,483	2,303
Biotechnology research and development	541711	6,297	4,347	1,950
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,470	2,119	351
Social sciences and humanities research and development	541720	19 i	17 i	2 i
Other professional, scientific, and technical services	other 54	4,392	4,103	289
Health care services	621–23	598	573	25
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,793	D	D
All companies (number of domestic employees)	–	341,335	303,806	37,529
Small companies <sup>a</sup>				
5–499	–	56,053	50,323	5,729
5–99	–	29,418	26,215	3,203
5–49	–	20,510	18,132	2,378
5–9	–	3,381	3,019	362
10–24	–	6,364	5,416	948
25–49	–	10,765	9,698	1,068
50–99	–	8,908	8,083	825
100–249	–	12,655	11,472	1,182
250–499	–	13,980	12,636	1,344
Medium and large companies				
500–999	–	10,864	10,144	719
1,000–4,999	–	61,383	55,250	6,133
5,000–9,999	–	25,809	23,858	1,951
10,000–24,999	–	64,692	54,770	9,922
25,000 or more	–	122,535	109,460	13,075

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 7. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Amount
All business activities	21100–81000	341,335
Oil and gas extraction	21100	1,313
Mining	21200	252
Support activities for mining, including oil and gas	21300	1,382
Utilities	22100	686
Construction	23000	291
Food manufacturing	31100	4,974
Beverage manufacturing	31210	931
Tobacco manufacturing	31220	717
Textile, apparel, and leather products manufacturing	31990	736
Wood products manufacturing	32100	208
Paper manufacturing	32200	1,149
Printing and related support activities	32300	260
Petroleum refineries	32401	598
Asphalt paving, roofing, and saturated materials manufacturing	32402	37
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	415
Basic chemicals manufacturing	32510	3,856
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	1,349
Pesticide, fertilizer, and other agricultural chemical manufacturing	32530	2,332
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing	32541	67,753
In-vitro diagnostic substances manufacturing	32542	1,499
Soap, cleaning compound, and toilet preparation manufacturing	32591	3,431
Paint, adhesive, and other chemical manufacturing	32592	2,009
Plastics and rubber products manufacturing	32600	3,688
Clay and glass products manufacturing	32710	921
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	589
Primary metal manufacturing	33100	776
Fabricated metal products manufacturing	33200	2,435
Agricultural machinery and equipment manufacturing	33311	1,430
Construction machinery manufacturing	33312	888
Mining, oil, and gas field machinery and equipment manufacturing	33319	2,210
Semiconductor machinery manufacturing	33321	2,574
Industrial machinery manufacturing, except semiconductor machinery	33322	1,114
Photographic and photocopying equipment manufacturing	33331	760
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	1,139
Engine, turbine, and power transmission equipment manufacturing	33360	3,643
Metalworking and other general purpose machinery manufacturing	33390	2,351
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	13,315
Telephone apparatus manufacturing including routers, modems, and gateways	33421	10,266
Radio, television, and wireless communication equipment manufacturing	33422	3,740
Other communication equipment manufacturing, except radio, television, and wireless communication equipment	33429	1,121
Audio and video equipment manufacturing	33430	1,015
Semiconductor and other electronic components manufacturing	33440	32,256
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,179
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments manufacturing	33452	2,169
Measuring and control instruments manufacturing (not listed elsewhere)	33459	4,658
Electrical equipment, appliances, and components manufacturing	33500	4,827
Motor vehicles manufacturing	33610	17,015
Motor vehicle body and trailer manufacturing	33620	73
Motor vehicle parts manufacturing	33630	4,683

TABLE 7. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Amount
Aircraft manufacturing	33641	4,512
Aircraft engine and engine parts manufacturing	33642	2,136
Other aircraft parts and auxiliary equipment manufacturing	33643	1,723
Guided missiles, space vehicles and parts manufacturing	33644	1,060
Railroad rolling stock manufacturing	33651	166
Ship and boat building	33660	154
Motorcycle, bicycle, and parts manufacturing	33691	234
Military armored vehicle, tank, and tank component manufacturing	33692	116
All other transportation equipment manufacturing	33699	359
Furniture and related products manufacturing	33700	345
Medical equipment and supplies manufacturing	33910	13,864
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,716
Merchant wholesalers, durable goods	42300	715
Merchant wholesalers, nondurable goods	42400	618
Wholesale electronic markets and agents and brokers (business to business)	42500	67
Retail trade, except electronic shopping and electronic auctions	44000	74
Electronic shopping and electronic auctions	45411	D
Transportation	48000	117
Couriers, messengers, and express delivery services	49200	1
Warehousing and storage	49300	16
Newspaper, periodical, book, and directory publishers (except Internet)	51110	471 i
Software publishers (except Internet)	51120	29,487
Motion picture and sound recording (except Internet)	51200	67
Broadcasting (except Internet)	51500	115
Wired telecommunications carriers	51710	987
Wireless telecommunications carriers (except satellite)	51720	149
Satellite telecommunications	51740	114
Other telecommunications (not listed elsewhere)	51790	459
Data processing, hosting, and related services	51800	4,408
Other information services including Internet publishing, broadcasting, and Web search portals	51910	9,437
Finance: banking and credit intermediation	52200	1,705
Securities, commodity contracts, and other financial investments and related activities (including funds and trusts)	52310	1,313
Insurance carriers and related activities	52400	871
Real estate	53100	10
Rental and leasing services	53200	128
Lessors of nonfinancial intangible assets (including patent licensing)	53300	385
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	709
Architectural, engineering, and related services	54130	1,492
Specialized design services	54140	283
Computer systems design and related services	54150	15,990
Management, scientific, and technical consulting services	54160	1,634
Research and development services in social sciences and humanities	54172	22
Research and development services in biotechnology	54173	6,646
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	2,765
Advertising and related services	54180	1,416
Professional, scientific, and technical services (not listed elsewhere)	54190	1,161
Management of companies and enterprises	55100	43
Administrative and support services	56100	354
Waste management and remediation services	56200	20
Offices of physicians	62110	36
Medical and diagnostic laboratories	62150	433
Other ambulatory health care services (ambulance, dental, home health care)	62199	72
Hospitals and nursing care facilities	62200	4
Social assistance services	62400	13

TABLE 7. Worldwide R&D paid for by the company and performed by the company and others, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Amount
Arts, entertainment, and recreation	71000	92
Accommodation and food services	72000	85
Other services (not listed elsewhere)	81000	418
Undistributed		D

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

<sup>a</sup> 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.

<sup>b</sup> Business codes and descriptions based on industry definitions from the 2007 North American Industry Classification System.

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, 2011.

TABLE 8. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2011  
(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	72,185	59,517	12,667
Manufacturing industries	31–33	49,081	39,320	9,762 i
Food	311	209	198	11
Beverage and tobacco products	312	D	D	1
Textile, apparel, and leather products	313–316	42	34	8
Wood products	321	9	9	*
Paper	322	26	23	3
Printing and related support activities	323	2	1	1
Petroleum and coal products	324	D	D	5
Chemicals	325	8,346	5,563	2,783
Basic chemicals	3251	D	D	21
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	15	13	3
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	3
Pharmaceuticals and medicines	3254	7,801	5,051	2,750
Soap, cleaning compound, and toilet preparation	3256	6	6	*
Paint, coating, adhesive, and other chemicals	3255, 3259	47	40	7
Plastics and rubber products	326	327 i	312 i	14
Nonmetallic mineral products	327	37	34	3
Primary metals	331	71	65	7
Fabricated metal products	332	125	115	9
Machinery	333	1,567	1,292	275
Agricultural implement	33311	30	24	6
Semiconductor machinery	333295	156	144	11
Engine, turbine, and power transmission equipment	3336	1,059	D	D
Other machinery	other 333	322	D	D
Computer and electronic products	334	9,761	9,361	401
Communications equipment	3342	1,888	1,868 i	20
Semiconductor and other electronic components	3344	1,385	1,318	67
Navigational, measuring, electromedical, and control instruments	3345	5,897	5,588	309
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	258	247	10
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	5,512	5,221	291
Other measuring and controlling device	other 3345	127	119	7
Other computer and electronic products	other 334	591	586	5
Electrical equipment, appliances, and components	335	198	180	18
Transportation equipment	336	27,331 i	21,135 i	6,195 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D	290
Aerospace products and parts	3364	24,602 i	18,700 i	5,903 i
Aircraft, aircraft engine, and aircraft parts	336411–13	23,582 i	17,711 i	5,871 i
Guided missile, space vehicle, and related parts	336414–15, 336419	1,020	989	31
Military armored vehicle, tank, and tank component	336992	3	2	*
Other transportation equipment	other 336	D	D	3
Furniture and related products	337	2	2	*
Miscellaneous manufacturing	339	D	D	26
Medical equipment and supplies	3391	D	D	D
Other miscellaneous manufacturing	3399	D	D	9
Nonmanufacturing industries	21–23, 42–81	23,103	20,197	2,906
Mining, extraction, and support activities	21	329	324	5
Utilities	22	135	99	35
Wholesale trade	42	318	249	69 i
Electronic shopping and electronic auctions	454111–12	1	*	1
Transportation and warehousing	48–49	1	*	*
Information	51	920	900	20
Publishing	511	742	733	9
Newspaper, periodical, book, and directory publishers	5111	1	1	0
Software publishers	5112	741	732	9

TABLE 8. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Performed by the company	Performed by others
Telecommunications	517	118	117	*
Data processing, hosting, and related services	518	30	29	1
Other information	other 51	30	20	10
Finance and insurance	52	146	146	0
Real estate and rental and leasing	53	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0
Other real estate and rental and leasing	other 53	0	0	0
Professional, scientific, and technical services	54	20,292	17,646	2,646
Architectural, engineering, and related services	5413	2,415	D	D
Computer systems design and related services	5415	1,766	1,568	198
Scientific research and development services	5417	13,128	11,167	1,961
Biotechnology research and development	541711	D	1,920	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	9,931	8,647	1,285
Social sciences and humanities research and development	541720	D	601	D
Other professional, scientific, and technical services	other 54	2,983	D	D
Health care services	621-23	259	D	D
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	703	D	D
All companies (number of domestic employees)	-	72,185	59,517	12,667
Small companies <sup>a</sup>				
5-499	-	12,340	10,479	1,861
5-99	-	7,564	6,504	1,060
5-49	-	5,403	4,615	788
5-9	-	1,458	1,267	191
10-24	-	2,269	1,896	373
25-49	-	1,677	1,453	224
50-99	-	2,161	1,889	272
100-249	-	2,625	2,121	504
250-499	-	2,150	1,854	297
Medium and large companies				
500-999	-	1,481	1,331	151
1,000-4,999	-	10,223	8,201	2,022
5,000-9,999	-	10,103	8,798	1,305
10,000-24,999	-	7,926	7,003	923
25,000 or more	-	30,112 i	23,706 i	6,406 i

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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 to companies located in the United States that performed or funded R&D.

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

TABLE 9. Domestic R&D paid for by the company and others and performed by the company, by character of work, industry, and company size: 2011  
(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	294,093	13,020	47,186	233,887
Manufacturing industries	31–33	201,361	8,738	32,576	160,047
Food	311	4,399	183	1,594	2,622
Beverage and tobacco products	312	D	D	D	D
Textile, apparel, and leather products	313–316	634	60	63	512
Wood products	321	211	17 i	49	144
Printing and related support activities	323	175	6	28	140
Chemicals	325	55,324	4,243	15,121	35,961
Pharmaceuticals and medicines	3254	45,949	3,520	12,964	29,465
Other chemicals	other 325	9,375	723	2,157	6,495
Plastics and rubber products	326	2,280	149 i	337	1,793
Nonmetallic mineral products	327	1,179	156 i	276 i	746
Primary metals	331	655	28	122	506
Fabricated metal products	332	1,853	58	203	1,592
Machinery	333	14,709	548	1,505	12,656
Computer and electronic products	334	62,704	1,438	7,069	54,197
Semiconductor and other electronic components	3344	24,100	580	2,625	20,895
Navigational, measuring, electromedical, and control instruments	3345	16,094	472	1,905	13,717
Other computer and electronic products	other 334	22,509	385	2,538	19,585
Electrical equipment, appliances, and components	335	3,595	163	517	2,915
Transportation equipment	336	40,880	955	3,563	36,361
Aerospace products and parts	3364	26,054 i	355	1,933	23,766 i
Other transportation equipment	other 336	14,826	600	1,631	12,595
Furniture and related products	337	319	13	35	270
Miscellaneous manufacturing	322, 324, 339	D	D	D	D
Nonmanufacturing industries	21–23, 42–81	92,731	4,282	14,610	73,839
Information	51	41,865	1,518 i	3,864	36,483
Publishing	511	28,435	1,220	2,790	24,425
Telecommunications	517	2,157	185 i	244 i	1,728 i
Data processing, hosting, and related services	518	4,285	58	527	3,700
Other information	other 51	6,988	55	304	6,629
Professional, scientific, and technical services	54	38,219	2,030	8,615	27,573
Architectural, engineering, and related services	5413	3,774	116	572	3,086
Computer systems design and related services	5415	13,259	289	1,120	11,850
Scientific research and development services	5417	15,301	1,215	6,022	8,065
Biotechnology research and development	541711	6,017	627	1,806	3,584
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,667	542	3,792	4,333
Social sciences and humanities research and development	541720	616	46 i	424 i	147 i
Other professional, scientific, and technical services	other 54	5,885	411	901 i	4,573
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	12,648	734 i	2,131	9,783
All companies (number of employees)	–	294,093	13,020	47,186	233,887
Small companies <sup>a</sup>					
5–499	–	56,793	2,656	10,508	43,629
5–99	–	31,310	1,333	5,832	24,145
5–49	–	21,842	879	4,218	16,745
5–9	–	4,202	177	1,061	2,964
10–24	–	6,779	279	1,258	5,242
25–49	–	10,861	423	1,898	8,540
50–99	–	9,468	454	1,614	7,400
100–249	–	12,528	748	2,302	9,478
250–499	–	12,955	575	2,375	10,006
Medium and large companies					
500–999	–	10,027	421	1,522	8,085
1,000–4,999	–	50,485	1,766	8,625	40,094

TABLE 9. Domestic R&D paid for by the company and others and performed by the company, by character of work, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
5,000–9,999	–	24,951	1,483	3,649	19,819
10,000–24,999	–	49,214	2,774	6,946	39,495
25,000 or more	–	102,623	3,921	15,936	82,766

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 10. Domestic R&amp;D paid for by the company and others and performed by the company, by type of cost, industry, and company size: 2011

(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 <sup>a</sup>
All industries	21-23, 31-33, 42-81	294,093	174,490	10,173	11,490	3,284	22,301	4,401	10,845	6,884	50,224
Manufacturing industries	31-33	201,361	114,606	5,091	6,646	2,139	19,305	2,576	7,848	5,858	37,292
Food	311	4,399	3,365 i	55	56	6 i	232	34	120	66	467
Beverage and tobacco products	312	D	D	D	27	13	68	6	39	6	D
Textile, apparel, and leather products	313-316	634	D	*	17	3 i	58 i	7 i	25 i	13	D
Wood products	321	211	150	*	5	1	34	3 i	3	1	14
Paper	322	1,346	937	26	34	9	61	3	63	33	179
Printing and related support activities	323	175	139	*	4	1 i	8 i	4 i	7 i	2 i	10 i
Petroleum and coal products	324	D	D	*	27	2	42	D	28	D	D
Chemicals	325	55,324	28,227	1,222	2,885	278	4,473	1,042	2,899	2,834	11,464
Basic chemicals	3251	D	D	54	D	38	322	57	D	107	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	798	D	* i	23	3	40	14	D	23	D
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	1	D	* i	75	90	146	D	D
Pharmaceuticals and medicines	3254	45,949	22,492	1,147	2,610	207	3,846	846	2,323	2,486	9,993
Soap, cleaning compound, and toilet preparation	3256	2,477	1,511	12	D	2	129	19	103	30	D
Paint, coating, adhesive, and other chemicals	3255, 3259	1,281	D	8	D	27	62	16	61	D	204
Plastics and rubber products	326	2,280	1,399	17	22	24 i	241 i	21	54 i	57	445 i
Nonmetallic mineral products	327	1,179	720 i	D	107 i	23 i	87 i	D	68 i	D	D
Primary metals	331	655	375	8	14	2	117	1	23	3	112
Fabricated metal products	332	1,853	1,406	6 i	15	14 i	168 i	8 i	48 i	23 i	165 i
Machinery	333	14,709	8,275	116	822	215	2,165	145	658	336	1,979
Agricultural implement	33311	1,277	668	* i	63	12	210	6	86	* i	232
Semiconductor machinery	333295	2,359	1,033	86	89	11	347	36	172	89	496
Engine, turbine, and power transmission equipment	3336	4,292	D	7	252	157	599	58	187	177	D
Other machinery	other 333	6,781	D	22 i	418	35 i	1,008	45	212	69 i	D
Computer and electronic products	334	62,704	37,725	3,352	1,475	789	5,152	733	2,855	664	9,958
Communications equipment	3342	12,655	7,566	682	224	198	707	83	D	D	2,287
Semiconductor and other electronic components	3344	24,100	14,048	1,820	445	243	1,722	362	1,396	153	3,911
Navigational, measuring, electromedical, and control instruments	3345	16,094	9,859	181	428	128	2,040	220 i	399	214	2,626
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,379	2,555	D	177	28	296	D	231	44	907
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	7,935	4,951	D	145	51	1,384	122 i	88	109	D
Other measuring and controlling device	other 3345	3,781	2,353	62	106	48	360 i	D	80	60	D
Other computer and electronic products	other 334	9,855	6,252	669	377	220	683	69	D	D	1,134

TABLE 10. Domestic R&amp;D paid for by the company and others and performed by the company, by type of cost, industry, and company size: 2011

(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 <sup>a</sup>
Electrical equipment, appliances, and components	335	3,595	2,669	15	118	24	178	33	93	79	385
Transportation equipment	336	40,880	21,856	37 i	676	575	5,527	407 i	537	1,318	9,948
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D	1 i	545	D	D	D	D	D	1,409
Aerospace products and parts	3364	26,054 i	13,604 i	30 i	105	42 i	3,630	29	83	279	8,252
Aircraft, aircraft engine, and aircraft parts	336411–13	24,808 i	13,179 i	30 i	88	40 i	3,090 i	27	78	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	1,246	425	0	18	2	540	1	5	D	D
Military armored vehicle, tank, and tank component	336992	30	14	2	*	1	10	* i	1	1	1
Other transportation equipment	other 336	D	D	4 i	26	D	D	D	D	D	285 i
Furniture and related products	337	319	218	*	6	5 i	45	2 i	4 i	1 i	37 i
Miscellaneous manufacturing	339	D	5,698	221	336	152	648	101	323	181	D
Medical equipment and supplies	3391	6,686	3,995	186	294	130	474	79	257	155	1,116
Other miscellaneous manufacturing	3399	D	1,704	34 i	42	22 i	174 i	22	66	27	D
Nonmanufacturing industries	21–23, 42–81	92,731	59,885	5,083	4,843	1,144 i	2,996	1,824 i	2,998	1,026 i	12,932
Mining, extraction, and support activities	21	2,733	D	26	176	112 i	D	71	77	17	503
Utilities	22	386	195	2	39	4	40	D	32	2	D
Wholesale trade	42	1,668 i	1,137 i	8 i	133 i	26 i	62 i	43 i	38 i	24 i	197 i
Electronic shopping and electronic auctions	454111–12	949 i	D	D	129 i	6 i	1	D	D	D	D
Transportation and warehousing	48–49	81	54	0	16	1	4 i	* i	2	*	5 i
Information	51	41,865	27,654	3,211	1,942	545	503	730	1,402	230	5,648
Publishing	511	28,435	18,604	1,711	1,254	186	D	393 i	767	177	D
Newspaper, periodical, book, and directory publishers	5111	470	273	0	21	D	9 i	1 i	*	3 i	D
Software publishers	5112	27,965	18,332	1,711	1,233	D	D	391 i	767	174	D
Telecommunications	517	2,157	1,506	26 i	105 i	87 i	D	7 i	63	18 i	D
Data processing, hosting, and related services	518	4,285	3,513	126	165	D	8	53	151	9	D
Other information	other 51	6,988	4,030	1,348	418	D	44	278	420	25	D
Finance and insurance	52	3,457	2,217	52	697	20 i	14	44 i	47 i	4 i	362
Real estate and rental and leasing	53	395	212	35	22	1	11	3	19	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	324	172	35	21	1	10	2	17	D	D
Other real estate and rental and leasing	other 53	71	40	*	1	*	*	2	2	*	25
Professional, scientific, and technical services	54	38,219	24,269	1,635 i	1,591	410 i	2,007 i	877 i	1,251 i	631 i	5,547 i
Architectural, engineering, and related services	5413	3,774	2,857	28 i	164	51 i	217 i	68 i	27 i	29 i	333 i
Computer systems design and related services	5415	13,259	8,553	1,238 i	456	246 i	186 i	321 i	565 i	221 i	1,473 i
Scientific research and development services	5417	15,301	8,396	317	636	81 i	1,338 i	380 i	577 i	372	3,203
Biotechnology research and development	541711	6,017	2,873	250	205	32	598	171	275	88	1,525

TABLE 10. Domestic R&D paid for by the company and others and performed by the company, by type of cost, industry, and company size: 2011

(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 <sup>a</sup>
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,667	5,079	56 i	420	43 i	739 i	197 i	298 i	284 i	1,551 i
Social sciences and humanities research and development	541720	616	444	11	11	6	1 i	12	4	1 i	127
Other professional, scientific, and technical services	other 54	5,885	4,464	52 i	335	32 i	266	109 i	81	8	539
Health care services	621-23	741	432	16 i	40	17	62 i	15 i	59	27	72
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	2,239	D	D	60	2 i	D	D	D	D	D
All companies (number of domestic employees)	-	294,093	174,490	10,173	11,490	3,284	22,301	4,401	10,845	6,884	50,224
Small companies <sup>b</sup>											
5-499	-	56,793	37,728	1,516 i	2,234	684 i	3,335 i	1,194 i	1,731 i	879 i	7,493 i
5-99	-	31,310	20,703	914 i	1,287	442 i	1,598 i	653 i	978 i	519 i	4,217 i
5-49	-	21,842	14,359	744 i	837	295 i	1,019 i	469 i	713 i	375 i	3,032 i
5-9	-	4,202	2,902	80 i	189	41 i	189 i	92 i	95 i	63 i	551 i
10-24	-	6,779	4,735	105 i	287	54 i	354 i	106 i	185 i	120 i	834 i
25-49	-	10,861	6,721	559 i	360	200 i	477 i	271 i	434 i	192 i	1,647 i
50-99	-	9,468	6,344	169 i	451	147 i	579 i	184	265 i	144 i	1,185 i
100-249	-	12,528	8,204	301	506	120 i	896 i	259	407	165 i	1,670 i
250-499	-	12,955	8,821	301	441	122	841 i	282 i	345	195 i	1,606
Medium and large companies											
500-999	-	10,027	6,185	340	504	131	721	167	418	292	1,270
1,000-4,999	-	50,485	29,186	2,420	1,538	764	3,434	802	2,092	1,339	8,910
5,000-9,999	-	24,951	14,204	1,006	940	300	1,700	351	1,094	540	4,816
10,000-24,999	-	49,214	28,830	2,187	1,709	511	3,769	1,058	2,351	1,902	6,897
25,000 or more	-	102,623	58,358	2,705	4,565	893	9,342	830 i	3,160	1,932	20,837

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Includes R&D costs allocated to subsidiaries by parent companies.

<sup>b</sup> 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, 2011.

TABLE 11. 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: 2011

Industry and company size	NAICS code	Domestic R&D (US\$millions)	Percent of domestic sales
All industries	21–23, 31–33, 42–81	294,093	3.2
Manufacturing industries	31–33	201,361	3.9
Food	311	4,399	0.8
Beverage and tobacco products	312	D	D
Textile, apparel, and leather products	313–316	634	1.2
Wood products	321	211	0.8
Paper	322	1,346	1.3
Printing and related support activities	323	175	0.7
Petroleum and coal products	324	D	D
Chemicals	325	55,324	4.8
Basic chemicals	3251	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	798	0.5
Pesticide, fertilizer, and other agricultural chemical	3253	D	D
Pharmaceuticals and medicines	3254	45,949	11.8
Soap, cleaning compound, and toilet preparation	3256	2,477	2.8
Paint, coating, adhesive, and other chemicals	3255, 3259	1,281	1.9
Plastics and rubber products	326	2,280	1.4
Nonmetallic mineral products	327	1,179	2.3
Primary metals	331	655	0.4
Fabricated metal products	332	1,853	1.6
Machinery	333	14,709	3.8
Agricultural implement	33311	1,277	3.6
Semiconductor machinery	333295	2,359	15.3
Engine, turbine, and power transmission equipment	3336	4,292	3.6
Other machinery	other 333	6,781	3.1
Computer and electronic products	334	62,704	9.9
Communications equipment	3342	12,655	11.6
Semiconductor and other electronic components	3344	24,100	16.5
Navigational, measuring, electromedical, and control instruments	3345	16,094	8.4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,379	9.8
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	7,935	9.2
Other measuring and controlling device	other 3345	3,781	6.3
Other computer and electronic products	other 334	9,855	5.3
Electrical equipment, appliances, and components	335	3,595	3.3
Transportation equipment	336	40,880	4.8
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D
Aerospace products and parts	3364	26,054 i	11.3
Aircraft, aircraft engine, and aircraft parts	336411–13	24,808 i	11.6
Guided missile, space vehicle, and related parts	336414–15, 336419	1,246	7.2
Military armored vehicle, tank, and tank component	336992	30	2.1
Other transportation equipment	other 336	D	D
Furniture and related products	337	319	1.0
Miscellaneous manufacturing	339	D	D
Medical equipment and supplies	3391	6,686	2.2
Other miscellaneous manufacturing	3399	D	D
Nonmanufacturing industries	21–23, 42–81	92,731	2.3
Mining, extraction, and support activities	21	2,733	0.5
Utilities	22	386	0.1
Wholesale trade	42	1,668 i	0.9
Electronic shopping and electronic auctions	454111–12	949 i	2.3
Transportation and warehousing	48–49	81	0.1
Information	51	41,865	4.6
Publishing	511	28,435	9.2
Newspaper, periodical, book, and directory publishers	5111	470	2.9
Software publishers	5112	27,965	9.5

TABLE 11. 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: 2011

Industry and company size	NAICS code	Domestic R&D (US\$millions)	Percent of domestic sales
Telecommunications	517	2,157	0.5
Data processing, hosting, and related services	518	4,285	11.0
Other information	other 51	6,988	6.5
Finance and insurance	52	3,457	0.4
Real estate and rental and leasing	53	395	4.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	324	12.7
Other real estate and rental and leasing	other 53	71	1.1
Professional, scientific, and technical services	54	38,219	8.6
Architectural, engineering, and related services	5413	3,774	4.0
Computer systems design and related services	5415	13,259	7.8
Scientific research and development services	5417	15,301	24.4
Biotechnology research and development	541711	6,017	42.3
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,667	18.3
Social sciences and humanities research and development	541720	616	61.0
Other professional, scientific, and technical services	other 54	5,885	5.0
Health care services	621-23	741	1.5
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	2,239	0.6
All companies (number of domestic employees)	-	294,093	3.2
Small companies <sup>a</sup>			
5-499	-	56,793	5.0
5-99	-	31,310	6.9
5-49	-	21,842	7.7
5-9	-	4,202	11.6
10-24	-	6,779	6.6
25-49	-	10,861	7.5
50-99	-	9,468	5.6
100-249	-	12,528	4.2
250-499	-	12,955	3.3
Medium and large companies			
500-999	-	10,027	2.6
1,000-4,999	-	50,485	4.3
5,000-9,999	-	24,951	2.4
10,000-24,999	-	49,214	2.5
25,000 or more	-	102,623	3.0

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 12. Domestic R&D paid for by the company and others and performed by the company, by source of funds and state: 2011  
(Millions of U.S. dollars)

State	Total	Paid for by the company	Paid for by others		
			Total	Federal	Nonfederal
All states	294,093	238,768	55,324	31,309 i	24,015
Alabama	1,879	835	1,045	697	348
Alaska	84 e	52 e	33	14	19
Arizona	4,931	3,776	1,155	678	477
Arkansas	344	307	38	17	21 e
California	75,035	64,104	10,931	6,968 i	3,963
Colorado	4,310	3,642	668	426	242
Connecticut	7,504	6,272	1,232	928	304
Delaware	2,097	1,453	643	18	625
District of Columbia	415	162 e	253 i	230 i	23
Florida	5,988	3,855	2,133 i	1,680 i	453
Georgia	3,839	3,303	536	190 i	347
Hawaii	252	183	69	19	49
Idaho	1,171	871	301	7	294
Illinois	12,038	10,764	1,275	167	1,108
Indiana	6,158	5,484	674 i	82	593 i
Iowa	2,314	1,736	578	D	D
Kansas	1,509	1,037	472	17 i	455
Kentucky	1,278	1,017	261	220	41 e
Louisiana	459	382	77 i	37 i	40 e
Maine	295	264	31	18	12 e
Maryland	5,101	2,867	2,235	1,677	558
Massachusetts	15,722	12,712	3,010	919 i	2,091
Michigan	13,660	12,156	1,504	292	1,212
Minnesota	6,174	5,592	582	240	342
Mississippi	235	189	46	31	15 e
Missouri	D	2,818	D	D	230
Montana	136	118	18 e	8	10 e
Nebraska	636	601	35	8 e	27
Nevada	638	554	85	23	62
New Hampshire	2,069	943	1,126	D	D
New Jersey	13,930	11,977	1,952	246	1,706
New Mexico	472	250	223	182	41
New York	12,072	9,141	2,931	2,119 i	812
North Carolina	6,193	5,157	1,036	128	909
North Dakota	261	236	25	7	17
Ohio	6,993	5,403	1,590	956 i	634
Oklahoma	604	507	97 i	58 i	39 e
Oregon	4,631	4,415	216	48	168
Pennsylvania	9,718	9,018	700	237	463
Rhode Island	542	451	91	40 i	51
South Carolina	1,399	949	450 i	116	334 i
South Dakota	136	112	24	3 e	21
Tennessee	1,434	1,279	155	35	119
Texas	15,309	12,920	2,388	1,169 i	1,219
Utah	2,438	1,874	565	482	83
Vermont	374 i	329 i	44	24	20
Virginia	5,562	3,138	2,424 i	2,085 i	339
Washington	14,558	13,659	899 i	578 i	321
West Virginia	247	213	35	22	13

TABLE 12. Domestic R&D paid for by the company and others and performed by the company, by source of funds and state: 2011  
(Millions of U.S. dollars)

State	Total	Paid for by the company	Paid for by others		
			Total	Federal	Nonfederal
Wisconsin	4,053	3,548	505 i	38	467 i
Wyoming	46 e	33 e	13	7	6 e
Undistributed <sup>a</sup>	D	6,111	D	D	D

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

<sup>a</sup> Includes data reported on Form BRDI-1 that were not allocated to a specific state, as well as data reported on Form BRDI-1A by multi-establishment companies. For single-establishment companies, data reported on Form BRDI-1A 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.

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

TABLE 13. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Paid for by the company	Paid for by others
All business activities	21100–81000	238,768	55,324
Oil and gas extraction	21100	871	D
Mining	21200	207	*
Support activities for mining, including oil and gas	21300	1,223	D
Utilities	22100	280	42
Construction	23000	270	505
Food manufacturing	31100	3,631	142
Beverage manufacturing	31210	455	D
Tobacco manufacturing	31220	138	D
Textile, apparel, and leather products manufacturing	31990	597	16
Wood products manufacturing	32100	197	5
Paper manufacturing	32200	732	2
Printing and related support activities	32300	237	0
Petroleum refineries	32401	449	D
Asphalt paving, roofing, and saturated materials manufacturing	32402	36	0
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	284	*
Basic chemicals manufacturing	32510	2,606	118
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	807	8
Pesticide, fertilizer, and other agricultural chemical manufacturing	32530	970	D
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing	32541	37,470	4,577
In-vitro diagnostic substances manufacturing	32542	1,064	19
Soap, cleaning compound, and toilet preparation manufacturing	32591	2,295	14
Paint, adhesive, and other chemical manufacturing	32592	1,540	7
Plastics and rubber products manufacturing	32600	2,652	19
Clay and glass products manufacturing	32710	774 i	22
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	299	3
Primary metal manufacturing	33100	526	9
Fabricated metal products manufacturing	33200	1,944	D
Agricultural machinery and equipment manufacturing	33311	972	17
Construction machinery manufacturing	33312	656	3
Mining, oil, and gas field machinery and equipment manufacturing	33319	1,732	6
Semiconductor machinery manufacturing	33321	2,188	28
Industrial machinery manufacturing, except semiconductor machinery	33322	890	32
Photographic and photocopying equipment manufacturing	33331	628	30
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	756	D
Engine, turbine, and power transmission equipment manufacturing	33360	2,867	272
Metalworking and other general purpose machinery manufacturing	33390	1,650	104
Computers and peripheral equipment manufacturing and magnetic and optical media	33412	9,802	501
Telephone apparatus manufacturing including routers, modems, and gateways	33421	7,662	6
Radio, television, and wireless communication equipment manufacturing	33422	2,879	722
Other communication equipment manufacturing, except radio, television, and wireless communication equipment	33429	854	51
Audio and video equipment manufacturing	33430	774	24
Semiconductor and other electronic components manufacturing	33440	23,313	1,110
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	2,482	82

TABLE 13. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Paid for by the company	Paid for by others
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments manufacturing	33452	1,853	3,706
Measuring and control instruments manufacturing (not listed elsewhere)	33459	3,044	38
Electrical equipment, appliances, and components manufacturing	33500	2,873	87
Motor vehicles manufacturing	33610	8,606	703
Motor vehicle body and trailer manufacturing	33620	69	0
Motor vehicle parts manufacturing	33630	2,760	243
Aircraft manufacturing	33641	4,290	1,563
Aircraft engine and engine parts manufacturing	33642	1,060	576
Other aircraft parts and auxiliary equipment manufacturing	33643	1,262	600
Guided missiles, space vehicles and parts manufacturing	33644	953	2,572
Railroad rolling stock manufacturing	33651	130	0
Ship and boat building	33660	90 i	D
Motorcycle, bicycle, and parts manufacturing	33691	210	0
Military armored vehicle, tank, and tank component manufacturing	33692	99	D
All other transportation equipment manufacturing	33699	263	144
Furniture and related products manufacturing	33700	300	*
Medical equipment and supplies manufacturing	33910	9,682	358
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,219	394
Merchant wholesalers, durable goods	42300	484	10 i
Merchant wholesalers, nondurable goods	42400	416	3
Wholesale electronic markets and agents and brokers (business to business)	42500	52	0
Retail trade, except electronic shopping and electronic auctions	44000	52	0
Electronic shopping and electronic auctions	45411	940 i	0
Transportation	48000	109	14
Couriers, messengers, and express delivery services	49200	1	0
Warehousing and storage	49300	12	3
Newspaper, periodical, book, and directory publishers (except Internet)	51110	430 i	0
Software publishers (except Internet)	51120	21,891	320
Motion picture and sound recording (except Internet)	51200	61	0
Broadcasting (except Internet)	51500	94	0
Wired telecommunications carriers	51710	571	0
Wireless telecommunications carriers (except satellite)	51720	138	0
Satellite telecommunications	51740	92	D
Other telecommunications (not listed elsewhere)	51790	373	104
Data processing, hosting, and related services	51800	4,069	6
Other information services including Internet publishing, broadcasting, and Web search portals	51910	7,979	D
Finance: banking and credit intermediation	52200	1,365	0
Securities, commodity contracts, and other financial investments and related activities (including funds and trusts)	52310	1,119	3
Insurance carriers and related activities	52400	735	D
Real estate	53100	10	0
Rental and leasing services	53200	83	0
Lessors of nonfinancial intangible assets (including patent licensing)	53300	301	0
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	306	0
Architectural, engineering, and related services	54130	1,345	576
Specialized design services	54140	228	40
Computer systems design and related services	54150	12,511	794
Management, scientific, and technical consulting services	54160	1,197	532

TABLE 13. Domestic R&D paid for by the company and others and performed by the company, by business activity: 2011  
(Millions of U.S. dollars)

Business activity <sup>a</sup>	Business code <sup>b</sup>	Paid for by the company	Paid for by others
Research and development services in social sciences and humanities	54172	17 i	D
Research and development services in biotechnology	54173	4,357	1,863
Research and development services in physical, engineering, and life sciences (except biotechnology)	54174	2,089	4,645
Advertising and related services	54180	1,398	1
Professional, scientific, and technical services (not listed elsewhere)	54190	618	532
Management of companies and enterprises	55100	31	0
Administrative and support services	56100	311	21
Waste management and remediation services	56200	19 i	0
Offices of physicians	62110	23	1
Medical and diagnostic laboratories	62150	418	482
Other ambulatory health care services (ambulance, dental, home health care)	62199	64	1
Hospitals and nursing care facilities	62200	4	0
Social assistance services	62400	7	0
Arts, entertainment, and recreation	71000	71	41
Accommodation and food services	72000	74	0
Other services (not listed elsewhere)	81000	358	70
Undistributed		9,522 i	23,555 i

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

<sup>a</sup> 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.

<sup>b</sup> Business codes and descriptions based on industry definitions from the 2007 North American Industry Classification System.

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, 2011.

TABLE 14. Domestic R&D paid for by the company and paid for by others, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others					
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted/passed through R&D costs)	R&D performed by the company			
							Total	Paid for by the U.S. government	Paid for by non-U.S. government sources	
All industries	21–23, 31–33, 42–81	268,376	29,608	238,768	66,847	11,520 i	55,324	31,309 i	24,015	
Manufacturing industries	31–33	186,928	23,588	163,340	47,155	9,131 i	38,021	24,698 i	13,323	
Food	311	4,627	423	4,204	206	11	196	17	179	
Beverage and tobacco products	312	848	164	684	D	0	D	D	D	
Textile, apparel, and leather products	313–316	D	D	600	41	7	34	D	D	
Wood products	321	212	10	202	9	*	9	0	9	
Paper	322	1,388	65	1,323	26	3	23	D	D	
Printing and related support activities	323	180	6	174	2	1	1	1	*	
Petroleum and coal products	324	D	D	1,025	D	4	D	D	D	
Chemicals	325	65,723	15,735	49,988	7,801	2,464	5,337	110	5,227	
Basic chemicals	3251	3,960	287	3,674	D	20	D	D	D	
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	813	26	787	14	3	12	D	D	
Pesticide, fertilizer, and other agricultural chemical	3253	770	67	703	D	3	D	D	D	
Pharmaceuticals and medicines	3254	56,049	14,938	41,111	7,270	2,432	4,838	52	4,786	
Soap, cleaning compound, and toilet preparation	3256	2,807	336	2,471	6	*	6	*	5	
Paint, coating, adhesive, and other chemicals	3255, 3259	1,324	82	1,242	45	6	40	D	D	
Plastics and rubber products	326	2,045	72	1,973	323 i	14	307 i	8	299	
Nonmetallic mineral products	327	1,352	207	1,145	37	3	33	25	8	
Primary metals	331	710	119	591	71	7	64	D	D	
Fabricated metal products	332	1,792	54	1,738	123	8	115	D	D	
Machinery	333	14,410	833	13,578	1,388	257	1,131	522	609	
Agricultural implement	33311	1,469	213	1,255	28	6	22	*	22	
Semiconductor machinery	333295	2,251	31	2,220	150	11	139	4	135	
Engine, turbine, and power transmission equipment	3336	4,035	436	3,599	D	D	693	D	D	
Other machinery	other 333	6,656	153	6,503	D	D	278	D	D	
Computer and electronic products	334	55,381	1,717	53,664	9,426	386	9,040	5,161	3,879	
Communications equipment	3342	11,485	689	10,796	1,878 i	20	1,858 i	784 i	1,074	
Semiconductor and other electronic components	3344	23,180	325	22,855	1,308	63	1,245	89	1,156	
Navigational, measuring, electromedical, and control instruments	3345	10,981	338	10,643	5,750	299	5,451	4,276	1,175	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,260	125	4,135	252	9	243	41	202	
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	D	D	2,823	5,394	283	5,111	4,182	929	
Other measuring and controlling device	other 3345	D	D	3,684	104	7	97	52	44	
Other computer and electronic products	other 334	9,735	366	9,370	490	5	485	12	473	
Electrical equipment, appliances, and components	335	3,560	144	3,417	193	15	178	76	102	
Transportation equipment	336	23,408	3,134	20,275	26,531 i	5,926 i	20,605 i	D	D	
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D	11,737	D	180	D	D	D	
Aerospace products and parts	3364	D	D	7,585	24,212 i	5,743 i	18,469 i	17,806 i	663	

TABLE 14. Domestic R&D paid for by the company and paid for by others, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others					
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted/passed through R&D costs)	R&D performed by the company			
							Total	Paid for by the U.S. government	Paid for by non-U.S. government sources	
Aircraft, aircraft engine, and aircraft parts	336411-13	D	D	7,328	D	D	17,480 i	16,820 i	660	
Guided missile, space vehicle, and related parts	336414-15, 336419	348	90	257	D	D	989	987	2	
Military armored vehicle, tank, and tank component	336992	D	D	28	3	*	2	1	1	
Other transportation equipment	other 336	D	D	925	D	3	D	D	D	
Furniture and related products	337	325	8	317	2	*	2	*	2	
Miscellaneous manufacturing	339	D	D	8,442	D	25	D	60	D	
Medical equipment and supplies	3391	6,837	558	6,279	422	16	406	18	388	
Other miscellaneous manufacturing	3399	D	D	2,163	D	9	D	42	D	
Nonmanufacturing industries	21-23, 42-81	81,448	6,019	75,428	19,692	2,389	17,303	6,611	10,692	
Mining, extraction, and support activities	21	2,721	295	2,425	312	5	307	11	296	
Utilities	22	579	277	302	119	35	84	60	24	
Wholesale trade	42	1,713 i	294 i	1,419 i	314	66 i	248	18	231 i	
Electronic shopping and electronic auctions	454111-12	D	D	949 i	1	1	0	0	0	
Transportation and warehousing	48-49	89	9	81	1	*	*	*	*	
Information	51	43,194	2,180 i	41,014	871	20	851	D	D	
Publishing	511	28,753	1,004	27,748	695	9	687	136	551	
Newspaper, periodical, book, and directory publishers	5111	480	12	468	1	0	1	0	1	
Software publishers	5112	28,273	992	27,280	694	9	685	136	549	
Telecommunications	517	3,047 i	1,007 i	2,040	118	*	117	D	D	
Data processing, hosting, and related services	518	D	D	4,257	29	1	28	D	D	
Other information	other 51	D	D	6,969	29	10	19	0	19	
Finance and insurance	52	3,421	111	3,310	146	0	146	0	146	
Real estate and rental and leasing	53	D	D	395	0	0	0	0	0	
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	D	324	0	0	0	0	0	
Other real estate and rental and leasing	other 53	D	D	71	0	0	0	0	0	
Professional, scientific, and technical services	54	26,066	2,698	23,368	16,994	2,143	14,851	5,848	9,002	
Architectural, engineering, and related services	5413	1,894	86	1,808	D	D	1,966	1,123 i	843	
Computer systems design and related services	5415	11,904	198	11,706	1,746	193	1,553	598	955	
Scientific research and development services	5417	8,358	2,188	6,170	10,595	1,464	9,131	3,226	5,905	
Biotechnology research and development	541711	6,142	1,859	4,283	D	D	1,735	406	1,328	
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,197	326	1,871	7,655	858	6,797	2,280	4,517	
Social sciences and humanities research and development	541720	19 i	2 i	17 i	D	D	599	540	60	
Other professional, scientific, and technical services	other 54	3,909	226	3,684	D	D	2,202	902	1,300	
Health care services	621-23	583	25	558	D	D	183	5	177	
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	D	1,607	D	D	632	D	D	

TABLE 14. Domestic R&D paid for by the company and paid for by others, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others					
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted/passed through R&D costs)	R&D performed by the company			
							Total	Paid for by the U.S. government	Paid for by non-U.S. government sources	
All companies (number of domestic employees)	-	268,376	29,608	238,768	66,847	11,520 i	55,324	31,309 i	24,015	
Small companies <sup>a</sup>										
5-499	-	51,818	5,308	46,509	12,040	1,757	10,283	3,938	6,346	
5-99	-	27,961	3,033	24,928	7,358	976	6,382	2,766	3,616	
5-49	-	19,595	2,278 i	17,317	5,274	749	4,525	2,065	2,460	
5-9	-	3,298	317	2,981	1,407	186	1,221	533	688	
10-24	-	5,820	914 i	4,907	2,228	356	1,872	795	1,077	
25-49	-	10,477	1,048	9,429	1,639	207	1,432	738	694	
50-99	-	8,366	755	7,611	2,083	226	1,857	701	1,156	
100-249	-	11,497	1,064	10,433	2,589	494	2,095	814	1,281	
250-499	-	12,360	1,211	11,149	2,093	287	1,806	358	1,448	
Medium and large companies										
500-999	-	9,360	621	8,739	1,377	86	1,288	377	911	
1,000-4,999	-	47,678	4,772	42,905	9,428	1,849	7,579	1,702	5,877	
5,000-9,999	-	19,988	1,329	18,659	7,251	959	6,292	476	5,816	
10,000-24,999	-	50,583	7,998	42,585	7,227	597	6,630	3,577	3,053	
25,000 or more	-	88,950	9,580	79,370	29,525 i	6,272 i	23,253 i	21,240 i	2,012	

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 15. Domestic R&D performed by the company and performed by others, by industry and company size: 2011  
(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	294,093	238,768	55,324	41,128	29,608	11,520 i
Manufacturing industries	31-33	201,361	163,340	38,021	32,719	23,588	9,131 i
Food	311	4,399	4,204	196	434	423	11
Beverage and tobacco products	312	D	684	D	164	164	0
Textile, apparel, and leather products	313-316	634	600	34	D	D	7
Wood products	321	211	202	9	10	10	*
Paper	322	1,346	1,323	23	68	65	3
Printing and related support activities	323	175	174	1	7	6	1
Petroleum and coal products	324	D	1,025	D	D	D	4
Chemicals	325	55,324	49,988	5,337	18,199	15,735	2,464
Basic chemicals	3251	D	3,674	D	307	287	20
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	798	787	12	29	26	3
Pesticide, fertilizer, and other agricultural chemical	3253	D	703	D	70	67	3
Pharmaceuticals and medicines	3254	45,949	41,111	4,838	17,370	14,938	2,432
Soap, cleaning compound, and toilet preparation	3256	2,477	2,471	6	336	336	*
Paint, coating, adhesive, and other chemicals	3255, 3259	1,281	1,242	40	88	82	6
Plastics and rubber products	326	2,280	1,973	307 i	86	72	14
Nonmetallic mineral products	327	1,179	1,145	33	210	207	3
Primary metals	331	655	591	64	126	119	7
Fabricated metal products	332	1,853	1,738	115	62	54	8
Machinery	333	14,709	13,578	1,131	1,089	833	257
Agricultural implement	33311	1,277	1,255	22	220	213	6
Semiconductor machinery	333295	2,359	2,220	139	42	31	11
Engine, turbine, and power transmission equipment	3336	4,292	3,599	693	D	436	D
Other machinery	other 333	6,781	6,503	278	D	153	D
Computer and electronic products	334	62,704	53,664	9,040	2,104	1,717	386
Communications equipment	3342	12,655	10,796	1,858 i	709	689	20
Semiconductor and other electronic components	3344	24,100	22,855	1,245	387	325	63
Navigational, measuring, electromedical, and control instruments	3345	16,094	10,643	5,451	637	338	299
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,379	4,135	243	133	125	9
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	7,935	2,823	5,111	D	D	283
Other measuring and controlling device	other 3345	3,781	3,684	97	D	D	7
Other computer and electronic products	other 334	9,855	9,370	485	371	366	5
Electrical equipment, appliances, and components	335	3,595	3,417	178	158	144	15
Transportation equipment	336	40,880	20,275	20,605 i	9,059 i	3,134	5,926 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	11,737	D	D	D	180
Aerospace products and parts	3364	26,054 i	7,585	18,469 i	D	D	5,743 i
Aircraft, aircraft engine, and aircraft parts	336411-13	24,808 i	7,328	17,480 i	D	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	1,246	257	989	D	90	D

TABLE 15. Domestic R&amp;D performed by the company and performed by others, by industry and company size: 2011

(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
Military armored vehicle, tank, and tank component	336992	30	28	2	D	D	*
Other transportation equipment	other 336	D	925	D	D	D	3
Furniture and related products	337	319	317	2	8	8	*
Miscellaneous manufacturing	339	D	8,442	D	D	D	25
Medical equipment and supplies	3391	6,686	6,279	406	574	558	16
Other miscellaneous manufacturing	3399	D	2,163	D	D	D	9
Nonmanufacturing industries	21–23, 42–81	92,731	75,428	17,303	8,409	6,019	2,389
Mining, extraction, and support activities	21	2,733	2,425	307	300	295	5
Utilities	22	386	302	84	313	277	35
Wholesale trade	42	1,668 i	1,419 i	248	359 i	294 i	66 i
Electronic shopping and electronic auctions	454111–12	949 i	949 i	0	D	D	1
Transportation and warehousing	48–49	81	81	*	9	9	*
Information	51	41,865	41,014	851	2,199 i	2,180 i	20
Publishing	511	28,435	27,748	687	1,013	1,004	9
Newspaper, periodical, book, and directory publishers	5111	470	468	1	12	12	0
Software publishers	5112	27,965	27,280	685	1,001	992	9
Telecommunications	517	2,157	2,040	117	1,007 i	1,007 i	*
Data processing, hosting, and related services	518	4,285	4,257	28	D	D	1
Other information	other 51	6,988	6,969	19	D	D	10
Finance and insurance	52	3,457	3,310	146	111	111	0
Real estate and rental and leasing	53	395	395	0	D	D	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	324	324	0	D	D	0
Other real estate and rental and leasing	other 53	71	71	0	D	D	0
Professional, scientific, and technical services	54	38,219	23,368	14,851	4,842	2,698	2,143
Architectural, engineering, and related services	5413	3,774	1,808	1,966	D	86	D
Computer systems design and related services	5415	13,259	11,706	1,553	392	198	193
Scientific research and development services	5417	15,301	6,170	9,131	3,652	2,188	1,464
Biotechnology research and development	541711	6,017	4,283	1,735	D	1,859	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	8,667	1,871	6,797	1,185	326	858
Social sciences and humanities research and development	541720	616	17 i	599	D	2 i	D
Other professional, scientific, and technical services	other 54	5,885	3,684	2,202	D	226	D
Health care services	621–23	741	558	183	D	25	D
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	2,239	1,607	632	D	D	D
All companies (number of domestic employees)	–	294,093	238,768	55,324	41,128	29,608	11,520 i
Small companies <sup>a</sup>							
5–499	–	56,793	46,509	10,283	7,065	5,308	1,757
5–99	–	31,310	24,928	6,382	4,009	3,033	976

TABLE 15. Domestic R&D performed by the company and performed by others, by industry and company size: 2011

(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
5-49	-	21,842	17,317	4,525	3,027	2,278 i	749
5-9	-	4,202	2,981	1,221	503	317	186
10-24	-	6,779	4,907	1,872	1,269	914 i	356
25-49	-	10,861	9,429	1,432	1,255	1,048	207
50-99	-	9,468	7,611	1,857	981	755	226
100-249	-	12,528	10,433	2,095	1,558	1,064	494
250-499	-	12,955	11,149	1,806	1,498	1,211	287
Medium and large companies							
500-999	-	10,027	8,739	1,288	707	621	86
1,000-4,999	-	50,485	42,905	7,579	6,621	4,772	1,849
5,000-9,999	-	24,951	18,659	6,292	2,288	1,329	959
10,000-24,999	-	49,214	42,585	6,630	8,595	7,998	597
25,000 or more	-	102,623	79,370	23,253 i	15,852	9,580	6,272 i

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 16. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2011  
(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	238,768	10,735	37,573	190,460
Manufacturing industries	31–33	163,340	7,594	28,541	127,205
Food	311	4,204	182	1,537	2,484
Beverage and tobacco products	312	684	108	180	396
Textile, apparel, and leather products	313–316	600	60	62	479
Wood products	321	202	17 i	49	135
Printing and related support activities	323	174	6	28	140
Chemicals	325	49,988	3,536	13,911	32,540
Pharmaceuticals and medicines	3254	41,111	2,878	11,920	26,314
Other chemicals	other 325	8,876	659	1,991	6,226
Plastics and rubber products	326	1,973	88	276	1,609
Nonmetallic mineral products	327	1,145	153 i	258 i	734
Primary metals	331	591	26	106	460
Fabricated metal products	332	1,738	49	184	1,505
Machinery	333	13,578	527	1,367	11,684
Computer and electronic products	334	53,664	1,268	6,265	46,131
Semiconductor and other electronic components	3344	22,855	567	2,579	19,709
Navigational, measuring, electromedical, and control instruments	3345	10,643	360	1,235	9,047
Other computer and electronic products	other 334	20,166	340	2,451	17,375
Electrical equipment, appliances, and components	335	3,417	159	485	2,772
Transportation equipment	336	20,275	818	2,037	17,419
Aerospace products and parts	3364	7,585	307	888	6,391
Other transportation equipment	other 336	12,690	511	1,150	11,029
Furniture and related products	337	317	13	35	269
Miscellaneous manufacturing	322, 324, 339	10,790	583 i	1,759	8,448
Nonmanufacturing industries	21–23, 42–81	75,428	3,141	9,032	63,255
Information	51	41,014	1,499 i	3,547	35,968
Publishing	511	27,748	1,201	2,476	24,072
Telecommunications	517	2,040	185 i	244 i	1,611 i
Data processing, hosting, and related services	518	4,257	57	524	3,675
Other information	other 51	6,969	55	304	6,610
Professional, scientific, and technical services	54	23,368	975	4,045	18,348
Architectural, engineering, and related services	5413	1,808	85	289	1,434
Computer systems design and related services	5415	11,706	217	1,007	10,482
Scientific research and development services	5417	6,170	564	2,036	3,569
Biotechnology research and development	541711	4,283	488	1,377	2,418
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,871	73	653	1,144
Social sciences and humanities research and development	541720	17 i	3 i	7 i	7 i
Other professional, scientific, and technical services	other 54	3,684	108 i	713 i	2,862 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	11,047	668 i	1,440	8,940
All companies (number of domestic employees)	–	238,768	10,735	37,573	190,460
Small companies <sup>a</sup>					
5–499	--	46,509	1,925	8,018	36,566
5–99	--	24,928	927	4,199	19,803
5–49	--	17,317	598	3,009	13,710
5–9	--	2,981	104	575	2,302
10–24	--	4,907	179	860	3,868
25–49	--	9,429	315	1,574	7,540
50–99	--	7,611	328	1,190	6,093
100–249	--	10,433	563	1,807	8,063
250–499	--	11,149	435	2,013	8,701

TABLE 16. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
Medium and large companies					
500-999	–	8,739	332	1,138	7,269
1,000-4,999	–	42,905	1,590	6,570	34,745
5,000-9,999	–	18,659	663	2,085	15,911
10,000-24,999	–	42,585	2,631	6,374	33,580
25,000 or more	–	79,370	3,595	13,387	62,388

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 17. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2011  
(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 <sup>a</sup>
All industries	21-23, 31-33, 42-81	238,768	141,487	9,945	10,145	2,938	15,961	3,677	9,796	5,959	38,860
Manufacturing industries	31-33	163,340	92,735	4,960	6,107	1,899	14,280	2,160	7,191	5,276	28,732
Food	311	4,204	3,249 i	55	54	5	219	D	D	61	D
Beverage and tobacco products	312	684	390	D	D	D	D	D	D	D	D
Textile, apparel, and leather products	313-316	600	384	*	17	D	D	7 i	25 i	D	D
Wood products	321	202	145	*	4	1	33	3 i	3	1	12
Paper	322	1,323	927	26	29	9	59	3	63	33	173
Printing and related support activities	323	174	D	*	4	1 i	8 i	3 i	6 i	2 i	D
Petroleum and coal products	324	1,025	566	*	D	2	D	D	28	D	D
Chemicals	325	49,988	25,617	1,125	2,715	259	4,193	954	2,626	2,626	9,872
Basic chemicals	3251	3,674	2,268	D	118	37	305	57	221	101	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	787	507	*	22	3	39	14	D	23	D
Pesticide, fertilizer, and other agricultural chemical	3253	703	D	D	D	D	D	D	D	D	D
Pharmaceuticals and medicines	3254	41,111	D	1,051	2,478	191	3,610	D	2,076	2,286	8,517
Soap, cleaning compound, and toilet preparation	3256	2,471	1,507	12	47	D	128	D	103	30	624
Paint, coating, adhesive, and other chemicals	3255, 3259	1,242	837	D	D	D	D	D	D	D	D
Plastics and rubber products	326	1,973	1,221	17	D	D	219	D	D	D	D
Nonmetallic mineral products	327	1,145	701 i	D	107 i	23 i	80 i	D	68 i	D	D
Primary metals	331	591	342	8	14	2	88	1	23	3	111
Fabricated metal products	332	1,738	1,333	6 i	15	13 i	137 i	7 i	D	23 i	D
Machinery	333	13,578	7,680	115	797	184	1,995	128	609	326	1,744
Agricultural implement	33311	1,255	655	* i	62	11	207	D	86	* i	D
Semiconductor machinery	333295	2,220	944	86	82	5	338	29	162	87	488
Engine, turbine, and power transmission equipment	3336	3,599	2,187	7	242	D	485	D	D	172	D
Other machinery	other 333	6,503	3,894	22 i	411	D	965	D	D	67 i	D
Computer and electronic products	334	53,664	32,030	3,323	1,352	697	3,828	686	2,639	526	8,582
Communications equipment	3342	10,796	6,274	682	190	D	535	80	600	206	D
Semiconductor and other electronic components	3344	22,855	13,243	1,812	428	208	1,682	352	1,328	142	3,661
Navigational, measuring, electromedical, and control instruments	3345	10,643	6,506	160	360	88	959	187 i	340	147	1,897
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,135	2,404	D	156	28	277	D	229	D	D
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	2,823	1,819	D	101	14	326	D	32	43	D
Other measuring and controlling device	other 3345	3,684	2,283	D	103	46	356 i	D	79	D	D
Other computer and electronic products	other 334	9,370	6,008	669	374	D	651	67	372	31	D
Electrical equipment, appliances, and components	335	3,417	2,546	15	115	23	157	27	91	77	364
Transportation equipment	336	20,275	10,077	36 i	492	503	2,547	165	458	1,115	4,882

TABLE 17. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2011  
(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 <sup>a</sup>
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	11,737	6,720	1 i	409	475	1,497	D	371	D	D
Aerospace products and parts	3364	7,585	2,821	29 i	58	23	893	14	57	141	3,550
Aircraft, aircraft engine, and aircraft parts	336411-13	7,328	2,684	29 i	D	21	853	13	51	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	257	136	0	D	2	40	1	5	D	D
Military armored vehicle, tank, and tank component	336992	28	D	2	D	1	D	D	1	1	D
Other transportation equipment	other 336	925	D	4 i	D	4	D	D	29	D	D
Furniture and related products	337	317	216	*	6	5 i	45	2 i	4 i	1	37 i
Miscellaneous manufacturing	339	8,442	D	219	315	146	515	95	302	179	D
Medical equipment and supplies	3391	6,279	3,690	185	276	124	442	75	237	153	1,098
Other miscellaneous manufacturing	3399	2,163	D	34 i	40	22 i	73	21	65	26	D
Nonmanufacturing industries	21-23, 42-81	75,428	48,752	4,985	4,038	1,039 i	1,681	1,518 i	2,604	683 i	10,128
Mining, extraction, and support activities	21	2,425	1,322	25	D	112 i	233	D	72	17	D
Utilities	22	302	D	2	30	4	37	D	32	2	D
Wholesale trade	42	1,419 i	967 i	8 i	120 i	24 i	58 i	38 i	34 i	12 i	159 i
Electronic shopping and electronic auctions	454111-12	949 i	D	D	129 i	6 i	1	D	D	D	D
Transportation and warehousing	48-49	81	54	0	16	1	4 i	* i	2	*	4 i
Information	51	41,014	26,998	3,211	1,916	543	399	724	1,391	229	5,603
Publishing	511	27,748	18,080	1,711	1,232	D	345	388 i	758	177	D
Newspaper, periodical, book, and directory publishers	5111	468	271	0	21	D	9 i	1 i	*	3 i	D
Software publishers	5112	27,280	17,809	1,711	1,212	D	336	386 i	758	174	D
Telecommunications	517	2,040	1,410	26 i	102 i	D	D	6 i	61	18 i	D
Data processing, hosting, and related services	518	4,257	3,486	126	164	D	8	53	151	9	D
Other information	other 51	6,969	4,022	1,348	418	D	D	277	420	24	D
Finance and insurance	52	3,310	2,071	52	697	20 i	14	44 i	47 i	4 i	362
Real estate and rental and leasing	53	395	212	35	22	1	11	3	19	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	324	172	35	21	1	10	2	17	D	D
Other real estate and rental and leasing	other 53	71	40	*	1	*	*	2	2	*	25
Professional, scientific, and technical services	54	23,368	14,783	1,540 i	860	311 i	844 i	599 i	879 i	300 i	3,251 i
Architectural, engineering, and related services	5413	1,808	1,256	26 i	93	11 i	121 i	39 i	14 i	6 i	242 i
Computer systems design and related services	5415	11,706	7,348	1,238 i	397	245 i	150 i	309 i	562 i	192 i	1,266 i
Scientific research and development services	5417	6,170	3,086	224	271	32 i	516	185	267	100	1,490
Biotechnology research and development	541711	4,283	1,893	199	175	17	402	140	201	70	1,186
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,871	1,178	25 i	95	15 i	113 i	45 i	66 i	30 i	304 i
Social sciences and humanities research and development	541720	17 i	16 i	0	1 i	0	* i	0	0	0	0

TABLE 17. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2011  
(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 <sup>a</sup>
Other professional, scientific, and technical services	other 54	3,684	3,093	51 i	99	24 i	57	66 i	38 i	3 i	253 i
Health care services	621-23	558	279	16 i	38	16	58 i	14 i	58	27	52 i
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,607	D	D	D	2 i	22 i	D	D	D	D
All companies (number of domestic employees)	-	238,768	141,487	9,945	10,145	2,938	15,961	3,677	9,796	5,959	38,860
Small companies <sup>b</sup>											
5-499	-	46,509	31,009	1,475 i	1,860	607 i	2,421 i	997 i	1,514 i	663 i	5,963 i
5-99	-	24,928	16,456	891 i	1,046	395 i	1,126 i	539 i	848 i	384 i	3,243 i
5-49	-	17,317	11,320	726 i	649	262 i	704 i	398 i	620 i	274 i	2,365 i
5-9	-	2,981	2,072	75 i	113	36 i	125 i	78 i	72 i	35 i	375 i
10-24	-	4,907	3,420	96 i	223	39 i	234 i	78 i	146 i	81 i	590 i
25-49	-	9,429	5,828	555 i	314	188 i	346 i	241 i	401 i	157 i	1,399 i
50-99	-	7,611	5,136	165 i	397	133 i	422 i	141	228 i	110 i	878 i
100-249	-	10,433	6,863	288	431	111	658 i	217	363	112 i	1,390 i
250-499	-	11,149	7,691	296	383	101	637 i	242 i	303	166 i	1,329
Medium and large companies											
500-999	-	8,739	5,420	335	468	101	618	142	335	218	1,102
1,000-4,999	-	42,905	24,649	2,313	1,319	681	2,847	644	1,773	1,103	7,577
5,000-9,999	-	18,659	10,922	941	587	263	1,247	266	844	434	3,155
10,000-24,999	-	42,585	24,773	2,179	1,587	477	2,756	1,013	2,247	1,701	5,852
25,000 or more	-	79,370	44,714	2,703	4,323	809	6,072	616	3,083	1,839	15,210

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Includes R&D costs allocated to subsidiaries by parent companies.

<sup>b</sup> 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, 2011.

TABLE 18. Domestic R&D paid for and performed by the company, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry	NAICS code	Company size (domestic employees)											
		All companies	5–9 <sup>a</sup>	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	238,768	2,981	4,907	9,429	7,611	10,433	11,149	8,739	42,905	18,659	42,585	79,370
Manufacturing industries	31–33	163,340	560	1,831	2,521	3,742	6,070	5,913	5,787	31,675	14,351	32,148	58,742
Food	311	4,204	5	91	105	215	151	208	93	428	175	724	2,009
Beverage and tobacco products	312	684	*	2	*	2	9	22	10	D	D	D	D
Textile, apparel, and leather products	313–316	600	18	12	32	11	115 i	22	41	243	D	D	0
Wood products	321	202	3	3	9	13	10	14	4	62	50	34	0
Paper	322	1,323	1	12	3	9	36	D	35	97	58	D	D
Printing and related support activities	323	174	*	2	15	21	34	16	12	58	2	7	9
Petroleum and coal products	324	1,025	*	84	9	10	15	D	0	D	0	D	D
Chemicals	325	49,988	156	311	591	739	1,349	1,538	1,310	9,990	3,207	15,359	15,437
Basic chemicals	3251	3,674	3	D	59	130	105	93	206	1,030	370	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	787	*	4	D	11	32	47	D	D	D	D	D
Pesticide, fertilizer, and other agricultural chemical	3253	703	D	78	3	11	15	50	D	D	D	D	0
Pharmaceuticals and medicines	3254	41,111	81	148	402	508	1,071	1,288	884	7,981	1,975	12,889	13,884
Soap, cleaning compound, and toilet preparation	3256	2,471	D	D	D	31	50	21	70	204	527	341	D
Paint, coating, adhesive, and other chemicals	3255, 3259	1,242	D	26	83	48	75	39	D	581	D	D	D
Plastics and rubber products	326	1,973	8	23	87	119	204	206	206	422	540	46	112
Nonmetallic mineral products	327	1,145	*	8	45 i	43	29	21	51	88	108	752	0
Primary metals	331	591	1	7	7	29	43	24	60	168	70	19	164
Fabricated metal products	332	1,738	15	26	131	280	435	228	132	316	55	62	58
Machinery	333	13,578	46	281	349	388	742	596	616	1,965	1,365	1,403	5,827
Agricultural implement	33311	1,255	2	8	4	20	D	12	11	D	0	D	D
Semiconductor machinery	333295	2,220	D	D	D	D	72	151	278	753 i	D	0	0
Engine, turbine, and power transmission equipment	3336	3,599	5	D	D	D	D	37 i	D	D	D	654	D
Other machinery	other 333	6,503	D	D	D	320	593	396	D	1,003	D	D	D
Computer and electronic products	334	53,664	178	531	597	1,010	1,826	1,815	2,262	11,954	6,571	7,428	19,494
Communications equipment	3342	10,796	10	195	73	D	293	381	631	1,568	1,293 i	D	4,800
Semiconductor and other electronic components	3344	22,855	D	D	D	D	833	968	784	6,795	2,653	D	D
Navigational, measuring, electromedical, and control instruments	3345	10,643	137	188	D	340	409	229	384	1,650	805	2,016	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,135	31	55	D	58	169	29	111	280	D	D	2,479
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	2,823	87	8	D	72	33	63	1	311	D	D	1,688

TABLE 18. Domestic R&D paid for and performed by the company, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry	NAICS code	Company size (domestic employees)											
		All companies	5–9 <sup>a</sup>	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 measuring and controlling device	other 3345	3,684	19	125	D	210	207	138	273	1,059	621	790	D
Other computer and electronic products	other 334	9,370	D	D	D	D	291	237	462	1,941	1,821	0	D
Electrical equipment, appliances, and components	335	3,417	71	98	95	125	269	271	227	491	557	676	535
Transportation equipment	336	20,275	11	67	62	206	310	341	258	2,408	895	2,544	13,171
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	11,737	3	D	D	107	179	216	127	1,764	D	1,136	D
Aerospace products and parts	3364	7,585	7	16	22	12	108	45	92	492	382	1,409	5,001
Aircraft, aircraft engine, and aircraft parts	336411–13	7,328	6	16	19	12	D	D	92	372	D	D	5,001
Guided missile, space vehicle, and related parts	336414–15, 336419	257	*	0	3	*	D	D	0	120	D	D	0
Military armored vehicle, tank, and tank component	336992	28	0	1	0	*	4	D	D	0	0	0	0
Other transportation equipment	other 336	925	2	D	D	87	20	D	D	152	D	0	D
Furniture and related products	337	317	0	4	13	8	46	34	13	84	95	19	0
Miscellaneous manufacturing	339	8,442	45	271	372	514	448	520	456	2,858	499	2,459	0
Medical equipment and supplies	3391	6,279	37	D	311	245	328	421	289	2,078	200	D	0
Other miscellaneous manufacturing	3399	2,163	8	D	61	269	119	99	167	780	299	D	0
Nonmanufacturing industries	21–23, 42–81	75,428	2,421	3,075	6,908	3,869	4,363	5,236	2,953	11,231	4,308	10,437	20,628
Mining, extraction, and support activities	21	2,425	*	38	27	127	17	19	D	24	D	1,108	D
Utilities	22	302	18	43	8	8	*	2	24	101	18	55	24
Wholesale trade	42	1,419 i	59	86	119	129	245	403 i	245 i	121 i	13 i	0	0
Electronic shopping and electronic auctions	454111–12	949 i	1	5	D	D	1 i	D	D	D	0	D	0
Transportation and warehousing	48–49	81	0	2	1	4	11	D	11	D	4	0	35
Information	51	41,014	627	936	846	1,355	1,232	2,005	1,350	6,144	3,238	6,343	16,938
Publishing	511	27,748	586	455	516	879	601	732	697	4,674	3,087	0	15,522
Newspaper, periodical, book, and directory publishers	5111	468	2	99	*	3	27	5	20	0	300	0	11
Software publishers	5112	27,280	584	355	516	876	574	727	677	4,674	2,787	0	15,511
Telecommunications	517	2,040	5	104	D	102	68	D	76	D	0	D	D
Data processing, hosting, and related services	518	4,257	D	265	181	259	353	1,118	326	936	D	677	0
Other information	other 51	6,969	D	113	D	114	211	D	252	D	D	D	D
Finance and insurance	52	3,310	97	83	D	D	178	371	396	403	145	D	1,573
Real estate and rental and leasing	53	395	*	2	D	D	91	D	0	D	0	1	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	324	*	2	D	D	D	D	0	D	0	0	0
Other real estate and rental and leasing	other 53	71	0	0	0	D	D	0	0	D	0	1	0
Professional, scientific, and technical services	54	23,368	1,451	1,816	5,811	2,084	2,375	1,402	813	3,976	637	1,976 i	1,025
Architectural, engineering, and related services	5413	1,808	70	237	132	369	384	117	D	122	261	D	56

TABLE 18. Domestic R&D paid for and performed by the company, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry	NAICS code	All companies	Company size (domestic employees)										
			5-9 <sup>a</sup>	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
Computer systems design and related services	5415	11,706	454	676	3,283	600	873	685	620	2,083	231 i	1,963 i	240
Scientific research and development services	5417	6,170	539	843	964	971	994	503	32	1,282	32	0	10
Biotechnology research and development	541711	4,283	285	461	518	758	860	290	19	1,082	0	0	10
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,871	251	377	441	213	130	213	13	200	32	0	0
Social sciences and humanities research and development	541720	17 i	3 i	4	6 i	0	4	0	0	0	0	0	0
Other professional, scientific, and technical services	other 54	3,684	389	61	1,431	144	124	97	D	489	112	D	719
Health care services	621-23	558	147	15	6	42	82	70	D	61	0	0	D
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,607	20	50	68	53	131	D	D	220	D	D	63

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies						
		(number) <sup>a</sup>	United States	Alabama	Alaska	Arizona	Arkansas	California
All industries	21–23, 31–33, 42–81	47,662	238,768	835	52 e	3,776	307	64,104
Manufacturing industries	31–33	22,195	163,340	526	12 e	2,963	174	40,668
Food	311	1,541	4,204	14	6 e	5 e	49	204
Beverage and tobacco products	312	146	684	* e	D	* e	D	16 i
Textile, apparel, and leather products	313–316	653	600	2 e	* e	1 e	1 e	96
Wood products	321	306	202	1 e	* e	* e	5	17
Paper	322	231	1,323	7 i	* e	2	* e	17
Printing and related support activities	323	380	174	* e	* e	7	1	12
Petroleum and coal products	324	181	1,025	4 e	* e	1 e	D	39
Chemicals	325	2,488	49,988	177	1 e	114	18	10,473
Basic chemicals	3251	499	3,674	11	0	6	8	155
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	154	787	3	0	*	* e	3
Pesticide, fertilizer, and other agricultural chemical	3253	166	703	8	* e	5	3	47
Pharmaceuticals and medicines	3254	610	41,111	152	*	75	6	10,042
Soap, cleaning compound, and toilet preparation	3256	524	2,471	* e	* e	27	1 e	165
Paint, coating, adhesive, and other chemicals	3255, 3259	535	1,242	2	0	1 e	1 e	61
Plastics and rubber products	326	1,416	1,973	15	* e	178	9	110
Nonmetallic mineral products	327	D	1,145	1 e	* e	1 e	1 e	25
Primary metals	331	266	591	5	* e	2	1	22
Fabricated metal products	332	2,422	1,738	11 e	* e	23	7	182
Machinery	333	D	13,578	39	* e	61	17	2,064
Agricultural implement	33311	171	1,255	* e	0	2	* e	20
Semiconductor machinery	333295	51	2,220	0	0	4	0	1,592
Engine, turbine, and power transmission equipment	3336	196	3,599	D	* e	6	1 e	70
Other machinery	other 333	D	6,503	D	* e	48	16	382
Computer and electronic products	334	3,098	53,664	163	1	2,219	37	23,417
Communications equipment	3342	490	10,796	99	1	95	14	4,788
Semiconductor and other electronic components	3344	777	22,855	3 e	0	1,465	1 e	10,860
Navigational, measuring, electromedical, and control instruments	3345	1,249	10,643	40	* e	655	19 i	2,694
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	148	4,135	D	0	1 e	*	824
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	168	2,823	9	0	D	* e	396
Other measuring and controlling device	other 3345	933	3,684	D	* e	D	19 i	1,474
Other computer and electronic products	other 334	582	9,370	20	0	4 e	3 e	5,075
Electrical equipment, appliances, and components	335	1,277	3,417	2 e	0	105	3 e	369
Transportation equipment	336	1,382	20,275	72	D	176 i	D	1,385
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	729	11,737	31 e	*	28	12	397
Aerospace products and parts	3364	301	7,585	29	D	D	D	948
Aircraft, aircraft engine, and aircraft parts	336411–13	285	7,328	D	D	D	D	919
Guided missile, space vehicle, and related parts	336414–15, 336419	16	257	D	0	D	D	29

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies							
		(number) <sup>a</sup>	United States	Alabama	Alaska	Arizona	Arkansas	California	
Military armored vehicle, tank, and tank component	336992	9	28	0	0	D	0	0	
Other transportation equipment	other 336	343	925	12 e	1 e	D	2	40	
Furniture and related products	337	419	317	3	* e	2	D	11	
Miscellaneous manufacturing	339	2,275	8,442	8 e	1 e	65	6 e	2,211	
Medical equipment and supplies	3391	1,029	6,279	3 e	* e	42	2 e	1,875	
Other miscellaneous manufacturing	3399	1,246	2,163	5 e	* e	23	4 e	335	
Nonmanufacturing industries	21-23, 42-81	25,467	75,428	309	40 e	813	133	23,435	
Mining, extraction, and support activities	21	185	2,425	5 e	14	D	3 e	221	
Utilities	22	74	302	11	* e	9	1 e	32	
Wholesale trade	42	3,605	1,419 i	3 e	* e	39 i	2 e	311 i	
Electronic shopping and electronic auctions	454111-12	142	949 i	* e	* e	*	* e	D	
Transportation and warehousing	48-49	46	81	5	* e	* e	* e	1	
Information	51	4,022	41,014	95	3 e	272	92	14,868	
Publishing	511	2,038	27,748	50	1	156	9 e	7,808	
Newspaper, periodical, book, and directory publishers	5111	342	468	1 e	* e	1 e	1 e	32	
Software publishers	5112	1,696	27,280	49	1	155	8 e	7,777	
Telecommunications	517	D	2,040	3 e	1 e	2 e	1 e	165	
Data processing, hosting, and related services	518	D	4,257	40	1 e	102	81	1,222	
Other information	other 51	761	6,969	2 e	* e	12	1 e	5,673	
Finance and insurance	52	1,902	3,310	8 e	1 e	249	4 e	207	
Real estate and rental and leasing	53	31	395	* e	0 e	*	* e	253	
Lessors of nonfinancial intangible assets (except copyrighted works)	533	21	324	* e	0 e	* e	* e	250	
Other real estate and rental and leasing	other 53	10	71	0	0	*	0	3	
Professional, scientific, and technical services	54	10,670	23,368	164 e	17 e	177 e	24 e	6,147	
Architectural, engineering, and related services	5413	2,150	1,808	25 e	6 e	23 e	8	210 e	
Computer systems design and related services	5415	4,967	11,706	109	9 e	99 e	7 e	3,187	
Scientific research and development services	5417	1,534	6,170	13 e	* e	31	3 e	1,856	
Biotechnology research and development	541711	671	4,283	4 e	0	14	2 e	1,302	
Physical, engineering, and life sciences (except biotechnology) research and development	541712	845	1,871	10 e	* e	16	2 e	542	
Social sciences and humanities research and development	541720	19	17 i	* e	* e	0	* e	11 i	
Other professional, scientific, and technical services	other 54	2,020	3,684	17 e	3 e	24 e	7 e	894	
Health care services	621-23	1,009	558	3 e	* e	5 e	1 e	235	
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	3,781	1,607	16 e	3 e	D	6 e	D	
All companies (number of domestic employees)	-	47,662	238,768	835	52 e	3,776	307	64,104	
Small companies <sup>b</sup>									
5-499	-	45,120	46,509	386 e	36 e	523 e	109 e	12,021	
5-99	-	38,331	24,928	199 e	28 e	288 e	71 e	6,213	
5-49	-	33,145	17,317	138 e	20 e	194 e	50 e	4,017	
5-9	-	11,510	2,981	26 e	3 e	39 e	10 e	593 e	

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies							
		(number) <sup>a</sup>	United States	Alabama	Alaska	Arizona	Arkansas	California	
10–24	–	12,931	4,907	46 e	7 e	56 e	17 e	1,031	
25–49	–	8,704	9,429	66 e	10 e	99 e	23 e	2,393	
50–99	–	5,186	7,611	61 e	8 e	94	22 e	2,195	
100–249	–	4,568	10,433	59	3 e	99	14 e	2,916	
250–499	–	2,220	11,149	128	5 e	135	24 e	2,893	
Medium and large companies									
500–999	–	D	8,739	21	* e	72	44	2,813	
1,000–4,999	–	1,232	42,905	261	13	456	49	14,299	
5,000–9,999	–	235	18,659	61	* e	383	10	6,947	
10,000–24,999	–	138	42,585	22	1	254	46	13,916	
25,000 or more	–	D	79,370	85	1	2,089	50	14,107	
Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii	
All industries	21–23, 31–33, 42–81	3,642	6,272	1,453	162 e	3,855	3,303	183	
Manufacturing industries	31–33	2,463	5,584	935	22	2,090	1,826	107	
Food	311	30	28	D	* e	20 e	D	54	
Beverage and tobacco products	312	3	D	* e	0	5	D	D	
Textile, apparel, and leather products	313–316	1 e	4	2	* e	17	28	* e	
Wood products	321	*	*	D	0	* e	6	* e	
Paper	322	* e	21	* e	0	* e	75	* e	
Printing and related support activities	323	2	* e	*	* e	2	4	* e	
Petroleum and coal products	324	13	D	D	0	4 e	D	0	
Chemicals	325	258	4,258	177	5	368	307	37	
Basic chemicals	3251	76	70	61	0	13	66	D	
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	* e	4	D	0	13	32	0	
Pesticide, fertilizer, and other agricultural chemical	3253	3	2	2	D	10 e	8	D	
Pharmaceuticals and medicines	3254	173	4,068	D	D	283	180	1 e	
Soap, cleaning compound, and toilet preparation	3256	3 e	107 i	* e	0	6 e	11	* e	
Paint, coating, adhesive, and other chemicals	3255, 3259	4	8	D	D	43	10	* e	
Plastics and rubber products	326	7	9 i	3	0	16	D	* e	
Nonmetallic mineral products	327	7	1 e	2	* e	16	10	* e	
Primary metals	331	20	2	7	0	* e	10	0	
Fabricated metal products	332	19	44	2 e	* e	31	23	* e	
Machinery	333	141	256	1 e	0	88	164	* e	
Agricultural implement	33311	2	* e	0	0	2	24	0	
Semiconductor machinery	333295	11	33	0	0	1	3	0	
Engine, turbine, and power transmission equipment	3336	98	D	*	0	D	D	0	
Other machinery	other 333	30	D	1 e	0	D	D	* e	
Computer and electronic products	334	1,651	200	52	14	1,121	603	12	
Communications equipment	3342	373	35	1 e	10	484	425	10	
Semiconductor and other electronic components	3344	492	16	*	3	156	67	*	
Navigational, measuring, electromedical, and control instruments	3345	231	130 i	44	0	441	93	* e	

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	38	16	* e	0	245	31	*
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	58	25	1 e	0	119	19	* e
Other measuring and controlling device	other 3345	134	90 i	43	0	77	43 i	* e
Other computer and electronic products	other 334	556	19	7	* e	40	18	1
Electrical equipment, appliances, and components	335	6 e	102	6	* e	43	78	0
Transportation equipment	336	116	509	D	* i	238	183 i	D
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	6 e	4 e	* e	* i	21	D	0
Aerospace products and parts	3364	109	496	D	0	197	D	D
Aircraft, aircraft engine, and aircraft parts	336411-13	D	D	D	0	D	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	D	D	D	0	D	D	0
Military armored vehicle, tank, and tank component	336992	0	0	0	0	* e	* e	0
Other transportation equipment	other 336	* e	8 i	* e	0	21 i	D	1 e
Furniture and related products	337	18	* e	D	* e	1 e	12	* e
Miscellaneous manufacturing	339	172	142	19 i	2	119	78	1 e
Medical equipment and supplies	3391	159	115	18 i	2	106	54	1 e
Other miscellaneous manufacturing	3399	13	26	* e	* e	13 e	23	1 e
Nonmanufacturing industries	21-23, 42-81	1,179	688	518	140 e	1,765	1,477	76 e
Mining, extraction, and support activities	21	36	6	* e	0	4	7	* e
Utilities	22	12	1 e	* e	* e	4	18	4
Wholesale trade	42	13	13	* e	* e	15 e	60	2 i
Electronic shopping and electronic auctions	454111-12	7	1	* e	* e	1 e	* e	* e
Transportation and warehousing	48-49	2	* e	* e	* e	3	1	* e
Information	51	660	207	475	47	1,022	676	18 e
Publishing	511	477 i	156	3 e	30	570 i	432	7 e
Newspaper, periodical, book, and directory publishers	5111	3 e	2 e	* e	13	4 e	2 e	1 e
Software publishers	5112	474 i	154	3 e	17	566 i	429	7 e
Telecommunications	517	71	2 e	462	1 e	54	12	3 e
Data processing, hosting, and related services	518	75	45 e	8 e	5 e	379	159	7
Other information	other 51	37	4 e	* e	11	19 e	73	1 e
Finance and insurance	52	19 e	105	5	2 e	91	249	2 e
Real estate and rental and leasing	53	*	* e	0 e	* e	*	*	0 e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	*	* e	0 e	* e	*	*	0 e
Other real estate and rental and leasing	other 53	0	0	0	0	*	0	0
Professional, scientific, and technical services	54	379	332	35 e	87 e	536 e	393 e	44 e
Architectural, engineering, and related services	5413	35 e	61 i	2 e	4 e	65 e	42 e	7 e
Computer systems design and related services	5415	223	68 e	21 e	34 e	289 e	230 e	15 e
Scientific research and development services	5417	85	173	5	4	60	41	17
Biotechnology research and development	541711	45	63	2	1	23	12	8 e
Physical, engineering, and life sciences (except biotechnology) research and development	541712	39	110	3	2	35	30	10

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Social sciences and humanities research and development	541720	0	* e	0	*	2	* e	0
Other professional, scientific, and technical services	other 54	36 e	29 e	7 e	45 e	122 e	80 e	4 e
Health care services	621-23	4 e	6	1 e	* e	12 e	16	1 e
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	46	18 e	3 e	3 e	77 e	56	6 e
All companies (number of domestic employees)	-	3,642	6,272	1,453	162 e	3,855	3,303	183
Small companies <sup>b</sup>								
5-499	-	926	767	172	109 e	1,196 e	832 e	72 e
5-99	-	479 e	343 e	52 e	96 e	714 e	518 e	59 e
5-49	-	348 e	242 e	43 e	87 e	536 e	378 e	47 e
5-9	-	59 e	43 e	8 e	17 e	115 e	69 e	8 e
10-24	-	106 e	70 e	12 e	16 e	151 e	106 e	14 e
25-49	-	183 e	128 e	24 e	53 e	270 e	202 e	25 e
50-99	-	131	101	9 e	9 e	178 e	141 e	12 e
100-249	-	163	132	6 e	4 e	245	143	5 e
250-499	-	284	292	114	10 e	237	171	8 e
Medium and large companies								
500-999	-	120	149	2	1 e	141	109	D
1,000-4,999	-	709	393	38	17	843	713	13
5,000-9,999	-	461	D	73	3 e	136	132	* e
10,000-24,999	-	519	1,359	31	7	771	359	D
25,000 or more	-	908	D	1,138	24	769	1,157	57
Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
All industries	21-23, 31-33, 42-81	871	10,764	5,484	1,736	1,037	1,017	382 e
Manufacturing industries	31-33	803	9,162	5,051	1,577	800	854	177
Food	311	31	288	73	389	24	23	16
Beverage and tobacco products	312	D	D	* e	* e	* e	25	D
Textile, apparel, and leather products	313-316	* e	4 e	3	1	1 e	2	1 e
Wood products	321	3	1 e	16	10	1	1 e	3
Paper	322	* e	4	8	* e	6	1 i	* e
Printing and related support activities	323	* e	10	1 e	2	1	* e	1
Petroleum and coal products	324	* e	D	2 e	2	3	1 e	2 e
Chemicals	325	17	3,744	2,929	161	133 i	400	57
Basic chemicals	3251	1 e	80	D	34	14	24	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	* e	7	35	* e	5	12	1
Pesticide, fertilizer, and other agricultural chemical	3253	11	D	D	D	4	1	12
Pharmaceuticals and medicines	3254	3	3,386	D	17	24	7	D
Soap, cleaning compound, and toilet preparation	3256	2 e	62	4 e	1 e	D	1 e	1 e
Paint, coating, adhesive, and other chemicals	3255, 3259	* e	D	D	D	D	355	1 e
Plastics and rubber products	326	1 e	123	82	12	7	12	17

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Nonmetallic mineral products	327	* e	26	6	8	1 e	1 e	1 e
Primary metals	331	*	20	56	17	* e	1 e	3
Fabricated metal products	332	2 e	167	51	17	15	18	8 e
Machinery	333	5 e	2,425	722	580	82	95	34
Agricultural implement	33311	* e	394	3	502	33	* e	11
Semiconductor machinery	333295	0	D	0	0	0	0	0
Engine, turbine, and power transmission equipment	3336	*	92	D	3	*	D	*
Other machinery	other 333	4 e	D	D	74	49	D	22
Computer and electronic products	334	719	1,507	134	282	357	43	10
Communications equipment	3342	D	996	22	13	D	5	6
Semiconductor and other electronic components	3344	600	146	17	12	66 i	4 e	* e
Navigational, measuring, electromedical, and control instruments	3345	4	310	57	D	D	23	4 e
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	*	98	7	7	D	8	* e
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	0	D	33	D	D	4	1
Other measuring and controlling device	other 3345	4	D	17	D	D	12 i	3 e
Other computer and electronic products	other 334	D	55	38	D	D	11	1 e
Electrical equipment, appliances, and components	335	8	127	128	41	10	10	2 e
Transportation equipment	336	D	317	473 i	29	146	205	D
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	5	163 i	368 i	23 e	8 e	D	2 e
Aerospace products and parts	3364	D	138	D	6	137	D	D
Aircraft, aircraft engine, and aircraft parts	336411-13	D	138	D	6	137	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	0	*	0	0	0	0	0
Military armored vehicle, tank, and tank component	336992	0	0	0	0	0	0	0
Other transportation equipment	other 336	4	16	D	1 e	2	D	13 e
Furniture and related products	337	* e	D	8	18	4	2	1
Miscellaneous manufacturing	339	6 i	308	359	7 e	8 e	13 e	5 e
Medical equipment and supplies	3391	1 e	98	339	4 e	5 e	6 e	2 e
Other miscellaneous manufacturing	3399	4 i	210	20	3 e	4 e	7	3 e
Nonmanufacturing industries	21-23, 42-81	68 e	1,602	433	159 e	237	164 e	205 e
Mining, extraction, and support activities	21	1 e	D	4 e	1 e	7	32	57
Utilities	22	* e	3 e	3 e	*	1 e	1 e	14
Wholesale trade	42	1 e	87 i	8 e	6 e	3 e	6	4 e
Electronic shopping and electronic auctions	454111-12	* e	D	*	* e	* e	1	* e
Transportation and warehousing	48-49	* e	10	2	* e	* e	* e	* e
Information	51	34	432	188	70 e	80	30 e	27 e
Publishing	511	25	270	50 i	34	40	15	12 e
Newspaper, periodical, book, and directory publishers	5111	1 e	14	1 e	1 e	1 e	1 e	1 e
Software publishers	5112	24	256	49 i	33	39	14	11 e
Telecommunications	517	1 e	27	2 e	4 e	16	2 e	4
Data processing, hosting, and related services	518	8 e	94 e	55	24 e	23 e	11 e	9 e
Other information	other 51	1 e	40	80	8	1 e	2 e	2 e
Finance and insurance	52	8	436	19	9 e	19	9 e	8 e

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Real estate and rental and leasing	53	* e	1	* e	*	* e	* e	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	* e	* e	* e	*	* e	* e	*
Other real estate and rental and leasing	other 53	0	1	0	0	0	0	0
Professional, scientific, and technical services	54	19 e	490 e	167	59 e	112	53 e	77 e
Architectural, engineering, and related services	5413	4 e	48 e	18 e	6 e	7 e	10 e	24 e
Computer systems design and related services	5415	9 e	255 e	98	23 e	54	17 e	22 e
Scientific research and development services	5417	2 e	62	28	21	41	13 e	7
Biotechnology research and development	541711	1 e	38	14	20	5	8 e	5
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1 e	23	14	1 e	36	4 e	2 e
Social sciences and humanities research and development	541720	0	* e	* e	* e	0	*	* e
Other professional, scientific, and technical services	other 54	4 e	125 e	23 e	9 e	10 e	13 e	24 e
Health care services	621-23	1 e	9 e	4 e	1 e	1 e	2 e	3 e
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	4 e	D	38	12 e	14 e	29	17 e
All companies (number of domestic employees)	-	871	10,764	5,484	1,736	1,037	1,017	382 e
Small companies <sup>b</sup>								
5-499	-	82 e	1,673	540 e	306 e	258 e	239 e	210 e
5-99	-	58 e	913 e	305 e	152 e	155 e	143 e	149 e
5-49	-	38 e	661 e	197 e	97 e	107 e	86 e	103 e
5-9	-	8 e	108 e	36 e	20 e	20 e	19 e	20 e
10-24	-	13 e	159 e	67 e	33 e	29 e	28 e	34 e
25-49	-	17 e	395 e	93 e	45 e	58 e	39 e	49 e
50-99	-	20 e	251 e	108 e	55 e	48 e	57 e	45 e
100-249	-	13	363	126	75	71	39	33 e
250-499	-	12 e	397	109	80	31 e	58	28 e
Medium and large companies								
500-999	-	6 i	254	199	20	25	39	26
1,000-4,999	-	72	1,531	616	98	314	411	49
5,000-9,999	-	D	418	194	47	251	19	2
10,000-24,999	-	D	1,929	3,546	409	72	193	70
25,000 or more	-	214	4,959	389	854	118	116	25
Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
All industries	21-23, 31-33, 42-81	264	2,867	12,712	12,156	5,592	189	2,818
Manufacturing industries	31-33	195	1,874	8,509	11,302	4,734	130	2,170
Food	311	D	80	56	220	379	D	85
Beverage and tobacco products	312	D	* e	D	* e	* e	D	D
Textile, apparel, and leather products	313-316	1 e	14	57	10	9	1 e	1 e
Wood products	321	* e	1	2	3	36	2	1 e
Paper	322	13	3	23	7	D	* e	1
Printing and related support activities	323	* e	1 e	6 i	4	7	* e	7
Petroleum and coal products	324	D	2 e	D	6 e	2 e	1	D

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Chemicals	325	15	1,048	4,085	563	293	24	766
Basic chemicals	3251	* e	54	158	375	32	7	67
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	* e	* e	26	3	3	*	* e
Pesticide, fertilizer, and other agricultural chemical	3253	2	2	3 e	8	20	8	D
Pharmaceuticals and medicines	3254	12	974	3,762	146	134	3	595
Soap, cleaning compound, and toilet preparation	3256	* e	17	113	11	77	3	8
Paint, coating, adhesive, and other chemicals	3255, 3259	1	1 e	24	20	28	2	D
Plastics and rubber products	326	1 e	62	92	79	D	6	D
Nonmetallic mineral products	327	* e	1 e	60	13	8	1 e	4
Primary metals	331	* e	2	9	28	10	* e	4
Fabricated metal products	332	9	15	46	97	59	3 e	31
Machinery	333	4 e	163	474	388	329	14	76
Agricultural implement	33311	* e	* e	4	2	52	* e	2
Semiconductor machinery	333295	0	1	241	0	26	0	0
Engine, turbine, and power transmission equipment	3336	1	D	D	60	40	D	8
Other machinery	other 333	3 e	D	D	326	211	D	66
Computer and electronic products	334	65	250	2,658	271	1,690	28	135
Communications equipment	3342	D	151	455	69	85	10	43
Semiconductor and other electronic components	3344	D	48	975	22	83	7	D
Navigational, measuring, electromedical, and control instruments	3345	4	41	759	122	1,091	7	21
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2	8	351	35	943	6	10
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	0	13	103	17	95	1 e	6
Other measuring and controlling device	other 3345	2	19 i	305	70	52	* e	5 e
Other computer and electronic products	other 334	1 e	10	469	58	431	3	D
Electrical equipment, appliances, and components	335	* e	12	88	299	103	13	89
Transportation equipment	336	D	205	121	9,028	225	D	D
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	6	49	8,869	61	4 e	D
Aerospace products and parts	3364	D	191	66	107	63	D	D
Aircraft, aircraft engine, and aircraft parts	336411-13	D	D	66	107	D	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	0	D	*	*	D	0	*
Military armored vehicle, tank, and tank component	336992	0	0	*	8	1	0	0
Other transportation equipment	other 336	D	8	6 i	45 i	100	2 e	D
Furniture and related products	337	D	* e	1	76	15	6	D
Miscellaneous manufacturing	339	67	16	715	211	945	3 e	149
Medical equipment and supplies	3391	65	7 e	621	181	914	1 e	136
Other miscellaneous manufacturing	3399	2 e	9	94	30	30	2 e	13
Nonmanufacturing industries	21-23, 42-81	69 e	992 e	4,204	854	858	59 e	649
Mining, extraction, and support activities	21	* e	3	D	1 e	1	4	2 e
Utilities	22	1	3	20	2 e	5	2	5 e
Wholesale trade	42	1 e	6 e	33 i	51 i	24	1 e	9 e
Electronic shopping and electronic auctions	454111-12	* e	* e	1	* e	* e	D	*

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Transportation and warehousing	48-49	* e	1	* e	*	* e	* e	*
Information	51	34	277	1,614	240	485	13 e	210
Publishing	511	25	187	1,307	191	362	8	59
Newspaper, periodical, book, and directory publishers	5111	1 e	2 e	6 e	2 e	3 e	* e	1 e
Software publishers	5112	24	185	1,301	189	359	7	58
Telecommunications	517	2 e	26	23	3 e	10	1 e	3 e
Data processing, hosting, and related services	518	6 e	58 e	192	39 e	110	3 e	142
Other information	other 51	1 e	6 e	91	6 e	4 e	1 e	6 e
Finance and insurance	52	2 e	20 e	92	18 e	22 e	4 e	17 e
Real estate and rental and leasing	53	0 e	* e	D	9	1	* e	* e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0 e	* e	D	9	1	* e	* e
Other real estate and rental and leasing	other 53	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	26 e	656 e	2,297	487 i	296	27 e	372 i
Architectural, engineering, and related services	5413	5 e	38 e	107	56	29 e	4 e	15 e
Computer systems design and related services	5415	14 e	360 e	1,286 i	158 e	132 e	16	310 i
Scientific research and development services	5417	2 e	188	839	50	73	1 e	18
Biotechnology research and development	541711	2 e	143	716	14	10	* e	13
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1 e	45	123	36	63	* e	5
Social sciences and humanities research and development	541720	* e	* e	*	* i	* e	0	* e
Other professional, scientific, and technical services	other 54	5 e	69 e	66 e	224 i	62	6 e	28 e
Health care services	621-23	1 e	3 e	18	12	4 e	1 e	10
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	5 e	23 e	D	33 e	20 e	D	24 e
All companies (number of domestic employees)	-	264	2,867	12,712	12,156	5,592	189	2,818
Small companies <sup>b</sup>								
5-499	-	88 e	960 e	3,212	1,326	1,007	99 e	520 e
5-99	-	56 e	704 e	1,583	683 e	564 e	53 e	279 e
5-49	-	42 e	562 e	1,046	442 e	392 e	36 e	209 e
5-9	-	8 e	81 e	169 e	62 e	73 e	8 e	40 e
10-24	-	14 e	172 e	319	158 e	128 e	13 e	71 e
25-49	-	21 e	310 e	558	221 e	191 e	16 e	98 e
50-99	-	14 e	142	537	242	172	16 e	69 e
100-249	-	21	113	1,118	389	251	34	117
250-499	-	11 e	143	510	254	193	13 e	124
Medium and large companies								
500-999	-	2	116	860	207	277	8	46
1,000-4,999	-	143	1,049	3,663	1,158	600	12	253
5,000-9,999	-	11	152	764	350	571	8	410 i
10,000-24,999	-	13	291 i	1,831	1,342	1,185	25	285
25,000 or more	-	8	299	2,381	7,774	1,953	35	1,304

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

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	118	601	554	943	11,977	250	9,141
Manufacturing industries	31–33	50	271	436	549	8,826	178	4,731
Food	311	1 e	103	2 e	4	299	4 e	105
Beverage and tobacco products	312	* e	D	D	* e	D	* e	D
Textile, apparel, and leather products	313–316	2	* e	* e	8	5 e	* e	47
Wood products	321	*	* e	* e	1	1	* e	1 e
Paper	322	* e	1	* e	4	D	* e	10
Printing and related support activities	323	* e	*	* e	* e	23	* e	6
Petroleum and coal products	324	* e	D	D	* e	D	* e	16
Chemicals	325	4	88	6	33	6,805	14 i	1,168
Basic chemicals	3251	1 e	7	* e	2	229	D	187
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	*	* e	* e	*	1 e	* e	9 i
Pesticide, fertilizer, and other agricultural chemical	3253	1	D	*	0	D	1 e	4 e
Pharmaceuticals and medicines	3254	2	D	5	24	5,988	D	765
Soap, cleaning compound, and toilet preparation	3256	* e	1	* e	2	442	* e	170
Paint, coating, adhesive, and other chemicals	3255, 3259	* e	* e	1	4	D	* e	33
Plastics and rubber products	326	1	2 e	3	5	67	* e	D
Nonmetallic mineral products	327	1	* e	1 e	11	18	* e	21
Primary metals	331	2	* e	8	1	6	1	7
Fabricated metal products	332	1 e	10	2 e	13	36	1 e	65
Machinery	333	5	21	28	156	159	4	1,073
Agricultural implement	33311	* e	10	0	* e	* e	* e	* e
Semiconductor machinery	333295	0	0	0	*	D	0	31
Engine, turbine, and power transmission equipment	3336	4	* e	24	D	D	*	D
Other machinery	other 333	1 e	11	4 e	D	D	4	D
Computer and electronic products	334	5	26	73	197	775	142	1,376
Communications equipment	3342	2	5	13	35	269	3	381
Semiconductor and other electronic components	3344	1	1 e	2 e	68	227	101	392 i
Navigational, measuring, electromedical, and control instruments	3345	2	20	54 i	69	240	34	427
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	* e	0	D	24	123	* e	102
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	* i	1	D	17	54	14	198
Other measuring and controlling device	other 3345	2	19	D	28	64	20	127 i
Other computer and electronic products	other 334	1	* e	4 e	24	39	4	177
Electrical equipment, appliances, and components	335	* e	6	13	70	107	2	71
Transportation equipment	336	5	D	D	13	D	2	347
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	1 e	6 e	1 e	2 e	15	* e	163
Aerospace products and parts	3364	4	D	D	7 i	D	2	181
Aircraft, aircraft engine, and aircraft parts	336411–13	* e	D	D	D	D	D	181
Guided missile, space vehicle, and related parts	336414–15, 336419	4	0	0	D	D	D	*
Military armored vehicle, tank, and tank component	336992	0	* e	0	0	D	0	* e

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
Other transportation equipment	other 336	* e	*	1 e	5	D	0	3 e
Furniture and related products	337	* e	D	* e	* e	3	* e	D
Miscellaneous manufacturing	339	23	2 e	294	34	226	6 e	236
Medical equipment and supplies	3391	1 e	1 e	1 e	27	203	1 e	148
Other miscellaneous manufacturing	3399	22	1 e	293	7	23	4 e	89 i
Nonmanufacturing industries	21–23, 42–81	68	330	117 e	394	3,151	72 e	4,410
Mining, extraction, and support activities	21	2 e	1 e	8	* e	18	5 e	2 e
Utilities	22	* e	1 e	5	* e	16	1 e	5
Wholesale trade	42	1 e	2 e	4	3	30	1 e	46
Electronic shopping and electronic auctions	454111–12	* e	* e	*	* e	* e	* e	D
Transportation and warehousing	48–49	* e	1	* e	* e	* e	* e	D
Information	51	44	158	36 e	245 i	489	17 e	2,692
Publishing	511	38	27 e	21 e	232 i	308	12 e	2,203
Newspaper, periodical, book, and directory publishers	5111	* e	* e	* e	1 e	47	1 e	288
Software publishers	5112	38	27 e	21 e	231 i	261	11	1,915
Telecommunications	517	1 e	2 e	1 e	2 e	26	1 e	20
Data processing, hosting, and related services	518	3 e	128	12 e	10 e	135	3 e	139 e
Other information	other 51	1 e	2 e	2 e	1 e	20	1 e	330
Finance and insurance	52	2 e	27	2 e	2 e	214	2 e	613
Real estate and rental and leasing	53	0 e	*	*	0 e	* e	0 e	2
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0 e	*	* e	0 e	* e	0 e	2
Other real estate and rental and leasing	other 53	0	0	*	0	0	0	0
Professional, scientific, and technical services	54	17 e	115 i	48 e	138	2,330	37 e	950 e
Architectural, engineering, and related services	5413	5	7 e	6 e	12	44 e	6 e	92 e
Computer systems design and related services	5415	6 e	88 i	23 e	107	623	16 e	426 e
Scientific research and development services	5417	3 e	5 e	8 e	12	1,133	10 e	246
Biotechnology research and development	541711	1 e	4 e	3	1	1,020	5 e	216
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2 e	1 e	5 e	11	113	5 e	30
Social sciences and humanities research and development	541720	* e	* e	* e	0	* i	* e	* e
Other professional, scientific, and technical services	other 54	3 e	16	12 e	8 e	529 i	6 e	185 e
Health care services	621–23	* e	4	1 e	1 e	6 e	1 e	13 e
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	3 e	21	12 e	5 e	48 e	8 e	D
All companies (number of domestic employees)	–	118	601	554	943	11,977	250	9,141
Small companies <sup>b</sup>								
5–499	–	49 e	169 e	204 e	328	1,690	94 e	2,508
5–99	–	34 e	104 e	99 e	157 e	1,091 e	68 e	1,200 e
5–49	–	27 e	77 e	76 e	101 e	800 e	53 e	907 e
5–9	–	5 e	17 e	14 e	24 e	141 e	10 e	198 e
10–24	–	12 e	21 e	22 e	26 e	205 e	20 e	242 e

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
25-49	-	10 e	39 e	40 e	51 e	455 e	23 e	467 e
50-99	-	7 e	27 e	23 e	56	290	15 e	293 e
100-249	-	7	18 e	68	24 e	294	15	657
250-499	-	8 e	46	37	147	305	10 e	651
Medium and large companies								
500-999	-	D	18	4	76	395	9	275
1,000-4,999	-	2	187	286	154	3,334	31	693
5,000-9,999	-	1	25	1 e	31 i	581 i	15	859
10,000-24,999	-	27	181	14 i	122	2,295	8	938
25,000 or more	-	D	20	45	231	3,682	94	3,868

  

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
All industries	21-23, 31-33, 42-81	5,157	236	5,403	507	4,415	9,018	451
Manufacturing industries	31-33	3,449	115	4,651	198	3,784	7,133	373
Food	311	67	D	123	D	25	126	2 e
Beverage and tobacco products	312	D	D	* e	D	* e	2	D
Textile, apparel, and leather products	313-316	63	7	12	1 e	77	13	4
Wood products	321	4	7	2	* e	9	2 e	*
Paper	322	31	0	16	* e	* e	10	2
Printing and related support activities	323	6	* e	18	* e	* e	4	6
Petroleum and coal products	324	D	0	21	* e	3	19	* e
Chemicals	325	1,139	5	1,944	26	47	4,369	76
Basic chemicals	3251	126 i	D	223	D	11	322	44
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	14	0	210	2	3	40	12
Pesticide, fertilizer, and other agricultural chemical	3253	28	D	22	2 e	2	10	0
Pharmaceuticals and medicines	3254	923	2	339	D	22	3,869	17
Soap, cleaning compound, and toilet preparation	3256	20	* e	1,068	1 e	1 e	5 e	1
Paint, coating, adhesive, and other chemicals	3255, 3259	27	D	81	1 e	7	123	2
Plastics and rubber products	326	67 i	5	218	37	5	118	8
Nonmetallic mineral products	327	9	2	99	1 e	5	71	* e
Primary metals	331	8	* e	56	1	23	128	* e
Fabricated metal products	332	30	1 e	188	8 e	14	78	7
Machinery	333	230	72	643	40	252 i	458	16
Agricultural implement	33311	32	38	3	* e	1 e	68	0
Semiconductor machinery	333295	0	0	*	0	126 i	D	0
Engine, turbine, and power transmission equipment	3336	113	1	D	3 i	18	D	*
Other machinery	other 333	85	33	D	36	107 i	D	16
Computer and electronic products	334	1,375	4	586	37	2,817	948	78
Communications equipment	3342	540	2	81	13	37	123	D
Semiconductor and other electronic components	3344	455	1 e	107	2 e	2,599	194 i	23
Navigational, measuring, electromedical, and control instruments	3345	155	* e	308	18	95	492	28

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	15	0	178	7 i	4	374	*
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	24	0	39	5	60	34	15
Other measuring and controlling device	other 3345	116	* e	91 i	7	31	85	12
Other computer and electronic products	other 334	225	* e	90	4 e	86	138	D
Electrical equipment, appliances, and components	335	127	* e	266	4 e	25	252	10
Transportation equipment	336	145	D	280	D	200	192	D
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	62	3 e	198	15 i	191	121	D
Aerospace products and parts	3364	61	D	80	D	6	56	D
Aircraft, aircraft engine, and aircraft parts	336411-13	61	D	79	D	D	56	D
Guided missile, space vehicle, and related parts	336414-15, 336419	*	0	1	0	D	*	*
Military armored vehicle, tank, and tank component	336992	* e	* e	* e	0	0	0	0
Other transportation equipment	other 336	21 i	* e	2	1 e	4 e	14	10
Furniture and related products	337	21	* e	4	* e	3	17 i	1
Miscellaneous manufacturing	339	92	1 e	176	9 e	277	327	145
Medical equipment and supplies	3391	58	1 e	108	5	26	230	5
Other miscellaneous manufacturing	3399	34	1 e	68	4 e	251	96	140
Nonmanufacturing industries	21-23, 42-81	1,708	121	752	308	631	1,884	78
Mining, extraction, and support activities	21	3	2 e	3 e	184	* e	6 e	* e
Utilities	22	27	10	20	1 e	2 e	29	* e
Wholesale trade	42	31	1 e	29	2 e	11	14 e	1 e
Electronic shopping and electronic auctions	454111-12	* e	* e	* e	* e	* e	1	* e
Transportation and warehousing	48-49	* e	* e	*	* e	7	5	* e
Information	51	1,089	88	223	49 e	451	645	16 e
Publishing	511	1,014	D	132	26 e	364	431	13 e
Newspaper, periodical, book, and directory publishers	5111	2 e	* e	5 e	1 e	1 e	5 e	* e
Software publishers	5112	1,012	D	127	25 e	363	426	12 e
Telecommunications	517	22	D	7 e	3 e	12	99	* e
Data processing, hosting, and related services	518	42 e	4 e	81	15 e	62	94 e	3 e
Other information	other 51	12	1 e	4 e	5	13	21	* e
Finance and insurance	52	31	1 e	54	8 e	6 e	184	8
Real estate and rental and leasing	53	D	0 e	D	2	5	7	* e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	0 e	D	2	5	D	* e
Other real estate and rental and leasing	other 53	0	0	0	0	0	D	0
Professional, scientific, and technical services	54	442	16 e	332 e	50 e	123	936	32 e
Architectural, engineering, and related services	5413	48	3 e	30 e	9 e	24	120	3 e
Computer systems design and related services	5415	210	10	191 e	24 e	64 e	477 i	13 e
Scientific research and development services	5417	139	2 e	43	3 e	20	226	12
Biotechnology research and development	541711	56	1 e	19	1 e	11	110	2 e
Physical, engineering, and life sciences (except biotechnology) research and development	541712	84	1 e	23	2 e	9	115	9

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Social sciences and humanities research and development	541720	*	0	*	* e	* e	1 i	1
Other professional, scientific, and technical services	other 54	44 e	2 e	68 e	14 e	16 e	113 e	4 e
Health care services	621-23	31	* e	32	3 e	6	11 e	1 e
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	2 e	D	9 e	19 e	47 e	20
All companies (number of domestic employees)	-	5,157	236	5,403	507	4,415	9,018	451
Small companies <sup>b</sup>								
5-499	-	893	52 e	1,184 e	214 e	581	1,674	127 e
5-99	-	533 e	31 e	672 e	144 e	279 e	922 e	70 e
5-49	-	399 e	19 e	482 e	104 e	186 e	682 e	51 e
5-9	-	65 e	4 e	88 e	21 e	37 e	123 e	12 e
10-24	-	134 e	7 e	139 e	37 e	48 e	219 e	21 e
25-49	-	201 e	8 e	255 e	46 e	101 e	340 e	18 e
50-99	-	134	11 e	190 e	40 e	93	240 e	19 e
100-249	-	186	14	279	33 e	117	321	22
250-499	-	174	7 e	233	37 e	185	432	35
Medium and large companies								
500-999	-	137	17	132	7	114	354	8
1,000-4,999	-	986	48	641	47	593	1,590	213
5,000-9,999	-	924	* e	428	11 i	105	506	D
10,000-24,999	-	973	25	540	153	477	2,383	23
25,000 or more	-	1,243	94	2,477	74	2,546	2,510	D

  

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
All industries	21-23, 31-33, 42-81	949	112	1,279	12,920	1,874	329 i	3,138
Manufacturing industries	31-33	808	72	953	7,767	1,048	140	1,412
Food	311	11	4 e	45	61	7 e	7	127
Beverage and tobacco products	312	* e	D	2 i	D	4	* e	D
Textile, apparel, and leather products	313-316	22	1	4 e	6 e	1 e	* e	3 e
Wood products	321	12	* e	3	1 e	* e	1	4
Paper	322	28	*	9	36	D	3	4
Printing and related support activities	323	3	*	9	2	*	* e	1
Petroleum and coal products	324	1 e	0	2 e	D	* e	0	D
Chemicals	325	62	11	217	1,044	209 i	24	254
Basic chemicals	3251	14	4 e	14	366	2 e	1 e	84
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	8	* e	159	101	* e	* e	16
Pesticide, fertilizer, and other agricultural chemical	3253	1 e	5	3	16 e	1 e	* e	2 e
Pharmaceuticals and medicines	3254	24	1 e	26	441	205 i	18	149
Soap, cleaning compound, and toilet preparation	3256	3 e	* e	12	25	* e	4	* e
Paint, coating, adhesive, and other chemicals	3255, 3259	12	* e	4	95	* e	*	3
Plastics and rubber products	326	112	* e	20	54	5	* e	D

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
Nonmetallic mineral products	327	6	1 e	10	9 e	1 e	6	2 e
Primary metals	331	2	* e	36	15	* e	1	5
Fabricated metal products	332	45	26	31	82 e	13	1 e	7 e
Machinery	333	273	8	72	441	51	27	150
Agricultural implement	33311	* e	2 e	1	3	1 i	1	* e
Semiconductor machinery	333295	0	0	0	27	0	0	0
Engine, turbine, and power transmission equipment	3336	D	1	D	D	D	D	117
Other machinery	other 333	D	6	D	D	D	D	33
Computer and electronic products	334	130	11	264	4,713	239	22 i	377
Communications equipment	3342	17	1	27	520	22	2	253
Semiconductor and other electronic components	3344	71	1 e	9	2,737	34	9 i	22
Navigational, measuring, electromedical, and control instruments	3345	41	10	223	323	121	11	86 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3	0	206	48	46 i	*	6 i
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	3 i	* e	3 e	181	D	1 e	55
Other measuring and controlling device	other 3345	35	9	13 i	94	D	9 i	25 i
Other computer and electronic products	other 334	1 e	*	5 e	1,133 i	62	* e	17 e
Electrical equipment, appliances, and components	335	26	1	70	213	6	4	20
Transportation equipment	336	54	D	116	248	D	29	217
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	26	2 e	88	96	D	1 e	D
Aerospace products and parts	3364	2	D	25	126	D	24	113
Aircraft, aircraft engine, and aircraft parts	336411-13	2	D	D	121	231	24	D
Guided missile, space vehicle, and related parts	336414-15, 336419	0	0	D	5	D	0	D
Military armored vehicle, tank, and tank component	336992	D	0	0	* e	0	D	0
Other transportation equipment	other 336	D	4	4	26	D	D	D
Furniture and related products	337	* e	* e	3	12	2	* e	2
Miscellaneous manufacturing	339	23	2 e	40	163	104	14	54
Medical equipment and supplies	3391	13	1	32	110	99	9	25
Other miscellaneous manufacturing	3399	10	1 e	8 e	52	5	5	29
Nonmanufacturing industries	21-23, 42-81	141 e	39	327	5,153	825	190 i	1,726 e
Mining, extraction, and support activities	21	1	* e	1 e	1,574	12	* e	5
Utilities	22	* e	3	6	9 e	1 e	* e	1 e
Wholesale trade	42	7	1 e	7 e	53	27 i	* e	12
Electronic shopping and electronic auctions	454111-12	1	* e	* e	2 i	11	* e	* e
Transportation and warehousing	48-49	* e	* e	D	2	4	* e	5
Information	51	43	19	34 e	1,972	521	163 i	529
Publishing	511	27	12	14 e	1,657	401 i	159 i	251
Newspaper, periodical, book, and directory publishers	5111	1 e	* e	2 e	5 e	1 e	* e	3 e
Software publishers	5112	27	12	13 e	1,653	400 i	159 i	247
Telecommunications	517	4 e	3 e	1 e	54	9	1 e	66
Data processing, hosting, and related services	518	4 e	2	14 e	220	29 e	2 e	124 e
Other information	other 51	8	1 e	4 e	40	82	1 e	88 i

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	South	South	Tennessee	Texas	Utah	Vermont	Virginia
		Carolina	Dakota					
Finance and insurance	52	7 e	2 e	12 e	55 e	59	1 e	23 e
Real estate and rental and leasing	53	*	0 e	* e	74	* e	1	* e
Lessors of nonfinancial intangible assets (except copyrighted works)	533	*	0 e	* e	D	* e	1	* e
Other real estate and rental and leasing	other 53	0	0	0	D	0	0	0
Professional, scientific, and technical services	54	69 e	10 e	161	1,259	173	21 e	1,120 e
Architectural, engineering, and related services	5413	10 e	1 e	29 i	180 e	13 e	1 e	160 i
Computer systems design and related services	5415	36 e	4 e	56 e	741	90	14 e	780 e
Scientific research and development services	5417	7 e	3 e	46	190	44	2 e	115
Biotechnology research and development	541711	2	2	35	114	33	1 e	48
Physical, engineering, and life sciences (except biotechnology) research and development	541712	5 e	1 e	11	76	11	2 e	67
Social sciences and humanities research and development	541720	0	* e	* e	* i	0	* e	* e
Other professional, scientific, and technical services	other 54	16 e	2 e	29 e	148 e	27	3 e	65 e
Health care services	621–23	2 e	* e	57	16 e	1 e	* e	5 e
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	11 e	4 e	D	135 e	15 e	2 e	27 e
All companies (number of domestic employees)	–	949	112	1,279	12,920	1,874	329 i	3,138
Small companies <sup>b</sup>								
5–499	–	251 e	57 e	375 e	2,468 e	524	112	1,249 e
5–99	–	137 e	32 e	208 e	1,479 e	234 e	51 e	954 e
5–49	–	102 e	24 e	148 e	1,000 e	147 e	36 e	774 e
5–9	–	18 e	5 e	31 e	179 e	28 e	8 e	119 e
10–24	–	33 e	11 e	41 e	279 e	49 e	10 e	163 e
25–49	–	52 e	8 e	77 e	543 e	70 e	18 e	491 e
50–99	–	35 e	8 e	60 e	479	86	15 e	180 e
100–249	–	32 e	12	68	513	112	33	178
250–499	–	82	13	99	476	178	28	117 e
Medium and large companies								
500–999	–	38	2	40	394	73	2	188
1,000–4,999	–	160	42	214	1,893	594	24	369
5,000–9,999	–	123	1	219	944	117	D	215
10,000–24,999	–	63	5	99	2,827	343	27	256
25,000 or more	–	314	4	332	4,394	223	D	861

  

Industry and company size	NAICS code	Washington	West	Wisconsin	Wyoming	Undistributed <sup>c</sup>
			Virginia			
All industries	21–23, 31–33, 42–81	13,659	213	3,548	33 e	6,111
Manufacturing industries	31–33	4,983	179	2,740	10 e	3,775
Food	311	D	32	129	* e	D
Beverage and tobacco products	312	D	* e	* e	D	D
Textile, apparel, and leather products	313–316	2 e	* e	24	* e	42
Wood products	321	D	2	10	* e	D

TABLE 19. Companies with domestic R&amp;D paid for and performed by the company, by industry, company size, and state: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed <sup>c</sup>
Paper	322	3	* e	335	0	D
Printing and related support activities	323	3	* e	16	* e	7
Petroleum and coal products	324	D	1 e	1	* e	D
Chemicals	325	463	95	202	* e	1,253
Basic chemicals	3251	8	D	32	0	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	5	* e	36	0	D
Pesticide, fertilizer, and other agricultural chemical	3253	7	* e	10	*	D
Pharmaceuticals and medicines	3254	440	D	84	* i	D
Soap, cleaning compound, and toilet preparation	3256	1 e	* e	22	0	D
Paint, coating, adhesive, and other chemicals	3255, 3259	2	D	18 i	* e	D
Plastics and rubber products	326	11	1	95	*	D
Nonmetallic mineral products	327	3	3	7	1 e	663
Primary metals	331	27	4	13	* e	29
Fabricated metal products	332	41	2 e	79	2	74
Machinery	333	133	5 e	794	2 e	240
Agricultural implement	33311	* e	0	38	* e	3
Semiconductor machinery	333295	0	0	0	0	26
Engine, turbine, and power transmission equipment	3336	D	* e	529	*	42
Other machinery	other 333	D	5 e	227	2 e	169
Computer and electronic products	334	1,006	11	199	3	608
Communications equipment	3342	156	1	27	1	D
Semiconductor and other electronic components	3344	200	1 e	9 e	* i	D
Navigational, measuring, electromedical, and control instruments	3345	499	7	127	* e	47
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	296	6	36	* e	15
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	53	* e	9	0	14
Other measuring and controlling device	other 3345	150	1 e	82	* e	18
Other computer and electronic products	other 334	151	3 e	36	1 e	D
Electrical equipment, appliances, and components	335	45	17	370	* e	43
Transportation equipment	336	D	3	361	D	D
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	1 e	212	* e	D
Aerospace products and parts	3364	D	2	10	D	D
Aircraft, aircraft engine, and aircraft parts	336411-13	D	D	D	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	D	D	D	0	0
Military armored vehicle, tank, and tank component	336992	0	0	*	0	0
Other transportation equipment	other 336	D	* e	140	0	D
Furniture and related products	337	D	* e	19	* e	17
Miscellaneous manufacturing	339	112	1 e	85	* e	361
Medical equipment and supplies	3391	33	1 e	59	* e	325
Other miscellaneous manufacturing	3399	79	* e	26	* e	36
Nonmanufacturing industries	21-23, 42-81	8,676	33 e	808	23 e	2,336

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed <sup>c</sup>
Mining, extraction, and support activities	21	1 e	5 e	1 e	6 e	D
Utilities	22	2	* e	4	2	3
Wholesale trade	42	13	1 e	10	* e	412 i
Electronic shopping and electronic auctions	454111-12	4	* e	* e	0 e	D
Transportation and warehousing	48-49	1	* e	*	* e	D
Information	51	7,890	4 e	511	5 e	913
Publishing	511	7,595	1	387	2 e	D
Newspaper, periodical, book, and directory publishers	5111	2 e	* e	2 e	* e	4
Software publishers	5112	7,593	1	385	2 e	D
Telecommunications	517	12	* e	14	1 e	D
Data processing, hosting, and related services	518	63 e	1 e	102	1 e	64
Other information	other 51	220	1 e	7 e	1 e	20
Finance and insurance	52	12 e	1 e	85	1 e	272
Real estate and rental and leasing	53	D	* e	1	0 e	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	* e	1	0 e	D
Other real estate and rental and leasing	other 53	D	0	0	0	D
Professional, scientific, and technical services	54	686	17 e	167 e	8 e	638
Architectural, engineering, and related services	5413	65	3 e	20 e	2 e	55
Computer systems design and related services	5415	416	10 e	78 e	3 e	157
Scientific research and development services	5417	134	1 e	41	1 e	91
Biotechnology research and development	541711	48	* e	29	* e	53
Physical, engineering, and life sciences (except biotechnology) research and development	541712	85 i	* e	12	1 e	37
Social sciences and humanities research and development	541720	* e	0	* e	0	1 i
Other professional, scientific, and technical services	other 54	70	4 e	28 e	1 e	336
Health care services	621-23	6 e	1 e	3 e	* e	3
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	4 e	25 e	2 e	D
All companies (number of domestic employees)	-	13,659	213	3,548	33 e	6,111
Small companies <sup>b</sup>						
5-499	-	1,618	58 e	789	26 e	1,545
5-99	-	735 e	43 e	384 e	19 e	393
5-49	-	475 e	30 e	245 e	12 e	239
5-9	-	85 e	4 e	48 e	2 e	34
10-24	-	124 e	8 e	77 e	5 e	84
25-49	-	266 e	18 e	120 e	5 e	121
50-99	-	261	13 e	138 e	7 e	154
100-249	-	352	10 e	222	3 e	290
250-499	-	531	5 e	183	4 e	862
Medium and large companies						
500-999	-	246	1 e	190	* e	D

TABLE 19. Companies with domestic R&D paid for and performed by the company, by industry, company size, and state: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed <sup>c</sup>
1,000–4,999	–	678	D	751	3	D
5,000–9,999	–	208	1	558	*	D
10,000–24,999	–	596	D	685	*	D
25,000 or more	–	10,314	49	576	2	D

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> Includes data reported on Form BRDI-1 that were not allocated to a specific state, as well as data reported on Form BRDI-1A by multi-establishment companies. For single-establishment companies, data reported on Form BRDI-1A were allocated to the state in the address used to mail the survey form.

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. For a given estimate in this table, if the conditions are satisfied for both the i and e flags, the e flag is assigned, because the imputation rate may be found in the corresponding table of imputation rates. Statistics are representative of companies located in the United States that performed or funded R&D.

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

TABLE 20. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2011  
(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	55,324	2,285	9,613	43,426
Manufacturing industries	31–33	38,021	1,144	4,034	32,843 i
Food	311	196	1	57	138
Beverage and tobacco products	312	D	D	D	D
Textile, apparel, and leather products	313–316	34	*	1	33
Wood products	321	9	*	*	9
Printing and related support activities	323	1	0	*	1
Chemicals	325	5,337	706	1,210	3,421
Pharmaceuticals and medicines	3254	4,838	643	1,044	3,151
Other chemicals	other 325	499	64	166	269
Plastics and rubber products	326	307 i	61 i	61 i	184 i
Nonmetallic mineral products	327	33	3	18 i	12
Primary metals	331	64	2 i	15 i	46 i
Fabricated metal products	332	115	9	19	87
Machinery	333	1,131	20 i	138	973
Computer and electronic products	334	9,040	170	803	8,066
Semiconductor and other electronic components	3344	1,245	13	46	1,186
Navigational, measuring, electromedical, and control instruments	3345	5,451	112	670	4,670
Other computer and electronic products	other 334	2,343	45 i	88	2,211
Electrical equipment, appliances, and components	335	178	4	32	142
Transportation equipment	336	20,605 i	138 i	1,526 i	18,942 i
Aerospace products and parts	3364	18,469 i	48 i	1,045 i	17,376 i
Other transportation equipment	other 336	2,136	89 i	481 i	1,566
Furniture and related products	337	2	*	* i	1
Miscellaneous manufacturing	322, 324, 339	D	D	D	D
Nonmanufacturing industries	21–23, 42–81	17,303	1,141	5,579	10,584
Information	51	851	19	317	515
Publishing	511	687	19	314	354
Telecommunications	517	117	0	0	117
Data processing, hosting, and related services	518	28	1	3	25
Other information	other 51	19	0	0	19
Professional, scientific, and technical services	54	14,851	1,056	4,570	9,225
Architectural, engineering, and related services	5413	1,966	31	284	1,651
Computer systems design and related services	5415	1,553	72	113	1,368
Scientific research and development services	5417	9,131	650	3,985	4,495
Biotechnology research and development	541711	1,735	139	429	1,166
Physical, engineering, and life sciences (except biotechnology) research and development	541712	6,797	468	3,139	3,190
Social sciences and humanities research and development	541720	599	43 i	417 i	140 i
Other professional, scientific, and technical services	other 54	2,202	303	188	1,711
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	1,601	66	691	844
All companies (number of domestic employees)	–	55,324	2,285	9,613	43,426
Small companies <sup>a</sup>					
5–499	–	10,283	731	2,490	7,062
5–99	–	6,382	407	1,633	4,342
5–49	–	4,525	281	1,209	3,035
5–9	–	1,221	73	486	662
10–24	–	1,872	100	398	1,374
25–49	–	1,432	108	324	999
50–99	–	1,857	126	424	1,307
100–249	–	2,095	186	495	1,415
250–499	–	1,806	139	362	1,305
Medium and large companies					
500–999	–	1,288	89	384	815

TABLE 20. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
1,000–4,999	–	7,579	176	2,055	5,348
5,000–9,999	–	6,292	820	1,564	3,908
10,000–24,999	–	6,630	143 i	572	5,915 i
25,000 or more	–	23,253 i	326 i	2,549	20,377 i

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 21. Domestic R&amp;D paid for by others and performed by the company, by industry and company size: 2011

(Millions of U.S. dollars)

Industry	NAICS code	Company size (domestic employees)											
		All companies	5–9 <sup>a</sup>	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	55,324	1,221	1,872	1,432	1,857	2,095	1,806	1,288	7,579	6,292	6,630	23,253 i
Manufacturing industries	31–33	38,021	68	185	224	359	527	888	492	4,918	2,850	6,035	21,474 i
Food	311	196	*	0	2	* i	D	D	4	100	D	D	D
Beverage and tobacco products	312	D	0	0	0	0	D	D	0	0	D	0	0
Textile, apparel, and leather products	313–316	34	1	*	1	1	17	D	D	D	0	0	0
Wood products	321	9	0	0	*	*	1	3	0	0	0	5	0
Paper	322	23	0	0	D	D	D	D	0	D	0	0	D
Printing and related support activities	323	1	0	1	0	0	*	0	0	*	0	0	0
Petroleum and coal products	324	D	0	0	D	D	0	0	0	0	0	D	0
Chemicals	325	5,337	4	32	58	77	128	102	D	2,081	1,690	977	D
Basic chemicals	3251	D	*	4	5	D	*	D	7	D	D	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	12	0	D	0	*	3	4	3	D	D	D	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	0	*	0	D	*	D	D	D	0	0	0
Pharmaceuticals and medicines	3254	4,838	4	D	47	66	116	87	D	1,700	1,655	966	D
Soap, cleaning compound, and toilet preparation	3256	6	*	D	0	*	*	3	D	D	0	D	D
Paint, coating, adhesive, and other chemicals	3255, 3259	40	0	6	6	4 i	9	0	1	D	0	D	0
Plastics and rubber products	326	307 i	0	2	3	10	5	D	12	1	D	267 i	0
Nonmetallic mineral products	327	33	3	0	3	0	D	0	*	23	0	D	0
Primary metals	331	64	0	0	3	*	D	D	D	6	1	D	D
Fabricated metal products	332	115	3	21	2 i	18	53	12	4	D	*	D	0
Machinery	333	1,131	3	4	37	20	D	80	64	132	D	D	D
Agricultural implement	33311	22	0	0	0	D	0	D	0	0	0	D	D
Semiconductor machinery	333295	139	0	3	1	D	25	D	D	D	0	0	0
Engine, turbine, and power transmission equipment	3336	693	D	0	D	D	0	D	D	0	D	D	D
Other machinery	other 333	278	D	1	D	D	D	D	D	D	D	0	D
Computer and electronic products	334	9,040	50	57	53	112	124	108	101	1,701	943	1,995 i	3,796
Communications equipment	3342	1,858 i	0	D	1	D	D	D	0	512	484	D	0
Semiconductor and other electronic components	3344	1,245	20	D	D	58	50	62	51	670	D	D	0
Navigational, measuring, electromedical, and control instruments	3345	5,451	29	33	27	D	64	D	38	D	D	D	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	243	26	1	4	3	4	0	D	D	D	D	D
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	5,111	1	2 i	5	D	51	D	0	D	D	D	3,548

TABLE 21. Domestic R&D paid for by others and performed by the company, by industry and company size: 2011

(Millions of U.S. dollars)

Industry	NAICS code	Company size (domestic employees)											
		All companies	5-9 <sup>a</sup>	10-24	25-49	50-99	100-249	250-499	500-999	1,000-4999	5,000-9,999	10,000-24,999	25,000 or more
Other measuring and controlling device	other 3345	97	2	30	18	10	9	4	D	11	D	0	0
Other computer and electronic products	other 334	485	*	D	D	D	D	*	12	D	D	0	D
Electrical equipment, appliances, and components	335	178	0	22	5	48	D	10	53	15	0	D	0
Transportation equipment	336	20,605 i	*	1	15	46	21	147	159	783	145	2,416	16,873 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	0	*	1	D	D	D	D	D	D	341	D
Aerospace products and parts	3364	18,469 i	0	*	12	D	D	D	D	538	D	2,075	15,759 i
Aircraft, aircraft engine, and aircraft parts	336411-13	17,480 i	0	*	2 i	D	D	D	D	D	0	D	15,759 i
Guided missile, space vehicle, and related parts	336414-15, 336419	989	0	*	10	*	D	D	0	D	D	D	0
Military armored vehicle, tank, and tank component	336992	2	0	0	0	0	D	D	D	0	0	0	0
Other transportation equipment	other 336	D	*	*	1	3	0	3	D	D	0	0	D
Furniture and related products	337	2	0	*	0	*	2	0	0	0	0	0	0
Miscellaneous manufacturing	339	D	3	45	42	28	32	321	64	62	D	191	0
Medical equipment and supplies	3391	406	3	39	D	4	29	11	35	D	0	191	0
Other miscellaneous manufacturing	3399	D	0	6	D	24	3	311	29	D	D	0	0
Nonmanufacturing industries	21-23, 42-81	17,303	1,153	1,687	1,207	1,498	1,568	918	796	2,661	3,441	595	1,778
Mining, extraction, and support activities	21	307	0	1	D	0	D	0	0	0	0	D	D
Utilities	22	84	8 i	13	D	3	0	0	1	D	1	8	D
Wholesale trade	42	248	14	4	26	37	59 i	0	8 i	100 i	0	0	0
Electronic shopping and electronic auctions	454111-12	0	0	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48-49	*	0	0	0	0	0	0	0	D	0	0	D
Information	51	851	2	37	D	69	44	45	0	92	D	D	D
Publishing	511	687	*	16	D	47	18	43	0	D	D	D	D
Newspaper, periodical, book, and directory publishers	5111	1	0	1	0	0	0	0	0	0	0	0	0
Software publishers	5112	685	*	15	D	47	18	43	0	D	D	D	D
Telecommunications	517	117	0	0	*	3	24	2	0	89	0	0	0
Data processing, hosting, and related services	518	28	0	21	D	3	2	0	0	D	0	0	0
Other information	other 51	19	2	0	0	17 i	0	0	0	0	0	0	0
Finance and insurance	52	146	0	0	0	0	D	137	0	D	0	0	0
Real estate and rental and leasing	53	0	0	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	0	0
Other real estate and rental and leasing	other 53	0	0	0	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	14,851	1,124	1,582	1,120	1,354	1,389	662	726	2,457	3,435	44	958

TABLE 21. Domestic R&D paid for by others and performed by the company, by industry and company size: 2011

(Millions of U.S. dollars)

Industry	NAICS code	Company size (domestic employees)											
		All companies	5-9 <sup>a</sup>	10-24	25-49	50-99	100-249	250-499	500-999	1,000-4999	5,000-9,999	10,000-24,999	25,000 or more
Architectural, engineering, and related services	5413	1,966	217	362	94	D	282	58	56	325	D	44	D
Computer systems design and related services	5415	1,553	267	384	242 i	160	181	54	19	182	0	0	64
Scientific research and development services	5417	9,131	632	823	716	1,046	832	530	528	1,948	2,066 i	0	9
Biotechnology research and development	541711	1,735	D	D	156	225	234	61	147	D	0	0	9
Physical, engineering, and life sciences (except biotechnology) research and development	541712	6,797	527	568	548	819	572	468	382	847	2,066 i	0	0
Social sciences and humanities research and development	541720	599	D	D	13	3	26	0	0	D	0	0	0
Other professional, scientific, and technical services	other 54	2,202	8	13	68	D	93	20	123	3	D	0	D
Health care services	621-23	183	2	42	0	21	69	33	12	2	0	0	*
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	632	3	9	D	15	D	41	48	3	D	0	491

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 22. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2011  
(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 <sup>a</sup>
All industries	21–23, 31–33, 42–81	55,324	33,003	228	1,345	346 i	6,340	723 i	1,049	925	11,364 i
Manufacturing industries	31–33	38,021	21,871	130	540	240	5,025	417 i	656	582	8,560 i
Food	311	196	117	*	2	2 i	13 i	D	D	5	D
Beverage and tobacco products	312	D	D	0	D	D	D	D	D	D	D
Textile, apparel, and leather products	313–316	34	D	0	0	D	D	0	0	D	D
Wood products	321	9	5	0	1	0	1 i	0	0	0	3
Paper	322	23	9	0	4 i	0	2	0	*	* i	6
Printing and related support activities	323	1	D	*	0	* i	* i	* i	*	*	D
Petroleum and coal products	324	D	D	0	D	0	D	0	0	D	D
Chemicals	325	5,337	2,610	97	170	19	280	88	273	208	1,593
Basic chemicals	3251	D	D	D	D	2	17	1	D	7	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	12	D	*	*	*	1 i	*	D	*	1 i
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	D	D	D	D	D	D	D
Pharmaceuticals and medicines	3254	4,838	D	96	132	16	235	D	247	199	1,476
Soap, cleaning compound, and toilet preparation	3256	6	4 i	*	D	D	1	D	*	*	1 i
Paint, coating, adhesive, and other chemicals	3255, 3259	40	D	D	D	D	D	D	D	D	D
Plastics and rubber products	326	307 i	178 i	* i	D	D	22 i	D	D	D	D
Nonmetallic mineral products	327	33	19	*	*	*	7	D	1 i	D	4
Primary metals	331	64	33 i	*	0	*	29 i	*	* i	*	1
Fabricated metal products	332	115	72	* i	*	1 i	31 i	* i	D	1 i	D
Machinery	333	1,131	595	1	25	30	170	17 i	49	10	234
Agricultural implement	33311	22	13	*	1	*	3	D	1	*	D
Semiconductor machinery	333295	139	89	1	7	5 i	9 i	7 i	10 i	2	8 i
Engine, turbine, and power transmission equipment	3336	693	D	*	10	D	114	D	D	6	D
Other machinery	other 333	278	D	*	7	D	43	D	D	2	D
Computer and electronic products	334	9,040	5,695	29	122	92	1,325	48	216	138	1,376
Communications equipment	3342	1,858 i	1,293 i	0	34	D	171 i	3	D	D	D
Semiconductor and other electronic components	3344	1,245	805	8	18	35	40	10	68	10	250
Navigational, measuring, electromedical, and control instruments	3345	5,451	3,353	21	68	40 i	1,081	33	59	67	729
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	243	152	D	21	* i	19	D	2	D	D
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	5,111	3,131	D	43	37	1,058	D	56	67	D
Other measuring and controlling device	other 3345	97	70	D	3	2 i	4 i	D	1 i	D	D
Other computer and electronic products	other 334	485	244	*	4	D	32	2	D	D	D
Electrical equipment, appliances, and components	335	178	122	*	3	1 i	21 i	5 i	2 i	1 i	21 i
Transportation equipment	336	20,605 i	11,779 i	1	184	73 i	2,980 i	242 i	79	203	5,065 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D	*	136	D	D	D	D	D	D
Aerospace products and parts	3364	18,469 i	10,784 i	1	47	19 i	2,737 i	15	26	138	4,702 i

TABLE 22. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2011  
(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 <sup>a</sup>
Aircraft, aircraft engine, and aircraft parts	336411-13	17,480 i	10,495 i	1	D	19 i	2,237 i	15	26	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	989	289	0	D	*	500	0	*	D	D
Military armored vehicle, tank, and tank component	336992	2	D	*	D	*	D	D	*	*	D
Other transportation equipment	other 336	D	D	0	D	D	D	D	D	D	D
Furniture and related products	337	2	2 i	*	0	*	*	*	*	*	*
Miscellaneous manufacturing	339	D	D	2 i	21	6 i	133 i	5 i	21 i	2 i	D
Medical equipment and supplies	3391	406	305	2 i	19	6 i	32 i	4 i	20 i	2 i	19 i
Other miscellaneous manufacturing	3399	D	D	* i	2	*	101 i	2	1 i	* i	D
Nonmanufacturing industries	21-23, 42-81	17,303	11,132	98	806	105 i	1,315	307 i	393 i	343 i	2,804
Mining, extraction, and support activities	21	307	D	2	D	*	D	D	5	*	D
Utilities	22	84	D	* i	10 i	* i	2 i	D	0	*	D
Wholesale trade	42	248	171 i	*	13 i	2 i	5 i	4 i	3 i	11 i	38 i
Electronic shopping and electronic auctions	454111-12	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48-49	*	*	0	0	0	*	0	0	0	*
Information	51	851	656	* i	26	2	104	7	11	1 i	44
Publishing	511	687	525	*	22	D	D	5	9	*	D
Newspaper, periodical, book, and directory publishers	5111	1	1	0	0	0	0	0	0	0	0
Software publishers	5112	685	523	*	22	D	D	5	9	*	D
Telecommunications	517	117	96	0	3 i	D	D	1	2	0	D
Data processing, hosting, and related services	518	28	27	0	1	0	0	0	0	0	*
Other information	other 51	19	8	*	0	D	D	1	1	1	D
Finance and insurance	52	146	146	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	14,851	9,487	95	730	99 i	1,163 i	278 i	371 i	331 i	2,296
Architectural, engineering, and related services	5413	1,966	1,601	2 i	71	40 i	96 i	28 i	14 i	23 i	91 i
Computer systems design and related services	5415	1,553	1,205	*	59	2 i	35 i	12 i	4 i	30 i	206 i
Scientific research and development services	5417	9,131	5,310	93	365	49 i	822 i	195 i	311 i	272 i	1,713 i
Biology research and development	541711	1,735	980	51	30	15	196	31	74	17	339
Physical, engineering, and life sciences (except biotechnology) research and development	541712	6,797	3,901	31 i	325	28 i	625 i	152 i	232 i	254 i	1,247 i
Social sciences and humanities research and development	541720	599	428	11	10	6	1 i	12	4	1 i	127
Other professional, scientific, and technical services	other 54	2,202	1,371	*	235	8	210	43	43	5	286
Health care services	621-23	183	153 i	*	2	1	4 i	1	1	*	21
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	632	D	*	D	*	D	D	1	*	D

TABLE 22. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2011

(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 <sup>a</sup>
All companies (number of domestic employees)	-	55,324	33,003	228	1,345	346 i	6,340	723 i	1,049	925	11,364 i
Small companies <sup>b</sup>											
5-499	-	10,283	6,718	40 i	374	76 i	914 i	197	216 i	217 i	1,531 i
5-99	-	6,382	4,247	22 i	241	46 i	472 i	114 i	130 i	134 i	974 i
5-49	-	4,525	3,039	18 i	187	33 i	315 i	71 i	94 i	101 i	667 i
5-9	-	1,221	830	5	76	5	64 i	14 i	22 i	28	175 i
10-24	-	1,872	1,316	9	64 i	15	120 i	27	38	38 i	244 i
25-49	-	1,432	894	4 i	47	12 i	131 i	29 i	33 i	34 i	248 i
50-99	-	1,857	1,208	4 i	54	14 i	157 i	43	36 i	33 i	307 i
100-249	-	2,095	1,341	13	75	9 i	238	42	44 i	53	280
250-499	-	1,806	1,130	5	58	21	203 i	40	42	29 i	277
Medium and large companies											
500-999	-	1,288	764	5	36	30	102	25	84	73	168
1,000-4,999	-	7,579	4,536	107	219	83	587	158	319	236	1,333
5,000-9,999	-	6,292	3,282	65	353	37 i	453	85 i	250	105	1,661
10,000-24,999	-	6,630	4,058	8 i	122	35 i	1,012	45	104	201	1,045
25,000 or more	-	23,253 i	13,645 i	2	242	84	3,271 i	213 i	76	93	5,627 i

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Includes R&D costs allocated to subsidiaries by parent companies.

<sup>b</sup> 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, 2011.

TABLE 23. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States		U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other	
				Company's parent	Unaffiliated companies				In United States	Outside United States
All industries	21–23, 31–33, 42–81	55,324	11,124	7,438	4,569	31,309 i	321	63	369	129
Manufacturing industries	31–33	38,021	4,196	5,871	2,999	24,698 i	55	46	103	54
Food	311	196	21	D	D	17	0	0	D	0
Beverage and tobacco products	312	D	*	D	D	D	0	0	0	0
Textile, apparel, and leather products	313–316	34	D	D	*	D	0	0	0	0
Wood products	321	9	D	3	D	0	0	0	*	0
Paper	322	23	D	D	D	D	*	0	0	0
Printing and related support activities	323	1	*	0	*	1	0	0	0	0
Petroleum and coal products	324	D	D	0	0	D	*	0	0	0
Chemicals	325	5,337	1,320	2,209	1,658	110	19	0	14	8
Basic chemicals	3251	D	20	D	26	D	13	0	*	0
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	12	D	D	6	D	*	0	*	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	0	D	0	0	0	0
Pharmaceuticals and medicines	3254	4,838	1,285	1,848	1,626	52	6	0	14	8
Soap, cleaning compound, and toilet preparation	3256	6	D	D	D	*	*	0	*	0
Paint, coating, adhesive, and other chemicals	3255, 3259	40	D	D	D	D	0	0	0	0
Plastics and rubber products	326	307 i	31	265 i	1	8	*	0	2	*
Nonmetallic mineral products	327	33	D	*	1	25	0	0	0	D
Primary metals	331	64	D	43	D	D	3 i	0	*	0
Fabricated metal products	332	115	D	D	D	D	2	0	17	0
Machinery	333	1,131	423	D	D	522	7	D	D	1
Agricultural implement	33311	22	7	15	0	*	0	0	0	0
Semiconductor machinery	333295	139	77	D	D	4	D	0	D	0
Engine, turbine, and power transmission equipment	3336	693	182	D	D	D	D	0	D	0
Other machinery	other 333	278	157	D	D	D	D	D	D	1
Computer and electronic products	334	9,040	1,087	1,735	991	5,161	15	D	D	D
Communications equipment	3342	1,858 i	171 i	619	283	784 i	0	1	*	0
Semiconductor and other electronic components	3344	1,245	184	802	D	89	D	0	D	0
Navigational, measuring, electromedical, and control instruments	3345	5,451	636	D	D	4,276	D	D	4 i	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	243	43	D	D	41	D	0	1	0
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	5,111	566	D	D	4,182	1	D	0	0
Other measuring and controlling device	other 3345	97	26	D	D	52	D	0	3 i	D
Other computer and electronic products	other 334	485	97 i	D	D	12	0	0	D	D
Electrical equipment, appliances, and components	335	178	24	73	1	76	3	0	*	0
Transportation equipment	336	20,605 i	1,086	D	D	D	1	D	D	7
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D	D	D	D	1	0	D	1
Aerospace products and parts	3364	18,469 i	592	D	D	17,806 i	0	D	D	6
Aircraft, aircraft engine, and aircraft parts	336411–13	17,480 i	590	D	D	16,820 i	0	D	D	6

TABLE 23. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States		U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other	
				Company's parent	Unaffiliated companies				In United States	Outside United States
Guided missile, space vehicle, and related parts	336414–15, 336419	989	2	0	0	987	0	0	0	0
Military armored vehicle, tank, and tank component	336992	2	1	0	0	1	0	0	0	0
Other transportation equipment	other 336	D	D	D	D	D	0	0	D	0
Furniture and related products	337	2	2	0	0	*	*	0	0	0
Miscellaneous manufacturing	339	D	D	D	D	60	2	0	14	D
Medical equipment and supplies	3391	406	D	280	D	18	1	0	13	D
Other miscellaneous manufacturing	3399	D	D	D	D	42	1	0	1	0
Nonmanufacturing industries	21–23, 42–81	17,303	6,928	1,568	1,570	6,611	267	17	266	76
Mining, extraction, and support activities	21	307	D	0	D	11	0	0	0	0
Utilities	22	84	D	0	D	60	19	0	2	0
Wholesale trade	42	248	21	100	92 i	18	*	0	1	18 i
Electronic shopping and electronic auctions	454111–12	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48–49	*	*	0	0	*	0	0	0	0
Information	51	851	321	D	D	D	D	D	D	*
Publishing	511	687	D	334	D	136	D	D	D	*
Newspaper, periodical, book, and directory publishers	5111	1	0	0	0	0	0	0	1	0
Software publishers	5112	685	D	334	D	136	D	D	D	*
Telecommunications	517	117	D	D	D	D	0	0	0	0
Data processing, hosting, and related services	518	28	27	0	D	D	*	0	D	0
Other information	other 51	19	D	D	0	0	0	0	0	0
Finance and insurance	52	146	145	0	1	0	0	0	0	0
Real estate and rental and leasing	53	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
Other real estate and rental and leasing	other 53	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	14,851	6,227	1,038	1,175	5,848	229	17	258	58
Architectural, engineering, and related services	5413	1,966	557	18	78	1,123 i	130	14	46	0
Computer systems design and related services	5415	1,553	626	156	53	598	38	0	51	31
Scientific research and development services	5417	9,131	3,834	809	1,024	3,226	57	2	151	27
Biotechnology research and development	541711	1,735	501	212	572	406	7	*	33	3
Physical, engineering, and life sciences (except biotechnology) research and development	541712	6,797	3,313	597	451	2,280	38	2	91	24
Social sciences and humanities research and development	541720	599	21	*	* i	540	12	0	27	0
Other professional, scientific, and technical services	other 54	2,202	1,210	55	20	902	4	1	10	0
Health care services	621–23	183	156	D	D	5	D	D	D	* i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	632	D	D	D	D	D	0	D	0
All companies (number of domestic employees)	–	55,324	11,124	7,438	4,569	31,309 i	321	63	369	129
Small companies <sup>a</sup>										
5–499	–	10,283	3,316	1,916	480	3,938	247	17	252	118

TABLE 23. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States		U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other	
				Company's parent	Unaffiliated companies				In United States	Outside United States
5-99	-	6,382	2,066	883	265	2,766	147	D	191	D
5-49	-	4,525	1,581	352	200	2,065	115	D	158	D
5-9	-	1,221	496	41	61 i	533	23	0	64	3
10-24	-	1,872	719	124	62	795	70	D	60	D
25-49	-	1,432	367	186	77	738	23	3	33 i	6 i
50-99	-	1,857	485	531	65	701	31	D	33	D
100-249	-	2,095	639	322	133	814	75	D	51	D
250-499	-	1,806	611	712	82	358	25	*	10	8
Medium and large companies										
500-999	-	1,288	382	D	D	377	4 i	D	11	D
1,000-4,999	-	7,579	1,154	1,760	2,884	1,702	33	1	39	5
5,000-9,999	-	6,292	3,513	1,866	419	476	13	0	1	4
10,000-24,999	-	6,630	1,267	1,170	D	3,577	18	D	45	D
25,000 or more	-	23,253 i	1,492	D	189	21,240 i	6	D	21	D

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 24. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2011  
(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	31,309 i	677	4,404	26,228 i
Manufacturing industries	31–33	24,698 i	194 i	1,992 i	22,512 i
Food	311	17	0	10	7
Beverage and tobacco products	312	D	0	0	D
Textile, apparel, and leather products	313–316	D	0	0	D
Wood products	321	0	0	0	0
Printing and related support activities	323	1	0	*	*
Chemicals	325	110	9	31	69
Pharmaceuticals and medicines	3254	52	3	7	42
Other chemicals	other 325	58	6	24	28
Plastics and rubber products	326	8	1	*	7
Nonmetallic mineral products	327	25	3	14	9
Primary metals	331	D	D	1	12
Fabricated metal products	332	D	0	D	12
Machinery	333	522	D	81 i	D
Computer and electronic products	334	5,161	85	586	4,491 i
Semiconductor and other electronic components	3344	89	4	11	74
Navigational, measuring, electromedical, and control instruments	3345	4,276	80	573	3,623
Other computer and electronic products	other 334	796 i	1	2	793 i
Electrical equipment, appliances, and components	335	76	1	23	52 i
Transportation equipment	336	D	D	1,230 i	17,353 i
Aerospace products and parts	3364	17,806 i	44 i	990 i	16,773 i
Other transportation equipment	other 336	D	D	240 i	580
Furniture and related products	337	*	0	0	*
Miscellaneous manufacturing	322, 324, 339	73	D	D	60
Nonmanufacturing industries	21–23, 42–81	6,611	483	2,412	3,716
Information	51	D	*	70	D
Publishing	511	136	*	70	66
Telecommunications	517	D	0	0	D
Data processing, hosting, and related services	518	D	0	*	D
Other information	other 51	0	0	0	0
Professional, scientific, and technical services	54	5,848	461	1,831	3,556
Architectural, engineering, and related services	5413	1,123 i	24	155	945 i
Computer systems design and related services	5415	598	68	87	443
Scientific research and development services	5417	3,226	317	1,437	1,471
Biotechnology research and development	541711	406	29	114	263
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,280	250	954	1,076
Social sciences and humanities research and development	541720	540	39 i	369 i	132 i
Other professional, scientific, and technical services	other 54	902	52 i	152	697 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	D	22	512	D
All companies (number of domestic employees)	–	31,309 i	677	4,404	26,228 i
Small companies <sup>a</sup>					
5–499	--	3,938	376	1,128	2,434
5–99	--	2,766	206	750	1,810
5–49	--	2,065	179	604	1,282
5–9	--	533	62	211	259
10–24	--	795	73	208	514
25–49	--	738	43	185	509
50–99	--	701	27	146	528
100–249	--	814	111	232	471
250–499	--	358	59	146	153
Medium and large companies					
500–999	--	377	25	114	238

TABLE 24. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
1,000–4,999	–	1,702	57 i	756 i	889 i
5,000–9,999	–	476	1	24	451
10,000–24,999	–	3,577	39 i	155 i	3,383 i
25,000 or more	–	21,240 i	180 i	2,228 i	18,833 i

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 25. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	DHS	DOT	EPA	NSF	All other agencies <sup>a</sup>
All industries	21–23, 31–33, 42–81	31,309 i	26,350 i	881	1,580	656	98	144	D	128 i	D
Manufacturing industries	31–33	24,698 i	21,961 i	487	1,287	67	8	2	D	56 i	D
Food	311	17	2	14	0	0	0	0	0	0	1
Beverage and tobacco products	312	D	0	0	0	0	0	0	0	0	D
Textile, apparel, and leather products	313–316	D	D	0	0	0	0	0	0	0	D
Wood products	321	0	0	0	0	0	0	0	0	0	0
Paper	322	D	D	D	0	0	0	D	0	0	D
Printing and related support activities	323	1	0	0	0	1	0	0	0	0	0
Petroleum and coal products	324	D	0	0	0	0	0	0	D	0	0
Chemicals	325	110	45	16	1	35	D	0	0	4	D
Basic chemicals	3251	D	D	D	*	D	D	0	0	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	D	2	D	0	D	0	0	0	0	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	*	1	0	0	0	0	0	0	D
Pharmaceuticals and medicines	3254	52	15	0	*	33	0	0	0	0	4
Soap, cleaning compound, and toilet preparation	3256	*	*	0	0	0	0	0	0	0	0
Paint, coating, adhesive, and other chemicals	3255, 3259	D	D	D	0	0	0	0	0	D	D
Plastics and rubber products	326	8	4	2	0	0	0	0	0	*	1
Nonmetallic mineral products	327	25	9	14	1	0	0	0	0	0	1
Primary metals	331	D	D	D	0	1	0	0	0	0	1
Fabricated metal products	332	D	D	1	0	D	0	0	0	D	D
Machinery	333	522	D	107	D	D	0	*	0	D	11
Agricultural implement	33311	*	0	*	0	0	0	0	0	0	0
Semiconductor machinery	333295	4	D	D	0	0	0	0	0	D	0
Engine, turbine, and power transmission equipment	3336	D	D	D	D	D	0	0	0	0	D
Other machinery	other 333	D	D	D	3	D	0	*	0	D	D
Computer and electronic products	334	5,161	4,650	50	193	13	D	*	1	D	240 i
Communications equipment	3342	784 i	712 i	1	31 i	0	0	0	0	3 i	36
Semiconductor and other electronic components	3344	89	62	12	1	4	0	0	0	3	8 i
Navigational, measuring, electromedical, and control instruments	3345	4,276	3,865	36	161	9	*	*	1	8 i	196 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	41	2	25	0	5	*	0	0	* i	8 i
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	4,182	3,836	D	160	*	0	0	*	4	D
Other measuring and controlling device	other 3345	52	26	D	1 i	4	0	*	*	3 i	D
Other computer and electronic products	other 334	12	11	*	0	0	0	0	0	*	*
Electrical equipment, appliances, and components	335	76	D	23	D	D	0	0	0	D	D
Transportation equipment	336	D	D	246 i	1,087	0	D	D	0	D	D
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	D	D	0	0	D	D	0	D	D
Aerospace products and parts	3364	17,806 i	D	D	1,087	0	0	0	0	D	D
Aircraft, aircraft engine, and aircraft parts	336411–13	16,820 i	15,619 i	D	D	0	0	0	0	D	D
Guided missile, space vehicle, and related parts	336414–15, 336419	987	D	0	D	0	0	0	0	0	D
Military armored vehicle, tank, and tank component	336992	1	1	0	0	0	0	0	0	0	0

TABLE 25. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	DHS	DOT	EPA	NSF	All other agencies <sup>a</sup>
Other transportation equipment	other 336	D	D	0	0	0	0	2	0	0	0
Furniture and related products	337	*	*	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	60	D	2	*	8	D	0	0	1	2
Medical equipment and supplies	3391	18	8	0	0	8	0	0	0	1	2
Other miscellaneous manufacturing	3399	42	D	2	*	*	D	0	0	0	*
Nonmanufacturing industries	21–23, 42–81	6,611	4,389	393	293	589	90	142	9	72	633
Mining, extraction, and support activities	21	11	0	11	0	0	0	0	0	0	0
Utilities	22	60	6 i	54	0	0	0	0	0	0	0
Wholesale trade	42	18	4 i	D	0	D	0	0	0	0	4
Electronic shopping and electronic auctions	454111–12	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48–49	*	0	0	0	0	0	*	0	0	0
Information	51	D	128	D	D	D	*	*	*	*	D
Publishing	511	136	128	D	0	0	*	*	*	*	D
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0	0	0	0	0	0
Software publishers	5112	136	128	D	0	0	*	*	*	*	D
Telecommunications	517	D	* i	0	D	0	0	0	0	0	D
Data processing, hosting, and related services	518	D	0	D	0	D	0	0	0	0	0
Other information	other 51	0	0	0	0	0	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	5,848	3,770	275	289	578	90	141	9	72	623
Architectural, engineering, and related services	5413	1,123 i	981 i	15 i	61 i	3	*	1	*	9	53 i
Computer systems design and related services	5415	598	317	24	8	12	67	128	*	1	43 i
Scientific research and development services	5417	3,226	1,849	216	74	494	24	12	6	62	489
Biotechnology research and development	541711	406	D	D	2	203	1	2	0	1	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,280	1,690	195	71	139	22	2	D	53	D
Social sciences and humanities research and development	541720	540	D	D	1	152	1	8	D	8	D
Other professional, scientific, and technical services	other 54	902	624	21	146	70	0	*	3	1	38
Health care services	621–23	5	1	0	0	3	0	0	0	0	1 i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	481	D	D	0	0	0	0	0	D
All companies (number of domestic employees)	–	31,309 i	26,350 i	881	1,580	656	98	144	D	128 i	D
Small companies <sup>b</sup>											
5–499	–	3,938	2,497	330	146	444	24	137	7	69	283
5–99	–	2,766	1,666	278	93 i	329	20	100	4	66	210
5–49	–	2,065	1,171	221	70 i	294	19	99	*	61	130 i
5–9	–	533	279	83	5	82	3	3 i	0	47	31
10–24	–	795	438	37	44 i	117	13	93	* i	7 i	47 i

TABLE 25. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	DHS	DOT	EPA	NSF	All other agencies <sup>a</sup>
25-49	-	738	455	101	20	95	4 i	2	*	7	52 i
50-99	-	701	495	58	23	36	*	1	3	5	80
100-249	-	814	527	23	52	109	4	35	3	3	56
250-499	-	358	304	28	2	6	*	2	*	* i	16 i
Medium and large companies											
500-999	-	377	214	12	D	41	1	*	D	1	D
1,000-4,999	-	1,702	926	34	219	D	1	D	D	16	D
5,000-9,999	-	476	341	65	D	2	1	D	D	*	D
10,000-24,999	-	3,577	2,649	54	794	1	*	*	*	3	76 i
25,000 or more	-	21,240 i	19,722 i	386	279	D	71	D	*	40	D

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

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.

<sup>a</sup> Includes undistributed amounts.

<sup>b</sup> 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, 2011.

TABLE 26. 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: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign companies				Foreign governments	All other
			Subsidiaries <sup>a</sup>	Company's parent	Unaffiliated companies			
All industries	21–23, 31–33, 42–81	15,543	3,342	7,438	4,569	63	129	
Manufacturing industries	31–33	11,497	2,527	5,871	2,999	46	54	
Food	311	158 i	D	D	D	0	0	
Beverage and tobacco products	312	D	D	D	D	0	0	
Textile, apparel, and leather products	313–316	D	0	D	*	0	0	
Wood products	321	D	0	3	D	0	0	
Paper	322	D	0	D	D	0	0	
Printing and related support activities	323	D	D	0	*	0	0	
Petroleum and coal products	324	D	D	0	0	0	0	
Chemicals	325	5,229	1,354	2,209	1,658	0	8	
Basic chemicals	3251	143	D	D	26	0	0	
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	D	D	D	6	0	0	
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	0	0	0	
Pharmaceuticals and medicines	3254	4,717	1,235	1,848	1,626	0	8	
Soap, cleaning compound, and toilet preparation	3256	D	D	D	D	0	0	
Paint, coating, adhesive, and other chemicals	3255, 3259	D	D	D	D	0	0	
Plastics and rubber products	326	266	0	265 i	1	0	*	
Nonmetallic mineral products	327	D	D	*	1	0	D	
Primary metals	331	D	0	43	D	0	0	
Fabricated metal products	332	D	0	D	D	0	0	
Machinery	333	254	D	D	D	D	1	
Agricultural implement	33311	19	3	15	0	0	0	
Semiconductor machinery	333295	158	D	D	D	0	0	
Engine, turbine, and power transmission equipment	3336	D	*	D	D	0	0	
Other machinery	other 333	D	D	D	D	D	1	
Computer and electronic products	334	3,291	521	1,735	991	D	D	
Communications equipment	3342	1,000	97	619	283	1	0	
Semiconductor and other electronic components	3344	1,299	D	802	D	0	0	
Navigational, measuring, electromedical, and control instruments	3345	573	D	D	D	D	D	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	198	D	D	D	0	0	
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	363	D	D	D	D	0	
Other measuring and controlling device	other 3345	12	0	D	D	0	D	
Other computer and electronic products	other 334	419	D	D	D	0	D	
Electrical equipment, appliances, and components	335	75	0	73	1	0	0	
Transportation equipment	336	857	D	D	D	D	7	
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	787	D	D	D	0	1	
Aerospace products and parts	3364	66	D	D	D	D	6	
Aircraft, aircraft engine, and aircraft parts	336411–13	66	D	D	D	D	6	
Guided missile, space vehicle, and related parts	336414–15, 336419	0	0	0	0	0	0	

TABLE 26. 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: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign companies				Foreign governments	All other
			Subsidiaries <sup>a</sup>	Company's parent	Unaffiliated companies			
Military armored vehicle, tank, and tank component	336992	D	D	0	0	0	0	
Other transportation equipment	other 336	D	0	D	D	0	0	
Furniture and related products	337	0	0	0	0	0	0	
Miscellaneous manufacturing	339	706	D	D	D	0	D	
Medical equipment and supplies	3391	373	D	280	D	0	D	
Other miscellaneous manufacturing	3399	333	D	D	D	0	0	
Nonmanufacturing industries	21–23, 42–81	4,046	815	1,568	1,570	17	76	
Mining, extraction, and support activities	21	D	D	0	D	0	0	
Utilities	22	D	0	0	D	0	0	
Wholesale trade	42	209 i	0	100	92 i	0	18 i	
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	565 i	D	D	D	D	*	
Publishing	511	394	D	334	D	D	*	
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0	0	
Software publishers	5112	394	D	334	D	D	*	
Telecommunications	517	34	D	D	D	0	0	
Data processing, hosting, and related services	518	D	D	0	D	0	0	
Other information	other 51	D	D	D	0	0	0	
Finance and insurance	52	1	0	0	1	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	2,489	201	1,038	1,175	17	58	
Architectural, engineering, and related services	5413	110	*	18	78	14	0	
Computer systems design and related services	5415	440	201	156	53	0	31	
Scientific research and development services	5417	1,862	0	809	1,024	2	27	
Biotechnology research and development	541711	788	0	212	572	*	3	
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,075	0	597	451	2	24	
Social sciences and humanities research and development	541720	* i	0	*	* i	0	0	
Other professional, scientific, and technical services	other 54	77	1	55	20	1	0	
Health care services	621–23	D	0	D	D	D	* i	
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	D	0	D	D	0	0	
All companies (number of domestic employees)	–	15,543	3,342	7,438	4,569	63	129	
Small companies <sup>b</sup>								
5–499	–	2,655	124	1,916	480	17	118	
5–99	–	1,220	D	883	265	D	D	
5–49	–	606	D	352	200	D	D	

TABLE 26. 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: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign companies			Foreign governments	All other
			Subsidiaries <sup>a</sup>	Company's parent	Unaffiliated companies		
5-9	-	105 i	0	41	61 i	0	3
10-24	-	229	D	124	62	D	D
25-49	-	271	0	186	77	3	6 i
50-99	-	614	D	531	65	D	D
100-249	-	549	D	322	133	D	D
250-499	-	886	85	712	82	*	8
Medium and large companies							
500-999	-	615	102	D	D	D	D
1,000-4,999	-	5,421	771	1,760	2,884	1	5
5,000-9,999	-	2,369	81	1,866	419	0	4
10,000-24,999	-	2,289	566	1,170	D	D	D
25,000 or more	-	2,192	1,699	D	189	D	D

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> While all estimates include an adjustment to the weight to account for unit nonresponse, the estimates for domestic R&D paid for by foreign subsidiaries do not include item imputation. Caution should be used when comparing the subsidiaries estimates to other estimates presented in the table. See the technical notes for details.

<sup>b</sup> 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, 2011.

TABLE 27. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States		U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other		Undistributed <sup>a</sup>
				Company's parent	Other <sup>a</sup>				In United States	Outside United States	
All industries	21-23, 31-33, 42-81	29,608	21,921	440	4,269 i	175	10	8	688	144	1,954
Manufacturing industries	31-33	23,588	19,095	432	2,454	D	10	8	562	133	D
Food	311	423	322 i	19	17 i	*	1	0	7	0	59
Beverage and tobacco products	312	164	158	0	D	0	0	0	D	0	D
Textile, apparel, and leather products	313-316	D	3	0	2 i	0	0	0	D	0	D
Wood products	321	10	5	0	0	0	0	0	0	0	5
Paper	322	65	42	0	D	0	0	0	8	D	D
Printing and related support activities	323	6	2	0	*	0	0	0	0	0	4
Petroleum and coal products	324	D	D	0	D	D	0	0	D	D	D
Chemicals	325	15,735	13,100	33 i	1,925	14	2	1	397	111	153
Basic chemicals	3251	287	90	D	116 i	D	2	0	D	D	15
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	26	18	0	4	D	*	0	D	*	3
Pesticide, fertilizer, and other agricultural chemical	3253	67	34	D	* i	0	0	0	D	0	D
Pharmaceuticals and medicines	3254	14,938	12,595	D	1,793	D	*	1	339	100	101
Soap, cleaning compound, and toilet preparation	3256	336	306	0	10 i	0	0	0	9	3	8
Paint, coating, adhesive, and other chemicals	3255, 3259	82	57	D	1	0	0	0	3	D	D
Plastics and rubber products	326	72	12	0	23 i	0	0	0	*	0	37
Nonmetallic mineral products	327	207	D	157	*	D	0	0	D	0	D
Primary metals	331	119	31	73	1 i	0	0	0	1	*	13
Fabricated metal products	332	54	6	4	3 i	0	0	0	0	0	42
Machinery	333	833	660	0	25	1	*	1	35	D	D
Agricultural implement	33311	213	197	0	1 i	0	0	0	D	0	D
Semiconductor machinery	333295	31	25	0	*	0	*	0	0	D	D
Engine, turbine, and power transmission equipment	3336	436	D	0	D	1	0	1	D	D	D
Other machinery	other 333	153	D	0	D	0	*	0	D	0	D
Computer and electronic products	334	1,717	1,334	10	146	6	5	5	46	7	159
Communications equipment	3342	689	598	1	40	5	5	5	5	5	26
Semiconductor and other electronic components	3344	325	252	*	32	*	0	0	3	*	38
Navigational, measuring, electromedical, and control instruments	3345	338	177	9	38 i	*	0	0	36	2	76
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	125	47	5	18	0	0	0	32	0	23
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	D	75	0	11 i	*	0	0	2	*	D
Other measuring and controlling device	other 3345	D	55	4 i	10 i	*	0	0	3	1	D
Other computer and electronic products	other 334	366	308	0	36	*	0	0	2	*	19
Electrical equipment, appliances, and components	335	144	84	0	13 i	*	0	0	5	0	41
Transportation equipment	336	3,134	2,665	137	233	30	2	*	12	1	55
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	D	1,967	137	114	D	2	0	D	1	D
Aerospace products and parts	3364	D	575	0	109	D	*	*	D	0	D
Aircraft, aircraft engine, and aircraft parts	336411-13	D	490	0	D	D	*	0	D	0	D

TABLE 27. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States		U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other		Undistributed <sup>a</sup>
				Company's parent	Other <sup>a</sup>				In United States	Outside United States	
Guided missile, space vehicle, and related parts	336414-15, 336419	90	85	0	D	D	0	*	D	0	D
Military armored vehicle, tank, and tank component	336992	D	D	0	0	0	0	0	0	0	0
Other transportation equipment	other 336	D	D	0	10	0	0	0	0	0	D
Furniture and related products	337	8	1	0	1	0	0	0	0	0	6
Miscellaneous manufacturing	339	D	474	0	46	1	*	1	13	2	D
Medical equipment and supplies	3391	558	419	0	43	1	*	1	13	2	80
Other miscellaneous manufacturing	3399	D	56	0	3 i	*	0	0	0	0	D
Nonmanufacturing industries	21-23, 42-81	6,019	2,827	8	1,814 i	D	1	* i	126	11	D
Mining, extraction, and support activities	21	295	135	D	3	D	*	*	73	D	D
Utilities	22	277	176	0	0	0	0	0	31	0	71
Wholesale trade	42	294 i	19 i	0	147 i	0	0	0	0	0	127
Electronic shopping and electronic auctions	454111-12	D	0	0	1	0	0	0	0	0	D
Transportation and warehousing	48-49	9	*	0	0	0	0	0	0	0	9
Information	51	2,180 i	1,067	D	987 i	0	*	0	4	D	D
Publishing	511	1,004	877	D	66 i	0	*	0	4	D	D
Newspaper, periodical, book, and directory publishers	5111	12	3	0	0	0	0	0	0	0	9
Software publishers	5112	992	874	D	66 i	0	*	0	4	D	D
Telecommunications	517	1,007 i	163	0	834 i	0	0	0	0	0	10
Data processing, hosting, and related services	518	D	19 i	0	65	0	0	0	0	0	D
Other information	other 51	D	9	0	22	0	0	0	0	0	D
Finance and insurance	52	111	56	0	38	0	0	0	8	0	9
Real estate and rental and leasing	53	D	D	0	0	0	*	0	0	0	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	D	D	0	0	0	*	0	0	0	1
Other real estate and rental and leasing	other 53	D	0	0	0	0	0	0	0	0	D
Professional, scientific, and technical services	54	2,698	1,345	D	622 i	D	*	*	10 i	D	D
Architectural, engineering, and related services	5413	86	24	0	25 i	0	0	0	1	*	36
Computer systems design and related services	5415	198	82 i	0	60 i	0	0	0	0	0	57
Scientific research and development services	5417	2,188	1,213	*	509 i	*	*	*	9 i	*	456
Biotechnology research and development	541711	1,859	1,106	*	443 i	*	*	0	2	*	307
Physical, engineering, and life sciences (except biotechnology) research and development	541712	326	106	0	66 i	0	0	*	7 i	*	148
Social sciences and humanities research and development	541720	2 i	0	0	0	0	0	0	0	0	2 i
Other professional, scientific, and technical services	other 54	226	27 i	D	27 i	D	*	0	0	D	D
Health care services	621-23	25	12	0	*	0	0	0	0	0	13
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	D	0	16	0	0	0	0	0	D

TABLE 27. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Companies outside United States		U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other		Undistributed <sup>a</sup>
				Company's parent	Other <sup>a</sup>				In United States	Outside United States	
All companies (number of domestic employees)	-	29,608	21,921	440	4,269 i	175	10	8	688	144	1,954
Small companies <sup>b</sup>											
5-499	-	5,308	2,405	2 i	1,150 i	1	*	1	52	D	D
5-99	-	3,033	1,036	1 i	817 i	1	0	1	14 i	*	1,164
5-49	-	2,278 i	706	D	654 i	1	0	1	12 i	*	D
5-9	-	317	48	0	79 i	0	0	0	0	0	190
10-24	-	914 i	185	0	292 i	0	0	0	*	*	436
25-49	-	1,048	473	D	284 i	1	0	1	11 i	*	D
50-99	-	755	330	D	163 i	*	0	0	2	*	D
100-249	-	1,064	522	0	168 i	*	*	0	30	1	343
250-499	-	1,211	847	1 i	165 i	*	0	*	8	D	D
Medium and large companies											
500-999	-	621	457	D	63 i	*	*	*	18	D	D
1,000-4,999	-	4,772	3,985	186	390 i	1	1	1	87	7	114
5,000-9,999	-	1,329	1,091	D	94 i	16	D	*	28	3	78
10,000-24,999	-	7,998	6,766	101	805	1	1	*	291	24	9
25,000 or more	-	9,580	7,218	D	1,767	155	D	6	211	D	D

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Detailed data were not collected on the BRDI-1A questionnaire.

<sup>b</sup> 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, 2011.

TABLE 28. R&D paid for by the company and others and performed by the company outside of the United States, by selected location: 2011

(Millions of U.S. dollars)

Location	Total	Paid for by the company	Paid for by others
Total	69,231	65,038	4,193
Puerto Rico	114	95	19
Canada	5,468	5,082	386
Austria	207	176	31
Belgium	1,702	1,613	89
Czech Republic	180	151	29
Denmark	523	512	11
Finland	327	312	15
France	2,971	2,670	301
Germany	8,957	8,583	374
Ireland	1,161	1,115	46
Italy	1,425	1,311	114
Netherlands	1,610	1,526	84
Poland	399	345	54
Russia	476	429	47
Spain	544	436	108
Sweden	831	777	53
Switzerland	2,381	2,112	269
United Kingdom	10,381	9,567	814
Other European locations	3,010	2,803	207
Argentina	230	172	58
Brazil	1,826	1,751	74
Chile	55	45	10
Mexico	911	865	46
Other Latin American locations	416	394	22
Australia	1,298	1,187	111
China	4,249	4,141	107
Hong Kong	108	104	5
India	4,784	4,668	115
Indonesia	25	23	2
Japan	3,229	3,014	215
Malaysia	653	645	7
New Zealand	55	47	9
Singapore	1,712 i	1,632 i	79
South Korea	1,184	1,132	51
Taiwan	495	481	13
Thailand	355	344	12
Other Asian or Pacific locations	563	551	13
Israel	3,369	3,316	54
Other Middle Eastern locations	181	169	14
South Africa	196	126	69
Other African locations	58	53	5
Undistributed	611	559	52

i = value > 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 BRDI-1A. Statistics are representative of companies located in the United States that performed or funded R&D.

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

TABLE 29. R&amp;D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011

(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	69,231	114	5,468	207	1,702	180	523
Manufacturing industries	31–33	51,870	107	3,654	134	1,568	126	420
Food	311	1,197	*	51	0	12	1	D
Chemicals	325	16,393	63	992	67	1,247	50	93
Pharmaceuticals and medicines	3254	12,578	26	913	51	1,021	48	82
Other chemicals	other 325	3,815	36	78	16	227	2	11
Plastics and rubber products	326	362	0	36 i	0	21	2	0
Nonmetallic mineral products	327	253	0	35	0	2	0	0
Fabricated metal products	332	137	0	2 i	0	0	0	0
Machinery	333	3,524	*	137	24	38	5 i	1
Computer and electronic products	334	17,294	9	1,525	30	107	58	147
Electrical equipment, appliances, and components	335	1,704	0	82	8	2	1	7
Transportation equipment	336	7,933	*	580	2	77	9	0
Miscellaneous manufacturing	339	D	34	63	2	22	1	22
Other manufacturing	312–316, 321–324, 331, 337	D	0	151	1	41	*	D
Nonmanufacturing industries	21–23, 42–81	17,361	7	1,814	73	134	54	103
Wholesale trade	42	289 i	0	4 i	8 i	2 i	0	0
Information	51	9,586	*	1,175	27	35	12	88
Telecommunications	517	97	0	4	0	0	0	0
Data processing, hosting, and related services	518	306	0	50	2 i	0	0	2
Other information	other 51	9,183	*	1,122	25	35	12	85
Professional, scientific, and technical services	54	5,892	7	506	38	70	38	15
Architectural, engineering, and related services	5413	145	0	14	3 i	*	0	0
Scientific research and development services	5417	2,350	7	72	28	40	24	11
Biotechnology research and development	541711	250	0	12	0	3	1	0
Other scientific research and development	other 5417	2,100	7	60	28	37	23	11
Other professional, scientific, and technical services	other 54	3,398	* i	419	7	29	14	5
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	1,595 i	0	130	0	27	4	0
All companies (number of employees)	–	69,231	114	5,468	207	1,702	180	523
Small companies <sup>a</sup>								
5–499	–	4,010	2	419	13	107	1	12
5–99	–	1,409	0	94 i	*	61	0	*
5–49	–	905	0	66 i	*	2	0	*
5–9	–	83	0	16	0	0	0	0
10–24	–	533	0	41	0	0	0	0
25–49	–	289	0	9	*	2	0	*
50–99	–	504	0	28 i	0	59	0	0
100–249	–	1,066	0	27	2 i	15	0	0
250–499	–	1,534	2	298	10	31	1	12
Medium and large companies								
500–999	–	1,448	7	181 i	1	23	7	0
1,000–4,999	–	12,967	46	1,648	59	169	50	78

TABLE 29. R&amp;D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Puerto Rico	Canada	Austria	Belgium	Czech Republic	Denmark
5,000–9,999	–	7,705	1	420	33	90	42	51
10,000–24,999	–	12,559	39	1,259	29	166	18	82
25,000 or more	–	30,543	19	1,541	73	1,148	61	300
Industry and company size	NAICS code	Finland	France	Germany	Ireland	Italy	Netherlands	Poland
All industries	21–23, 31–33, 42–81	327	2,971	8,957	1,161	1,425	1,610	399
Manufacturing industries	31–33	276	2,406	8,041	667	1,241	1,372	291
Food	311	*	59	174	0	9	8	2
Chemicals	325	41	719	1,462	253	426	1,053	97
Pharmaceuticals and medicines	3254	33	567	902	251	263	269	94
Other chemicals	other 325	8	153	560	2 i	163	784	3
Plastics and rubber products	326	0	49	63	0	22	2	0
Nonmetallic mineral products	327	2	77 i	82 i	1	1	1	0
Fabricated metal products	332	0	5	13	0	2	1	1
Machinery	333	70	294	582	8 i	178	38	D
Computer and electronic products	334	162 i	784	2,109	322	439	90	112
Electrical equipment, appliances, and components	335	0	95	284	0	34	2	18
Transportation equipment	336	0	216	2,977	7 i	107	D	13
Miscellaneous manufacturing	339	*	72	110	77	16	19	*
Other manufacturing	312–316, 321–324, 331, 337	0	34	187	*	7	D	D
Nonmanufacturing industries	21–23, 42–81	51	566	916	494	184	237	109
Wholesale trade	42	0	2 i	36 i	0	11 i	5 i	1 i
Information	51	31	188	515	312	61	66	41
Telecommunications	517	0	0	6	0	0	2	0
Data processing, hosting, and related services	518	0	2 i	15 i	9 i	0	2 i	0
Other information	other 51	31	186	494	303	61	62	41
Professional, scientific, and technical services	54	19	358	290	182 i	111	135	66
Architectural, engineering, and related services	5413	7	3 i	5 i	2 i	3 i	0	1
Scientific research and development services	5417	10	157	143	38	63	114	49
Biotechnology research and development	541711	0	44	35	0	5	2	6
Other scientific research and development	other 5417	10	112	109	38	58	112	43
Other professional, scientific, and technical services	other 54	2	199 i	142	143 i	45 i	21	16
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	0	18	74 i	0	1	32 i	1
All companies (number of employees)	–	327	2,971	8,957	1,161	1,425	1,610	399
Small companies <sup>a</sup>								
5–499	–	14	68 i	269	19	44	33 i	12 i
5–99	–	3	23 i	75 i	1	2	9 i	7 i
5–49	–	0	5	56 i	0	0	*	6 i
5–9	–	0	0	1	0	0	0	0
10–24	–	0	5	46 i	0	0	0	6 i
25–49	–	0	0	9	0	0	*	0
50–99	–	3	19 i	19	1	2	9 i	2
100–249	–	0	26	99	2	26	21	0
250–499	–	11	19 i	96	16	16	4	5 i

TABLE 29. R&amp;D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Finland	France	Germany	Ireland	Italy	Netherlands	Poland
Medium and large companies								
500–999	–	*	37	100	8	5	43	2 i
1,000–4,999	–	129 i	720	1,611	191	312 i	219	59
5,000–9,999	–	23	303	889	180	364	239	46
10,000–24,999	–	55	718	1,129	262 i	161	773	93
25,000 or more	–	105	1,125	4,958	500	539	302	187
Industry and company size	NAICS code	Russia	Spain	Sweden	Switzerland	United Kingdom	Other European locations	Argentina
All industries	21–23, 31–33, 42–81	476	544	831	2,381	10,381	3,010	230
Manufacturing industries	31–33	295	461	582	1,707	6,675	2,128	172
Food	311	3	6	5	D	172	149	2
Chemicals	325	115	281	239	801	3,395	731	130
Pharmaceuticals and medicines	3254	115	228	234	669	3,095	488	93
Other chemicals	other 325	1	53	5	131	301	243	37
Plastics and rubber products	326	1	5	3	5	17	5	4
Nonmetallic mineral products	327	*	*	*	*	20 i	*	0
Fabricated metal products	332	0	0	12	0	44	4	0
Machinery	333	5	21	84	257	521	101	2 i
Computer and electronic products	334	135	28	104	74	1,278	507	19
Electrical equipment, appliances, and components	335	12	1	7	19	112	253	0
Transportation equipment	336	12	108	47	6	962	94	10
Miscellaneous manufacturing	339	6	4	67	175	67	182	4
Other manufacturing	312–316, 321–324, 331, 337	7	7	14	D	88	102	2
Nonmanufacturing industries	21–23, 42–81	182	84	249	674	3,706	882	58
Wholesale trade	42	0	0	79 i	D	10 i	13 i	0
Information	51	65	10	65	396	2,300 i	586	1
Telecommunications	517	0	0	7 i	0	6	1	0
Data processing, hosting, and related services	518	9	0	5	0	41	31 i	0
Other information	other 51	56	10	52	396	2,254 i	554	1
Professional, scientific, and technical services	54	110 i	72	83	277	1,018	257	55
Architectural, engineering, and related services	5413	0	3 i	11	0	3 i	11 i	0
Scientific research and development services	5417	45	63	45	22	463	144	52
Biotechnology research and development	541711	1	3	2	5 i	62	5	1
Other scientific research and development	other 5417	44	60	43	16	401	139	51
Other professional, scientific, and technical services	other 54	65 i	5	27	256	552	101 i	3
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	7	2	22	D	377	26	1
All companies (number of employees)	–	476	544	831	2,381	10,381	3,010	230
Small companies <sup>a</sup>								
5–499	–	36 i	7 i	46 i	378	339	295 i	5
5–99	–	6 i	*	10	18 i	75 i	210 i	0
5–49	–	2	*	3	5 i	42 i	203 i	0

TABLE 29. R&D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Russia	Spain	Sweden	Switzerland	United Kingdom	Other European locations	Argentina
5-9	-	0	0	0	0	0	9	0
10-24	-	*	0	*	*	26 i	124	0
25-49	-	2	*	2	5	15 i	71 i	0
50-99	-	4 i	*	7	12 i	33 i	7	0
100-249	-	24 i	1	22 i	333	46	48	*
250-499	-	7	6 i	14	28	218	37 i	5
Medium and large companies								
500-999	-	7	3	18	78	138	63	3
1,000-4,999	-	83	80	220	487	1,759	632	11
5,000-9,999	-	49	88	83	294	1,048	178	54
10,000-24,999	-	97	134	220	473	1,064	931	95
25,000 or more	-	204	232	243	671	6,032	912	61

  

Industry and company size	NAICS code	Brazil	Chile	Mexico	Other Latin American locations	Australia	China	Hong Kong
All industries	21-23, 31-33, 42-81	1,826	55	911	416	1,298	4,249	108
Manufacturing industries	31-33	1,642	32	877	267	933	2,988	69
Food	311	45	1	29	13	96	44	8
Chemicals	325	391	29	145	112	320	607	19
Pharmaceuticals and medicines	3254	223	D	101	72	301	360	14
Other chemicals	other 325	168	D	44	40	19	247	6
Plastics and rubber products	326	26	0	8	0	2	20	1
Nonmetallic mineral products	327	0	0	2	0	*	25 i	0
Fabricated metal products	332	0	0	0	0	0	10	0
Machinery	333	65	*	D	1	33	290	1
Computer and electronic products	334	48	*	115	72	99	1,527	20
Electrical equipment, appliances, and components	335	143	0	45	26	7	192	3
Transportation equipment	336	890	*	185	D	D	136	4
Miscellaneous manufacturing	339	8	0	6	7	D	65	3
Other manufacturing	312-316, 321-324, 331, 337	26	2	D	D	10	72	8
Nonmanufacturing industries	21-23, 42-81	184	23	35	149	365	1,261	40 i
Wholesale trade	42	0	0	1 i	4 i	0	11 i	9 i
Information	51	106	2	2	79	195	849	17 i
Telecommunications	517	24 i	0	0	0	0	29	1
Data processing, hosting, and related services	518	23	0	0	*	17	5 i	5 i
Other information	other 51	59	2	2	79	178	815	12
Professional, scientific, and technical services	54	74	9	28	66	126	331 i	9 i
Architectural, engineering, and related services	5413	3 i	*	3 i	*	8	15 i	0
Scientific research and development services	5417	53	8	17	18	76	52	*
Biotechnology research and development	541711	1	*	2	1	24	6	0
Other scientific research and development	other 5417	52	7	15	17	53	47	*
Other professional, scientific, and technical services	other 54	18	2	7	48	42	263 i	8 i
Other nonmanufacturing	21-23, 44-45, 48-49, 52-53, 55-56, 621-24, 71-72, 81	5	11	4	1	43	70 i	4

TABLE 29. R&D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Brazil	Chile	Mexico	Other Latin American locations	Australia	China	Hong Kong
All companies (number of employees)	–	1,826	55	911	416	1,298	4,249	108
Small companies <sup>a</sup>								
5–499	–	63	0	26 i	30 i	44	298	26 i
5–99	–	46	0	2 i	24 i	2	121 i	12 i
5–49	–	0	0	2	12 i	2	79 i	D
5–9	–	0	0	0	0	0	2	0
10–24	–	0	0	0	0	2	38 i	0
25–49	–	0	0	2	12 i	0	40 i	D
50–99	–	46	0	*	12 i	*	42 i	D
100–249	–	1	0	9 i	4 i	8 i	64	6 i
250–499	–	16	0	15 i	1 i	33	113	8 i
Medium and large companies								
500–999	–	3	*	19	1	108	157	6 i
1,000–4,999	–	94	3	310	73	178	801	21
5,000–9,999	–	116	9	42	101	218	472	8
10,000–24,999	–	436	22	126	22	214	706	17
25,000 or more	–	1,114	21	388	190	537	1,814	31
Industry and company size	NAICS code	India	Indonesia	Japan	Malaysia	New Zealand	Singapore	South Korea
All industries	21–23, 31–33, 42–81	4,784	25	3,229	653	55	1,712 i	1,184
Manufacturing industries	31–33	3,270	22	2,533	642	38	996	1,078
Food	311	7	2	37	2	1	7	2
Chemicals	325	228	3	1,369	12	10	235	208
Pharmaceuticals and medicines	3254	172	2	1,175	6	7	199	151
Other chemicals	other 325	55	1	194	6 i	3	36	57
Plastics and rubber products	326	*	*	40	4	*	0	6
Nonmetallic mineral products	327	*	0	2	0	0	0	0
Fabricated metal products	332	1	0	0	0	0	0	*
Machinery	333	235	0	100	1	3	39	22
Computer and electronic products	334	2,507	5	592	609	17	614	143
Electrical equipment, appliances, and components	335	45	*	107	0	*	42	4
Transportation equipment	336	168	0	110	*	1	D	D
Miscellaneous manufacturing	339	67	0	97	13	5	8	3
Other manufacturing	312–316, 321–324, 331, 337	13	12	80	1	0	D	D
Nonmanufacturing industries	21–23, 42–81	1,514	3	696	10	17 i	715 i	106
Wholesale trade	42	2 i	0	5 i	0	0	0	0
Information	51	960	*	388	4	5 i	D	28
Telecommunications	517	3	0	0	*	0	*	0
Data processing, hosting, and related services	518	26	0	1 i	*	4 i	7 i	0
Other information	other 51	931	*	387	4	1	D	28
Professional, scientific, and technical services	54	502 i	2	298	6	12 i	D	46
Architectural, engineering, and related services	5413	3 i	0	4 i	0	0	0	4 i
Scientific research and development services	5417	86	2	177	4	5	75	19
Biotechnology research and development	541711	3	0	0	*	0	9	0

TABLE 29. R&amp;D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	India	Indonesia	Japan	Malaysia	New Zealand	Singapore	South Korea
Other scientific research and development	other 5417	83	2	177	4	5	67	19
Other professional, scientific, and technical services	other 54	414 i	0	118 i	1 i	7 i	D	24
Other nonmanufacturing	21–23, 44–45, 48–49, 52–53, 55–56, 621–24, 71–72, 81	50	*	5	*	0	D	31 i
All companies (number of employees)	–	4,784	25	3,229	653	55	1,712 i	1,184
Small companies <sup>a</sup>								
5–499	–	232	11	80 i	11	8 i	72	33 i
5–99	–	109	0	41 i	1	0	8 i	22 i
5–49	–	36 i	0	22 i	1	0	0	D
5–9	–	0	0	0	0	0	0	0
10–24	–	23 i	0	18	0	0	0	D
25–49	–	13	0	3 i	1	0	0	0
50–99	–	73	0	19 i	0	0	8 i	D
100–249	–	43	11	9 i	*	*	36	4
250–499	–	80	*	30	10	7 i	28	6 i
Medium and large companies								
500–999	–	144 i	0	26	D	0	27	11
1,000–4,999	–	914	3	558	121	26	275	199
5,000–9,999	–	861	1	374	25	5	287	75
10,000–24,999	–	781	2	766	97	4	611 i	125
25,000 or more	–	1,852	8	1,424	D	12	439	741
Industry and company size	NAICS code	Taiwan	Thailand	Other Asian or Pacific locations	Israel	Other Middle Eastern locations	South Africa	Other African locations
All industries	21–23, 31–33, 42–81	495	355	563	3,369	181	196	58
Manufacturing industries	31–33	330	147	456	2,609	145	110	36
Food	311	7	11	19	* i	*	4	*
Chemicals	325	58	15	105	111	29	69	16
Pharmaceuticals and medicines	3254	46	13	68	D	26	53	16
Other chemicals	other 325	12	2	37	D	3	16	*
Plastics and rubber products	326	1	3	*	7	0	0	0
Nonmetallic mineral products	327	*	0	0	0	*	0	0
Fabricated metal products	332	0	0	0	0	0	0	0
Machinery	333	7	6	15	175	3	4	*
Computer and electronic products	334	232	80	179	2,265	23 i	4	20 i
Electrical equipment, appliances, and components	335	4	0	58	1	67	5	0
Transportation equipment	336	D	D	D	D	1	D	0
Miscellaneous manufacturing	339	6	2	31	39	*	*	0
Other manufacturing	312–316, 321–324, 331, 337	D	D	D	D	22	D	0
Nonmanufacturing industries	21–23, 42–81	164	208	107	760	36	86	22
Wholesale trade	42	0	0	3 i	47 i	0	0	0
Information	51	112	200 i	74	399	21	17	D
Telecommunications	517	*	0	0	0	0	0	0
Data processing, hosting, and related services	518	3	0	1 i	1 i	0	12	0
Other information	other 51	109	200 i	73	399	21	5	D
Professional, scientific, and technical services	54	52	8	27	275 i	10	69	10 i

TABLE 29. R&D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Taiwan	Thailand	Other Asian or Pacific locations	Israel	Other Middle Eastern locations	South Africa	Other African locations
Architectural, engineering, and related services	5413	15	0	*	0	*	*	*
Scientific research and development services	5417	10	8	7	35	7	67	5
Biotechnology research and development	541711	0	*	*	5	*	*	0
Other scientific research and development	other 5417	10	8	7	30	7	67	5
Other professional, scientific, and technical services	other 54	26 i	1	20	240 i	3	2	5 i
Other nonmanufacturing	21-23, 44-45, 48-49, 52-53, 55-56, 621-24, 71-72, 81	1	*	2	39 i	5	*	D
All companies (number of employees)	-	495	355	563	3,369	181	196	58
Small companies <sup>a</sup>								
5-499	-	105	100 i	43	234	3	3	*
5-99	-	31	99	3 i	72 i	0	0	0
5-49	-	10	99	2	72 i	0	0	0
5-9	-	4	0	0	10 i	0	0	0
10-24	-	2	99	0	33 i	0	0	0
25-49	-	3	0	2	29	0	0	0
50-99	-	21	0	1 i	0	0	0	0
100-249	-	26	0	9	9	1	*	0
250-499	-	48	1	31	154	2	2	*
Medium and large companies								
500-999	-	7	3	6 i	32	*	1	4
1,000-4,999	-	93	57	191	358	22	25	3
5,000-9,999	-	60	46	15	417	9	73	4
10,000-24,999	-	72	12	133	478	83	36	D
25,000 or more	-	158	137	175	1,849	64	58	D
Industry and company size	NAICS code	Undistributed						
All industries	21-23, 31-33, 42-81	611						
Manufacturing industries	31-33	324						
Food	311	6						
Chemicals	325	52 i						
Pharmaceuticals and medicines	3254	32 i						
Other chemicals	other 325	20						
Plastics and rubber products	326	10						
Nonmetallic mineral products	327	3						
Fabricated metal products	332	43						
Machinery	333	46						
Computer and electronic products	334	74						
Electrical equipment, appliances, and components	335	22						
Transportation equipment	336	24 i						
Miscellaneous manufacturing	339	27						
Other manufacturing	312-316, 321-324, 331, 337	17 i						
Nonmanufacturing industries	21-23, 42-81	288						
Wholesale trade	42	D						
Information	51	91						
Telecommunications	517	16						

TABLE 29. R&D paid for by the company and by others and performed by the company outside of the United States, by selected location, industry, and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Undistributed
Data processing, hosting, and related services	518	32
Other information	other 51	43
Professional, scientific, and technical services	54	D
Architectural, engineering, and related services	5413	23
Scientific research and development services	5417	34
Biotechnology research and development	541711	11
Other scientific research and development	other 5417	22
Other professional, scientific, and technical services	other 54	D
Other nonmanufacturing	21-23, 44-45, 48-49, 52-53, 55-56, 621-24, 71-72, 81	D
All companies (number of employees)	-	611
Small companies <sup>a</sup>		
5-499	-	468
5-99	-	222
5-49	-	159
5-9	-	42
10-24	-	D
25-49	-	D
50-99	-	63
100-249	-	131
250-499	-	115 i
Medium and large companies		
500-999	-	D
1,000-4,999	-	83
5,000-9,999	-	15
10,000-24,999	-	D
25,000 or more	-	0

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

<sup>a</sup> 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 for on Form BRDI-1A. Statistics are representative of companies located in the United States that performed or funded R&D.

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

TABLE 30. Capital expenditures, total in the United States and for domestic R&amp;D, by industry and company size: 2011

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Domestic R&D
All industries	21–23, 31–33, 42–81	477,001	23,183
Manufacturing industries	31–33	210,909	12,213
Food	311	20,832	369
Beverage and tobacco products	312	3,992	48 i
Textile, apparel, and leather products	313–316	1,604	82
Wood products	321	833	36
Paper	322	4,985	71
Printing and related support activities	323	917	28
Petroleum and coal products	324	15,583	52
Chemicals	325	38,905	2,847
Basic chemicals	3251	18,046	418
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	3,158	53
Pesticide, fertilizer, and other agricultural chemical	3253	993	156
Pharmaceuticals and medicines	3254	12,178	2,002
Soap, cleaning compound, and toilet preparation	3256	3,263	150
Paint, coating, adhesive, and other chemicals	3255, 3259	1,267	67
Plastics and rubber products	326	17,920	531
Nonmetallic mineral products	327	2,273	62
Primary metals	331	6,609	72
Fabricated metal products	332	15,423 i	313
Machinery	333	24,286	1,531
Agricultural implement	33311	1,095	87
Semiconductor machinery	333295	361	143
Engine, turbine, and power transmission equipment	3336	14,839	676
Other machinery	other 333	7,992	625
Computer and electronic products	334	23,839	4,184
Communications equipment	3342	3,718	977
Semiconductor and other electronic components	3344	7,456	1,560
Navigational, measuring, electromedical, and control instruments	3345	5,243	751
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,175	166 i
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	2,093	301
Other measuring and controlling device	other 3345	1,976	284
Other computer and electronic products	other 334	7,421	897
Electrical equipment, appliances, and components	335	2,874	223 i
Transportation equipment	336	22,624	1,006
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	16,994	632
Aerospace products and parts	3364	4,493	337
Aircraft, aircraft engine, and aircraft parts	336411–13	3,774	291
Guided missile, space vehicle, and related parts	336414–15, 336419	719	46
Military armored vehicle, tank, and tank component	336992	16	4
Other transportation equipment	other 336	1,121	34
Furniture and related products	337	680	45
Miscellaneous manufacturing	339	6,730	711
Medical equipment and supplies	3391	4,161	412
Other miscellaneous manufacturing	3399	2,568	299 i
Nonmanufacturing industries	21–23, 42–81	266,091	10,970
Mining, extraction, and support activities	21	57,780	317
Utilities	22	72,939	313
Wholesale trade	42	5,193	177 i
Electronic shopping and electronic auctions	454111–12	2,703	40 i
Transportation and warehousing	48–49	13,439	116
Information	51	73,233	5,176
Publishing	511	9,456	1,938
Newspaper, periodical, book, and directory publishers	5111	1,389	225
Software publishers	5112	8,067	1,713
Telecommunications	517	39,621	1,987 i

TABLE 30. Capital expenditures, total in the United States and for domestic R&D, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Domestic R&D
Data processing, hosting, and related services	518	14,562	626
Other information	other 51	9,594	625
Finance and insurance	52	12,507	1,399
Real estate and rental and leasing	53	2,501	36
Lessors of nonfinancial intangible assets (except copyrighted works)	533	72	23
Other real estate and rental and leasing	other 53	2,430	13 i
Professional, scientific, and technical services	54	15,475	3,150
Architectural, engineering, and related services	5413	2,618	251
Computer systems design and related services	5415	6,793	1,775 i
Scientific research and development services	5417	3,563	848
Biotechnology research and development	541711	690	499
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,864	348
Social sciences and humanities research and development	541720	9 i	1 i
Other professional, scientific, and technical services	other 54	2,501	276
Health care services	621–23	1,868	41
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	8,453	205
All companies (number of domestic employees)	–	477,001	23,183
Small companies <sup>a</sup>			
5–499	–	68,558	5,893
5–99	–	25,514	3,352
5–49	–	16,108	2,446
5–9	–	2,766	462
10–24	–	5,717	1,065
25–49	–	7,625	918
50–99	–	9,406	906
100–249	–	14,823	1,444
250–499	–	28,222	1,098
Medium and large companies			
500–999	–	12,848	1,262
1,000–4,999	–	65,622	3,347
5,000–9,999	–	43,612	2,023
10,000–24,999	–	117,343	3,329
25,000 or more	–	169,017	7,331

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 31. Worldwide, domestic, and foreign total and R&D employment, by industry and company size: 2011  
(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	29,327	2,025	6.9	19,285	1,471	7.6	10,042	554	5.5
Manufacturing industries	31-33	17,532	1,211	6.9	9,998	865	8.7	7,534	345	4.6
Food	311	2,008	36	1.8	1,072	29	2.7	937	7	0.8
Beverage and tobacco products	312	832	6	0.7	385	4	1.0	447	2	0.4
Textile, apparel, and leather products	313-316	258	8	3.0	201	7	3.5	56	1	1.1
Wood products	321	120	3	2.6	102	3	3.0	18	*	0.1
Paper	322	405	13	3.3	235	9	3.7	170	5	2.7
Printing and related support activities	323	141	3	2.3	122	3	2.3	19	*	2.0
Petroleum and coal products	324	D	6	D	73	5	6.6	D	1	D
Chemicals	325	2,594	225	8.7	1,479	160	10.8	1,115	65	5.8
Basic chemicals	3251	704	27	3.8	469	18	3.8	235	9	3.8
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	210	8	3.8	123	6	4.5	86	3	3.0
Pesticide, fertilizer, and other agricultural chemical	3253	52	8	14.4	38	6	14.8	14	2	13.6
Pharmaceuticals and medicines	3254	1,003	147	14.7	549	107	19.5	453	40	8.9
Soap, cleaning compound, and toilet preparation	3256	426	21	4.9	172	14	8.2	254	7	2.6
Paint, coating, adhesive, and other chemicals	3255, 3259	200	15	7.4	128	10	7.8	71	5	6.7
Plastics and rubber products	326	631	25	4.0	475	22	4.7	156	3	2.1
Nonmetallic mineral products	327	221	12	5.4	145	8	5.5	76	4	5.2
Primary metals	331	364	7	1.8	260	6	2.2	104	1	0.7
Fabricated metal products	332	561	33	5.8	430	31	7.2	131	2	1.3
Machinery	333	1,805	121	6.7	1,029	88	8.6	776	33	4.3
Agricultural implement	33311	111	9	8.5	77	7	9.5	34	2	6.3
Semiconductor machinery	333295	41	9	22.0	24	7	28.5	18	2	13.3
Engine, turbine, and power transmission equipment	3336	428	D	D	237	25	10.4	190	D	D
Other machinery	other 333	1,225	D	D	691	49	7.1	534	D	D
Computer and electronic products	334	2,951	392	13.3	1,408	258	18.3	1,543	133	8.6
Communications equipment	3342	322	79	24.5	186	52	28.1	136	27	19.6
Semiconductor and other electronic components	3344	873	153	17.6	303	87	28.7	571	66	11.6
Navigational, measuring, electromedical, and control instruments	3345	978	91	9.3	624	74	11.9	353	17	4.7
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	176	26	14.7	142	22	15.8	34	3	9.8
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	388	33	8.6	280	31	10.9	108	3	2.6
Other measuring and controlling device	other 3345	414	32	7.7	202	21	10.5	212	11	5.0
Other computer and electronic products	other 334	778	68	8.8	295	45	15.1	483	23	4.9
Electrical equipment, appliances, and components	335	859	53	6.2	347	29	8.4	512	24	4.6
Transportation equipment	336	2,596	198	7.6	1,521	145	9.5	1,075	53	4.9
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	1,631	106	6.5	738	61	8.3	893	44	5.0
Aerospace products and parts	3364	762	80	10.5	635	72	11.4	126	7	5.9
Aircraft, aircraft engine, and aircraft parts	336411-13	711	74	10.5	590	67	11.3	121	7	6.1

TABLE 31. Worldwide, domestic, and foreign total and R&D employment, by industry and company size: 2011  
(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
Guided missile, space vehicle, and related parts	336414–15, 336419	51	5	10.5	45	5	11.8	6	*	0.4
Military armored vehicle, tank, and tank component	336992	4	*	5.8	3	*	6.4	*	0	0.0
Other transportation equipment	other 336	200	13	6.3	145	11	7.8	55	1	2.2
Furniture and related products	337	199	5	2.3	160	4	2.8	39	*	0.2
Miscellaneous manufacturing	339	D	66	D	551	54	9.8	D	12	D
Medical equipment and supplies	3391	483	39	8.0	316	33	10.3	167	6	3.6
Other miscellaneous manufacturing	3399	D	27	D	236	21	9.1	D	6	D
Nonmanufacturing industries	21–23, 42–81	11,795	814	6.9	9,287	606	6.5	2,508	209	8.3
Mining, extraction, and support activities	21	495	14	2.8	284	11	3.9	211	3	1.2
Utilities	22	448	2	0.5	436	2	0.4	11	*	1.7
Wholesale trade	42	436	21 i	4.7	327	16 i	5.0	109 i	4 i	4.0
Electronic shopping and electronic auctions	454111–12	85	5	5.3	60	4	7.2	25	*	1.0
Transportation and warehousing	48–49	824	1	0.1	691	1	0.2	133	* i	0.1
Information	51	2,647	326	12.3	1,876	232	12.3	771	94	12.3
Publishing	511	1,185	229	19.3	566	147	25.9	619	83	13.4
Newspaper, periodical, book, and directory publishers	5111	65	4	6.3	55	4	6.8	10	*	3.3
Software publishers	5112	1,120	225	20.1	511	143	27.9	609	82	13.5
Telecommunications	517	882	24 i	2.7	864	22 i	2.6	18	1	7.1
Data processing, hosting, and related services	518	221	37	16.6	166	33	19.8	55	4	6.9
Other information	other 51	359	36	10.1	280	30	10.6	79	7	8.5
Finance and insurance	52	1,729	31	1.8	1,499	26	1.8	230	5	2.2
Real estate and rental and leasing	53	50	2	3.8	46	1	3.0	4	1	15.1
Lessors of nonfinancial intangible assets (except copyrighted works)	533	9	2	17.5	6	1	16.9	3	1	18.8
Other real estate and rental and leasing	other 53	41	*	0.9	40	*	0.9	1	*	3.6
Professional, scientific, and technical services	54	2,799	369	13.2	1,977	270	13.7	822	99	12.0
Architectural, engineering, and related services	5413	479	66	13.8	380	62	16.3	99	4	4.1
Computer systems design and related services	5415	1,050	156	14.9	597	103	17.2	454 i	53	11.8
Scientific research and development services	5417	237	97	41.1	196	73	37.0	40	25	60.9
Biotechnology research and development	541711	75	21	28.0	72	20	27.2	3	1	52.0
Physical, engineering, and life sciences (except biotechnology) research and development	541712	155	72	46.7	117	49	41.9	38	23	61.5
Social sciences and humanities research and development	541720	7	4	56.9	7	4	56.9	*	*	64.8
Other professional, scientific, and technical services	other 54	1,033	50	4.8	804	33	4.1	229	17	7.3
Health care services	621–23	344	9	2.5	339	9	2.5	5	* i	2.3
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,939	35	1.8	1,752	33	1.9	188	3	1.4
All companies (number of domestic employees)	–	29,327	2,025	6.9	19,285	1,471	7.6	10,042	554	5.5
Small companies <sup>a</sup>	–	4,796	529	11.0	3,635	481	13.2	1,162	47	4.1

TABLE 31. Worldwide, domestic, and foreign total and R&D employment, by industry and company size: 2011  
(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
5-99	-	1,675	297	17.7	1,469	274	18.7	206	22	10.9
5-49	-	1,042	204	19.6	927	189	20.3	115	16	13.6
5-9	-	132	38	28.8	129	37	28.9	4	1	25.5
10-24	-	370	84	22.5	328	74	22.6	43	10	22.4
25-49	-	539	83	15.3	470	77	16.4	69	5	7.6
50-99	-	633	92	14.6	543	86	15.8	91	7	7.4
100-249	-	1,289	123	9.6	1,057	113	10.7	233	10	4.3
250-499	-	1,832	109	5.9	1,109	94	8.5	723	15	2.1
Medium and large companies										
500-999	-	1,024	76	7.4	750	61	8.1	273	15	5.5
1,000-4,999	-	4,828	346	7.2	3,064	233	7.6	1,764	114	6.5
5,000-9,999	-	3,304	199	6.0	1,916	113	5.9	1,388	86	6.2
10,000-24,999	-	4,076	273	6.7	2,689	204	7.6	1,387	70	5.0
25,000 or more	-	11,300	602	5.3	7,231	379	5.2	4,069	223	5.5

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

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

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

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

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

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

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

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

NAICS = 2007 North American Industry Classification System.

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

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

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

TABLE 33. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2011  
(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	2,025	1,521	504	1,471	1,118	352	554	403	151
Manufacturing industries	31–33	1,211	917	294	865	663	202	345	254	91
Food	311	36	21	15	29	17	12	7	4	4
Beverage and tobacco products	312	6	3	2	4	2	2	2	1	1
Textile, apparel, and leather products	313–316	8	5	3	7	4	3	1	*	*
Wood products	321	3	3	1	3	3	1	*	*	0
Paper	322	13	10	3	9	7	2	5	3	1
Printing and related support activities	323	3	2	1	3	2	1	*	*	*
Petroleum and coal products	324	6	5	1	5	4	1	1	1	*
Chemicals	325	225	126	99	160	91	70	65	36	30
Basic chemicals	3251	27	19	8	18	13	5	9	6	3
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	8	6	2	6	4	1	3	2	1
Pesticide, fertilizer, and other agricultural chemical	3253	8	5	3	6	4	2	2	1	1
Pharmaceuticals and medicines	3254	147	75	73	107	55	52	40	20	21
Soap, cleaning compound, and toilet preparation	3256	21	11	10	14	7	7	7	3	3
Paint, coating, adhesive, and other chemicals	3255, 3259	15	11	4	10	8	2	5	3	1
Plastics and rubber products	326	25	21	4	22	19	3	3	3	1
Nonmetallic mineral products	327	12	9	3	8	6	2	4	3 i	1
Primary metals	331	7	6	1	6	5	1	1	1	*
Fabricated metal products	332	33	29	3	31	28	3	2	1	*
Machinery	333	121	104	17	88	78	10	33	26	7
Agricultural implement	33311	9	9	1	7	7	1	2	2	*
Semiconductor machinery	333295	9	8	1	7	6	1	2	2	*
Engine, turbine, and power transmission equipment	3336	D	31	D	25	21	4	D	10	D
Other machinery	other 333	D	57	D	49	44	5	D	12	D
Computer and electronic products	334	392	304	88	258	202	56	133	101	32
Communications equipment	3342	79	62	17	52	41	11	27	21	6
Semiconductor and other electronic components	3344	153	118	35	87	69	18	66	50	17 i
Navigational, measuring, electromedical, and control instruments	3345	91	67	24 i	74	55	19	17	12	5 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	26	20	6 i	22	17	5 i	3	2	1 i
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	33	22	11 i	31	21	10	3	2	1 i
Other measuring and controlling device	other 3345	32	25	7	21	17	4	11	8	3
Other computer and electronic products	other 334	68	56	12	45	37	7	23	19	5
Electrical equipment, appliances, and components	335	53	45	7	29	25	4	24	20	4
Transportation equipment	336	198	172	26	145	126	20	53	46	7
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	106	92	13	61	54	8	44	38	6
Aerospace products and parts	3364	80	68	11 i	72	62	10 i	7	7	1
Aircraft, aircraft engine, and aircraft parts	336411–13	74	64 i	11 i	67 i	57 i	10 i	7	6	1
Guided missile, space vehicle, and related parts	336414–15, 336419	5	5	1	5	5	1	*	*	*
Military armored vehicle, tank, and tank component	336992	*	*	*	*	*	*	0	0	0
Other transportation equipment	other 336	13	11	2 i	11	10	2	1	1	* i
Furniture and related products	337	5	4	1	4	4	1	*	*	*

TABLE 33. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2011  
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Miscellaneous manufacturing	339	66	49	17	54	41	13	12	8	3
Medical equipment and supplies	3391	39	28	10	33	24	9	6	4	2
Other miscellaneous manufacturing	3399	27	21	6	21	17	5	6	4	2 i
Nonmanufacturing industries	21–23, 42–81	814	604	210	606	456	150	209	149	60
Mining, extraction, and support activities	21	14	12	2	11	9	2	3	2	*
Utilities	22	2	2	*	2	2	*	*	*	*
Wholesale trade	42	21 i	17 i	4 i	16 i	13 i	3 i	4 i	3 i	1 i
Electronic shopping and electronic auctions	454111–12	5	4 i	1 i	4	3 i	1 i	*	* i	*
Transportation and warehousing	48–49	1	1	*	1	1	*	* i	* i	* i
Information	51	326	255	71	232	181	51	94	74	20
Publishing	511	229	179	50	147	115	32	83	65	18
Newspaper, periodical, book, and directory publishers	5111	4	3 i	1	4	3 i	1	*	* i	*
Software publishers	5112	225	176	49	143	112	31	82	64	18
Telecommunications	517	24 i	18 i	6 i	22 i	17 i	5 i	1	1	*
Data processing, hosting, and related services	518	37	27	9	33	24	9	4	3	1
Other information	other 51	36	30	6	30	25	5	7	5	1
Finance and insurance	52	31	20	12	26	17	10	5	3	2
Real estate and rental and leasing	53	2	1	*	1	1	*	1	*	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	2	1	*	1	1	*	1	*	*
Other real estate and rental and leasing	other 53	*	*	*	*	*	*	*	*	*
Professional, scientific, and technical services	54	369	260	109	270	197	73	99	63	36
Architectural, engineering, and related services	5413	66	55	11	62	52	10	4	3	1
Computer systems design and related services	5415	156	124	32	103	82	21	53	42	11
Scientific research and development services	5417	97	50	48	73	41	31	25	8	16
Biotechnology research and development	541711	21	11	10	20	10	9	1	*	1
Physical, engineering, and life sciences (except biotechnology) research and development	541712	72	37	35	49	29	20	23	8	15
Social sciences and humanities research and development	541720	4	2 i	2 i	4	2 i	2 i	*	*	*
Other professional, scientific, and technical services	other 54	50	32	18	33	22	11	17	10 i	7
Health care services	621–23	9	4	4	9	4	4	* i	* i	* i
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	35	29	6	33	27	6	3	2	*
All companies (number of domestic employees)	–	2,025	1,521	504	1,471	1,118	352	554	403	151
Small companies <sup>a</sup>										
5–499	–	529	423	105	481	385	96	47	38	9
5–99	–	297	238	59	274	219	55	22	18	4
5–49	–	204	163	41	189	151	37	16	12	3
5–9	–	38	30	8	37	30	7	1	*	1
10–24	–	84	67	17	74	59	15	10	8	2
25–49	–	83	66	16	77	62	16	5	4	1
50–99	–	92	74	18	86	68	17	7	6	1
100–249	–	123	100	23	113	92	21	10	8	2

TABLE 33. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2011  
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
250–499	–	109	85	23	94	74	20	15	12	3
Medium and large companies										
500–999	–	76	58	18	61	46	15	15	12	3
1,000–4,999	–	346	258	88	233	173	59	114	85	29
5,000–9,999	–	199	136	63	113	80	33	86	56	30
10,000–24,999	–	273	197	77	204	147	57	70	49	20
25,000 or more	–	602	450	152	379	287	92	223	163	60

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 34. Worldwide R&D employment, by occupation, industry, and company size: 2011  
(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	2,025	1,398	403	225
Manufacturing industries	31–33	1,211	857	217	137
Food	311	36	20	8	8
Beverage and tobacco products	312	6	3	1	1
Textile, apparel, and leather products	313–316	8	3	3	1
Wood products	321	3	2	1	1
Paper	322	13	11	2	1
Printing and related support activities	323	3	1	1	1
Petroleum and coal products	324	6	4	2	1
Chemicals	325	225	145	47	33
Basic chemicals	3251	27	17	8	2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	8	4	3	1
Pesticide, fertilizer, and other agricultural chemical	3253	8	5	2	1
Pharmaceuticals and medicines	3254	147	93	28	26
Soap, cleaning compound, and toilet preparation	3256	21	16	3	2
Paint, coating, adhesive, and other chemicals	3255, 3259	15	10	4	1
Plastics and rubber products	326	25	14	8	4
Nonmetallic mineral products	327	12	7	4	1
Primary metals	331	7	3	2	2
Fabricated metal products	332	33	16	11	5
Machinery	333	121	90	22	9
Agricultural implement	33311	9	8	1	*
Semiconductor machinery	333295	9	7	2	1
Engine, turbine, and power transmission equipment	3336	D	D	5	2
Other machinery	other 333	D	D	14	6
Computer and electronic products	334	392	304	50	37
Communications equipment	3342	79	62	11	6
Semiconductor and other electronic components	3344	153	117	17	19
Navigational, measuring, electromedical, and control instruments	3345	91	67	16	8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	26	19	6 i	2
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	33	25	4	4
Other measuring and controlling device	other 3345	32	23	6	3
Other computer and electronic products	other 334	68	58 i	5	5
Electrical equipment, appliances, and components	335	53	39	11	4
Transportation equipment	336	198	153	26	19
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	106	78	16	11
Aerospace products and parts	3364	80	67	7	5
Aircraft, aircraft engine, and aircraft parts	336411–13	74	62 i	7	5 i
Guided missile, space vehicle, and related parts	336414–15, 336419	5	5	*	*
Military armored vehicle, tank, and tank component	336992	*	*	*	*

TABLE 34. Worldwide R&D employment, by occupation, industry, and company size: 2011  
(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)
Other transportation equipment	other 336	13	7	3	2 i
Furniture and related products	337	5	2	1	1
Miscellaneous manufacturing	339	66	41	17	8
Medical equipment and supplies	3391	39	26	8	5
Other miscellaneous manufacturing	3399	27	15	9	2
Nonmanufacturing industries	21–23, 42–81	814	541	186	88
Mining, extraction, and support activities	21	14	9	3	2
Utilities	22	2	1	1	*
Wholesale trade	42	21 i	11 i	6 i	4 i
Electronic shopping and electronic auctions	454111–12	5	1	2 i	1 i
Transportation and warehousing	48–49	1	1	*	*
Information	51	326	252	44	30
Publishing	511	229	182	21	26
Newspaper, periodical, book, and directory publishers	5111	4	3 i	*	1
Software publishers	5112	225	179	21	25
Telecommunications	517	24 i	20 i	3 i	1 i
Data processing, hosting, and related services	518	37	23	12	2
Other information	other 51	36	27	8	1
Finance and insurance	52	31	12	13	6
Real estate and rental and leasing	53	2	1	*	1
Lessors of nonfinancial intangible assets (except copyrighted works)	533	2	1	*	*
Other real estate and rental and leasing	other 53	*	*	*	*
Professional, scientific, and technical services	54	369	229	101	39
Architectural, engineering, and related services	5413	66	52	10	4
Computer systems design and related services	5415	156	97	50	9
Scientific research and development services	5417	97	49	27	21
Biotechnology research and development	541711	21	12	6	3
Physical, engineering, and life sciences (except biotechnology) research and development	541712	72	37	18	18
Social sciences and humanities research and development	541720	4	1	3 i	*
Other professional, scientific, and technical services	other 54	50	31	14	4 i
Health care services	621–23	9	4	3	1
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	35	19	11	5
All companies (number of domestic employees)	–	2,025	1,398	403	225
Small companies <sup>a</sup>					
5–499	–	529	325	139	65
5–99	–	297	182	80	34
5–49	–	204	128	53	23
5–9	–	38	24	11	4
10–24	–	84	54	20	9

TABLE 34. Worldwide R&D employment, by occupation, industry, and company size: 2011  
(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)
25-49	—	83	50	23	10
50-99	—	92	54	27	11
100-249	—	123	77	31	15
250-499	—	109	66	27	16
Medium and large companies					
500-999	—	76	45	19	12
1,000-4,999	—	346	232	76	38
5,000-9,999	—	199	131	31	36
10,000-24,999	—	273	190	55	29
25,000 or more	—	602	475	82	44

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 35. Domestic R&D employment, by occupation, industry, and company size: 2011  
(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	1,471	1,003	308	160
Manufacturing industries	31–33	865	603	163	99
Food	311	29	15 i	7	7
Beverage and tobacco products	312	4	2	1	1
Textile, apparel, and leather products	313–316	7	3	3	1
Wood products	321	3	2	1	1
Paper	322	9	7	1	1
Printing and related support activities	323	3	1	1	1
Petroleum and coal products	324	5	3	1	1
Chemicals	325	160	105	33	22
Basic chemicals	3251	18	11	5	1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	6	3	2	1
Pesticide, fertilizer, and other agricultural chemical	3253	6	4	1	*
Pharmaceuticals and medicines	3254	107	71	20	17
Soap, cleaning compound, and toilet preparation	3256	14	10	3	2
Paint, coating, adhesive, and other chemicals	3255, 3259	10	7	2	1
Plastics and rubber products	326	22	12	7	4
Nonmetallic mineral products	327	8	5	3	1
Primary metals	331	6	3	2	1
Fabricated metal products	332	31	15	11	5
Machinery	333	88	63	17	8
Agricultural implement	33311	7	6	1	*
Semiconductor machinery	333295	7	5	1	*
Engine, turbine, and power transmission equipment	3336	25	20	3	2
Other machinery	other 333	49	32	12	5
Computer and electronic products	334	258	203	34	21
Communications equipment	3342	52	42	7	4
Semiconductor and other electronic components	3344	87	68	11	8
Navigational, measuring, electromedical, and control instruments	3345	74	55	13	6
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	22	16	5 i	1
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	31	23	4	3
Other measuring and controlling device	other 3345	21	15	4	2
Other computer and electronic products	other 334	45	38	3	3
Electrical equipment, appliances, and components	335	29	21	6	2
Transportation equipment	336	145	110	20	15
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	61	42	11	8
Aerospace products and parts	3364	72	61 i	6	5 i
Aircraft, aircraft engine, and aircraft parts	336411–13	67 i	56 i	6	5 i
Guided missile, space vehicle, and related parts	336414–15, 336419	5	5	*	*
Military armored vehicle, tank, and tank component	336992	*	*	*	*

TABLE 35. Domestic R&D employment, by occupation, industry, and company size: 2011  
(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)
Other transportation equipment	other 336	11	7	2	2 i
Furniture and related products	337	4	2	1	1
Miscellaneous manufacturing	339	54	33	15	7
Medical equipment and supplies	3391	33	21	7	5
Other miscellaneous manufacturing	3399	21	11	8	2
Nonmanufacturing industries	21–23, 42–81	606	400	145	61
Mining, extraction, and support activities	21	11	7	3	1
Utilities	22	2	1	1	*
Wholesale trade	42	16 i	9 i	5	3 i
Electronic shopping and electronic auctions	454111–12	4	1	2 i	1 i
Transportation and warehousing	48–49	1	1	*	*
Information	51	232	178	36	18
Publishing	511	147	116	16	15
Newspaper, periodical, book, and directory publishers	5111	4	3 i	*	1
Software publishers	5112	143	113	16	14
Telecommunications	517	22 i	19 i	2 i	1 i
Data processing, hosting, and related services	518	33	21	11	1
Other information	other 51	30	22	7	1
Finance and insurance	52	26	10	11	5
Real estate and rental and leasing	53	1	1	*	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1	1	*	*
Other real estate and rental and leasing	other 53	*	*	*	*
Professional, scientific, and technical services	54	270	171	73	26
Architectural, engineering, and related services	5413	62	48	10	4
Computer systems design and related services	5415	103	63	33	7
Scientific research and development services	5417	73	40	20	13
Biotechnology research and development	541711	20	11	6	3
Physical, engineering, and life sciences (except biotechnology) research and development	541712	49	29	11	10
Social sciences and humanities research and development	541720	4	1	3 i	*
Other professional, scientific, and technical services	other 54	33	19	11	3
Health care services	621–23	9	4	3	1
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	33	17	11	5
All companies (number of domestic employees)	–	1,471	1,003	308	160
Small companies <sup>a</sup>					
5–499	–	481	291	131	60
5–99	–	274	165	76	32
5–49	–	189	116	51	21
5–9	–	37	23	10	4

TABLE 35. Domestic R&D employment, by occupation, industry, and company size: 2011  
(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)
10-24	-	74	48	19	7
25-49	-	77	45	22	10
50-99	-	86	50	25	11
100-249	-	113	70	29	14
250-499	-	94	56	25	13
Medium and large companies					
500-999	-	61	36	16	9
1,000-4,999	-	233	154	53	25
5,000-9,999	-	113	76	19	18
10,000-24,999	-	204	143	40	20
25,000 or more	-	379	302	49	28

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 36. Foreign R&D employment, by occupation, industry, and company size: 2011  
(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	554	395	95	65
Manufacturing industries	31–33	345	254	54	37
Food	311	7	5	1	1
Beverage and tobacco products	312	2	1	*	*
Textile, apparel, and leather products	313–316	1	*	*	*
Wood products	321	*	*	*	*
Paper	322	5	4	1	*
Printing and related support activities	323	*	*	*	*
Petroleum and coal products	324	1	1	*	*
Chemicals	325	65	39	14	11
Basic chemicals	3251	9	6	2	1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	3	1	1	*
Pesticide, fertilizer, and other agricultural chemical	3253	2	1	1	*
Pharmaceuticals and medicines	3254	40	23	8	9
Soap, cleaning compound, and toilet preparation	3256	7	6	1	1
Paint, coating, adhesive, and other chemicals	3255, 3259	5	3	1	*
Plastics and rubber products	326	3	2	1 i	*
Nonmetallic mineral products	327	4	2 i	2	*
Primary metals	331	1	1	*	*
Fabricated metal products	332	2	1	*	*
Machinery	333	33	27	4	2
Agricultural implement	33311	2	2	*	0
Semiconductor machinery	333295	2	2	*	*
Engine, turbine, and power transmission equipment	3336	D	D	1	*
Other machinery	other 333	D	D	3	1
Computer and electronic products	334	133	101	16	16
Communications equipment	3342	27	21	5	1
Semiconductor and other electronic components	3344	66	49	7	11
Navigational, measuring, electromedical, and control instruments	3345	17	12	3 i	2
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3	3	1 i	* i
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	3	2	*	*
Other measuring and controlling device	other 3345	11	7	2 i	1
Other computer and electronic products	other 334	23	20 i	2	2
Electrical equipment, appliances, and components	335	24	18	4	1 i
Transportation equipment	336	53	43	7	3
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	44	36	5	3
Aerospace products and parts	3364	7	6	1	1
Aircraft, aircraft engine, and aircraft parts	336411–13	7	6	1	1
Guided missile, space vehicle, and related parts	336414–15, 336419	*	*	*	0

TABLE 36. Foreign R&D employment, by occupation, industry, and company size: 2011  
(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)
Military armored vehicle, tank, and tank component	336992	0	0	0	0
Other transportation equipment	other 336	1	*	1	* i
Furniture and related products	337	*	*	*	*
Miscellaneous manufacturing	339	12	8	2	1
Medical equipment and supplies	3391	6	4	1	1
Other miscellaneous manufacturing	3399	6	4 i	1	*
Nonmanufacturing industries	21–23, 42–81	209	141	41	27
Mining, extraction, and support activities	21	3	2	*	* i
Utilities	22	*	*	*	*
Wholesale trade	42	4 i	2 i	1 i	1 i
Electronic shopping and electronic auctions	454111–12	*	*	*	*
Transportation and warehousing	48–49	* i	* i	*	0
Information	51	94	74	8	12
Publishing	511	83	67	5	11
Newspaper, periodical, book, and directory publishers	5111	*	* i	*	*
Software publishers	5112	82	66	5	11
Telecommunications	517	1	1	* i	* i
Data processing, hosting, and related services	518	4	2	1	*
Other information	other 51	7	5	1	*
Finance and insurance	52	5	2	2	1
Real estate and rental and leasing	53	1	*	*	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1	*	*	*
Other real estate and rental and leasing	other 53	*	*	*	*
Professional, scientific, and technical services	54	99	58	28	13
Architectural, engineering, and related services	5413	4	4	*	*
Computer systems design and related services	5415	53	34	17	3
Scientific research and development services	5417	25	9	7	8
Biotechnology research and development	541711	1	1	*	*
Physical, engineering, and life sciences (except biotechnology) research and development	541712	23	8	7	8
Social sciences and humanities research and development	541720	*	*	*	*
Other professional, scientific, and technical services	other 54	17	12 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	3	2	*	*
All companies (number of domestic employees)	–	554	395	95	65
Small companies <sup>a</sup>					
5–499	–	47	34	8	6
5–99	–	22	16	4	2
5–49	–	16	12	2	2

TABLE 36. Foreign R&D employment, by occupation, industry, and company size: 2011  
(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)
5-9	-	1	1	*	*
10-24	-	10	7	1	2
25-49	-	5	5	*	*
50-99	-	7	5	2	*
100-249	-	10	7	2	1
250-499	-	15	10	2	3
Medium and large companies					
500-999	-	15	9	3 i	3
1,000-4,999	-	114	78	23	13
5,000-9,999	-	86	55	12	18
10,000-24,999	-	70	46	15	8
25,000 or more	-	223	173	33	16

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 37. Domestic full-time equivalent R&D employees and R&D scientists and engineers, by work status, industry, and company size: 2011  
(Thousands)

Industry and company size	NAICS code	Total	FTE R&D employees <sup>a</sup>			FTE R&D scientists and engineers <sup>b</sup>			
			Full-time R&D employees	Full-time employees working on R&D part time	Part-time employees working on R&D	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	1,231	1,061	154 i	17	853	764	81 i	7 i
Manufacturing industries	31-33	723	623	91 i	8	520	466	50 i	4 i
Food	311	24	20	2 i	1	12 i	11	1 i	* i
Beverage and tobacco products	312	3 i	3	*	*	2 i	2	* i	*
Textile, apparel, and leather products	313-316	5	4	1	*	2	2	* i	* i
Wood products	321	2	1	1	*	1	1	*	*
Paper	322	7 i	6	1 i	* i	6 i	6	* i	* i
Printing and related support activities	323	2	1	1	* i	1	1	* i	* i
Petroleum and coal products	324	5 i	4 i	* i	* i	2 i	2 i	*	* i
Chemicals	325	145	140	4	2	97	94	2	1
Basic chemicals	3251	17 i	16	1	* i	10	10	1 i	*
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	5	5	* i	*	3 i	3	* i	* i
Pesticide, fertilizer, and other agricultural chemical	3253	5	5	*	*	4	4	* i	*
Pharmaceuticals and medicines	3254	95	93	1	1	65	63	1	*
Soap, cleaning compound, and toilet preparation	3256	14	13	*	*	10	10	*	* i
Paint, coating, adhesive, and other chemicals	3255, 3259	9	8	1	*	6	5	*	* i
Plastics and rubber products	326	16	10	6 i	* i	9	6	3 i	* i
Nonmetallic mineral products	327	6 i	4	2 i	*	3	2	1 i	* i
Primary metals	331	4	3	1 i	* i	2	2	* i	* i
Fabricated metal products	332	19	10	8 i	* i	10	7	4 i	* i
Machinery	333	74	63	10	1	56	50	6 i	*
Agricultural implement	33311	7	7	*	*	6	6	* i	*
Semiconductor machinery	333295	7 i	6	* i	* i	5 i	5	* i	*
Engine, turbine, and power transmission equipment	3336	22	21	1	*	18	17	1	*
Other machinery	other 333	38	29	9	1	27	22	5 i	* i
Computer and electronic products	334	236	213	22	1	190	174	15	1 i
Communications equipment	3342	49	47	2	*	40	38	1 i	* i
Semiconductor and other electronic components	3344	81 i	75 i	6 i	* i	66 i	62 i	4 i	* i
Navigational, measuring, electromedical, and control instruments	3345	63	50	12	1	47	38	9	*
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	22 i	21	1	*	16	15	1	*
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	23	13	9	*	18	11	7	*
Other measuring and controlling device	other 3345	18	16	2	*	14	12	1 i	* i
Other computer and electronic products	other 334	43	42	2 i	*	37 i	36 i	1 i	* i
Electrical equipment, appliances, and components	335	24	21	3 i	* i	19	17	2 i	* i
Transportation equipment	336	98	76	21 i	1	76	63	13 i	1 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	47	38	8	1	36	32	4 i	1 i
Aerospace products and parts	3364	43	31	12 i	*	36	27	9 i	* i

TABLE 37. Domestic full-time equivalent R&D employees and R&D scientists and engineers, by work status, industry, and company size: 2011  
(Thousands)

Industry and company size	NAICS code	FTE R&D employees <sup>a</sup>				FTE R&D scientists and engineers <sup>b</sup>			
		Total	Full-time R&D employees	Full-time employees working on R&D part time	Part-time employees working on R&D	Total	Full-time R&D employees	Full-time employees working on R&D part time	Part-time employees working on R&D
Aircraft, aircraft engine, and aircraft parts	336411-13	39	28	12 i	*	32	23	9 i	* i
Guided missile, space vehicle, and related parts	336414-15, 336419	4	4 i	*	*	4	4	*	* i
Military armored vehicle, tank, and tank component	336992	* i	* i	*	0	* i	* i	*	0
Other transportation equipment	other 336	7	6	1 i	*	5	4	* i	*
Furniture and related products	337	3	2	1	* i	2	1	*	*
Miscellaneous manufacturing	339	49	41	7 i	1	29	26	3 i	* i
Medical equipment and supplies	3391	30	28	2 i	*	20	19	1 i	* i
Other miscellaneous manufacturing	3399	18	14	5 i	*	9	7	2 i	* i
Nonmanufacturing industries	21-23, 42-81	509	437	63 i	9 i	333	298	31 i	4 i
Mining, extraction, and support activities	21	10	9	1 i	* i	5 i	5	* i	* i
Utilities	22	1	1	*	* i	1	1	*	* i
Wholesale trade	42	14 i	7 i	7 i	1	6 i	4 i	2 i	* i
Electronic shopping and electronic auctions	454111-12	4 i	3 i	* i	* i	1	1	* i	*
Transportation and warehousing	48-49	1	1	* i	0	1	1 i	* i	0
Information	51	216	204	9 i	3 i	167	160	6 i	2 i
Publishing	511	140	133	5 i	2	110	105	4 i	2
Newspaper, periodical, book, and directory publishers	5111	3 i	3 i	* i	*	2 i	2 i	*	*
Software publishers	5112	137	131	5 i	2	108	103	3 i	1
Telecommunications	517	22 i	21 i	1 i	* i	18 i	17 i	* i	* i
Data processing, hosting, and related services	518	30	28	2 i	* i	20	19	1 i	* i
Other information	other 51	24	22	1	*	20	19	1	* i
Finance and insurance	52	20	15	4	1	8	7	1 i	*
Real estate and rental and leasing	53	1	1	*	*	1	1	*	*
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1	1	*	*	1	1	*	*
Other real estate and rental and leasing	other 53	*	*	*	0	*	* i	0	0
Professional, scientific, and technical services	54	215	175	35 i	4 i	133	112	19 i	2 i
Architectural, engineering, and related services	5413	41	29	12 i	* i	31	23	8 i	* i
Computer systems design and related services	5415	77	64	13 i	1 i	51	44	7 i	* i
Scientific research and development services	5417	65	59	4	3 i	36	33	2	1 i
Biotechnology research and development	541711	18	16	1	* i	10	9	1	* i
Physical, engineering, and life sciences (except biotechnology) research and development	541712	44	40	2 i	1	25 i	24	1 i	1 i
Social sciences and humanities research and development	541720	4 i	3 i	* i	1 i	* i	*	* i	* i
Other professional, scientific, and technical services	other 54	30	23	6 i	1 i	15	12	3 i	* i
Health care services	621-23	6	6	* i	*	1	1	* i	* i
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	21	14	6 i	1 i	9	6	3 i	* i

TABLE 37. Domestic full-time equivalent R&D employees and R&D scientists and engineers, by work status, industry, and company size: 2011  
(Thousands)

Industry and company size	NAICS code	FTE R&D employees <sup>a</sup>				FTE R&D scientists and engineers <sup>b</sup>			
		Total	Full-time R&D employees	Full-time employees working on R&D part time	Part-time employees working on R&D	Total	Full-time R&D employees	Full-time employees working on R&D part time	Part-time employees working on R&D
All companies (number of domestic employees)	-	1,231	1,061	154 i	17	853	764	81 i	7 i
Small companies <sup>c</sup>									
5-499	-	378	291	79 i	8	231	191	37 i	3 i
5-99	-	217	159	51 i	6	130	102	26 i	2 i
5-49	-	151	110	36 i	5	90	72	17 i	2 i
5-9	-	31	24	6 i	1	17	14	3 i	* i
10-24	-	59	41	16 i	2	36	29	7 i	1 i
25-49	-	61	45	14 i	2	37	29	7 i	1 i
50-99	-	66	49	15 i	1	40	31	9 i	1 i
100-249	-	84	67	17 i	1 i	53	46	7 i	* i
250-499	-	77	66	11 i	1 i	48	43	5	* i
Medium and large companies									
500-999	-	51	44	6	*	32	28	3 i	* i
1,000-4,999	-	205	180	22 i	3 i	136	123	13 i	1 i
5,000-9,999	-	106	98	7 i	1	71	68	3 i	* i
10,000-24,999	-	178	160	17 i	1	121 i	110	11 i	1 i
25,000 or more	-	313	286	23	4	262	245	15 i	3

\* = amount < 500; i = value > 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.

<sup>a</sup> Includes scientists and engineers and their managers, as well as technicians, technologists, and support staff.

<sup>b</sup> Includes scientists and engineers and their managers.

<sup>c</sup> 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, 2011.

TABLE 38. U.S. patent applications and patents issued for companies with and without R&D activity, by industry and company size: 2011  
(Number)

Industry and company size	NAICS code	All companies		With R&D activity <sup>a</sup>		Without R&D activity	
		Applications	Patents issued <sup>b</sup>	Applications	Patents issued <sup>b</sup>	Applications	Patents issued <sup>b</sup>
All industries	21–23, 31–33, 42–81	135,958	101,201	119,366	79,215	16,591	21,986
Manufacturing industries	31–33	82,878	58,124	81,623	57,193	1,255	931
Food	311	2,810	1,276	2,805	1,274	5	2
Beverage and tobacco products	312	566	296	564	295	2	1
Textile, apparel, and leather products	313–316	634	469	625	464	9	5
Wood products	321	121	86	121	86	0	0
Paper	322	1,251	969	1,230	963	21	6
Printing and related support activities	323	279	123	227	114	53	9
Petroleum and coal products	324	693	463	693	463	0	0
Chemicals	325	15,192	8,558	14,777	8,468	415	90
Basic chemicals	3251	4,301	1,302	3,943	1,248	358	54
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	745	506	736	506	10	0
Pesticide, fertilizer, and other agricultural chemical	3253	1,078	700	1,077	700	1	0
Pharmaceuticals and medicines	3254	6,777	4,405	6,768	4,385	9	19
Soap, cleaning compound, and toilet preparation	3256	1,582	1,145	1,575	1,145	7	0
Paint, coating, adhesive, and other chemicals	3255, 3259	708	500	678	484	30	16
Plastics and rubber products	326	2,276	1,572	2,166	1,461	110	110
Nonmetallic mineral products	327	924	476	913	471	11	5
Primary metals	331	463	235	450	227	13	8
Fabricated metal products	332	1,989	1,779	1,817	1,368	172	411
Machinery	333	9,581	6,064	9,499	6,036	82	28
Agricultural implement	33311	661	448	637	442	23	6
Semiconductor machinery	333295	1,244	827	1,243	827	1	0
Engine, turbine, and power transmission equipment	3336	3,331	1,974	3,327	1,973	4	1
Other machinery	other 333	4,345	2,815	4,291	2,794	54	20
Computer and electronic products	334	26,269	23,042	26,207	22,977	62	65
Communications equipment	3342	4,054	3,064	4,054	3,064	0	0
Semiconductor and other electronic components	3344	11,391	10,460	11,384	10,456	7	4
Navigational, measuring, electromedical, and control instruments	3345	5,236	4,394	5,181	4,333	55	61
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,692	1,142	1,692	1,142	0	0
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	2,179	2,236	2,179	2,236	0	0
Other measuring and controlling device	other 3345	1,364	1,016	1,309	955	55	61
Other computer and electronic products	other 334	5,588	5,124	5,588	5,124	0	0
Electrical equipment, appliances, and components	335	3,233	2,145	3,216	2,128	17	17
Transportation equipment	336	7,370	4,712	7,213	4,638	157	74
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	4,268	2,679	4,118	2,605	151	74
Aerospace products and parts	3364	2,814	1,905	2,814	1,905	0	0
Aircraft, aircraft engine, and aircraft parts	336411–13	2,713	1,830	2,713	1,830	0	0
Guided missile, space vehicle, and related parts	336414–15, 336419	101	75	101	75	0	0

TABLE 38. U.S. patent applications and patents issued for companies with and without R&D activity, by industry and company size: 2011  
(Number)

Industry and company size	NAICS code	All companies		With R&D activity <sup>a</sup>		Without R&D activity	
		Applications	Patents issued <sup>b</sup>	Applications	Patents issued <sup>b</sup>	Applications	Patents issued <sup>b</sup>
Military armored vehicle, tank, and tank component	336992	14	2	14	2	0	0
Other transportation equipment	other 336	274	126	267	126	7	0
Furniture and related products	337	521	273	510	259	11	14
Miscellaneous manufacturing	339	8,705	5,588	8,590	5,501	115	87
Medical equipment and supplies	3391	6,362	3,872	6,304	3,822	58	50
Other miscellaneous manufacturing	3399	2,343	1,716	2,286	1,679	57	37
Nonmanufacturing industries	21–23, 42–81	53,080	43,077	37,743	22,021	15,337	21,056
Mining, extraction, and support activities	21	2,872	1,497	2,813	1,482	59	15
Utilities	22	128	30	121	29	7	1
Wholesale trade	42	6,958	3,715	1,880	855	5,078	2,859
Electronic shopping and electronic auctions	454111–12	974	240	961	236	13	4
Transportation and warehousing	48–49	337	35	83	33	254	2
Information	51	16,615	12,828	16,404	12,729	210	99
Publishing	511	9,015	10,501	9,009	10,494	6	7
Newspaper, periodical, book, and directory publishers	5111	25	23	19	16	6	7
Software publishers	5112	8,990	10,478	8,990	10,478	0	0
Telecommunications	517	1,414	970	1,391	959	23	11
Data processing, hosting, and related services	518	1,013	441	892	413	121	28
Other information	other 51	5,172	915	5,112	862	60	53
Finance and insurance	52	1,126	582	902	497	224	85
Real estate and rental and leasing	53	432	317	381	317	51	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	265	283	265	283	0	0
Other real estate and rental and leasing	other 53	167	34	116	34	51	0
Professional, scientific, and technical services	54	12,061	6,439	11,635	4,833	426	1,606
Architectural, engineering, and related services	5413	1,979	940	1,765	896	213	44
Computer systems design and related services	5415	2,695	1,084	2,614	1,081	81	3
Scientific research and development services	5417	6,125	2,600	6,041	2,555	84	45
Biotechnology research and development	541711	2,993	1,030	2,975	1,021	18	9
Physical, engineering, and life sciences (except biotechnology) research and development	541712	3,120	1,568	3,054	1,532	66	36
Social sciences and humanities research and development	541720	13	2	13	2	0	0
Other professional, scientific, and technical services	other 54	1,262	1,815	1,214	302	48	1,514
Health care services	621–23	1,752	104	252	104	1,500	0
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	9,825	17,291	2,310	907	7,515	16,384
All companies (number of domestic employees)	–	135,958	101,201	119,366	79,215	16,591	21,986
Small companies <sup>c</sup>							
5–499	–	48,267	36,852	32,334	15,239	15,933	21,613
5–99	–	36,387	30,068	20,785	8,565	15,602	21,503

TABLE 38. U.S. patent applications and patents issued for companies with and without R&D activity, by industry and company size: 2011  
(Number)

Industry and company size	NAICS code	All companies		With R&D activity <sup>a</sup>		Without R&D activity	
		Applications	Patents issued <sup>b</sup>	Applications	Patents issued <sup>b</sup>	Applications	Patents issued <sup>b</sup>
5-49	-	27,277	24,584	15,733	5,781	11,543	18,802
5-9	-	5,830	18,165	3,830	1,203	1,999	16,962
10-24	-	12,279	3,993	5,431	2,850	6,848	1,143
25-49	-	9,168	2,425	6,472	1,728	2,696	697
50-99	-	9,111	5,485	5,052	2,784	4,059	2,701
100-249	-	6,368	2,961	6,098	2,877	270	84
250-499	-	5,511	3,823	5,450	3,797	61	26
Medium and large companies							
500-999	-	3,998	2,682	3,977	2,663	21	19
1,000-4,999	-	18,706	12,514	18,538	12,423	168	91
5,000-9,999	-	10,031	8,136	9,945	8,076	86	60
10,000-24,999	-	21,381	11,157	21,310	11,124	71	33
25,000 or more	-	33,575	29,859	33,263	29,689	312	170

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

<sup>b</sup> 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.

<sup>c</sup> 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 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, 2011.

TABLE 39. Importance of utility patents for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	1.9	2.6	95.6	20.5	13.4	66.1	1.0	2.0	97.0
Manufacturing industries	31–33	7.6	7.3	85.1	25.9	18.2	55.9	2.2	4.2	93.6
Food	311	4.6	3.2	92.2	9.5	4.7	85.8	3.4	2.8	93.8
Beverage and tobacco products	312	0.9	2.3	96.8	7.0	5.2	87.7	D	D	98.0
Textile, apparel, and leather products	313–316	5.9	5.8	88.3	17.9	7.5	74.6	3.5	5.5	91.0
Wood products	321	2.4	1.3	96.2	27.9	6.5	65.6	0.7	1.0	98.4
Paper	322	5.1	11.6	83.2	16.2	17.2	66.5	2.2	10.2	87.6
Printing and related support activities	323	1.8	3.5	94.7	12.5	12.6	74.9	1.3	3.0	95.7
Petroleum and coal products	324	4.1	31.8	64.1	6.9	59.8	33.3	D	D	92.7
Chemicals	325	19.8	12.2	68.1	32.4	18.5	49.2	S	4.4	91.2
Basic chemicals	3251	27.8	17.4	54.8	45.2	23.8	31.0	3.7	8.6	87.6
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	S	S	S	34.3	23.4	42.3	S	S	S
Pesticide, fertilizer, and other agricultural chemical	3253	7.6	33.9	58.5	14.0	66.7	19.3	1.9	4.4	93.7
Pharmaceuticals and medicines	3254	31.9	12.3	55.8	47.0	14.5	38.4	1.4	7.9	90.7
Soap, cleaning compound, and toilet preparation	3256	21.5	3.8	74.7	28.2	5.8	66.1	8.6	0.0	91.4
Paint, coating, adhesive, and other chemicals	3255, 3259	8.3	7.2	84.5	15.3	13.6	71.1	2.6	2.0	95.4
Plastics and rubber products	326	8.1	9.9	82.0	19.2	22.3	58.5	3.2	4.5	92.4
Nonmetallic mineral products	327	2.7	4.4	92.9	18.4	8.6	73.1	1.1	3.9	94.9
Primary metals	331	5.8	8.7	85.5	19.9	17.9	62.2	2.6	6.5	90.9
Fabricated metal products	332	3.6	5.9	90.5	20.5	10.9	68.6	1.5	5.3	93.2
Machinery	333	12.3	12.3	75.4	28.6	25.3	46.1	3.3	5.2	91.5
Agricultural implement	33311	19.3	19.0	61.7	30.8	23.9	45.4	9.0	14.7	76.3
Semiconductor machinery	333295	24.9	5.2	69.9	60.5	13.5	26.0	D	0.0	D
Engine, turbine, and power transmission equipment	3336	18.6	20.0	61.4	28.0	35.1	36.8	8.5	3.8	87.7
Other machinery	other 333	11.5	11.8	76.6	27.9	25.0	47.1	3.0	5.0	92.1
Computer and electronic products	334	20.8	13.2	66.0	32.8	20.1	47.1	5.3	4.2	90.5
Communications equipment	3342	17.7	27.2	55.0	24.9	39.8	35.2	D	D	S
Semiconductor and other electronic components	3344	23.5	7.5	69.0	43.1	9.5	47.4	6.5	5.7	87.7
Navigational, measuring, electromedical, and control instruments	3345	20.1	14.0	65.8	29.7	21.1	49.2	6.2	3.9	89.9
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	38.3	10.9	50.8	63.6	18.1	18.3	0.0	0.0	100.0
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	16.0	23.4	60.6	20.6	30.0	49.4	0.0	0.0	100.0
Other measuring and controlling device	other 3345	17.9	13.3	68.8	25.9	20.0	54.1	7.5	4.6	87.9
Other computer and electronic products	other 334	19.3	11.8	68.9	30.3	17.4	52.3	D	D	D
Electrical equipment, appliances, and components	335	15.6	19.1	65.3	26.0	34.0	40.0	4.2	2.6	93.2
Transportation equipment	336	8.4	9.8	81.8	18.5	19.2	62.3	3.6	5.4	91.0
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	8.0	6.7	85.3	17.3	17.7	65.0	4.3	2.3	93.3

TABLE 39. Importance of utility patents for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Aerospace products and parts	3364	10.8	11.1	78.1	19.9	25.2	54.8	3.7	0.0	96.3
Aircraft, aircraft engine, and aircraft parts	336411-13	10.0	11.0	79.1	18.1	25.3	56.6	3.8	0.0	96.2
Guided missile, space vehicle, and related parts	336414-15, 336419	34.5	13.8	S	58.8	23.5	17.6	S	S	S
Military armored vehicle, tank, and tank component	336992	D	D	D	D	D	D	0.0	D	D
Other transportation equipment	other 336	8.2	17.2	74.7	20.1	18.3	61.6	1.7	16.6	81.7
Furniture and related products	337	2.2	3.4	94.4	21.5	9.9	68.5	0.5	2.8	96.7
Miscellaneous manufacturing	339	14.6	8.2	77.2	42.5	18.3	39.2	3.0	4.0	93.1
Medical equipment and supplies	3391	19.0	11.5	69.5	49.7	21.2	29.1	3.1	6.5	90.4
Other miscellaneous manufacturing	3399	11.9	6.1	82.0	36.7	16.0	47.3	2.9	2.5	94.6
Nonmanufacturing industries	21-23, 42-81	1.4	2.1	96.5	16.8	10.1	73.1	0.9	1.9	97.2
Mining, extraction, and support activities	21	2.9	1.8	95.3	31.1	14.5	54.5	1.6	1.2	97.1
Utilities	22	8.5	2.8	88.8	67.4	14.3	18.4	D	D	98.7
Wholesale trade	42	4.2	4.7	91.1	17.6	13.9	68.5	3.3	4.0	92.6
Electronic shopping and electronic auctions	454111-12	2.7	3.5	93.8	7.6	21.2	71.2	2.1	1.2	96.7
Transportation and warehousing	48-49	0.0	1.0	99.0	6.5	9.2	84.3	0.0	1.0	99.0
Information	51	6.2	5.2	88.6	18.1	11.9	70.1	2.3	3.0	94.7
Publishing	511	7.4	4.1	88.5	18.9	11.0	70.1	2.5	1.2	96.4
Newspaper, periodical, book, and directory publishers	5111	D	D	98.4	0.0	4.4	95.6	D	D	98.6
Software publishers	5112	22.8	10.1	67.1	22.6	12.3	65.1	23.5	D	D
Telecommunications	517	2.3	6.0	91.6	14.2	15.0	70.8	0.7	4.8	94.5
Data processing, hosting, and related services	518	16.2	8.0	75.8	27.8	9.4	62.7	6.8	6.7	86.5
Other information	other 51	2.1	5.1	92.8	5.4	15.9	78.7	1.5	3.2	95.3
Finance and insurance	52	0.1	0.9	99.0	1.2	14.1	84.7	0.0	0.2	99.8
Real estate and rental and leasing	53	0.0	0.9	99.0	3.8	1.3	94.9	0.0	0.9	99.1
Lessors of nonfinancial intangible assets (except copyrighted works)	533	2.2	D	D	39.1	D	D	D	0.0	D
Other real estate and rental and leasing	other 53	0.0	0.9	99.0	1.4	1.1	97.5	0.0	0.9	99.1
Professional, scientific, and technical services	54	4.5	3.3	92.2	23.7	11.9	64.4	2.2	2.3	95.5
Architectural, engineering, and related services	5413	6.2	2.3	91.6	35.0	6.7	58.3	2.2	1.7	96.1
Computer systems design and related services	5415	7.3	8.0	84.8	13.0	12.5	74.5	3.9	5.3	90.8
Scientific research and development services	5417	42.3	14.3	43.5	49.6	14.5	36.0	S	13.6	74.5
Biotechnology research and development	541711	60.6	8.4	31.0	64.1	8.3	27.6	S	S	S
Physical, engineering, and life sciences (except biotechnology) research and development	541712	37.5	18.2	44.3	44.0	17.9	38.1	7.6	19.8	72.6
Social sciences and humanities research and development	541720	3.3	2.0	94.7	6.1	D	D	D	D	D
Other professional, scientific, and technical services	other 54	2.4	2.3	95.3	16.0	13.3	70.7	2.0	2.0	96.1
Health care services	621-23	0.2	0.9	98.9	2.8	0.5	96.8	D	D	98.9
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	0.7	2.0	97.3	8.2	1.8	90.0	0.7	2.0	97.4

TABLE 39. Importance of utility patents for companies with and without R&D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All companies (number of domestic employees)	–	1.9	2.6	95.6	20.5	13.4	66.1	1.0	2.0	97.0
Small companies <sup>b</sup>										
5–499	–	1.8	2.5	95.7	19.4	13.2	67.3	1.0	2.1	97.0
5–99	–	1.7	2.4	96.0	18.9	12.6	68.5	1.0	1.9	97.1
5–49	–	1.6	2.3	96.0	18.7	12.1	69.2	1.0	2.0	97.0
5–9	–	1.6	2.1	96.3	19.3	8.8	71.8	1.0	1.9	97.1
10–24	–	1.5	2.3	96.1	17.0	13.9	69.1	1.0	1.9	97.1
25–49	–	2.1	2.9	94.9	20.3	14.1	65.6	1.0	2.3	96.8
50–99	–	2.2	2.6	95.2	20.5	15.6	63.8	0.9	1.7	97.4
100–249	–	3.2	5.5	91.4	23.2	15.0	61.8	0.6	4.2	95.2
250–499	–	5.2	9.4	85.4	21.6	22.6	55.8	1.1	6.1	92.8
Medium and large companies										
500–999	–	8.4	4.5	87.1	36.5	17.6	46.0	0.8	1.0	98.1
1,000–4,999	–	15.8	6.2	78.1	49.4	17.9	32.7	3.3	1.8	94.9
5,000–9,999	–	18.0	5.8	76.2	47.3	11.4	41.4	2.6	2.8	94.5
10,000–24,999	–	26.2	9.6	64.3	70.7	19.1	10.2	4.4	4.9	90.7
25,000 or more	–	41.1	17.1	41.8	68.6	16.3	15.1	9.1	17.9	73.0

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.

<sup>a</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

<sup>b</sup> 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, 2011.

TABLE 40. Importance of design patents for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	1.9	3.4	94.7	14.5	16.0	69.5	1.3	2.8	95.9
Manufacturing industries	31–33	6.0	9.4	84.6	16.4	21.7	61.8	3.0	5.9	91.1
Food	311	3.2	4.8	91.9	4.2	9.6	86.2	3.0	3.6	93.3
Beverage and tobacco products	312	2.8	7.1	90.0	8.4	7.8	83.7	2.1	7.0	90.8
Textile, apparel, and leather products	313–316	9.1	9.6	81.3	16.1	13.0	70.9	7.8	8.9	83.3
Wood products	321	0.9	2.2	96.9	8.2	12.6	79.2	0.4	1.5	98.1
Paper	322	5.6	12.5	81.9	18.2	18.5	63.3	2.3	10.9	86.8
Printing and related support activities	323	2.0	5.5	92.5	12.5	15.0	72.5	1.5	5.0	93.5
Petroleum and coal products	324	2.9	7.5	89.6	4.4	9.1	86.6	D	D	92.4
Chemicals	325	8.0	13.7	78.3	8.7	17.6	73.7	7.2	8.8	84.0
Basic chemicals	3251	3.8	36.7	59.6	6.3	46.8	46.9	D	D	76.9
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	S	S	S	S	26.9	51.0	S	S	S
Pesticide, fertilizer, and other agricultural chemical	3253	3.7	4.1	92.1	4.8	4.2	90.9	2.7	4.1	93.2
Pharmaceuticals and medicines	3254	12.2	15.0	72.7	12.2	14.2	73.6	D	D	70.9
Soap, cleaning compound, and toilet preparation	3256	6.5	5.5	88.1	6.0	7.8	86.2	7.4	D	D
Paint, coating, adhesive, and other chemicals	3255, 3259	5.7	7.3	87.0	6.9	8.9	84.2	4.7	6.0	89.3
Plastics and rubber products	326	9.0	8.3	82.7	17.0	20.2	62.8	5.5	3.0	91.4
Nonmetallic mineral products	327	2.4	6.9	90.7	12.2	11.4	76.4	1.4	6.4	92.2
Primary metals	331	3.8	14.0	82.2	10.8	22.1	67.1	2.2	12.1	85.7
Fabricated metal products	332	3.2	7.5	89.3	19.8	18.6	61.6	1.1	6.2	92.7
Machinery	333	10.1	15.7	74.2	21.9	26.4	51.7	3.6	9.8	86.6
Agricultural implement	33311	16.7	25.2	58.1	24.3	35.8	39.9	9.9	S	74.2
Semiconductor machinery	333295	7.4	11.3	81.3	15.2	27.3	57.5	D	D	D
Engine, turbine, and power transmission equipment	3336	13.1	20.8	66.0	18.3	35.0	46.8	7.6	5.7	86.7
Other machinery	other 333	9.7	15.2	75.1	22.1	25.3	52.6	3.2	9.9	86.9
Computer and electronic products	334	10.5	17.5	72.0	15.2	26.7	58.1	4.4	5.6	90.1
Communications equipment	3342	9.1	29.4	61.5	11.7	43.0	45.3	S	S	S
Semiconductor and other electronic components	3344	9.0	13.5	77.5	14.5	21.5	64.1	4.3	6.6	89.1
Navigational, measuring, electromedical, and control instruments	3345	10.9	16.5	72.6	15.1	24.1	60.8	4.8	5.4	89.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	19.8	12.0	68.2	32.8	19.9	47.3	0.0	0.0	100.0
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	13.5	34.2	52.4	17.3	43.8	38.9	0.0	0.0	100.0
Other measuring and controlling device	other 3345	9.2	14.9	75.9	11.8	21.3	66.8	5.8	6.4	87.7
Other computer and electronic products	other 334	13.8	19.0	67.3	19.7	26.8	53.5	3.6	5.5	90.9
Electrical equipment, appliances, and components	335	9.3	23.9	66.7	15.3	40.6	44.1	2.7	5.5	91.7
Transportation equipment	336	10.6	12.0	77.4	20.5	23.0	56.4	5.9	6.7	87.4
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	10.8	9.9	79.4	19.8	28.3	51.9	7.2	2.5	90.3

TABLE 40. Importance of design patents for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Aerospace products and parts	3364	7.5	9.8	82.7	12.6	20.1	67.4	3.5	D	D
Aircraft, aircraft engine, and aircraft parts	336411-13	7.4	9.1	83.5	12.3	20.2	67.5	3.6	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	10.3	S	60.3	17.6	17.6	64.7	S	D	D
Military armored vehicle, tank, and tank component	336992	D	D	D	D	D	76.4	0.0	D	D
Other transportation equipment	other 336	12.3	18.8	68.9	27.9	15.1	57.0	3.7	20.8	75.5
Furniture and related products	337	6.4	3.8	89.8	21.1	20.5	58.4	5.1	2.3	92.5
Miscellaneous manufacturing	339	10.6	11.2	78.2	25.0	24.0	51.0	4.5	5.9	89.7
Medical equipment and supplies	3391	9.6	14.8	75.6	18.0	32.2	49.8	5.2	5.8	88.9
Other miscellaneous manufacturing	3399	11.2	8.9	79.9	30.7	17.3	52.0	4.0	5.9	90.1
Nonmanufacturing industries	21-23, 42-81	1.5	2.8	95.6	13.3	12.1	74.7	1.2	2.6	96.2
Mining, extraction, and support activities	21	2.1	1.7	96.2	16.8	17.3	66.0	1.4	1.0	97.6
Utilities	22	7.1	2.3	90.6	57.3	13.5	29.1	0.0	0.7	99.3
Wholesale trade	42	5.4	6.3	88.3	20.4	15.2	64.4	4.4	5.7	89.9
Electronic shopping and electronic auctions	454111-12	3.0	4.7	92.3	11.4	23.0	65.5	1.8	2.3	95.9
Transportation and warehousing	48-49	0.0	0.8	99.1	6.9	11.3	81.8	D	D	99.2
Information	51	4.8	7.3	87.9	11.5	12.8	75.7	2.6	5.5	91.9
Publishing	511	5.5	9.5	85.0	9.8	14.4	75.8	3.6	7.4	89.0
Newspaper, periodical, book, and directory publishers	5111	2.7	6.5	90.8	0.0	7.4	92.6	2.9	6.4	90.7
Software publishers	5112	11.4	16.0	72.6	11.7	15.8	72.5	10.3	17.0	72.8
Telecommunications	517	1.0	5.7	93.2	4.5	11.8	83.7	0.6	4.9	94.5
Data processing, hosting, and related services	518	12.4	9.7	77.9	20.4	12.4	67.2	5.8	7.4	86.8
Other information	other 51	2.3	4.5	93.2	6.6	9.9	83.6	1.6	3.5	94.9
Finance and insurance	52	0.1	0.9	99.1	0.7	13.9	85.5	0.0	0.2	99.8
Real estate and rental and leasing	53	0.2	0.0	99.8	2.1	1.6	96.3	0.2	0.0	99.8
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0.8	1.1	98.1	17.9	20.1	62.0	0.0	D	D
Other real estate and rental and leasing	other 53	0.2	0.0	99.8	1.1	D	D	0.2	0.0	99.8
Professional, scientific, and technical services	54	3.7	5.7	90.6	15.2	15.4	69.5	2.3	4.5	93.1
Architectural, engineering, and related services	5413	7.0	3.8	89.2	18.1	18.2	63.7	5.5	1.8	92.7
Computer systems design and related services	5415	6.3	10.6	83.1	9.0	18.5	72.5	4.7	5.9	89.4
Scientific research and development services	5417	12.8	18.2	69.0	14.5	19.6	65.9	S	S	81.8
Biotechnology research and development	541711	11.8	12.8	75.4	12.1	13.0	75.0	S	S	S
Physical, engineering, and life sciences (except biotechnology) research and development	541712	14.5	22.3	63.3	16.2	23.4	60.3	S	17.0	76.6
Social sciences and humanities research and development	541720	D	D	97.5	0.0	5.8	94.2	D	0.0	D
Other professional, scientific, and technical services	other 54	2.1	4.8	93.0	26.8	2.5	70.7	1.3	4.9	93.8
Health care services	621-23	0.2	1.1	98.7	0.2	2.6	97.1	D	D	98.7
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1.1	2.5	96.4	12.8	2.1	85.1	1.0	2.5	96.5

TABLE 40. Importance of design patents for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All companies (number of domestic employees)	–	1.9	3.4	94.7	14.5	16.0	69.5	1.3	2.8	95.9
Small companies <sup>b</sup>										
5–499	–	1.8	3.3	94.8	13.8	15.6	70.6	1.3	2.8	95.9
5–99	–	1.8	3.1	95.1	13.2	14.7	72.1	1.3	2.6	96.0
5–49	–	1.7	3.0	95.3	12.9	13.8	73.3	1.3	2.6	96.1
5–9	–	1.3	2.9	95.7	9.6	10.8	79.5	1.1	2.7	96.2
10–24	–	1.7	3.2	95.1	13.4	16.8	69.9	1.3	2.7	96.0
25–49	–	2.6	2.9	94.5	17.1	13.5	69.5	1.7	2.3	96.0
50–99	–	2.6	4.0	93.5	14.9	20.5	64.6	1.7	2.8	95.4
100–249	–	3.0	7.9	89.1	18.0	19.9	62.2	1.0	6.3	92.7
250–499	–	5.0	9.9	85.2	16.2	24.9	58.9	2.2	6.2	91.6
Medium and large companies										
500–999	–	5.0	6.5	88.5	19.9	23.6	56.5	1.1	2.0	97.0
1,000–4,999	–	15.7	10.1	74.2	41.4	21.8	36.9	3.2	4.5	92.3
5,000–9,999	–	7.9	10.0	82.0	18.7	24.3	56.9	2.3	2.6	95.1
10,000–24,999	–	11.1	12.0	76.9	28.6	29.6	41.9	2.7	3.5	93.8
25,000 or more	–	20.7	24.6	54.7	29.7	31.6	38.7	10.4	16.4	73.2

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Statistics are representative of companies located in the United States that performed or funded R&D.<sup>b</sup> 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&amp;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&amp;D and Innovation Survey, 2011.

TABLE 41. Importance of trademarks for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	6.1	8.2	85.7	29.6	27.8	42.6	5.0	7.3	87.7
Manufacturing industries	31–33	13.7	14.7	71.6	33.0	29.5	37.5	8.1	10.5	81.4
Food	311	15.1	18.5	66.4	32.2	28.6	39.2	10.7	16.0	73.3
Beverage and tobacco products	312	33.9	15.4	50.7	48.9	19.9	31.2	32.0	14.9	53.2
Textile, apparel, and leather products	313–316	17.7	19.6	62.7	38.4	19.0	42.6	13.7	19.7	66.6
Wood products	321	2.7	8.9	88.4	16.9	36.2	47.0	1.7	7.0	91.2
Paper	322	13.8	16.3	69.9	31.2	25.5	43.3	9.3	13.8	76.9
Printing and related support activities	323	6.6	11.8	81.6	15.9	36.1	48.0	6.2	10.6	83.3
Petroleum and coal products	324	17.2	47.4	35.4	26.9	64.6	8.5	8.2	31.4	60.3
Chemicals	325	30.7	29.0	40.3	40.8	40.2	19.0	18.4	15.2	66.4
Basic chemicals	3251	35.1	26.4	38.5	45.0	40.8	14.2	21.5	6.5	72.0
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	S	S	S	60.0	16.6	23.4	S	S	S
Pesticide, fertilizer, and other agricultural chemical	3253	12.8	60.5	26.7	19.5	77.6	3.0	6.9	45.3	47.8
Pharmaceuticals and medicines	3254	39.5	27.6	32.9	40.4	36.4	23.1	37.7	9.9	52.4
Soap, cleaning compound, and toilet preparation	3256	39.2	32.3	28.5	46.1	40.2	13.7	25.9	17.1	56.9
Paint, coating, adhesive, and other chemicals	3255, 3259	20.7	22.8	56.5	34.1	38.8	27.1	9.9	9.8	80.3
Plastics and rubber products	326	16.8	15.3	67.9	27.6	35.2	37.2	12.0	6.5	81.5
Nonmetallic mineral products	327	8.5	11.4	80.1	23.3	23.2	53.5	6.9	10.2	82.9
Primary metals	331	14.6	11.4	74.0	30.6	22.2	47.1	10.9	8.8	80.3
Fabricated metal products	332	6.9	9.2	83.8	23.9	19.2	56.9	4.8	8.0	87.2
Machinery	333	14.1	17.1	68.7	30.6	27.7	41.7	5.1	11.3	83.7
Agricultural implement	33311	19.5	26.1	54.4	24.6	34.9	40.5	15.0	S	66.8
Semiconductor machinery	333295	18.0	38.7	43.4	42.5	34.0	23.5	D	D	55.9
Engine, turbine, and power transmission equipment	3336	21.0	23.7	55.3	30.7	39.0	30.3	10.6	7.3	82.1
Other machinery	other 333	13.5	16.1	70.4	30.7	26.5	42.8	4.6	10.6	84.8
Computer and electronic products	334	22.8	20.3	56.9	34.5	26.8	38.7	S	11.9	80.6
Communications equipment	3342	22.3	29.6	48.2	25.0	41.9	33.2	S	S	S
Semiconductor and other electronic components	3344	13.9	17.6	68.5	23.6	26.1	50.3	5.6	10.4	84.1
Navigational, measuring, electromedical, and control instruments	3345	22.3	19.8	57.9	31.6	25.5	42.9	9.0	11.5	79.5
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	21.9	45.8	32.3	36.3	53.5	10.1	0.0	34.2	65.8
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	20.4	11.1	68.6	25.4	14.2	60.4	D	0.0	D
Other measuring and controlling device	other 3345	22.7	17.0	60.4	31.9	23.0	45.1	10.6	9.1	80.2
Other computer and electronic products	other 334	43.5	19.8	36.7	67.1	17.9	15.0	2.8	23.2	74.0
Electrical equipment, appliances, and components	335	18.6	22.5	58.9	29.5	38.2	32.3	6.4	5.2	88.4
Transportation equipment	336	18.0	18.9	63.1	28.2	36.1	35.6	13.2	10.7	76.1
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	11.2	16.0	72.8	27.4	34.0	38.6	4.8	8.8	86.4

TABLE 41. Importance of trademarks for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Aerospace products and parts	3364	11.9	14.1	74.0	22.9	18.8	58.3	3.3	10.4	86.3
Aircraft, aircraft engine, and aircraft parts	336411-13	11.6	12.9	75.5	22.3	17.4	60.3	3.4	9.5	87.2
Guided missile, space vehicle, and related parts	336414-15, 336419	20.7	46.6	32.8	35.3	47.1	17.6	S	D	D
Military armored vehicle, tank, and tank component	336992	0.0	13.0	87.0	0.0	D	D	0.0	D	D
Other transportation equipment	other 336	39.1	28.9	32.0	34.2	52.0	13.8	41.8	16.3	41.9
Furniture and related products	337	9.3	4.4	86.3	35.9	22.3	41.8	7.0	2.8	90.2
Miscellaneous manufacturing	339	22.2	17.1	60.8	47.8	26.4	25.7	11.4	13.1	75.5
Medical equipment and supplies	3391	20.1	19.2	60.7	44.4	36.2	19.4	7.5	10.4	82.1
Other miscellaneous manufacturing	3399	23.5	15.7	60.8	50.6	18.6	30.8	13.6	14.7	71.7
Nonmanufacturing industries	21-23, 42-81	5.4	7.7	86.9	27.3	26.7	46.0	4.8	7.1	88.1
Mining, extraction, and support activities	21	5.0	2.7	92.4	38.9	29.6	31.5	3.4	1.5	95.1
Utilities	22	13.6	10.3	76.1	52.0	33.7	14.3	8.2	7.0	84.8
Wholesale trade	42	11.3	14.7	74.0	31.5	33.4	35.2	10.0	13.4	76.6
Electronic shopping and electronic auctions	454111-12	18.1	20.5	61.4	54.3	21.4	24.3	13.4	20.4	66.3
Transportation and warehousing	48-49	2.2	6.1	91.7	33.2	11.2	55.6	2.1	6.1	91.8
Information	51	20.8	23.1	56.1	41.3	22.7	36.0	14.1	23.3	62.6
Publishing	511	24.9	22.3	52.8	47.2	20.7	32.1	15.3	23.0	61.7
Newspaper, periodical, book, and directory publishers	5111	14.7	22.5	62.8	39.5	1.5	59.0	12.8	24.1	63.1
Software publishers	5112	46.8	21.9	31.4	48.7	24.4	26.9	39.3	12.3	48.3
Telecommunications	517	10.6	17.0	72.4	27.0	17.5	55.5	8.4	16.9	74.7
Data processing, hosting, and related services	518	23.5	27.2	49.2	42.4	28.8	28.8	8.1	26.0	65.9
Other information	other 51	18.7	24.7	56.6	30.3	21.6	48.1	16.6	25.3	58.1
Finance and insurance	52	7.1	10.2	82.7	33.9	1.1	65.0	5.6	10.7	83.7
Real estate and rental and leasing	53	2.8	1.5	95.7	7.3	D	D	2.7	0.7	96.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	52.0	46.9	1.1	D	D	0.0	50.1	48.7	1.1
Other real estate and rental and leasing	other 53	2.2	1.0	96.8	1.8	D	D	2.2	0.2	97.6
Professional, scientific, and technical services	54	7.8	12.0	80.1	26.0	34.4	39.5	5.7	9.4	85.0
Architectural, engineering, and related services	5413	6.6	7.8	85.6	21.7	31.1	47.1	4.5	4.6	90.9
Computer systems design and related services	5415	17.2	28.1	54.7	26.1	41.4	32.5	12.0	20.3	67.7
Scientific research and development services	5417	21.4	32.1	46.5	22.6	35.2	42.2	S	S	64.5
Biotechnology research and development	541711	25.0	38.7	36.3	24.7	41.3	34.0	S	S	S
Physical, engineering, and life sciences (except biotechnology) research and development	541712	20.0	30.9	49.1	21.6	32.5	45.9	12.9	23.6	63.5
Social sciences and humanities research and development	541720	17.5	13.5	69.0	23.1	27.4	49.5	14.8	7.0	78.2
Other professional, scientific, and technical services	other 54	5.9	9.4	84.7	32.6	21.4	46.0	5.1	9.0	85.9
Health care services	621-23	0.9	5.7	93.4	2.8	12.1	85.2	0.9	5.6	93.6
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	5.1	6.2	88.7	21.2	14.8	64.0	4.9	6.2	88.9

TABLE 41. Importance of trademarks for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All companies (number of domestic employees)	–	6.1	8.2	85.7	29.6	27.8	42.6	5.0	7.3	87.7
Small companies <sup>b</sup>										
5–499	–	5.9	8.2	85.9	28.1	28.2	43.8	4.9	7.3	87.8
5–99	–	5.5	7.8	86.7	26.4	28.9	44.8	4.6	7.0	88.4
5–49	–	5.1	7.7	87.2	25.3	28.3	46.4	4.4	6.9	88.7
5–9	–	4.2	6.8	89.0	18.5	26.2	55.3	3.7	6.2	90.1
10–24	–	5.2	7.7	87.1	30.1	28.5	41.4	4.3	7.0	88.7
25–49	–	7.6	9.8	82.6	28.0	30.8	41.2	6.3	8.5	85.1
50–99	–	9.4	10.1	80.5	33.3	32.9	33.8	7.8	8.6	83.7
100–249	–	14.9	15.7	69.4	36.6	24.4	39.0	12.0	14.5	73.5
250–499	–	18.8	15.1	66.1	42.3	22.3	35.4	13.0	13.3	73.7
Medium and large companies										
500–999	–	15.8	11.3	73	45.1	28.2	26.7	8.0	6.8	85.2
1,000–4,999	–	36.6	15.2	48.2	69.4	17.6	13.0	20.6	14.0	65.4
5,000–9,999	–	48.5	16.6	34.9	77.9	15.4	6.7	33.4	17.2	49.4
10,000–24,999	–	49.3	26.5	24.2	75.7	21.3	3.0	36.6	29.1	34.4
25,000 or more	–	66.2	13.1	20.7	79.0	13.3	7.6	51.4	12.9	35.7

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.

<sup>a</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

<sup>b</sup> 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, 2011.

TABLE 42. Importance of copyrights for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	4.5	6.7	88.8	22.0	26.3	51.7	3.7	5.8	90.5
Manufacturing industries	31–33	7.4	13.4	79.2	17.4	28.5	54.1	4.6	9.0	86.5
Food	311	6.1	12.6	81.3	12.8	23.0	64.3	4.4	10.0	85.6
Beverage and tobacco products	312	9.0	15.8	75.2	33.1	18.6	48.2	5.9	15.5	78.6
Textile, apparel, and leather products	313–316	9.1	16.0	74.9	16.4	15.4	68.2	7.7	16.1	76.2
Wood products	321	1.5	4.6	93.9	11.8	27.0	61.2	0.8	3.0	96.2
Paper	322	7.9	12.6	79.5	14.8	17.9	67.3	6.1	11.2	82.7
Printing and related support activities	323	5.6	12.6	81.8	15.7	34.2	50.2	5.1	11.5	83.4
Petroleum and coal products	324	8.2	34.0	57.8	9.0	64.0	26.9	7.5	6.1	86.5
Chemicals	325	12.1	20.3	67.6	15.8	27.5	56.7	7.6	11.2	81.2
Basic chemicals	3251	20.1	26.2	53.6	31.3	38.3	30.4	2.8	7.4	89.8
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	S	S	S	22.1	29.0	48.9	S	S	S
Pesticide, fertilizer, and other agricultural chemical	3253	5.9	9.7	84.4	8.1	15.1	76.8	4.0	4.8	91.3
Pharmaceuticals and medicines	3254	15.3	29.9	54.8	15.1	33.4	51.5	15.9	22.8	61.3
Soap, cleaning compound, and toilet preparation	3256	10.8	25.3	63.8	9.2	27.6	63.1	13.9	20.9	65.1
Paint, coating, adhesive, and other chemicals	3255, 3259	7.9	9.7	82.5	11.0	15.9	73.1	5.3	4.6	90.0
Plastics and rubber products	326	8.6	13.8	77.7	13.6	32.5	53.9	6.3	5.5	88.2
Nonmetallic mineral products	327	7.0	4.8	88.2	14.7	15.7	69.6	6.2	3.7	90.1
Primary metals	331	7.6	10.1	82.3	16.3	25.7	58.0	5.5	6.5	88.0
Fabricated metal products	332	3.3	9.1	87.6	11.3	19.8	69.0	2.3	7.8	89.9
Machinery	333	8.2	19.1	72.7	18.1	38.6	43.3	2.7	8.3	89.0
Agricultural implement	33311	10.4	27.2	62.4	11.4	39.8	48.8	9.4	S	74.5
Semiconductor machinery	333295	14.1	13.7	72.3	29.0	33.3	37.6	4.7	D	D
Engine, turbine, and power transmission equipment	3336	11.3	25.4	63.3	14.6	43.5	41.9	7.7	6.0	86.3
Other machinery	other 333	7.9	18.5	73.6	18.5	38.3	43.2	2.3	8.2	89.5
Computer and electronic products	334	15.3	21.6	63.1	22.3	26.8	50.9	6.2	14.8	78.9
Communications equipment	3342	18.0	35.0	47.0	24.4	46.0	29.6	D	D	S
Semiconductor and other electronic components	3344	11.5	17.5	70.9	19.8	23.5	56.7	4.3	12.4	83.3
Navigational, measuring, electromedical, and control instruments	3345	15.3	21.6	63.1	20.4	26.2	53.5	8.0	14.9	77.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	16.9	23.4	59.7	28.1	27.0	44.9	0.0	D	D
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	11.4	48.4	40.2	14.6	53.4	32.0	0.0	D	D
Other measuring and controlling device	other 3345	15.6	17.9	66.6	20.1	21.2	58.6	9.6	13.5	76.9
Other computer and electronic products	other 334	21.2	19.3	59.5	28.7	16.9	54.3	8.2	23.4	68.3
Electrical equipment, appliances, and components	335	11.5	23.8	64.7	17.2	41.4	41.4	5.1	4.4	90.5
Transportation equipment	336	11.4	17.3	71.3	18.1	26.5	55.4	8.2	12.9	78.9
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	8.6	13.6	77.8	16.4	28.3	55.3	5.4	7.8	86.8

TABLE 42. Importance of copyrights for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Aerospace products and parts	3364	12.3	11.3	76.5	21.3	14.0	64.7	5.2	9.1	85.6
Aircraft, aircraft engine, and aircraft parts	336411-13	12.2	9.7	78.0	21.2	12.1	66.7	5.4	8.0	86.7
Guided missile, space vehicle, and related parts	336414-15, 336419	13.8	53.4	32.8	23.5	52.9	23.5	S	D	D
Military armored vehicle, tank, and tank component	336992	0.0	D	D	0.0	D	D	0.0	D	D
Other transportation equipment	other 336	18.3	30.4	51.3	19.5	32.3	48.1	17.6	29.3	53.1
Furniture and related products	337	4.5	6.5	88.9	23.9	19.5	56.6	2.8	5.4	91.8
Miscellaneous manufacturing	339	13.5	16.6	69.8	24.0	29.4	46.6	9.1	11.3	79.6
Medical equipment and supplies	3391	8.3	20.8	70.9	15.4	43.9	40.7	4.6	8.9	86.5
Other miscellaneous manufacturing	3399	16.8	14.0	69.2	30.9	17.8	51.3	11.7	12.6	75.7
Nonmanufacturing industries	21-23, 42-81	4.2	6.2	89.6	25.1	24.7	50.1	3.6	5.6	90.8
Mining, extraction, and support activities	21	3.3	2.6	94.1	28.9	27.0	44.1	2.1	1.5	96.4
Utilities	22	9.6	6.4	84.0	42.8	37.3	19.9	4.9	2.0	93.1
Wholesale trade	42	6.8	9.5	83.7	14.7	30.0	55.3	6.3	8.1	85.6
Electronic shopping and electronic auctions	454111-12	14.1	21.2	64.7	36.0	43.0	21.0	11.2	18.4	70.4
Transportation and warehousing	48-49	1.2	3.3	95.5	19.9	15.8	64.3	1.1	3.3	95.6
Information	51	30.2	18.6	51.2	51.6	19.4	29.0	23.2	18.3	58.5
Publishing	511	43.8	20.3	35.9	61.4	18.0	20.6	36.2	21.3	42.5
Newspaper, periodical, book, and directory publishers	5111	38.1	21.6	40.2	71.2	6.6	22.2	35.6	22.8	41.6
Software publishers	5112	55.9	17.4	26.6	59.5	20.2	20.3	42.3	6.8	50.9
Telecommunications	517	9.1	5.9	85.0	20.2	18.2	61.6	7.6	4.2	88.2
Data processing, hosting, and related services	518	19.7	28.7	51.6	35.7	31.1	33.3	6.7	26.8	66.5
Other information	other 51	26.5	17.1	56.4	57.1	8.8	34.0	21.1	18.6	60.3
Finance and insurance	52	5.8	7.2	87.0	44.2	1.4	54.5	3.7	7.5	88.8
Real estate and rental and leasing	53	2.0	2.8	95.1	5.1	92.6	2.3	2.0	2.0	96.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	3.7	2.0	94.3	59.9	D	D	1.0	0.6	98.4
Other real estate and rental and leasing	other 53	2.0	2.8	95.1	1.5	96.7	1.8	2.0	2.0	95.9
Professional, scientific, and technical services	54	9.1	11.8	79.1	28.1	31.0	40.9	6.9	9.5	83.6
Architectural, engineering, and related services	5413	11.0	12.4	76.5	19.2	25.8	54.9	9.9	10.6	79.5
Computer systems design and related services	5415	17.5	28.1	54.4	32.2	36.0	31.8	9.0	23.4	67.7
Scientific research and development services	5417	16.8	26.4	56.9	16.9	28.2	54.8	S	18.6	65.3
Biotechnology research and development	541711	12.8	30.7	56.5	11.3	32.9	55.8	S	S	S
Physical, engineering, and life sciences (except biotechnology) research and development	541712	17.9	25.3	56.8	19.0	26.3	54.8	12.9	20.8	66.3
Social sciences and humanities research and development	541720	24.6	16.7	58.8	37.3	18.4	44.3	18.6	15.9	65.6
Other professional, scientific, and technical services	other 54	6.9	8.1	85.0	36.2	27.0	36.7	5.9	7.5	86.5
Health care services	621-23	0.3	3.9	95.8	2.1	12.5	85.5	0.2	3.8	96.0
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	3.4	5.1	91.6	7.9	15.7	76.5	3.3	5.0	91.7

TABLE 42. Importance of copyrights for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All companies (number of domestic employees)	–	4.5	6.7	88.8	22.0	26.3	51.7	3.7	5.8	90.5
Small companies <sup>b</sup>										
5–499	–	4.4	6.7	88.9	21.3	26.0	52.7	3.7	5.8	90.5
5–99	–	4.1	6.4	89.5	20.9	26.3	52.8	3.5	5.6	90.9
5–49	–	4.0	6.2	89.8	21.0	25.6	53.4	3.4	5.5	91.2
5–9	–	3.5	5.6	90.8	19.7	26.5	53.8	3.0	5.0	92.0
10–24	–	3.9	6.4	89.6	22.2	23.7	54.1	3.3	5.8	90.9
25–49	–	5.5	7.1	87.5	20.8	27.3	51.9	4.5	5.8	89.7
50–99	–	5.8	8.8	85.3	20.2	30.9	48.9	4.8	7.3	87.9
100–249	–	9.6	12.9	77.5	22.7	23.8	53.5	7.9	11.5	80.7
250–499	–	12.2	12.3	75.5	26.4	26.2	47.4	8.7	8.8	82.5
Medium and large companies										
500–999	–	9.5	10.8	79.7	24.9	33.7	41.4	5.6	5.0	89.4
1,000–4,999	–	22.0	17.0	61.0	46.7	27.0	26.4	10.0	12.2	77.8
5,000–9,999	–	21.5	13.8	64.7	25.8	32.0	42.2	19.2	4.5	76.3
10,000–24,999	–	19.7	21.2	59.1	42.0	46.4	11.6	8.9	9.1	82.0
25,000 or more	–	38.6	31.4	30.0	49.2	40.0	10.8	26.4	21.6	52.0

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.

<sup>a</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

<sup>b</sup> 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, 2011.

TABLE 43. Importance of trade secrets for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	6.4	7.3	86.3	42.8	21.9	35.3	4.7	6.6	88.7
Manufacturing industries	31–33	18.5	13.7	67.9	48.1	22.9	28.9	9.8	11.0	79.2
Food	311	28.7	13.5	57.7	52.6	17.8	29.5	22.7	12.5	64.8
Beverage and tobacco products	312	13.0	18.5	68.5	54.3	11.9	33.7	7.7	19.3	73.0
Textile, apparel, and leather products	313–316	16.1	13.1	70.8	41.2	21.8	37.0	11.4	11.4	77.2
Wood products	321	4.4	9.7	85.9	31.9	27.8	40.2	2.5	8.5	89.0
Paper	322	19.5	20.2	60.3	48.5	22.5	29.0	11.9	19.5	68.6
Printing and related support activities	323	8.1	7.8	84.1	28.5	28.5	43.1	7.0	6.8	86.2
Petroleum and coal products	324	49.8	8.8	41.5	88.9	8.0	3.1	13.5	9.5	77.0
Chemicals	325	48.7	16.6	34.6	67.9	18.0	14.2	25.0	15.0	60.1
Basic chemicals	3251	58.1	18.0	23.9	79.4	11.4	9.2	24.8	28.3	46.9
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	S	S	S	68.0	11.3	20.7	S	S	S
Pesticide, fertilizer, and other agricultural chemical	3253	53.3	7.9	38.8	85.6	11.0	3.4	24.2	5.1	70.6
Pharmaceuticals and medicines	3254	54.6	15.5	29.9	62.1	21.8	16.2	39.6	2.9	57.6
Soap, cleaning compound, and toilet preparation	3256	45.9	29.2	24.9	55.5	29.2	15.3	27.6	29.1	43.3
Paint, coating, adhesive, and other chemicals	3255, 3259	40.7	13.1	46.3	71.1	12.4	16.5	16.0	13.5	70.4
Plastics and rubber products	326	23.1	17.0	59.9	49.0	31.2	19.8	11.6	10.6	77.7
Nonmetallic mineral products	327	11.5	10.7	77.8	40.7	18.1	41.2	8.5	9.9	81.6
Primary metals	331	13.5	15.4	71.1	46.1	19.2	34.7	6.0	14.5	79.5
Fabricated metal products	332	10.2	12.4	77.4	39.1	22.6	38.3	6.5	11.1	82.3
Machinery	333	21.7	18.7	59.6	44.5	24.4	31.1	9.1	15.5	75.4
Agricultural implement	33311	27.4	17.6	55.0	36.0	28.5	35.4	19.8	S	72.3
Semiconductor machinery	333295	27.0	38.0	35.1	62.4	30.2	7.4	4.7	42.8	52.5
Engine, turbine, and power transmission equipment	3336	28.7	24.9	46.4	41.8	36.9	21.2	14.5	12.1	73.4
Other machinery	other 333	21.1	18.1	60.8	44.8	23.3	31.9	8.6	15.4	75.9
Computer and electronic products	334	42.1	15.0	42.9	59.3	17.1	23.6	19.7	12.3	68.0
Communications equipment	3342	33.2	28.0	S	42.7	39.0	18.3	S	S	S
Semiconductor and other electronic components	3344	43.4	12.2	44.3	70.6	8.9	20.5	20.0	15.1	64.9
Navigational, measuring, electromedical, and control instruments	3345	42.7	12.1	45.2	53.9	15.3	30.8	26.5	7.4	66.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	44.2	17.4	38.4	61.6	29.0	9.5	D	0.0	D
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	55.3	21.3	23.4	67.3	16.5	16.2	D	D	49.0
Other measuring and controlling device	other 3345	40.9	10.1	49.1	50.3	12.9	36.8	28.6	6.4	65.0
Other computer and electronic products	other 334	44.9	17.5	37.6	68.5	15.0	16.5	4.2	21.7	74.1
Electrical equipment, appliances, and components	335	24.9	19.9	55.1	37.4	33.1	29.5	11.1	5.4	83.5
Transportation equipment	336	16.1	17.1	66.8	34.9	28.7	36.4	7.2	11.5	81.3
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	15.9	10.1	74.0	38.9	16.1	45.0	6.6	7.7	85.7

TABLE 43. Importance of trade secrets for companies with and without R&amp;D activity, by industry and company size: 2011

(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Aerospace products and parts	3364	23.3	21.3	55.3	36.4	26.1	37.5	13.1	17.6	69.3
Aircraft, aircraft engine, and aircraft parts	336411-13	22.5	21.0	56.5	34.5	26.5	39.0	13.3	16.8	69.9
Guided missile, space vehicle, and related parts	336414-15, 336419	48.3	D	D	76.5	D	D	D	D	D
Military armored vehicle, tank, and tank component	336992	9.6	D	D	41.4	D	D	0.0	D	D
Other transportation equipment	other 336	12.9	32.5	54.6	25.6	56.4	18.0	6.0	19.5	74.5
Furniture and related products	337	10.8	9.7	79.5	32.7	24.9	42.4	8.9	8.3	82.8
Miscellaneous manufacturing	339	19.8	14.4	65.8	45.6	25.5	29.0	9.0	9.8	81.2
Medical equipment and supplies	3391	23.6	14.9	61.5	52.1	30.6	17.3	8.8	6.8	84.3
Other miscellaneous manufacturing	3399	17.4	14.1	68.5	40.3	21.3	38.3	9.1	11.4	79.5
Nonmanufacturing industries	21-23, 42-81	5.3	6.8	87.9	39.1	21.3	39.6	4.3	6.3	89.3
Mining, extraction, and support activities	21	5.0	4.3	90.8	54.8	16.6	28.6	2.7	3.7	93.6
Utilities	22	11.5	12.7	75.8	52.5	34.2	13.3	5.7	9.7	84.7
Wholesale trade	42	10.4	12.1	77.5	34.7	30.1	35.2	8.8	11.0	80.2
Electronic shopping and electronic auctions	454111-12	12.4	17.4	70.2	29.7	45.8	24.5	10.1	13.7	76.2
Transportation and warehousing	48-49	0.5	5.5	94.0	29.9	58.8	11.3	0.5	5.4	94.1
Information	51	21.3	14.5	64.2	51.9	18.0	30.1	11.3	13.4	75.3
Publishing	511	26.9	12.4	60.7	66.3	10.4	23.2	9.9	13.2	76.8
Newspaper, periodical, book, and directory publishers	5111	6.7	13.5	79.8	8.1	4.4	87.6	6.6	14.2	79.2
Software publishers	5112	70.2	10.0	19.8	77.7	11.6	10.7	41.9	4.0	54.2
Telecommunications	517	10.5	11.3	78.1	21.8	36.0	42.3	9.0	8.0	83.0
Data processing, hosting, and related services	518	26.7	26.4	46.9	46.2	25.1	28.7	11.0	27.4	61.6
Other information	other 51	16.6	13.4	70.0	33.7	22.1	44.2	13.6	11.8	74.6
Finance and insurance	52	9.1	8.0	82.8	32.1	1.9	66.0	7.9	8.4	83.8
Real estate and rental and leasing	53	1.6	2.8	95.6	95.9	2.2	1.9	0.7	2.8	96.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	50.7	1.4	47.8	78.1	D	D	49.4	0.6	50.0
Other real estate and rental and leasing	other 53	1.0	2.8	96.2	97.1	1.1	1.8	0.2	2.8	97.0
Professional, scientific, and technical services	54	10.8	11.1	78.0	47.1	25.2	27.8	6.5	9.5	84.0
Architectural, engineering, and related services	5413	12.9	10.7	76.3	47.6	17.8	34.5	8.1	9.8	82.1
Computer systems design and related services	5415	28.2	23.6	48.2	42.2	33.6	24.2	20.0	17.8	62.2
Scientific research and development services	5417	50.3	18.4	31.3	57.3	18.1	24.6	S	19.8	59.0
Biotechnology research and development	541711	58.8	16.2	25.0	62.9	17.3	19.8	S	S	S
Physical, engineering, and life sciences (except biotechnology) research and development	541712	49.5	19.3	31.2	55.9	18.2	25.9	20.4	24.3	55.3
Social sciences and humanities research and development	541720	17.3	19.9	62.9	21.0	24.7	54.3	15.5	17.6	66.9
Other professional, scientific, and technical services	other 54	5.9	8.7	85.4	49.0	19.1	32.0	4.5	8.4	87.2
Health care services	621-23	1.9	4.8	93.3	13.7	12.1	74.2	1.7	4.7	93.6
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	4.2	5.7	90.1	21.3	15.3	63.4	4.1	5.6	90.3

TABLE 43. Importance of trade secrets for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All companies (number of domestic employees)	–	6.4	7.3	86.3	42.8	21.9	35.3	4.7	6.6	88.7
Small companies <sup>b</sup>										
5–499	–	6.3	7.3	86.5	41.9	22.2	36.0	4.7	6.6	88.7
5–99	–	5.9	7.0	87.0	41.4	22.5	36.0	4.5	6.4	89.1
5–49	–	5.6	6.7	87.7	40.7	21.5	37.8	4.3	6.1	89.6
5–9	–	4.9	5.7	89.4	36.6	19.6	43.8	3.9	5.2	90.8
10–24	–	5.5	7.1	87.4	44.9	23.0	32.1	4.1	6.5	89.3
25–49	–	7.8	8.2	84.1	40.3	21.8	37.9	5.8	7.3	86.9
50–99	–	9.5	11.6	78.9	46.3	29.4	24.2	7.0	10.3	82.7
100–249	–	12.3	13.2	74.5	44.6	21.0	34.4	8.0	12.1	79.9
250–499	–	17.8	10.5	71.7	43.8	17.9	38.2	11.1	8.6	80.2
Medium and large companies										
500–999	–	16.5	10.2	73.4	52.2	20.6	27.2	7.3	7.5	85.3
1,000–4,999	–	28.9	10.3	60.8	69.8	15.5	14.6	8.7	7.7	83.6
5,000–9,999	–	29.1	9.5	61.4	49.8	16.8	33.4	18.3	5.7	75.9
10,000–24,999	–	32.6	9.8	57.6	75.9	17.4	6.6	11.7	6.1	82.3
25,000 or more	–	55.1	15.2	29.7	77.6	11.4	11.0	29.1	19.6	51.3

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.

<sup>a</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

<sup>b</sup> 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, 2011.

TABLE 44. Importance of mask works for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All industries	21–23, 31–33, 42–81	0.6	1.5	97.8	3.0	5.1	92.0	0.5	1.4	98.1
Manufacturing industries	31–33	1.6	3.9	94.4	3.1	7.4	89.4	1.2	2.9	95.9
Food	311	1.5	3.2	95.3	1.1	1.0	97.9	1.6	3.7	94.7
Beverage and tobacco products	312	0.6	1.9	97.5	1.9	D	D	D	D	97.5
Textile, apparel, and leather products	313–316	1.9	5.5	92.6	0.6	5.6	93.7	2.1	5.5	92.4
Wood products	321	0.1	1.8	98.0	D	D	98.2	D	D	98.0
Paper	322	0.4	5.1	94.6	D	D	D	D	D	D
Printing and related support activities	323	1.0	1.9	97.1	D	D	96.6	1.1	1.8	97.1
Petroleum and coal products	324	D	D	97.5	0.0	D	D	D	D	D
Chemicals	325	S	4.2	94.0	1.1	6.2	92.8	S	1.8	95.5
Basic chemicals	3251	0.5	10.9	88.6	0.9	18.6	80.5	0.0	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	S	S	S	D	D	83.8	D	S	D
Pesticide, fertilizer, and other agricultural chemical	3253	2.2	2.1	95.7	D	D	D	2.5	D	D
Pharmaceuticals and medicines	3254	0.9	5.4	93.7	1.3	5.1	93.6	0.0	D	D
Soap, cleaning compound, and toilet preparation	3256	3.4	D	D	1.3	D	D	7.4	0.0	92.6
Paint, coating, adhesive, and other chemicals	3255, 3259	0.7	1.8	97.5	0.7	2.1	97.2	D	D	97.7
Plastics and rubber products	326	1.8	2.1	96.1	0.9	5.0	94.1	2.2	0.9	96.9
Nonmetallic mineral products	327	0.4	0.5	99.1	4.0	3.0	93.0	0.0	0.2	99.8
Primary metals	331	2.0	6.0	92.0	2.8	8.0	89.1	1.8	5.6	92.7
Fabricated metal products	332	0.7	3.5	95.8	2.7	3.8	93.5	0.4	3.5	96.1
Machinery	333	1.8	5.2	93.0	3.0	8.6	88.5	1.2	3.3	95.5
Agricultural implement	33311	0.0	9.7	90.3	0.0	6.1	93.9	0.0	S	87.1
Semiconductor machinery	333295	12.4	5.9	81.6	30.2	15.3	54.5	D	0.0	D
Engine, turbine, and power transmission equipment	3336	3.2	3.9	92.8	4.6	4.0	91.4	D	D	D
Other machinery	other 333	1.7	5.0	93.3	2.5	8.9	88.6	1.2	3.0	95.8
Computer and electronic products	334	7.9	7.3	84.8	10.7	8.5	80.8	4.3	5.7	90.0
Communications equipment	3342	6.1	4.8	89.2	7.8	5.2	87.0	D	D	S
Semiconductor and other electronic components	3344	14.5	10.8	74.8	24.5	12.1	63.4	5.8	9.6	84.6
Navigational, measuring, electromedical, and control instruments	3345	4.9	6.5	88.7	5.6	8.3	86.1	3.8	3.8	92.4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	9.1	6.2	84.7	15.1	10.3	74.6	0.0	0.0	100.0
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	2.1	9.5	88.4	2.7	12.1	85.2	0.0	0.0	100.0
Other measuring and controlling device	other 3345	4.6	6.1	89.3	4.6	7.3	88.1	4.6	4.6	90.8
Other computer and electronic products	other 334	2.9	3.8	93.3	3.3	6.1	90.6	D	0.0	D
Electrical equipment, appliances, and components	335	2.8	16.6	80.6	4.0	29.9	66.1	1.5	1.9	96.6
Transportation equipment	336	1.5	5.0	93.5	1.8	5.9	92.3	1.3	4.6	94.1
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	1.3	3.6	95.1	0.8	9.3	89.9	1.5	1.3	97.2

TABLE 44. Importance of mask works for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Aerospace products and parts	3364	4.0	1.6	94.4	6.8	1.6	91.6	1.9	1.6	96.6
Aircraft, aircraft engine, and aircraft parts	336411-13	4.1	1.4	94.6	6.9	1.1	92.0	1.9	1.6	96.5
Guided missile, space vehicle, and related parts	336414-15, 336419	D	D	89.7	D	D	82.4	S	S	S
Military armored vehicle, tank, and tank component	336992	0.0	0.0	100.0	0.0	0.0	100.0	0.0	D	D
Other transportation equipment	other 336	0.5	10.6	88.9	D	D	97.4	D	D	84.3
Furniture and related products	337	2.9	0.5	96.5	0.9	2.8	96.3	3.1	0.3	96.6
Miscellaneous manufacturing	339	0.9	4.7	94.5	1.7	9.8	88.5	0.5	2.5	97.0
Medical equipment and supplies	3391	0.6	5.6	93.8	1.7	7.6	90.7	0.0	4.6	95.4
Other miscellaneous manufacturing	3399	1.1	4.0	94.9	1.7	11.5	86.8	0.8	1.3	97.8
Nonmanufacturing industries	21-23, 42-81	0.5	1.3	98.1	2.8	3.5	93.7	0.4	1.3	98.3
Mining, extraction, and support activities	21	0.5	0.3	99.2	D	D	89.2	0.1	0.2	99.7
Utilities	22	0.4	2.8	96.8	3.6	20.1	76.3	0.0	D	D
Wholesale trade	42	1.6	2.4	96.0	3.7	0.6	95.7	1.4	2.5	96.0
Electronic shopping and electronic auctions	454111-12	D	D	97.8	0.0	7.1	92.9	D	D	98.4
Transportation and warehousing	48-49	D	D	99.2	0.0	D	D	D	D	99.2
Information	51	1.3	1.8	96.9	4.4	2.8	92.8	0.3	1.5	98.2
Publishing	511	1.3	2.7	96.0	3.4	2.6	94.0	0.3	2.8	96.9
Newspaper, periodical, book, and directory publishers	5111	D	D	97.1	0.0	0.0	100.0	D	D	96.9
Software publishers	5112	3.4	2.9	93.7	4.1	3.1	92.8	D	D	D
Telecommunications	517	0.8	1.6	97.7	1.5	6.1	92.5	0.7	1.0	98.4
Data processing, hosting, and related services	518	2.6	2.1	95.3	5.8	3.8	90.4	0.0	D	D
Other information	other 51	1.0	0.7	98.2	6.0	0.8	93.1	D	D	D
Finance and insurance	52	0.0	0.0	100.0	D	D	D	0.0	0.0	100.0
Real estate and rental and leasing	53	0.0	D	D	0.0	D	D	0.0	D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0.0	D	D	0.0	D	D	0.0	D	D
Other real estate and rental and leasing	other 53	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0
Professional, scientific, and technical services	54	1.6	2.1	96.3	3.8	4.8	91.4	1.3	1.8	96.9
Architectural, engineering, and related services	5413	0.9	1.6	97.5	4.9	7.6	87.5	0.3	0.7	98.9
Computer systems design and related services	5415	3.3	4.1	92.6	4.0	4.0	92.1	3.0	4.1	92.9
Scientific research and development services	5417	2.9	8.1	89.1	3.3	8.0	88.7	1.1	8.4	90.5
Biotechnology research and development	541711	2.0	1.3	96.8	2.3	1.1	96.6	S	D	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	3.5	12.0	84.5	3.9	11.7	84.4	1.8	13.5	84.7
Social sciences and humanities research and development	541720	0.0	D	D	0.0	D	D	0.0	0.0	100.0
Other professional, scientific, and technical services	other 54	1.4	1.6	97.0	2.9	1.4	95.7	1.3	1.6	97.0
Health care services	621-23	0.4	0.6	99.1	D	D	D	0.4	0.6	99.1
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	0.3	1.4	98.3	0.3	6.1	93.7	0.3	1.4	98.3

TABLE 44. Importance of mask works for companies with and without R&D activity, by industry and company size: 2011  
(Percent)

Industry and company size	NAICS code	All companies			With R&D activity <sup>a</sup>			Without R&D activity		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All companies (number of domestic employees)	–	0.6	1.5	97.8	3.0	5.1	92.0	0.5	1.4	98.1
Small companies <sup>b</sup>										
5–499	–	0.6	1.5	97.9	2.9	5.0	92.1	0.5	1.4	98.1
5–99	–	0.6	1.4	98.0	2.9	5.1	91.9	0.5	1.3	98.2
5–49	–	0.6	1.4	98.0	3.0	4.6	92.4	0.5	1.3	98.2
5–9	–	0.6	1.3	98.1	3.4	3.5	93.1	0.5	1.2	98.3
10–24	–	0.4	1.4	98.2	3.2	4.8	92.0	0.3	1.3	98.4
25–49	–	1.0	1.7	97.3	2.0	6.0	91.9	0.9	1.4	97.7
50–99	–	0.7	1.9	97.4	2.7	8.6	88.7	0.5	1.5	98.0
100–249	–	0.9	3.3	95.8	3.4	4.2	92.4	0.5	3.2	96.2
250–499	–	1.0	5.0	94.0	2.0	3.8	94.2	0.8	5.2	94.0
Medium and large companies										
500–999	–	0.9	1.9	97.2	3.2	7.2	89.6	0.3	0.5	99.2
1,000–4,999	–	2.7	2.4	94.9	3.3	5.7	91.0	2.4	0.8	96.8
5,000–9,999	–	1.4	4.2	94.4	3.5	9.5	87.0	D	D	98.3
10,000–24,999	–	2.0	4.4	93.6	4.3	10.0	85.7	D	D	97.4
25,000 or more	–	3.9	5.3	90.9	5.9	9.8	84.2	D	0.0	D

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.

<sup>a</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

<sup>b</sup> 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, 2011.

TABLE 45. Companies with domestic R&D paid for and performed by the company in energy and environmental protection application areas, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
All industries	21–23, 31–33, 42–81	47,662	238,768	11,227	18,413	9,186	7,677
Manufacturing industries	31–33	22,195	163,340	5,062	14,045	4,701	5,895
Food	311	1,541	4,204	177	183 i	204	76 i
Chemicals	325	2,488	49,988	439	546	711	505
Basic chemicals	3251	499	3,674	85	304	218	261
Pharmaceuticals and medicines	3254	610	41,111	23	20 i	18	19 i
Other chemicals	other 325	1,379	5,202	332	222	475	224
Plastics and rubber products	326	1,416	1,973	200	68	238	61
Nonmetallic mineral products	327	D	1,145	99	81	97	88 i
Fabricated metal products	332	2,422	1,738	620	161	540	93
Machinery	333	D	13,578	1,291	2,344	1,143	1,835
Agricultural implement	33311	171	1,255	23	54	30	125
Semiconductor machinery	333295	51	2,220	18	50	7	3
Engine, turbine, and power transmission equipment	3336	196	3,599	77	1,081	52	644
Other machinery	other 333	D	6,503	1,173	1,159	1,054	1,063
Computer and electronic products	334	3,098	53,664	881	4,729	439	1,109 i
Semiconductor and other electronic components	3344	777	22,855	241	2,769	124	354 i
Other computer and electronic products	other 334	2,321	30,809	640	1,960	315	754
Electrical equipment, appliances, and components	335	1,277	3,417	400	908	221	225 i
Transportation equipment	336	1,382	20,275	242	4,013	340	1,325
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	729	11,737	137	3,601	125	1,029
Other transportation equipment	other 336	653	8,538	105	412	214	296
Miscellaneous manufacturing	339	2,275	8,442	256	128	297	205
Other manufacturing	312–316, 321–324, 331, 337	2,583	4,918	458	885 i	471	374
Nonmanufacturing industries	21–23, 42–81	25,467	75,428	6,166	4,368	4,485	1,782
Mining, extraction, and support activities	21	185	2,425	124	1,492	112	424
Utilities	22	74	302	50	267	36	94 i
Wholesale trade	42	3,605	1,419 i	710	91	698	101 i
Information	51	4,022	41,014	496	576	65	91
Publishing	511	2,038	27,748	237	276	22	73
Telecommunications	517	D	2,040	61	D	D	*
Data processing, hosting, and related services	518	D	4,257	102	48	12	D
Other information	other 51	761	6,969	97	D	D	D
Professional, scientific, and technical services	54	10,670	23,368	3,561	1,760 i	2,712	1,002
Architectural, engineering, and related services	5413	2,150	1,808	1,088	595	745	343 i
Scientific research and development services	5417	1,534	6,170	443	362	364	221
Biotechnology research and development	541711	671	4,283	143	112 i	145	69
Other scientific research and development	other 5417	863	1,888	301	250	219	152
Other professional, scientific, and technical services	other 54	6,987	15,389	2,030	804 i	1,603	439
Health care services	621–23	1,009	558	D	*	0	0

TABLE 45. Companies with domestic R&D paid for and performed by the company in energy and environmental protection application areas, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	5,902	6,342	D	181 i	863	70
All companies (number of domestic employees)	–	47,662	238,768	11,227	18,413	9,186	7,677
Small companies <sup>b</sup>							
5–499	–	45,120	46,509	10,479	3,536	8,584	1,902
5–99	–	38,331	24,928	9,015	2,015	7,388	1,203
5–49	–	33,145	17,317	7,715	1,277	6,151	865
5–9	–	11,510	2,981	2,008	168	1,866	100
10–24	–	12,931	4,907	3,194	370	2,258	278
25–49	–	8,704	9,429	2,513	740	2,027	486
50–99	–	5,186	7,611	1,300	738	1,237	338
100–249	–	4,568	10,433	1,050	898	923	415
250–499	–	2,220	11,149	414	623	273	283
Medium and large companies							
500–999	–	D	8,739	199	714	156	237
1,000–4,999	–	1,232	42,905	308	2,689	232	1,114
5,000–9,999	–	235	18,659	128	1,351	120	987 i
10,000–24,999	–	138	42,585	60	2,516	54	1,230
25,000 or more	–	D	79,370	53	7,608	40	2,208

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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.

<sup>b</sup> 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, 2011.

TABLE 46. 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: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
All industries	21–23, 31–33, 42–81	8,639	55,324	2,795	3,338	2,254	1,926
Manufacturing industries	31–33	2,545	38,021	924	1,868	724	693 i
Food	311	112	196	13	40 i	12	1 i
Chemicals	325	392	5,337	73	112	149	37
Basic chemicals	3251	149	D	27	55	121	29
Pharmaceuticals and medicines	3254	168	4,838	16	D	D	*
Other chemicals	other 325	75	D	30	D	D	9
Plastics and rubber products	326	147	307 i	45	2	37	3 i
Nonmetallic mineral products	327	13	33	5	15	4	7
Fabricated metal products	332	335	115	141	10	120	6
Machinery	333	199	1,131	125	196	52	D
Agricultural implement	33311	5	22	D	1 i	3	2 i
Semiconductor machinery	333295	14	139	8	7 i	D	D
Engine, turbine, and power transmission equipment	3336	17	693	14	D	10	D
Other machinery	other 333	163	278	D	D	D	D
Computer and electronic products	334	615	9,040	291	327	182	105
Semiconductor and other electronic components	3344	255	1,245	111	118	36	39 i
Other computer and electronic products	other 334	360	7,794	180	209	147	66
Electrical equipment, appliances, and components	335	99	178	51	66	36	24
Transportation equipment	336	172	20,605 i	74	997	63	388 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	103	D	45	239	38	160
Other transportation equipment	other 336	70	D	29	758 i	25	227 i
Miscellaneous manufacturing	339	308	D	33	21	34	12
Other manufacturing	312–316, 321–324, 331, 337	153	D	73	82	34	D
Nonmanufacturing industries	21–23, 42–81	6,093	17,303	1,871	1,470	1,531	1,233
Mining, extraction, and support activities	21	41	307	41	294	11	8 i
Utilities	22	23	84	21	82	20	62 i
Wholesale trade	42	612	248	117	8	56	5
Information	51	146	851	10	7	5	D
Publishing	511	D	687	D	5	D	D
Telecommunications	517	9	117	0	0	0	0
Data processing, hosting, and related services	518	35	28	D	*	0	0
Other information	other 51	D	19	D	1	D	1
Professional, scientific, and technical services	54	3,800	14,851	1,372	1,048	1,107	638
Architectural, engineering, and related services	5413	1,152	1,966	595	321	297	74
Scientific research and development services	5417	1,357	9,131	445	561	461	431
Biotechnology research and development	541711	372	1,735	69	78	99	30
Other scientific research and development	other 5417	985	7,396	376	483	362	401
Other professional, scientific, and technical services	other 54	1,290	3,755	331	166 i	349	132
Health care services	621–23	620	183	D	5	3	5

TABLE 46. 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: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Energy		Environmental protection	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
Other nonmanufacturing	23, 44-45, 48-49, 52-53, 55-56, 624, 71-72, 81	852	779	D	25 i	329	D
All companies (number of domestic employees)	-	8,639	55,324	2,795	3,338	2,254	1,926
Small companies <sup>b</sup>							
5-499	-	8,206	10,283	2,632	1,182	2,107	652
5-99	-	6,813	6,382	2,095	924	1,527	503
5-49	-	6,198	4,525	1,837	719	1,342	385
5-9	-	2,262	1,221	659	283	442	170
10-24	-	2,384	1,872	732	237	564	115
25-49	-	1,552	1,432	445	200	336	100 i
50-99	-	615	1,857	258	205	185	119 i
100-249	-	820	2,095	186	163	236	113
250-499	-	573	1,806	351	95	344	36
Medium and large companies							
500-999	-	126	1,288	38	89	38	74
1,000-4,999	-	170	7,579	65	201	50	120 i
5,000-9,999	-	46	6,292	18	230	14	107
10,000-24,999	-	51	6,630	22	682	27	146
25,000 or more	-	40	23,253 i	20	954 i	18	826

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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.

<sup>b</sup> 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, 2011.

TABLE 47. Companies with domestic R&D paid for and performed by the company in selected technology focus areas, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products		Embedded software		Biotechnology		Nanotechnology	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
All industries	21–23, 31–33, 42–81	47,662	238,768	19,875	55,273	13,326	21,596	5,746	20,336 i	3,960	11,613 i
Manufacturing industries	31–33	22,195	163,340	4,575	10,505	4,860	12,877	2,009	16,720 i	2,106	10,085 i
Food	311	1,541	4,204	58	9	104	14	206	353 i	18	3 i
Chemicals	325	2,488	49,988	263	156	173	773	592	15,027 i	404	516 i
Basic chemicals	3251	499	3,674	7	9	8	18	114	408 i	177	172 i
Pharmaceuticals and medicines	3254	610	41,111	44	94	82	702	334	14,127 i	79	216 i
Other chemicals	other 325	1,379	5,202	212	53	84	53	144	492 i	147	128 i
Plastics and rubber products	326	1,416	1,973	177	42	43	7	144	47 i	168	40
Nonmetallic mineral products	327	D	1,145	28	5	35	3	14	5 i	59	51 i
Fabricated metal products	332	2,422	1,738	497	62	402	41	9	2 i	303	61
Machinery	333	D	13,578	841	466	1,017	1,303	129	73	175	1,107 i
Agricultural implement	33311	171	1,255	28	47	33	86	D	*	D	*
Semiconductor machinery	333295	51	2,220	12	12 i	27	54	8	7 i	25	1,048 i
Engine, turbine, and power transmission equipment	3336	196	3,599	90	137	104	417	D	D	23	D
Other machinery	other 333	D	6,503	711	269	853	746	D	D	D	D
Computer and electronic products	334	3,098	53,664	1,228	8,434	1,498	9,076	225	411 i	467	8,045 i
Semiconductor and other electronic components	3344	777	22,855	206	2,633	239	2,422	38	45 i	175	7,377 i
Other computer and electronic products	other 334	2,321	30,809	1,022	5,801	1,259	6,654	187	366 i	293	668 i
Electrical equipment, appliances, and components	335	1,277	3,417	419	131	631	239	105	38 i	107	69
Transportation equipment	336	1,382	20,275	274	479	206	685	40	32 i	22	31 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	729	11,737	133	39	106	292	D	D	4	11 i
Other transportation equipment	other 336	653	8,538	141	440	100	393	D	D	18	20 i
Miscellaneous manufacturing	339	2,275	8,442	437	564 i	485	593	415	509 i	147	55 i
Other manufacturing	312–316, 321–324, 331, 337	2,583	4,918	354	155	266	142	131	223 i	236	106
Nonmanufacturing industries	21–23, 42–81	25,467	75,428	15,299	44,768	8,466	8,719	3,737	3,616	1,854	1,528 i
Mining, extraction, and support activities	21	185	2,425	39	191	39	118	24	67 i	7	16 i
Utilities	22	74	302	13	34	14	30	19	10 i	5	*
Wholesale trade	42	3,605	1,419 i	1,173	90 i	829	148 i	326	50 i	19	26 i
Information	51	4,022	41,014	3,204	30,942	1,444	4,526	57	38 i	24	1,061 i
Publishing	511	2,038	27,748	1,547	20,685	729	3,049	52	37 i	D	1,061 i
Telecommunications	517	D	2,040	141	952 i	123	624 i	0	0	D	*
Data processing, hosting, and related services	518	D	4,257	942	3,695	187	358 i	D	*	0	0
Other information	other 51	761	6,969	574	5,609	405	494	D	*	0	0
Professional, scientific, and technical services	54	10,670	23,368	7,463	9,946 i	4,543	2,595	2,217	3,270 i	1,750	409 i
Architectural, engineering, and related services	5413	2,150	1,808	886	335	985	217	330	116	269	39
Scientific research and development services	5417	1,534	6,170	365	148 i	392	140	888	3,065 i	472	188 i
Biotechnology research and development	541711	671	4,283	90	45 i	89	36 i	563	2,797	180	68 i
Other scientific research and development	other 5417	863	1,888	275	102	303	104	324	268 i	292	120 i
Other professional, scientific, and technical services	other 54	6,987	15,389	6,212	9,463 i	3,166	2,238	999	88 i	1,009	182
Health care services	621–23	1,009	558	588	53	584	65	303	161 i	10	9 i
Other nonmanufacturing	23, 44–45, 48–49, 52–53, 55–56, 624, 71–72, 81	5,902	6,342	2,819	3,514	1,014	1,237	791	21	39	7 i

TABLE 47. Companies with domestic R&D paid for and performed by the company in selected technology focus areas, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products		Embedded software		Biotechnology		Nanotechnology	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
All companies (number of domestic employees)	-	47,662	238,768	19,875	55,273	13,326	21,596	5,746	20,336 i	3,960	11,613 i
Small companies <sup>b</sup>											
5-499	--	45,120	46,509	18,981	14,185	12,619	5,198	5,378	5,810	3,627	1,486 i
5-99	--	38,331	24,928	16,413	8,331	11,032	3,314	4,637	3,410	3,012	698
5-49	-	33,145	17,317	14,308	6,264	9,484	2,604	3,922	2,130	2,533	550
5-9	-	11,510	2,981	5,386	740 i	4,034	913	1,186	356	665	50
10-24	-	12,931	4,907	5,583	1,470	3,140	441	1,404	705	1,201	155
25-49	-	8,704	9,429	3,339	4,053	2,310	1,250	1,332	1,068	668	345
50-99	-	5,186	7,611	2,106	2,067	1,548	710	716	1,280	479	148
100-249	-	4,568	10,433	1,525	2,303	1,243	1,020	560	1,373 i	489	544 i
250-499	-	2,220	11,149	1,043	3,552	345	863	180	1,027 i	126	244 i
Medium and large companies											
500-999	-	D	8,739	265	2,230	183	947	101	791	76	245 i
1,000-4,999	-	1,232	42,905	397	9,363	323	3,126	125	3,918 i	126	1,219 i
5,000-9,999	-	235	18,659	123	3,860	83	2,537	84	1,050 i	79	1,819 i
10,000-24,999	-	138	42,585	54	8,847	60	2,943	33	5,847 i	30	3,436 i
25,000 or more	-	D	79,370	55	16,788	57	6,845	25	2,920 i	22	3,408 i

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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.

<sup>b</sup> 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, 2011.

TABLE 48. Companies with domestic R&D paid for by others and performed by the company in selected technology focus areas, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products		Embedded software		Biotechnology		Nanotechnology	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
All industries	21-23, 31-33, 42-81	8,639	55,324	3,207	5,028	2,488	3,334	1,628	5,205	1,461	1,943
Manufacturing industries	31-33	2,545	38,021	661	2,255	739	1,639	461	3,099 i	442	1,431
Food	311	112	196	10	2	10	2	79	22	0	0
Chemicals	325	392	5,337	D	2	15	2	134	2,805 i	148	37
Basic chemicals	3251	149	D	D	2	12	1	19	10	124	19
Pharmaceuticals and medicines	3254	168	4,838	D	*	3	1	100	2,696 i	3	1 i
Other chemicals	other 325	75	D	D	*	0	0	15	100	21	17
Plastics and rubber products	326	147	307 i	D	*	D	*	D	*	20	3 i
Nonmetallic mineral products	327	13	33	0	0	0	0	D	*	4	5
Fabricated metal products	332	335	115	126	3 i	95	1 i	D	* i	D	1
Machinery	333	199	1,131	95	152	94	15	8	11 i	14	102
Agricultural implement	33311	5	22	3	2 i	3	4	0	0	D	2
Semiconductor machinery	333295	14	139	8	4 i	9	2	D	1	10	100
Engine, turbine, and power transmission equipment	3336	17	693	9	D	D	D	0	0	0	0
Other machinery	other 333	163	278	75	D	D	D	D	10 i	D	*
Computer and electronic products	334	615	9,040	230	1,219	333	893	101	82 i	186	1,088
Semiconductor and other electronic components	3344	255	1,245	58	60 i	85	24 i	4	D	61	634 i
Other computer and electronic products	other 334	360	7,794	172	1,159	248	869	98	D	125	454
Electrical equipment, appliances, and components	335	99	178	38	11	51	53	17	17	D	*
Transportation equipment	336	172	20,605 i	68	824 i	78	627 i	D	D	21	164 i
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	103	D	33	69 i	36	62	D	*	D	*
Other transportation equipment	other 336	70	D	35	755 i	42	565 i	D	D	D	164 i
Miscellaneous manufacturing	339	308	D	61	38	51	41	88	97	34	19
Other manufacturing	312-316, 321-324, 331, 337	153	D	D	4 i	D	6	D	D	10	11
Nonmanufacturing industries	21-23, 42-81	6,093	17,303	2,546	2,773	1,748	1,695 i	1,168	2,106	1,018	513 i
Mining, extraction, and support activities	21	41	307	28	D	28	D	0	0	D	3
Utilities	22	23	84	D	*	15	3 i	0	0	15	1 i
Wholesale trade	42	612	248	122	54 i	126	59 i	D	8	123	13 i
Information	51	146	851	126	430	60	107	D	2	4	D
Publishing	511	D	687	66	386	23	73	0	0	D	D
Telecommunications	517	9	117	4	3	4	30	0	0	0	0
Data processing, hosting, and related services	518	35	28	D	23	D	2	0	0	0	0
Other information	other 51	D	19	D	17 i	D	2	D	2	D	*
Professional, scientific, and technical services	54	3,800	14,851	2,007	2,104	1,508	1,456 i	770	2,050	615	464 i
Architectural, engineering, and related services	5413	1,152	1,966	461	208 i	512	409 i	42	5	74	20
Scientific research and development services	5417	1,357	9,131	472	853 i	414	572 i	710	1,968	525	404 i
Biotechnology research and development	541711	372	1,735	109	43 i	10	25	342	1,238	115	26
Other scientific research and development	other 5417	985	7,396	363	810 i	403	547 i	368	730 i	410	378 i
Other professional, scientific, and technical services	other 54	1,290	3,755	1,074	1,043	583	475 i	19	78 i	16	40 i
Health care services	621-23	620	183	D	*	D	*	291	36	5	D
Other nonmanufacturing	23, 44-45, 48-49, 52-53, 55-56, 624, 71-72, 81	852	779	D	D	D	D	D	8	D	D

TABLE 48. Companies with domestic R&D paid for by others and performed by the company in selected technology focus areas, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D		Software products		Embedded software		Biotechnology		Nanotechnology	
		Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount	Companies <sup>a</sup> (number)	Amount
All companies (number of domestic employees)	-	8,639	55,324	3,207	5,028	2,488	3,334	1,628	5,205	1,461	1,943
Small companies <sup>b</sup>											
5-499	-	8,206	10,283	3,063	1,584	2,334	1,258	1,536	1,554	1,371	541
5-99	-	6,813	6,382	2,576	1,074	2,106	948	1,409	1,049	1,045	396
5-49	-	6,198	4,525	2,333	788	1,911	696	1,258	732	920	305
5-9	-	2,262	1,221	872	279	672	177	411	151	260	78
10-24	-	2,384	1,872	956	360	755	272	606	326	308	149
25-49	-	1,552	1,432	505	149 i	484	248	240	255	353	79
50-99	-	615	1,857	242	286 i	195	252	151	316	125	91 i
100-249	-	820	2,095	195	245	185	214	96	367	54	116
250-499	-	573	1,806	293	264	43	96	31	138	272	29 i
Medium and large companies											
500-999	-	126	1,288	35	70 i	34	131	26	205	19	30 i
1,000-4,999	-	170	7,579	54	687	59	375	32	1,223	36	676
5,000-9,999	-	46	6,292	15	700	19	166 i	9	1,414 i	10	317
10,000-24,999	-	51	6,630	20	585	22	610	12	620 i	13	44 i
25,000 or more	-	40	23,253 i	20	1,401 i	20	793 i	13	189 i	12	336 i

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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.

<sup>b</sup> 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, 2011.

TABLE 49. R&D costs paid for by the company and others projected for 2012, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						
		Paid for by company	Paid for by others	Paid for by company			Paid for by others			Projected foreign R&D cost paid for by the company
				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	365,211	70,807	293,157	35,114	258,043	60,820	36,005 i	24,815	72,054
Manufacturing industries	31-33	254,830	47,129	197,783	27,026	170,757	42,383	27,971 i	14,412	57,048
Food	311	6,205	209	5,064	463	4,601	199	18	181	1,141
Beverage and tobacco products	312	1,605	D	814	D	D	D	0	D	791
Textile, apparel, and leather products	313-316	773	44	718	22 i	696	44	38 i	6	55
Wood products	321	206	8	202	15 i	187	8	0	8	4
Paper	322	2,014 i	25	1,806 i	29 i	1,777 i	25	D	D	208 i
Printing and related support activities	323	235	1	202	13	189	1	1	*	33
Petroleum and coal products	324	1,364	D	1,205	D	D	D	0	D	159
Chemicals	325	89,819	8,783	69,561	17,734	51,826	6,265	470	5,795	20,258
Basic chemicals	3251	D	D	4,121	314	3,807	D	201	D	D
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,302	15	935	52	883	13	8 i	6	367
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	1,221	118 i	1,103 i	D	1	D	D
Pharmaceuticals and medicines	3254	75,602	8,172	58,998	16,961	42,037	5,680	241 i	5,439	16,604
Soap, cleaning compound, and toilet preparation	3256	4,051	5	2,958	134 i	2,824 i	5	1	5	1,094
Paint, coating, adhesive, and other chemicals	3255, 3259	1,513	46	1,328	156	1,172	38	18	19	185
Plastics and rubber products	326	2,652	218 i	2,284	92	2,192	203 i	15 i	188 i	367
Nonmetallic mineral products	327	1,104	35	989	283	706	34	25	10	115
Primary metals	331	945	73	793	142	651 i	67	13	54	152
Fabricated metal products	332	2,030	133	1,872	111	1,761	131	22	109	159
Machinery	333	19,344	1,438	15,376	845	14,531	1,256	475	781	3,968
Agricultural implement	33311	1,967	27	1,402	134	1,268	26	1	25	565
Semiconductor machinery	333295	2,644	167	2,299	65	2,234	162	7	155	345
Engine, turbine, and power transmission equipment	3336	D	D	4,351	439	3,912	D	D	D	D
Other machinery	other 333	D	D	7,325	208	7,117	D	D	D	D
Computer and electronic products	334	77,887	9,585	61,358	1,853 i	59,506 i	9,032	5,092	3,940	16,529
Communications equipment	3342	14,832 i	1,720 i	11,934 i	491 i	11,443 i	1,688 i	821 i	867	2,898
Semiconductor and other electronic components	3344	33,580	1,407	24,817	578	24,239	1,327	112	1,215	8,763
Navigational, measuring, electromedical, and control instruments	3345	13,853 i	5,813	11,394 i	434	10,960 i	5,455	4,132	1,323	2,459 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,440 i	142	3,853 i	177	3,675 i	141	20	121	588 i
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	3,391 i	5,545	3,002	91	2,911	5,214	4,043	1,171	389 i
Other measuring and controlling device	other 3345	6,021	127	4,539	166 i	4,373 i	99	69	31	1,482
Other computer and electronic products	other 334	15,622	645	13,214	349 i	12,864	562	27 i	535	2,408
Electrical equipment, appliances, and components	335	5,323	178	3,608	159 i	3,449	175	101	74	1,715

TABLE 49. R&D costs paid for by the company and others projected for 2012, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						
		Paid for by company	Paid for by others	Paid for by 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	Projected foreign R&D cost paid for by the company
Transportation equipment	336	31,639	25,358 i	22,261	4,105	18,156	23,942 i	21,625 i	2,317	9,378
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	22,776	2,057	14,316	2,805	11,512	1,575	236	1,339	8,460
Aerospace products and parts	3364	7,686	23,282 i	6,847	1,261	5,587	22,351 i	21,378 i	973	838
Aircraft, aircraft engine, and aircraft parts	336411-13	D	D	6,493	1,226	5,266	D	20,445 i	D	D
Guided missile, space vehicle, and related parts	336414-15, 336419	D	D	355	34	320	D	933	D	D
Military armored vehicle, tank, and tank component	336992	30	3	29	4	25	3	2	1	1
Other transportation equipment	other 336	1,147	15	1,068	36	1,032	13	8	4	79
Furniture and related products	337	359	2	329	14	315	2	*	2	29
Miscellaneous manufacturing	339	11,327	D	9,340	D	D	D	D	D	1,988
Medical equipment and supplies	3391	8,454	570	7,097	650	6,447	537	25	511	1,357
Other miscellaneous manufacturing	3399	2,873	D	2,243	D	D	D	D	D	631
Nonmanufacturing industries	21-23, 42-81	110,381	23,678	95,374	8,087	87,287	18,437	8,034	10,403	15,006
Mining, extraction, and support activities	21	3,508	D	3,167	470	2,698	328	24 i	304 i	341
Utilities	22	609	132	589	264	325	98	94	5	20
Wholesale trade	42	2,425 i	270	2,043 i	279 i	1,763 i	231 i	72 i	159 i	383 i
Electronic shopping and electronic auctions	454111-12	D	1	1,409 i	27	1,382 i	1	0	1	D
Transportation and warehousing	48-49	130	1	92	19	73	1	1	*	38 i
Information	51	59,845	897	50,803	2,770 i	48,033	729	124	605	9,042
Publishing	511	39,323	D	31,812	1,888	29,924	562	106	457	7,511
Newspaper, periodical, book, and directory publishers	5111	564	0	530	435	95	0	0	0	34
Software publishers	5112	38,759	D	31,282	1,453	29,828	562	106	457	7,478
Telecommunications	517	3,966 i	118	3,876 i	191 i	3,685 i	118	5 i	112 i	90
Data processing, hosting, and related services	518	4,821	18	4,491	167	4,324	18	*	18	330
Other information	other 51	11,735 i	D	10,624 i	524 i	10,101 i	31 i	13 i	19 i	1,111 i
Finance and insurance	52	3,997	14	3,470	180	3,290	14	0	14	527
Real estate and rental and leasing	53	477	0	422	39	383	0	0	0	55
Lessors of nonfinancial intangible assets (except copyrighted works)	533	377	0	334	8	326	0	0	0	43
Other real estate and rental and leasing	other 53	100	0	88	30	58	0	0	0	12
Professional, scientific, and technical services	54	34,407	21,103	30,620	3,729	26,892 i	16,179	7,152	9,027	3,786
Architectural, engineering, and related services	5413	2,180	D	1,956	314	1,642	2,393	1,227 i	1,165 i	225
Computer systems design and related services	5415	17,082 i	1,779	14,922 i	717 i	14,204 i	1,583	897	686 i	2,160
Scientific research and development services	5417	9,877	13,614	9,076	2,092	6,984	9,804	4,041	5,763	801
Biotechnology research and development	541711	6,964	D	6,532	1,616	4,916	2,175	515	1,660	432
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,881	10,227	2,513	469	2,044	7,023	2,969	4,054	369

TABLE 49. R&D costs paid for by the company and others projected for 2012, by industry and company size: 2011  
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						
		Paid for by company	Paid for by others	Paid for by company				Paid for by others		Projected foreign R&D cost paid for by the company
				Total	Purchased and collaborative R&D	R&D performed by the company	Total	U.S. government	Non-U.S. government sources	
Social sciences and humanities research and development	541720	32	D	32	7 i	25 i	606	557	49	0
Other professional, scientific, and technical services	other 54	5,268	D	4,667	606 i	4,061 i	2,400	987	1,413	601
Health care services	621-23	506	D	503	103	400	195	10	185	4
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	D	676	2,255	207	2,048	661	557	104	D
All companies (number of employees)	-	365,211	70,807	293,157	35,114	258,043	60,820	36,005 i	24,815	72,054
Small companies <sup>a</sup>										
5-499	-	64,175	12,155	57,999	7,264	50,735	11,076	4,969	6,107	6,176
5-99	-	34,208	7,556	31,356	4,484	26,872	6,983	3,520	3,463	2,851
5-49	-	23,583	5,391	21,721	3,111	18,610 i	4,935	2,591	2,343	1,862
5-9	-	3,826	1,387	3,683	527	3,156 i	1,285	638	647	143
10-24	-	7,527	2,036	6,452	1,118	5,334	1,845	932	914	1,075
25-49	-	12,229	1,968	11,586	1,466 i	10,119 i	1,804	1,022	783	644
50-99	-	10,624	2,165	9,635	1,373	8,262	2,048	928	1,119	989
100-249	-	14,669	2,699	13,084	1,698	11,387	2,290	970	1,320	1,585
250-499	-	15,298	1,900	13,559	1,082	12,477	1,804	479	1,324	1,740
Medium and large companies										
500-999	-	11,873	1,584	10,317	835	9,482	1,451	516	935	1,556
1,000-4,999	-	64,046	10,644	50,099	5,067	45,032	8,479	2,202	6,277	13,947
5,000-9,999	-	27,402	10,282	20,051	1,813 i	18,238	6,082	736 i	5,346	7,351
10,000-24,999	-	70,477	8,004	57,429	7,994	49,435	6,907	3,425	3,481	13,048
25,000 or more	-	127,238	28,139 i	97,262	12,140	85,122	26,825 i	24,157 i	2,668	29,976

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> 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, 2011.

TABLE 50. Companies that introduced new or significantly improved products or processes, by industry and company size: 2009–11  
(Number)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved products or processes		New or significantly improved products					
			Yes	No	Any good or service		New goods		New services	
					Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,220,114	174,066	1,024,199	114,895	1,070,247	66,427	1,122,590	82,546	1,101,820
Manufacturing industries	31–33	103,220	30,396	71,475	22,365	78,250	19,755	81,060	9,058	90,889
Food	311	8,333	2,171	6,135	1,444	6,785	1,346	6,848	487	7,681
Beverage and tobacco products	312	1,245	437	799	264	943	200	1,013	125	1,067
Textile, apparel, and leather products	313–316	4,641	1,006	3,515	724	3,772	582	3,908	222	4,244
Wood products	321	4,876	583	4,266	331	4,440	259	4,509	157	4,598
Paper	322	1,218	323	888	201	1,001	167	1,035	72	1,094
Printing and related support activities	323	8,249	1,782	6,362	863	7,085	584	7,477	774	7,186
Petroleum and coal products	324	369	203	164	193	174	193	174	59	308
Chemicals	325	4,660	2,277	2,251	1,724	2,762	1,662	2,843	548	3,816
Basic chemicals	3251	867	508	354	418	443	413	449	181	658
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	392	137	204	117	223	114	226	42	294
Pesticide, fertilizer, and other agricultural chemical	3253	429	77	352	67	361	57	372	33	396
Pharmaceuticals and medicines	3254	941	412	492	341	558	333	570	86	800
Soap, cleaning compound, and toilet preparation	3256	840	540	292	350	471	335	485	116	704
Paint, coating, adhesive, and other chemicals	3255, 3259	1,189	603	557	430	705	411	742	90	964
Plastics and rubber products	326	4,851	1,693	3,086	1,281	3,450	1,220	3,524	373	4,345
Nonmetallic mineral products	327	3,765	617	3,129	463	3,178	394	3,301	201	3,476
Primary metals	331	1,433	250	1,177	170	1,257	156	1,271	59	1,366
Fabricated metal products	332	24,026	5,642	18,166	3,504	19,927	2,605	20,846	1,938	21,561
Machinery	333	9,881	3,808	5,862	3,139	6,469	2,895	6,745	1,035	8,449
Agricultural implement	33311	375	189	181	165	200	163	207	38	322
Semiconductor machinery	333295	169	41	125	41	125	40	126	13	151
Engine, turbine, and power transmission equipment	3336	366	185	176	164	195	114	247	78	277
Other machinery	other 333	8,971	3,393	5,379	2,769	5,949	2,578	6,165	906	7,699
Computer and electronic products	334	5,637	3,063	2,465	2,779	2,711	2,511	2,978	1,186	4,267
Communications equipment	3342	674	399	250	380	268	371	276	99	533
Semiconductor and other electronic components	3344	1,782	913	834	737	1,000	635	1,099	320	1,412
Navigational, measuring, electromedical, and control instruments	3345	2,253	1,161	1,056	1,084	1,106	1,042	1,151	411	1,785
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	265	112	147	103	136	102	137	22	235
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	218	160	57	157	60	156	61	48	168
Other measuring and controlling device	other 3345	1,770	888	852	824	910	784	953	341	1,382
Other computer and electronic products	other 334	928	590	326	578	337	463	452	356	537
Electrical equipment, appliances, and components	335	2,530	995	1,505	860	1,621	802	1,679	317	2,149
Transportation equipment	336	4,441	1,578	2,731	1,292	2,962	1,252	2,981	427	3,717
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	2,718	890	1,761	706	1,917	674	1,921	267	2,357
Aerospace products and parts	3364	629	264	358	210	399	201	409	55	550
Aircraft, aircraft engine, and aircraft parts	336411–13	607	253	348	201	387	193	396	49	535
Guided missile, space vehicle, and related parts	336414–15, 336419	22	11	10	9	12	8	13	6	15

TABLE 50. Companies that introduced new or significantly improved products or processes, by industry and company size: 2009–11  
(Number)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved products or processes		New or significantly improved products					
			Yes	No	Any good or service		New goods		New services	
					Yes	No	Yes	No	Yes	No
Military armored vehicle, tank, and tank component	336992	60	D	D	D	D	D	D	D	D
Other transportation equipment	other 336	1,034	D	D	D	D	D	D	D	D
Furniture and related products	337	4,855	1,143	3,687	741	4,057	723	4,079	150	4,661
Miscellaneous manufacturing	339	8,208	2,825	5,287	2,394	5,656	2,204	5,849	930	6,904
Medical equipment and supplies	3391	3,194	1,250	1,915	1,117	2,023	992	2,128	486	2,490
Other miscellaneous manufacturing	3399	5,014	1,575	3,372	1,277	3,633	1,212	3,722	444	4,414
Nonmanufacturing industries	21–23, 42–81	1,116,895	143,670	952,724	92,529	991,997	46,673	1,041,530	73,488	1,010,931
Mining, extraction, and support activities	21	5,526	686	4,751	337	5,088	213	5,214	294	5,134
Utilities	22	660	103	554	36	621	17	636	30	627
Wholesale trade	42	81,652	15,581	64,891	9,550	70,312	7,032	73,230	4,868	74,683
Electronic shopping and electronic auctions	454111–12	2,322	744	1,564	510	1,798	334	1,924	385	1,922
Transportation and warehousing	48–49	35,067	2,643	32,170	1,385	32,925	78	34,481	1,362	33,198
Information	51	17,587	6,056	11,257	4,978	12,230	2,846	14,232	3,851	13,132
Publishing	511	7,152	2,874	4,234	2,319	4,704	1,736	5,247	1,374	5,440
Newspaper, periodical, book, and directory publishers	5111	4,945	1,431	3,497	929	3,941	655	4,174	494	4,176
Software publishers	5112	2,208	1,442	737	1,390	763	1,080	1,072	880	1,264
Telecommunications	517	2,065	554	1,449	388	1,606	80	1,915	374	1,620
Data processing, hosting, and related services	518	2,285	938	1,256	912	1,282	542	1,650	856	1,322
Other information	other 51	6,085	1,691	4,318	1,358	4,638	490	5,421	1,247	4,749
Finance and insurance	52	40,467	5,127	34,835	2,876	36,534	876	38,236	2,570	36,840
Real estate and rental and leasing	53	31,730	2,136	29,092	1,078	29,652	1,014	29,706	571	30,159
Lessors of nonfinancial intangible assets (except copyrighted works)	533	543	263	279	262	280	260	282	8	534
Other real estate and rental and leasing	other 53	31,187	1,873	28,814	816	29,372	754	29,424	563	29,625
Professional, scientific, and technical services	54	135,127	23,708	109,569	19,085	112,184	7,938	124,146	16,083	115,349
Architectural, engineering, and related services	5413	23,027	4,695	18,018	3,460	19,082	1,622	20,945	2,653	19,674
Computer systems design and related services	5415	15,507	6,893	8,425	5,491	9,591	3,213	11,884	4,288	10,638
Scientific research and development services	5417	2,670	1,146	1,492	1,005	1,585	767	1,849	564	2,015
Biotechnology research and development	541711	849	306	534	258	579	200	627	141	692
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,657	810	826	721	877	555	1,072	405	1,188
Social sciences and humanities research and development	541720	163	30	133	27	128	13	149	18	136
Other professional, scientific, and technical services	other 54	93,923	10,974	81,634	9,129	81,927	2,335	89,469	8,578	83,022
Health care services	621–23	160,040	25,286	130,943	15,648	139,012	4,747	149,913	15,142	139,533
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	606,717	61,600	533,097	37,046	551,641	21,578	569,811	28,332	560,352
All companies (number of domestic employees)	–	1,220,114	174,066	1,024,199	114,895	1,070,247	66,427	1,122,590	82,546	1,101,820
Small companies <sup>b</sup>										
5–499	–	1,210,429	172,091	1,016,640	113,423	1,062,216	65,151	1,114,355	81,836	1,093,046
5–99	–	1,155,721	161,950	973,139	106,952	1,015,712	60,266	1,065,724	78,394	1,043,648
5–49	–	1,072,528	149,659	904,395	98,681	944,515	54,839	991,153	73,131	969,597
5–9	–	468,836	58,088	401,335	39,289	415,503	18,896	436,863	31,430	422,872

TABLE 50. Companies that introduced new or significantly improved products or processes, by industry and company size: 2009–11  
(Number)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved products or processes		New or significantly improved products					
			Yes	No	Any good or service		New goods		New services	
					Yes	No	Yes	No	Yes	No
10–24	–	438,543	60,751	370,602	40,523	385,455	23,676	404,092	29,357	397,310
25–49	–	165,150	30,820	132,458	18,869	143,557	12,266	150,197	12,343	149,416
50–99	–	83,193	12,291	68,743	8,271	71,198	5,427	74,571	5,263	74,052
100–249	–	42,412	7,606	34,140	5,035	36,055	3,833	37,797	2,701	38,319
250–499	–	12,297	2,536	9,361	1,437	10,448	1,051	10,834	742	11,080
Medium and large companies										
500–999	–	4,326	722	3,574	580	3,702	484	3,804	244	4,030
1,000–4,999	–	4,068	920	3,077	592	3,392	527	3,459	279	3,697
5,000–9,999	–	692	144	529	128	544	115	558	68	603
10,000–24,999	–	397	109	265	96	276	87	286	57	312
25,000 or more	–	202	81	114	75	117	65	128	61	132
Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved processes							
			Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
			Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,220,114	115,958	1,062,204	46,326	1,136,978	38,664	1,142,041	87,968	1,092,244
Manufacturing industries	31–33	103,220	21,313	79,218	16,340	84,481	6,198	94,307	12,955	87,646
Food	311	8,333	1,566	6,642	1,257	6,951	553	7,650	922	7,289
Beverage and tobacco products	312	1,245	353	832	303	882	162	1,023	178	1,007
Textile, apparel, and leather products	313–316	4,641	650	3,801	522	3,981	188	4,263	404	4,067
Wood products	321	4,876	466	4,345	306	4,505	87	4,710	226	4,571
Paper	322	1,218	248	950	150	1,048	86	1,112	167	1,030
Printing and related support activities	323	8,249	1,504	6,581	995	7,089	429	7,597	794	7,235
Petroleum and coal products	324	369	82	285	76	291	63	305	73	294
Chemicals	325	4,660	1,645	2,865	1,030	3,479	430	4,078	1,234	3,272
Basic chemicals	3251	867	408	451	337	523	137	723	338	521
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	392	92	247	63	272	22	316	59	280
Pesticide, fertilizer, and other agricultural chemical	3253	429	40	389	33	396	12	418	14	415
Pharmaceuticals and medicines	3254	941	270	632	210	692	49	850	143	757
Soap, cleaning compound, and toilet preparation	3256	840	397	429	127	701	86	741	346	480
Paint, coating, adhesive, and other chemicals	3255, 3259	1,189	438	717	260	895	125	1,031	334	819
Plastics and rubber products	326	4,851	1,174	3,535	1,035	3,677	323	4,373	669	4,032
Nonmetallic mineral products	327	3,765	455	3,147	342	3,260	175	3,554	246	3,483
Primary metals	331	1,433	197	1,229	160	1,265	51	1,375	74	1,352
Fabricated metal products	332	24,026	4,429	18,944	3,381	20,158	959	22,446	2,743	20,667
Machinery	333	9,881	2,476	7,130	2,053	7,578	717	8,858	1,526	8,077
Agricultural implement	33311	375	94	276	79	290	28	342	48	321
Semiconductor machinery	333295	169	18	148	17	149	6	160	10	156
Engine, turbine, and power transmission equipment	3336	366	139	214	124	230	74	279	89	264
Other machinery	other 333	8,971	2,225	6,492	1,833	6,909	609	8,078	1,378	7,337
Computer and electronic products	334	5,637	1,708	3,727	1,444	4,000	600	4,826	1,012	4,421

TABLE 50. Companies that introduced new or significantly improved products or processes, by industry and company size: 2009–11  
(Number)

Industry and NAICS code	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved processes							
			Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
			Yes	No	Yes	No	Yes	No	Yes	No
Communications equipment	3342	674	121	474	103	493	60	535	89	507
Semiconductor and other electronic components	3344	1,782	601	1,137	535	1,207	185	1,549	393	1,345
Navigational, measuring, electromedical, and control instruments	3345	2,253	648	1,553	560	1,645	178	2,018	280	1,921
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	265	50	206	46	210	10	245	19	237
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	218	82	135	72	145	18	199	71	146
Other measuring and controlling device	other 3345	1,770	516	1,212	441	1,291	150	1,574	190	1,539
Other computer and electronic products	other 334	928	337	562	246	654	176	723	250	648
Electrical equipment, appliances, and components	335	2,530	550	1,904	357	2,101	142	2,316	371	2,092
Transportation equipment	336	4,441	1,154	3,079	1,018	3,216	458	3,744	758	3,450
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	2,718	690	1,947	597	2,036	218	2,389	408	2,199
Aerospace products and parts	3364	629	189	431	170	450	40	580	132	488
Aircraft, aircraft engine, and aircraft parts	336411–13	607	181	418	164	435	D	D	125	474
Guided missile, space vehicle, and related parts	336414–15, 336419	22	8	13	6	15	D	D	7	14
Military armored vehicle, tank, and tank component	336992	60	6	4	6	4	D	D	3	7
Other transportation equipment	other 336	1,034	269	696	244	727	D	D	215	756
Furniture and related products	337	4,855	811	4,006	517	4,302	272	4,545	495	4,322
Miscellaneous manufacturing	339	8,208	1,844	6,218	1,393	6,699	504	7,532	1,062	6,985
Medical equipment and supplies	3391	3,194	869	2,271	628	2,523	255	2,876	468	2,665
Other miscellaneous manufacturing	3399	5,014	975	3,947	764	4,176	249	4,656	595	4,320
Nonmanufacturing industries	21–23, 42–81	1,116,895	94,645	982,986	29,986	1,052,497	32,466	1,047,734	75,013	1,004,598
Mining, extraction, and support activities	21	5,526	463	4,918	268	5,112	128	5,226	379	4,975
Utilities	22	660	89	559	25	623	20	629	77	572
Wholesale trade	42	81,652	10,958	68,772	3,911	75,820	4,353	75,378	8,573	71,057
Electronic shopping and electronic auctions	454111–12	2,322	557	1,747	243	2,046	336	1,968	369	1,937
Transportation and warehousing	48–49	35,067	2,119	31,393	5	34,258	1,109	33,152	1,616	32,144
Information	51	17,587	3,569	13,348	1,295	15,829	1,985	15,157	2,045	14,997
Publishing	511	7,152	1,282	5,731	484	6,622	754	6,299	629	6,434
Newspaper, periodical, book, and directory publishers	5111	4,945	839	3,997	365	4,563	500	4,379	336	4,550
Software publishers	5112	2,208	443	1,734	120	2,059	255	1,921	293	1,884
Telecommunications	517	2,065	334	1,666	25	1,976	164	1,837	226	1,773
Data processing, hosting, and related services	518	2,285	676	1,509	232	1,957	165	2,019	533	1,653
Other information	other 51	6,085	1,277	4,442	554	5,274	903	5,001	657	5,137
Finance and insurance	52	40,467	3,447	36,510	763	39,193	690	39,265	3,328	36,629
Real estate and rental and leasing	53	31,730	1,626	28,601	309	29,919	613	29,366	1,619	28,857
Lessors of nonfinancial intangible assets (except copyrighted works)	533	543	7	535	5	537	D	D	4	538
Other real estate and rental and leasing	other 53	31,187	1,619	28,066	304	29,382	D	D	1,615	28,319
Professional, scientific, and technical services	54	135,127	13,405	117,910	5,569	126,300	4,331	126,801	9,992	121,505
Architectural, engineering, and related services	5413	23,027	2,922	19,481	1,480	20,935	1,462	21,022	1,994	20,221
Computer systems design and related services	5415	15,507	4,442	10,794	1,417	13,810	1,702	13,516	3,757	11,551

TABLE 50. Companies that introduced new or significantly improved products or processes, by industry and company size: 2009–11  
(Number)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved processes							
			Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
			Yes	No	Yes	No	Yes	No	Yes	No
Scientific research and development services	5417	2,670	768	1,849	533	2,088	163	2,458	364	2,251
Biotechnology research and development	541711	849	222	609	179	653	82	751	80	751
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,657	535	1,088	350	1,276	75	1,551	278	1,343
Social sciences and humanities research and development	541720	163	11	152	3	159	6	157	6	156
Other professional, scientific, and technical services	other 54	93,923	5,273	85,786	2,139	89,468	1,004	89,805	3,877	87,483
Health care services	621–23	160,040	16,966	137,704	5,519	148,906	6,307	148,368	12,629	142,042
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	606,717	41,446	541,523	12,078	574,491	12,595	572,425	34,385	549,883
All companies (number of domestic employees)	–	1,220,114	115,958	1,062,204	46,326	1,136,978	38,664	1,142,041	87,968	1,092,244
Small companies <sup>b</sup>										
5–499	–	1,210,429	114,497	1,054,213	45,484	1,128,357	38,075	1,133,193	86,882	1,083,888
5–99	–	1,155,721	106,743	1,008,801	42,008	1,078,614	35,953	1,082,114	80,825	1,036,795
5–49	–	1,072,528	98,316	937,793	38,277	1,002,592	33,321	1,005,333	74,283	963,595
5–9	–	468,836	36,647	412,341	13,905	437,052	12,691	436,791	27,489	422,420
10–24	–	438,543	40,900	384,425	16,799	410,554	14,486	412,454	30,706	395,216
25–49	–	165,150	20,768	141,027	7,573	154,986	6,144	156,088	16,089	145,959
50–99	–	83,193	8,427	71,008	3,730	76,022	2,632	76,781	6,542	73,200
100–249	–	42,412	5,727	35,629	2,578	38,780	1,666	39,677	4,444	36,895
250–499	–	12,297	2,026	9,782	898	10,963	456	11,401	1,613	10,198
Medium and large companies										
500–999	–	4,326	503	3,751	336	3,928	212	4,036	320	3,930
1,000–4,999	–	4,068	710	3,266	333	3,643	215	3,754	576	3,397
5,000–9,999	–	692	105	562	72	596	61	606	76	590
10,000–24,999	–	397	74	288	51	311	51	310	59	302
25,000 or more	–	202	69	124	50	143	50	143	55	138

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Statistics for number of companies 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.

<sup>b</sup> 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. Sum of yes and no responses may not add to number of companies due to item nonresponse to some innovation question items.

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

TABLE 51. Companies that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2009–11  
(Percent)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved products or processes		New or significantly improved products					
			Yes	No	Any good or service		New goods		New services	
					Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,220,114	14.3	83.9	9.4	87.7	5.4	92.0	6.8	90.3
Manufacturing industries	31–33	103,220	29.4	69.2	21.7	75.8	19.1	78.5	8.8	88.1
Food	311	8,333	26.1	73.6	17.3	81.4	16.2	82.2	5.8	92.2
Beverage and tobacco products	312	1,245	35.1	64.2	21.2	75.8	16.0	81.3	10.0	85.7
Textile, apparel, and leather products	313–316	4,641	21.7	75.7	15.6	81.3	12.5	84.2	4.8	91.5
Wood products	321	4,876	12.0	87.5	6.8	91.0	5.3	92.5	3.2	94.3
Paper	322	1,218	26.5	72.9	16.5	82.2	13.7	85.0	5.9	89.8
Printing and related support activities	323	8,249	21.6	77.1	10.5	85.9	7.1	90.6	9.4	87.1
Petroleum and coal products	324	369	55.0	44.4	52.2	47.2	52.2	47.2	16.0	83.5
Chemicals	325	4,660	48.9	48.3	37.0	59.3	35.7	61.0	11.8	81.9
Basic chemicals	3251	867	58.5	40.8	48.2	51.1	47.6	51.8	20.9	75.9
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	392	34.8	51.9	29.9	56.8	29.1	57.6	10.7	75.0
Pesticide, fertilizer, and other agricultural chemical	3253	429	18.0	82.0	15.6	84.2	13.2	86.5	7.6	92.2
Pharmaceuticals and medicines	3254	941	43.8	52.2	36.3	59.2	35.4	60.6	9.2	85.0
Soap, cleaning compound, and toilet preparation	3256	840	64.3	34.8	41.7	56.1	39.8	57.7	13.8	83.7
Paint, coating, adhesive, and other chemicals	3255, 3259	1,189	50.7	46.9	36.1	59.3	34.5	62.3	7.5	81.1
Plastics and rubber products	326	4,851	34.9	63.6	26.4	71.1	25.1	72.7	7.7	89.6
Nonmetallic mineral products	327	3,765	16.4	83.1	12.3	84.4	10.5	87.7	5.3	92.3
Primary metals	331	1,433	17.4	82.1	11.8	87.7	10.9	88.7	4.1	95.3
Fabricated metal products	332	24,026	23.5	75.6	14.6	82.9	10.8	86.8	8.1	89.7
Machinery	333	9,881	38.5	59.3	31.8	65.5	29.3	68.3	10.5	85.5
Agricultural implement	33311	375	50.4	48.4	44.0	53.3	43.5	55.3	10.1	85.9
Semiconductor machinery	333295	169	24.3	74.0	24.3	74.0	23.7	74.6	7.7	89.3
Engine, turbine, and power transmission equipment	3336	366	50.5	48.1	44.9	53.2	31.2	67.4	21.2	75.6
Other machinery	other 333	8,971	37.8	60.0	30.9	66.3	28.7	68.7	10.1	85.8
Computer and electronic products	334	5,637	54.3	43.7	49.3	48.1	44.6	52.8	21.0	75.7
Communications equipment	3342	674	59.2	37.1	56.3	39.8	55.1	40.9	14.7	79.1
Semiconductor and other electronic components	3344	1,782	51.2	46.8	41.3	56.1	35.6	61.7	18.0	79.2
Navigational, measuring, electromedical, and control instruments	3345	2,253	51.5	46.9	48.1	49.1	46.3	51.1	18.2	79.2
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	265	42.4	55.3	39.1	51.4	38.7	51.8	8.2	88.8
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	218	73.3	26.2	72.0	27.6	71.5	28.0	22.1	77.0
Other measuring and controlling device	other 3345	1,770	50.2	48.2	46.5	51.4	44.3	53.8	19.2	78.0
Other computer and electronic products	other 334	928	63.6	35.1	62.4	36.4	49.9	48.7	38.4	57.9
Electrical equipment, appliances, and components	335	2,530	39.3	59.5	34.0	64.0	31.7	66.3	12.5	84.9
Transportation equipment	336	4,441	35.5	61.5	29.1	66.7	28.2	67.1	9.6	83.7
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	2,718	32.7	64.8	26.0	70.5	24.8	70.7	9.8	86.7
Aerospace products and parts	3364	629	41.9	57.0	33.3	63.5	31.9	65.0	8.8	87.5
Aircraft, aircraft engine, and aircraft parts	336411–13	607	41.6	57.4	33.1	63.8	31.8	65.2	8.1	88.2
Guided missile, space vehicle, and related parts	336414–15, 336419	22	50.0	45.5	40.9	54.5	36.4	59.1	27.3	68.2

TABLE 51. Companies that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2009–11  
(Percent)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved products or processes		New or significantly improved products					
			Yes	No	Any good or service		New goods		New services	
					Yes	No	Yes	No	Yes	No
Military armored vehicle, tank, and tank component	336992	60	D	D	D	D	D	D	D	D
Other transportation equipment	other 336	1,034	D	D	D	D	D	D	D	D
Furniture and related products	337	4,855	23.5	75.9	15.3	83.6	14.9	84.0	3.1	96.0
Miscellaneous manufacturing	339	8,208	34.4	64.4	29.2	68.9	26.9	71.3	11.3	84.1
Medical equipment and supplies	3391	3,194	39.1	59.9	35.0	63.3	31.0	66.6	15.2	78.0
Other miscellaneous manufacturing	3399	5,014	31.4	67.3	25.5	72.5	24.2	74.2	8.9	88.0
Nonmanufacturing industries	21–23, 42–81	1,116,895	12.9	85.3	8.3	88.8	4.2	93.3	6.6	90.5
Mining, extraction, and support activities	21	5,526	12.4	86.0	6.1	92.1	3.8	94.3	5.3	92.9
Utilities	22	660	15.7	84.0	5.5	94.2	2.6	96.4	4.6	95.1
Wholesale trade	42	81,652	19.1	79.5	11.7	86.1	8.6	89.7	6.0	91.5
Electronic shopping and electronic auctions	454111–12	2,322	32.1	67.4	22.0	77.5	14.4	82.9	16.6	82.8
Transportation and warehousing	48–49	35,067	7.5	91.7	4.0	93.9	0.2	98.3	3.9	94.7
Information	51	17,587	34.4	64.0	28.3	69.5	16.2	80.9	21.9	74.7
Publishing	511	7,152	40.2	59.2	32.4	65.8	24.3	73.4	19.2	76.1
Newspaper, periodical, book, and directory publishers	5111	4,945	28.9	70.7	18.8	79.7	13.3	84.4	10.0	84.5
Software publishers	5112	2,208	65.3	33.4	63.0	34.6	48.9	48.6	39.8	57.3
Telecommunications	517	2,065	26.8	70.2	18.8	77.8	3.9	92.7	18.1	78.5
Data processing, hosting, and related services	518	2,285	41.0	55.0	39.9	56.1	23.7	72.2	37.5	57.9
Other information	other 51	6,085	27.8	71.0	22.3	76.2	8.0	89.1	20.5	78.0
Finance and insurance	52	40,467	12.7	86.1	7.1	90.3	2.2	94.5	6.3	91.0
Real estate and rental and leasing	53	31,730	6.7	91.7	3.4	93.5	3.2	93.6	1.8	95.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	543	48.4	51.4	48.3	51.6	47.9	51.9	1.5	98.3
Other real estate and rental and leasing	other 53	31,187	6.0	92.4	2.6	94.2	2.4	94.3	1.8	95.0
Professional, scientific, and technical services	54	135,127	17.5	81.1	14.1	83.0	5.9	91.9	11.9	85.4
Architectural, engineering, and related services	5413	23,027	20.4	78.2	15.0	82.9	7.0	91.0	11.5	85.4
Computer systems design and related services	5415	15,507	44.4	54.3	35.4	61.8	20.7	76.6	27.7	68.6
Scientific research and development services	5417	2,670	42.9	55.9	37.6	59.4	28.7	69.2	21.1	75.5
Biotechnology research and development	541711	849	36.1	62.8	30.3	68.2	23.5	73.9	16.6	81.5
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,657	48.9	49.8	43.5	52.9	33.5	64.7	24.4	71.7
Social sciences and humanities research and development	541720	163	18.1	81.2	16.3	78.5	8.0	91.4	10.8	83.4
Other professional, scientific, and technical services	other 54	93,923	11.7	86.9	9.7	87.2	2.5	95.3	9.1	88.4
Health care services	621–23	160,040	15.8	81.8	9.8	86.9	3.0	93.7	9.5	87.2
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	606,717	10.2	87.9	6.1	90.9	3.6	93.9	4.7	92.4
All companies (number of domestic employees)	–	1,220,114	14.3	83.9	9.4	87.7	5.4	92.0	6.8	90.3
Small companies <sup>b</sup>										
5–499	–	1,210,429	14.2	84.0	9.4	87.8	5.4	92.1	6.8	90.3
5–99	–	1,155,721	14.0	84.2	9.3	87.9	5.2	92.2	6.8	90.3
5–49	–	1,072,528	14.0	84.3	9.2	88.1	5.1	92.4	6.8	90.4
5–9	–	468,836	12.4	85.6	8.4	88.6	4.0	93.2	6.7	90.2

TABLE 51. Companies that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2009–11  
(Percent)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved products or processes		New or significantly improved products					
			Yes	No	Any good or service		New goods		New services	
					Yes	No	Yes	No	Yes	No
10–24	–	438,543	13.9	84.5	9.2	87.9	5.4	92.1	6.7	90.6
25–49	–	165,150	18.7	80.2	11.4	86.9	7.4	90.9	7.5	90.5
50–99	–	83,193	14.8	82.6	9.9	85.6	6.5	89.6	6.3	89.0
100–249	–	42,412	17.9	80.5	11.9	85.0	9.0	89.1	6.4	90.3
250–499	–	12,297	20.6	76.1	11.7	85.0	8.6	88.1	6.0	90.1
Medium and large companies										
500–999	–	4,326	16.7	82.6	13.4	85.6	11.2	87.9	5.7	93.2
1,000–4,999	–	4,068	22.6	75.6	14.6	83.4	12.9	85.0	6.9	90.9
5,000–9,999	–	692	20.8	76.5	18.5	78.6	16.6	80.7	9.8	87.1
10,000–24,999	–	397	27.4	66.8	24.2	69.5	21.9	72.1	14.3	78.6
25,000 or more	–	202	40.1	56.4	37.2	58.2	32.2	63.6	30.2	65.3
Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved processes							
			Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
			Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,220,114	9.5	87.1	3.8	93.2	3.2	93.6	7.2	89.5
Manufacturing industries	31–33	103,220	20.6	76.7	15.8	81.8	6.0	91.4	12.6	84.9
Food	311	8,333	18.8	79.7	15.1	83.4	6.6	91.8	11.1	87.5
Beverage and tobacco products	312	1,245	28.4	66.8	24.3	70.8	13.0	82.2	14.3	80.8
Textile, apparel, and leather products	313–316	4,641	14.0	81.9	11.2	85.8	4.0	91.9	8.7	87.6
Wood products	321	4,876	9.6	89.1	6.3	92.4	1.8	96.6	4.6	93.7
Paper	322	1,218	20.4	78.0	12.3	86.1	7.0	91.3	13.7	84.6
Printing and related support activities	323	8,249	18.2	79.8	12.1	85.9	5.2	92.1	9.6	87.7
Petroleum and coal products	324	369	22.2	77.2	20.7	78.8	16.9	82.5	19.9	79.6
Chemicals	325	4,660	35.3	61.5	22.1	74.7	9.2	87.5	26.5	70.2
Basic chemicals	3251	867	47.1	52.0	38.8	60.3	15.8	83.3	39.0	60.1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	392	23.4	62.9	16.0	69.3	5.5	80.5	14.9	71.3
Pesticide, fertilizer, and other agricultural chemical	3253	429	9.4	90.6	7.8	92.2	2.8	97.2	3.4	96.6
Pharmaceuticals and medicines	3254	941	28.7	67.1	22.3	73.5	5.2	90.3	15.2	80.4
Soap, cleaning compound, and toilet preparation	3256	840	47.3	51.0	15.2	83.5	10.3	88.2	41.1	57.2
Paint, coating, adhesive, and other chemicals	3255, 3259	1,189	36.8	60.3	21.9	75.3	10.5	86.7	28.1	68.9
Plastics and rubber products	326	4,851	24.2	72.9	21.3	75.8	6.7	90.1	13.8	83.1
Nonmetallic mineral products	327	3,765	12.1	83.6	9.1	86.6	4.6	94.4	6.5	92.5
Primary metals	331	1,433	13.7	85.7	11.2	88.3	3.5	95.9	5.1	94.3
Fabricated metal products	332	24,026	18.4	78.8	14.1	83.9	4.0	93.4	11.4	86.0
Machinery	333	9,881	25.1	72.2	20.8	76.7	7.3	89.7	15.4	81.7
Agricultural implement	33311	375	25.0	73.5	21.1	77.5	7.4	91.2	12.9	85.6
Semiconductor machinery	333295	169	10.7	87.6	10.1	88.2	3.6	94.7	5.9	92.3
Engine, turbine, and power transmission equipment	3336	366	38.0	58.6	33.9	62.8	20.2	76.1	24.3	72.0
Other machinery	other 333	8,971	24.8	72.4	20.4	77.0	6.8	90.0	15.4	81.8
Computer and electronic products	334	5,637	30.3	66.1	25.6	71.0	10.6	85.6	18.0	78.4

TABLE 51. Companies that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2009–11  
(Percent)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved processes							
			Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
			Yes	No	Yes	No	Yes	No	Yes	No
Communications equipment	3342	674	18.0	70.4	15.3	73.2	8.9	79.5	13.2	75.2
Semiconductor and other electronic components	3344	1,782	33.7	63.8	30.0	67.7	10.4	86.9	22.1	75.5
Navigational, measuring, electromedical, and control instruments	3345	2,253	28.8	68.9	24.8	73.0	7.9	89.6	12.4	85.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	265	19.0	77.6	17.5	79.1	3.9	92.3	7.3	89.3
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	218	37.5	62.0	33.1	66.5	8.3	91.3	32.7	66.8
Other measuring and controlling device	other 3345	1,770	29.2	68.5	24.9	72.9	8.5	88.9	10.7	86.9
Other computer and electronic products	other 334	928	36.3	60.6	26.5	70.5	19.0	78.0	26.9	69.9
Electrical equipment, appliances, and components	335	2,530	21.7	75.3	14.1	83.0	5.6	91.5	14.7	82.7
Transportation equipment	336	4,441	26.0	69.3	22.9	72.4	10.3	84.3	17.1	77.7
Motor vehicles, bodies, trailers, and parts	3361, 3362, 3363	2,718	25.4	71.6	22.0	74.9	8.0	87.9	15.0	80.9
Aerospace products and parts	3364	629	30.0	68.6	27.1	71.5	6.4	92.2	20.9	77.7
Aircraft, aircraft engine, and aircraft parts	336411–13	607	29.8	68.9	27.1	71.6	D	D	20.5	78.2
Guided missile, space vehicle, and related parts	336414–15, 336419	22	36.4	59.1	27.3	68.2	D	D	31.8	63.6
Military armored vehicle, tank, and tank component	336992	60	10.1	6.7	10.1	6.7	D	D	5.0	11.8
Other transportation equipment	other 336	1,034	26.0	67.3	23.6	70.3	D	D	20.8	73.1
Furniture and related products	337	4,855	16.7	82.5	10.7	88.6	5.6	93.6	10.2	89.0
Miscellaneous manufacturing	339	8,208	22.5	75.7	17.0	81.6	6.1	91.8	12.9	85.1
Medical equipment and supplies	3391	3,194	27.2	71.1	19.7	79.0	8.0	90.0	14.6	83.5
Other miscellaneous manufacturing	3399	5,014	19.4	78.7	15.2	83.3	5.0	92.9	11.9	86.2
Nonmanufacturing industries	21–23, 42–81	1,116,895	8.5	88.0	2.7	94.2	2.9	93.8	6.7	89.9
Mining, extraction, and support activities	21	5,526	8.4	89.0	4.8	92.5	2.3	94.6	6.9	90.0
Utilities	22	660	13.5	84.8	3.8	94.5	3.0	95.3	11.7	86.7
Wholesale trade	42	81,652	13.4	84.2	4.8	92.9	5.3	92.3	10.5	87.0
Electronic shopping and electronic auctions	454111–12	2,322	24.0	75.2	10.5	88.1	14.5	84.8	15.9	83.4
Transportation and warehousing	48–49	35,067	6.0	89.5	0.0	97.7	3.2	94.5	4.6	91.7
Information	51	17,587	20.3	75.9	7.4	90.0	11.3	86.2	11.6	85.3
Publishing	511	7,152	17.9	80.1	6.8	92.6	10.5	88.1	8.8	90.0
Newspaper, periodical, book, and directory publishers	5111	4,945	17.0	80.8	7.4	92.3	10.1	88.6	6.8	92.0
Software publishers	5112	2,208	20.1	78.5	5.4	93.3	11.5	87.0	13.3	85.4
Telecommunications	517	2,065	16.2	80.7	1.2	95.7	7.9	89.0	10.9	85.9
Data processing, hosting, and related services	518	2,285	29.6	66.1	10.2	85.6	7.2	88.4	23.3	72.3
Other information	other 51	6,085	21.0	73.0	9.1	86.7	14.8	82.2	10.8	84.4
Finance and insurance	52	40,467	8.5	90.2	1.9	96.9	1.7	97.0	8.2	90.5
Real estate and rental and leasing	53	31,730	5.1	90.1	1.0	94.3	1.9	92.6	5.1	90.9
Lessors of nonfinancial intangible assets (except copyrighted works)	533	543	1.3	98.5	0.9	98.9	D	D	0.7	99.1
Other real estate and rental and leasing	other 53	31,187	5.2	90.0	1.0	94.2	D	D	5.2	90.8
Professional, scientific, and technical services	54	135,127	9.9	87.3	4.1	93.5	3.2	93.8	7.4	89.9
Architectural, engineering, and related services	5413	23,027	12.7	84.6	6.4	90.9	6.3	91.3	8.7	87.8
Computer systems design and related services	5415	15,507	28.6	69.6	9.1	89.1	11.0	87.2	24.2	74.5

TABLE 51. Companies that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2009–11 (Percent)

Industry and company size	NAICS code	Companies (number) <sup>a</sup>	New or significantly improved processes							
			Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
			Yes	No	Yes	No	Yes	No	Yes	No
Scientific research and development services	5417	2,670	28.8	69.2	19.9	78.2	6.1	92.1	13.6	84.3
Biotechnology research and development	541711	849	26.1	71.7	21.1	76.9	9.7	88.4	9.4	88.5
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,657	32.3	65.7	21.1	77.0	4.5	93.6	16.8	81.0
Social sciences and humanities research and development	541720	163	6.4	92.9	1.8	97.5	3.4	96.0	3.7	95.7
Other professional, scientific, and technical services	other 54	93,923	5.6	91.3	2.3	95.3	1.1	95.6	4.1	93.1
Health care services	621–23	160,040	10.6	86.0	3.4	93.0	3.9	92.7	7.9	88.8
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	606,717	6.8	89.3	2.0	94.7	2.1	94.3	5.7	90.6
All companies (number of domestic employees)	–	1,220,114	9.5	87.1	3.8	93.2	3.2	93.6	7.2	89.5
Small companies <sup>b</sup>										
5–499	–	1,210,429	9.5	87.1	3.8	93.2	3.1	93.6	7.2	89.5
5–99	–	1,155,721	9.2	87.3	3.6	93.3	3.1	93.6	7.0	89.7
5–49	–	1,072,528	9.2	87.4	3.6	93.5	3.1	93.7	6.9	89.8
5–9	–	468,836	7.8	88.0	3.0	93.2	2.7	93.2	5.9	90.1
10–24	–	438,543	9.3	87.7	3.8	93.6	3.3	94.1	7.0	90.1
25–49	–	165,150	12.6	85.4	4.6	93.8	3.7	94.5	9.7	88.4
50–99	–	83,193	10.1	85.4	4.5	91.4	3.2	92.3	7.9	88.0
100–249	–	42,412	13.5	84.0	6.1	91.4	3.9	93.6	10.5	87.0
250–499	–	12,297	16.5	79.6	7.3	89.2	3.7	92.7	13.1	82.9
Medium and large companies										
500–999	–	4,326	11.6	86.7	7.8	90.8	4.9	93.3	7.4	90.8
1,000–4,999	–	4,068	17.4	80.3	8.2	89.5	5.3	92.3	14.1	83.5
5,000–9,999	–	692	15.2	81.2	10.4	86.1	8.8	87.6	11.0	85.3
10,000–24,999	–	397	18.6	72.6	12.8	78.3	12.8	78.1	14.9	76.1
25,000 or more	–	202	34.2	61.4	24.8	70.8	24.8	70.8	27.2	68.3

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

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Statistics for number of companies 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.

<sup>b</sup> 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. Sum of yes and no percentages may not add to 100% due to item nonresponse to some innovation question items.

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

TABLE 52. Companies with and without R&amp;D activity that introduced new or significantly improved products or processes, by size of R&amp;D program: 2009–11

Company type	Companies (number)	New or significantly improved products							
		New or significantly improved products or processes		Any good or service		New goods		New services	
		Yes	No	Yes	No	Yes	No	Yes	No
All companies <sup>a</sup>	1,220,114	174,066	1,024,199	114,895	1,070,247	66,427	1,122,590	82,546	1,101,820
R&D activity <sup>b</sup>	57,103	36,655	19,224	32,473	23,075	27,111	28,252	16,052	38,205
< \$10 million	55,119	35,425	18,582	31,376	22,310	26,169	27,338	15,490	36,928
≥ \$10 million but < \$50 million	1,331	810	484	697	590	566	714	356	919
≥ \$50 million but < \$100 million	235	167	57	158	65	145	79	73	146
≥ \$100 million	418	253	102	242	110	231	122	134	212
No R&D activity	1,163,011	137,411	1,004,975	82,422	1,047,172	39,316	1,094,337	66,494	1,063,615
Company type	Companies (number)	New or significantly improved processes							
		Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No
All companies <sup>a</sup>	1,220,114	115,958	1,062,204	46,326	1,136,978	38,664	1,142,041	87,968	1,092,244
R&D activity <sup>b</sup>	57,103	22,110	33,229	13,988	41,688	8,761	46,550	14,526	41,014
< \$10 million	55,119	21,318	32,184	13,424	40,412	8,355	45,124	13,926	39,778
≥ \$10 million but < \$50 million	1,331	529	750	360	921	252	1,027	393	885
≥ \$50 million but < \$100 million	235	105	116	84	136	57	161	81	139
≥ \$100 million	418	158	179	120	220	97	238	126	211
No R&D activity	1,163,011	93,848	1,028,975	32,337	1,095,290	29,903	1,095,491	73,442	1,051,231

<sup>a</sup> Statistics for number of companies 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.

<sup>b</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

NOTES: Survey asked companies to identify innovations introduced in 2009–11. Sum of yes and no responses may not add to number of companies due to item nonresponse to some innovation question items.

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

TABLE 53. Companies with and without R&D activity that introduced new or significantly improved products or processes and the proportion of companies in each R&D program size classification: 2009–2011

(Percent)

Company type	Companies (number)	New or significantly improved products							
		New or significantly improved products or processes		Any good or service		New goods		New services	
		Yes	No	Yes	No	Yes	No	Yes	No
All companies <sup>a</sup>	1,220,114	14.3	83.9	9.4	87.7	5.4	92.0	6.8	90.3
R&D activity <sup>b</sup>	57,103	64.2	33.7	56.9	40.4	47.5	49.5	28.1	66.9
< \$10 million	55,119	64.3	33.7	56.9	40.5	47.5	49.6	28.1	67.0
≥ \$10 million but < \$50 million	1,331	60.9	36.3	52.3	44.3	42.6	53.6	26.7	69.1
≥ \$50 million but < \$100 million	235	71.1	24.3	67.2	27.7	61.7	33.6	31.1	62.1
≥ \$100 million	418	60.5	24.4	57.9	26.3	55.3	29.2	32.0	50.7
No R&D activity	1,163,011	11.8	86.4	7.1	90.0	3.4	94.1	5.7	91.5
New or significantly improved processes									
Company type	Companies (number)	Any process		Manufacturing or production methods		Logistics, delivery, or distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No
All companies <sup>a</sup>	1,220,114	9.5	87.1	3.8	93.2	3.2	93.6	7.2	89.5
R&D activity <sup>b</sup>	57,103	38.7	58.2	24.5	73.0	15.3	81.5	25.4	71.8
< \$10 million	55,119	38.7	58.4	24.4	73.3	15.2	81.9	25.3	72.2
≥ \$10 million but < \$50 million	1,331	39.7	56.4	27.1	69.2	18.9	77.2	29.6	66.5
≥ \$50 million but < \$100 million	235	44.7	49.4	35.7	57.9	24.3	68.5	34.5	59.2
≥ \$100 million	418	37.8	42.8	28.7	52.6	23.2	56.9	30.2	50.5
No R&D activity	1,163,011	8.1	88.5	2.8	94.2	2.6	94.2	6.3	90.4

<sup>a</sup> Statistics for number of companies 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.

<sup>b</sup> Statistics are representative of companies located in the United States that performed or funded R&D.

NOTES: Survey asked companies to identify innovations introduced in 2009–2011. Sum of yes and no percentages may not add to 100% due to item nonresponse to some innovation question items.

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

## **Appendix A. Technical Notes**

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### **Survey Description**

The Business R&D and Innovation Survey (BRDIS), successor to the Survey of Industrial Research and Development (SIRD), is the primary source of information on research and development expenditures and the R&D workforces 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).

The survey is administered both to companies known to have performed R&D and to companies with no known history of R&D activity. The 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.

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 (human resources [HR], accounting, R&D managers, etc.) in the company. 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 the 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 or fund R&D in the United States. Industries that are outside the scope of the BRDIS include Crop Production (NAICS 111), Animal Production (NAICS 112), Postal Service (NAICS 491), Educational Services (NAICS 61), Private Households (NAICS 814), and Public Administration (NAICS 92).

The Business Register, a Census Bureau compilation that contains information on more than 3 million establishments with paid employees, serves as the primary input to the sample 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 the BRDIS or have fewer than five employees, based on their prior year's aggregated annual payroll and employment data.

#### ***Sample Frame***

The scope of the 2011 BRDIS is limited to companies that (1) are in business primarily to make a profit, (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 2010; (4) have at least one establishment that is physically located in the United States and in business at the end of calendar year 2011 (the time at which the Census Bureau finished the 2010 Business Register processing); and (5) are not federally funded research and development centers.

Single-unit company records were extracted from the 2010 Business Register if the company's 2010 payroll was greater than or equal to \$250,000 or if the company had at least five paid employees in 2010. Companies were removed from the sample 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 sample frame if they were not located in the 50 states or the District of Columbia.

Records for active establishments from multi-unit companies were extracted from the 2010 Business Register if the given establishment's 2010 payroll was greater than \$0 or if the establishment employed at least one person in 2010. Prior to creating records for multi-unit 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 multi-unit company records. From the resulting set of multiunit companies, companies were removed from the sample frame if their payroll was less than \$250,000 and they had fewer than five paid employees or if the payroll associated with their nonprofit establishments was greater than the payroll of their for-profit establishments.

For each company on the sample frame, a measure of size was assigned. The measure of size for a given company was based on R&D, if R&D data from the last 5 years were available from (1) the SIRD, (2) the BRDIS, (3) online financial databases, (4) the Bureau of Economic Analysis's Benchmark Survey of U.S. Direct Investment Abroad or Annual Survey of Foreign Direct Investment in the United States, (5) 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 (6) qualified R&D expenses from the Internal Revenue Service (IRS). For all other companies, the measure of size was based on total annual payroll for 2010 from the Business Register.

### ***Industry Classification for Sampling***

Each company was assigned to one of 61 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 (2008–10 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 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 two-digit NAICS code that accounted for the highest percentage of its aggregated annual payroll. Then the company was placed in a subsector, defined by a three-digit NAICS code that accounted for the highest percentage of its annual payroll within the economic sector. Next, the company was given a four-digit NAICS code within the subsector, again based on the highest percentage of its aggregated annual payroll within the subsector. Finally, the company was provided with a six-digit NAICS code within the four-digit NAICS, based on the highest percentage of its aggregated annual payroll within the four-digit NAICS. The industry used for sampling purposes was not necessarily the same code used for publication; see the section below titled "Postsampling Industry Classification."

### ***Stratification of the Sample 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 2011, there were 27,049 companies in the first group, 73,930 companies in the second group, and 1,863,778 companies in the third group for a total of 1,964,757 companies (technical table A-1, technical table A-2).

### ***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, although simple random sampling was used for industries in which the number of companies in the sample 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 portion and a noncertainty portion. 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: 0.004 or 0.01 for Nonmanufacturing Industries (NAICS other than 31–33), depending on the population size and likelihood of R&D, and 0.02 for Manufacturing (NAICS 31–33), Computer Systems Design and Related Services (NAICS 5415), 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 BRDIS Methodology Report, available from NCSES.

### ***Sampling and Nonsampling Error***

The estimates produced from the BRDIS are subject to both sampling and nonsampling errors. Potential nonsampling errors include coverage error and also 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 sample 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 reviewing the data for reasonableness and consistency. Though 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 sample frame. This error results because only a subset of the sample frame is measured in a sample survey. For published estimates from the BRDIS, standard errors (SEs) are produced for estimated percentages, while relative standard errors (RSEs) are produced for all other estimates. Tables of the estimated measures of sampling variability corresponding to each data table are available from the BRDIS project officer upon request.

SEs may be used to define confidence intervals about the corresponding estimates with a desired level of confidence. If a confidence interval was 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 sample frame would equal the percentage of the level of confidence. For example, the interval defined by a margin of error of two SEs approximately yields a 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 the BRDIS. This depends on the correlation between the measure of size on the sample frame that was used to assign the selection probabilities and the actual data that are collected in the 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 the BRDIS.

The sample size is sufficiently large 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 RSE for the estimate of total domestic R&D performance was 1.0% in 2011, though the RSE was over 10% for estimates for some nonmanufacturing industries that were considered a lower priority.

### ***Sample Size***

With the above sample design parameters, a total of 43,108 companies were selected, of which 14,941 belonged in the known positive R&D group, 3,385 in the known zero R&D group, and 24,782 in the unknown R&D group (technical table A-3). There were 10,450 certainties in the known positive group (including companies with known or assumed R&D greater than \$3 million that were selected with certainty), 1,931 in the known zero group, and 7,244 in the unknown R&D group (technical table A-4).

During the survey's annual contact update procedures, 42 large R&D performers from the 2010 sample were found that were not included on the 2011 sample frame (technical table A-5). To follow up, records for these companies were added to the 2011 sample with certainty. Because it was expected that many of these records would not contribute to 2011 BRDIS tabulations due to changes in company structure, these companies are not included in sample frame counts or sample sizes.

## **Methodology**

### ***Questionnaires***

For the 2011 cycle of BRDIS, two questionnaires were used to collect data for the survey. Companies with known or assumed R&D greater than \$7 million were sent the detailed survey form, BRDI-1. All other companies were sent an abbreviated form, BRDI-1A (technical tables A-6 and A-7). Some companies requested multiple forms to facilitate subcompany reporting (technical 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 are:

*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 HR 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 differences among the 2008–11 questionnaires, see the “Comparability” section.

## **Response Rates**

### *Unit Response Rates*

Of the companies surveyed for the 2011 survey, 26.3% did not submit any response, and an additional 4.5% 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 NSF and the Census Bureau to measure unit response to the BRDIS were check-in rates, unit response rates, and coverage rates.

**Check-in rate.** The check-in rate is defined as the number of surveys that were either mailed in or submitted online by in-scope companies, divided by the 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 active companies in the sample is accounted for by respondents to the survey.

**Unit response rate (URR).** The 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 2011 BRDIS, the check-in rate was 73.7%, and the URR was 71.1%. The coverage rate for the 2011 BRDIS was 86.0% for the known positive R&D group, 76.7% for the unknown R&D group, and 76.0% for the known zero R&D group (technical tables A-9 and A-10).

### *Item Response Rates*

The 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, TQRR is the percentage of the weighted estimate based on data that were reported by units in the sample, or 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 U.S. in 2011 was 70%.

Total quantity nonresponse rate (TQNR). For a given published estimate, TQNR, defined as 100% minus TQRR, is calculated for each tabulation cell from the 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 on request from the BRDIS project officer.

### ***Editing***

Given the size and complexity of the BRDIS, many survey responses included errors that required correction or unusual patterns that required validation. Several hundred automated edit checks were programmed to improve the efficiency of analyst data review and correction. Ultimately, a total of 4,852 company reports required analyst review: 3,294 companies were deleted because they were found to be out of business or out of scope for the survey; 1,054 companies required data correction based on prior survey reports or publicly available information; and 504 companies required action because of mergers or acquisitions (technical 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 annual methodology reports available on request from the BRDIS 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 costs they incurred conducting customer-sponsored research as R&D; 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 any questions as a matter of company policy. Weighted estimates produced from the BRDIS include adjustments to account for companies that did not respond to the survey (unit nonresponse) and for 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, and intellectual property protection, unit nonresponse is handled by adjusting weighted reported and imputed data as follows. Each company's sampling weight is multiplied by a nonresponse adjustment factor. To calculate the adjustment factors, each company in the sample that is eligible for tabulation is assigned to one (and 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 Sample Frame" section, which are updated using information on industry classification reported in the 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 was used to select the sample for the 2011 BRDIS, and it was based on R&D in the United States for the

known positive R&D stratum and for the known zero R&D stratum; for the unknown R&D stratum, it was based on total annual payroll in the United States.

For estimates of counts, patents, patent licensing agreements, and product or process innovation, the nonresponse adjustment described above is not performed. For count estimates for the BRDIS checkbox 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 the 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 the 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, 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 NSF and 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 and the other survey item used in the ratio.

### *Estimation*

The general methodology used to produce estimates from the 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 the 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, patent licensing agreements, and product or process innovation, 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, patent licensing agreements, and product or process innovation, each value that contributes to a given BRDIS estimate is weighted only by its sampling weight.

### *Postsampling 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. If no business code data were available for a company’s domestic R&D performance, the industry code used for sampling was 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.

### *Innovation*

As described in the “Weighting” section, estimates of innovation activity are sums of weighted data (reported or imputed), where the weights are based on only the sampling weight. For these estimates, the weighted data were not adjusted to account for nonresponse to the survey.

### *R&D, by Business Segment Code*

To provide increased granularity on R&D activities, the 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 the BRDIS for companies to use to categorize their business operations. The list of business codes for the 2011 cycle of the 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 populating them on the online version of the survey. For companies that reported to the 2009 or 2010 BRDIS, the most recent business codes reported by the company were used to provide the business codes. For companies that did not report to the 2009 or 2010 BRDIS, establishment payroll data from the Business Register were used to provide the business codes.

### ***Sampling Variability***

See the “Sampling and Nonsampling Error” section for information on the sampling variability of estimates produced from the 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. While no measure of measurement error is

instructions, in-person and telephone interviews and consultations with respondents, and postsurvey evaluations.

## **Survey Definitions**

*Employment, total and R&D.* 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 the 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.

*Expenditure, capital.* 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 the BRDIS for capital expenditures for R&D operations for structures, equipment, capitalized software, and other items.

*Expense and R&D expense.* Involves 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 below). 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.

*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, biodesulfurization, 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.* 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.* 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 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. 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 time frame 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 the 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 the 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 the 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 the BRDIS is also included in *Science and Engineering Indicators* and in *National Patterns of R&D Resources*.

#### ***Electronic Access***

The BRDIS contains confidential data that are protected under Title 13 and Title 26 of the United States Code. Two types of data are currently available: public-use tabular statistics, and restricted microdata. Detailed tabular statistics can be obtained by contacting the BRDIS project officer.

Microdata for the SIRD and the BRDIS can only be accessed at Census Bureau's 15 secure Research Data Centers. To learn more about the Research Data Centers and how to apply for data use, please visit the Center for Economic Studies' Web page on research opportunities (<https://www.census.gov/ces/rcresearch/index.html>)

Table	<b>Technical Tables</b>
	<b>Target population</b>
A-1	counts, by frame partition: 2008–11
A-2	companies in and selected for the sample, by company size: 2011
	<b>Sample</b>
A-3	size, by frame partition: 2008–11
A-4	companies, by sampling stratum: 2011
A-5	companies included that were not in the original sampling frame: 2008–11
	<b>Survey forms</b>
A-6	number and types mailed: 2008–11
A-7	mailed, by sampling stratum: 2011
A-8	mailed, for companies that requested subcompany reporting units, by sampling stratum: 2011
	<b>Response</b>
A-9	measures: 2008–11
A-10	unit rates, by industry and type of survey form: 2011
	<b>Companies that required an analyst action</b>
A-11	by sampling stratum: 2011

TABLE A-1. Target population counts, by frame partition: 2008–11  
(Number of companies)

Year	Total <sup>a</sup>	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

<sup>a</sup> 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 R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported no R&D in all of the previous 5 survey years.

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: 2011

Industry and company size	NAICS code	Companies in target	Companies selected for the sample		
		population <sup>a</sup>	All companies	Noncertainties	Certainties
All industries	21-23, 31-33, 42-81	1,964,757	43,108	23,483	19,625
Manufacturing industries	31-33	146,124	19,129	9,966	9,163
Food	311	12,176	1,040	547	493
Beverage and tobacco products	312	1,920	266	148	118
Textile, apparel, and leather products	313-316	7,245	680	426	254
Wood products	321	7,251	695	482	213
Paper	322	2,117	448	223	225
Printing and related support activities	323	12,802	837	559	278
Petroleum and coal products <sup>b</sup>	324	533	185	53	132
Chemicals	325	6,318	2,003	745	1,258
Basic chemicals	3251	953	356	133	223
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	626	215	82	133
Pesticide, fertilizer, and other agricultural chemical	3253	374	132	49	83
Pharmaceuticals and medicines	3254	1,383	564	75	489
Soap, cleaning compound, and toilet preparation	3256	1,115	266	137	129
Paint, coating, adhesive, and other chemicals	3255, 3259	1,867	470	269	201
Plastics and rubber products	326	6,899	1,128	583	545
Nonmetallic mineral products	327	5,841	630	402	228
Primary metals	331	2,471	522	273	249
Fabricated metal products	332	30,299	2,049	1,165	884
Machinery	333	13,616	2,036	1,004	1,032
Agricultural implements	33311	716	221	107	114
Semiconductor machinery	333295	150	120	1	119
Engine, turbine, and power transmission equipment	3336	551	197	80	117
Other machinery	other 333	12,199	1,498	816	682
Computer and electronic products	334	7,395	2,110	887	1,223
Communications equipment	3342	872	315	109	206
Semiconductor and other electronic components	3344	2,705	589	255	334
Navigational, measuring, electromedical, and control instruments	3345	2,670	890	392	498
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	403	192	48	144
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	333	126	26	100
Other measuring and controlling devices	other 3345	1,934	572	318	254
Other computer and electronic products	other 334	1,148	316	131	185
Electrical equipment, appliances, and components	335	3,182	772	394	378
Transportation equipment	336	6,029	1,113	481	632
Motor vehicles, bodies, trailers, and parts	3361-63	3,823	570	255	315
Aerospace products and parts	3364	915	253	80	173
Aircraft, aircraft engine, and aircraft parts	336411-13	854	206	80	126
Guided missile, space vehicle, and related parts	336414, 336415, 336419	61	47	0	47
Military armored vehicle, tank, and tank component	336992	41	24	1	23
Other transportation equipment	other 336	1,250	266	145	121
Furniture and related products	337	7,671	795	517	278
Miscellaneous manufacturing	339	11,980	1,706	1,019	687
Medical equipment and supplies	3391	4,527	768	433	335

TABLE A-2. Companies in the target population and selected for the sample, by industry and company size: 2011

Industry and company size	NAICS code	Companies in target population <sup>a</sup>	Companies selected for the sample		
			All companies	Noncertainties	Certainties
Other miscellaneous	3399	7,453	938	586	352
Unclassified	–	379	114	58	56
Nonmanufacturing industries	21–23, 42–81	1,818,633	23,979	13,517	10,462
Mining, extraction, and support activities <sup>b</sup>	21	8,886	742	472	270
Utilities	22	1,240	204	35	169
Wholesale trade	42	131,603	2,724	1,847	877
Electronic shopping and electronic auctions <sup>c</sup>	454111–12	4,234	411	290	121
Transportation and warehousing	48–49	53,548	500	273	227
Information	51	26,531	2,603	1,325	1,278
Publishing	511	9,453	1,131	550	581
Newspaper, periodical, book, and directory publishers	5111	6,258	433	300	133
Software publishers	5112	3,195	698	250	448
Telecommunications	517	3,869	380	200	180
Data processing, hosting, and related services	518	3,740	545	208	337
Other information	other 51	9,469	547	367	180
Finance and insurance	52	66,403	806	372	434
Real estate and rental and leasing	53	56,396	513	259	254
Lessors of nonfinancial intangible assets (except copyrighted works)	533	831	67	3	64
Other real estate and rental and leasing	other 53	55,565	446	256	190
Professional, scientific, and technical services	54	215,017	7,269	2,703	4,566
Architectural, engineering, and related services	5413	32,720	1,224	703	521
Computer systems design and related services	5415	27,897	1,759	915	844
Scientific research and development services	5417	4,465	2,999	316	2,683
Biotechnology research and development	541711	1,181	839	116	723
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,973	1,899	192	1,707
Social sciences and humanities research and development	541720	311	261	8	253
Other professional, scientific, and technical services	other 54	149,935	1,287	769	518
Health care services	621–23	244,690	1,668	1,124	544
Other nonmanufacturing <sup>d</sup>	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	1,008,646	6,197	4,668	1,529
Unclassified	–	1,439	342	149	193
Company size (number of domestic employees)	–	–	–	–	–
All companies	–	1,964,757	43,108	23,483	19,625
< 5 <sup>e</sup>	–	112,876	2,048	1,115	933
5–9	–	835,302	6,948	5,915	1,033
10–24	–	639,861	8,410	6,878	1,532
25–49	–	205,972	5,843	4,098	1,745
50–99	–	93,005	5,419	2,846	2,573
100–249	–	51,251	6,132	1,792	4,340
250–499	–	13,585	3,117	458	2,659
500–999	–	6,264	1,944	183	1,761
1,000–4,999	–	5,158	2,251	166	2,085

TABLE A-2. Companies in the target population and selected for the sample, by industry and company size: 2011

Industry and company size	NAICS code	Companies in target population <sup>a</sup>	Companies selected for the sample		
			All companies	Noncertainties	Certainties
5,000–9,999	–	704	411	17	394
10,000–24,999	–	482	331	12	319
25,000 or more	–	297	254	3	251

NAICS = 2007 North American Industry Classification System.

<sup>a</sup> Estimates of the number of companies in the target population are based on the original sampling frame that was created to select the 2011 BRDIS sample. These estimates do not include 42 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 2011 sample with certainty but are not reflected in the number of certainties selected for the sample.

<sup>b</sup> 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.

<sup>c</sup> Estimates for mail-order houses (NAICS 454113), formerly included with electronic shopping (NAICS 454111) and electronic auctions (NAICS 454112), are now included in other nonmanufacturing.

<sup>d</sup> Estimates for construction (NAICS 23), other retail trade (NAICS 44–45, excluding 454111–12), and management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

<sup>e</sup> 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 and Innovation Survey 2011 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 codes 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, 2011.

TABLE A-3. Sample size, by frame partition: 2008–11  
(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

NOTES: Companies were said to be known to conduct R&D (known positive R&D) if they reported R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported no R&D in all of the previous 5 survey years.

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: 2011  
(Number of companies)

Stratum	Total
Total	43,108
Known positive R&D	14,941
Certainties	10,450
Noncertainties	4,491
Known zero R&D	3,385
Certainties	1,931
Noncertainties	1,454
Unknown R&D	24,782
Certainties	7,244
Noncertainties	17,538

NOTES: Companies were said to be known to conduct R&D (known positive R&D) if they reported R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported no R&D in all of the previous 5 survey years.

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

TABLE A-5. Companies included in the sample that were not in the original sampling frame: 2008–11

(Number of companies)

Year	Known positive R&D
2008	336
2009	18
2010	49
2011	42

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-1.

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: 2008–11  
(Number of forms)

Year	Total forms mailed <sup>a</sup>	BRDI-1	BRDI-1A or BRDI-1B
2008	39,593	4,875	34,718
2009	42,826	2,501	40,325
2010	42,314	2,572	19,871 (19,871)
2011	42,389	2,708	39,681

<sup>a</sup> 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 survey form (BRDI-1) if their R&D spending was at least \$1.8 million in 2007 for the 2008 survey or at least \$7.0 million in 2009 for the 2010 and 2011 surveys. All other companies received an abbreviated form (BRDI-1A). For 2010, some companies received BRDI-1B, an abbreviated form that tested questions on innovation.

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: 2011  
(Number of forms)

Stratum	Total	BRDI-1	BRDI-1A
Total	42,389	2,708	39,681
Known positive R&D	14,541	2,682	11,859
Certainties	10,153	2,679	7,474
Noncertainties	4,388	3	4,385
Known zero R&D	3,308	9	3,299
Certainties	1,882	9	1,873
Noncertainties	1,426	0	1,426
Unknown R&D	24,516	3	24,513
Certainties	7,024	3	7,021
Noncertainties	17,492	0	17,492
Cases not in the frame	24	14	10

NOTES: Companies were sent the detailed survey form (BRDI-1) if their R&D spending was at least \$7.0 million in 2009. All other companies received an abbreviated form (BRDI-1A). Companies were said to be known to conduct R&D (known positive R&D) if they reported R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported no R&D in all of the previous 5 survey years.

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

TABLE A-8. Survey forms mailed for companies that requested subcompany reporting units, by sampling stratum: 2011

(Number of forms and number of companies)

Stratum	Sent one form		Sent multiple forms <sup>a</sup>		
	BRDI-1	BRDI-1A	Number of companies	BRDI-1	BRDI-1A
Total	2,686	39,675	9	22	6
Known positive R&D	2,660	11,853	9	22	6
Certainties	2,657	7,470	8	22	4
Noncertainties	3	4,383	1	0	2
Known zero R&D	9	3,299	0	0	0
Certainties	9	1,873	0	0	0
Noncertainties	0	1,426	0	0	0
Unknown R&D	3	24,513	0	0	0
Certainties	3	7,021	0	0	0
Noncertainties	0	17,492	0	0	0
Cases not in the frame	14	10	0	0	0

<sup>a</sup> 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 \$7.0 million in 2009. All other companies received an abbreviated form (BRDI-1A). Companies were said to be known to conduct R&D (known positive R&D) if they reported R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported no R&D in all of the previous 5 survey years.

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

TABLE A-9. Response measures: 2008–11  
(Percent of companies)

Measure	2008	2009	2010	2011
Check-in rate <sup>a</sup>	79.5	74.9	75.1	73.7
Response rate (unweighted) <sup>b</sup>	74.2	73.1	71.4	71.1
Coverage rate for known positive sampling strata (using weighted R&D) <sup>c</sup>	91.4	91.5	87.7	86.0
Coverage rate for unknown sampling strata (using weighted payroll) <sup>c</sup>	79.9	75.0	76.2	76.7
Coverage rate for known zero sampling strata (using unweighted counts) <sup>c</sup>	77.2	78.7	74.5	76.0

<sup>a</sup> The number of survey responses from in-scope companies divided by the total number of in-scope companies in the sample.

<sup>b</sup> 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.

<sup>c</sup> 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 type of survey form: 2011

Industry	NAICS code	Active reporting units <sup>a</sup>	Reporting units that met the response criteria <sup>b</sup>	% of reporting units that met the response criteria
All companies				
All industries	21–23, 31–33, 42–81	39,846	28,315	71.1
Manufacturing industries	31–33	18,447	13,339	72.3
Food	311	1,005	724	72.0
Beverage and tobacco products	312	261	191	73.2
Textile, apparel, and leather products	313–316	653	437	66.9
Wood products	321	665	496	74.6
Paper	322	416	303	72.8
Printing and related support activities	323	807	608	75.3
Petroleum and coal products	324	184	127	69.0
Chemicals	325	1,869	1,340	71.7
Basic chemicals	3251	345	261	75.7
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	201	148	73.6
Pesticide, fertilizer, and other agricultural chemical	3253	117	75	64.1
Pharmaceuticals and medicines	3254	510	375	73.5
Soap, cleaning compound, and toilet preparation	3256	257	175	68.1
Paint, coating, adhesive, and other chemicals	3255, 3259	439	306	69.7
Plastics and rubber products	326	1,106	848	76.7
Nonmetallic mineral products	327	599	430	71.8
Primary metals	331	493	353	71.6
Fabricated metal products	332	1,975	1,474	74.6
Machinery	333	2,007	1,471	73.3
Agricultural implement	33311	224	153	68.3
Semiconductor machinery	333295	105	69	65.7
Engine, turbine, and power transmission equipment	3336	207	161	77.8
Other machinery	other 333	1,471	1,088	74.0
Computer and electronic products	334	2,038	1,387	68.1
Communications equipment	3342	310	202	65.2
Semiconductor and other electronic components	3344	577	404	70.0
Navigational, measuring, electromedical, and control instruments	3345	841	571	67.9
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	171	107	62.6
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	116	74	63.8
Other measuring and controlling devices	other 3345	554	390	70.4
Other computer and electronic products	other 334	310	210	67.7
Electrical equipment, appliances, and components	335	754	542	71.9
Transportation equipment	336	1,105	803	72.7
Motor vehicles, bodies, trailers, and parts	3361–63	568	422	74.3
Aerospace products and parts	3364	254	186	73.2
Aircraft, aircraft engine, and aircraft parts	336411–13	217	164	75.6
Guided missile, space vehicle, and related parts	336414–15, 336419	37	22	59.5
Military armored vehicle, tank, and tank component	336992	19	10	52.6
Other transportation equipment	other 336	264	185	70.1
Furniture and related products	337	761	547	71.9
Miscellaneous manufacturing	339	1,749	1,258	71.9
Medical equipment and supplies	3391	753	568	75.4
Other miscellaneous	3399	996	690	69.3
Nonmanufacturing industries	21–23, 42–81	21,399	14,976	70.0
Mining, extraction, and support activities	21	687	516	75.1

TABLE A-10. Unit response rates, by industry and type of survey form: 2011

Industry	NAICS code	Active reporting units <sup>a</sup>	Reporting units that met the response criteria <sup>b</sup>	% of reporting units that met the response criteria
Utilities	22	179	143	79.9
Wholesale trade	42	2,429	1,616	66.5
Electronic shopping and electronic auctions	454111-12	373	248	66.5
Transportation and warehousing	48-49	461	334	72.5
Information	51	2,441	1,695	69.4
Publishing	511	1,061	740	69.7
Newspaper, periodical, book, and directory publishers	5111	402	306	76.1
Software publishers	5112	659	434	65.9
Telecommunications	517	358	255	71.2
Data processing, hosting, and related services	518	532	342	64.3
Other information	other 51	490	358	73.1
Finance and insurance	52	717	554	77.3
Real estate and rental and leasing	53	448	302	67.4
Lessors of nonfinancial intangible assets (except copyrighted works)	533	64	43	67.2
Other real estate and rental and leasing	other 53	384	259	67.4
Professional, scientific, and technical services	54	6,335	4,490	70.9
Architectural, engineering, and related services	5413	1,121	856	76.4
Computer systems design and related services	5415	1,572	1,053	67.0
Scientific research and development services	5417	2,504	1,694	67.7
Biotechnology research and development	541711	768	557	72.5
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,532	1,001	65.3
Social sciences and humanities research and development	541720	204	136	66.7
Other professional, scientific, and technical services	other 54	1,138	887	77.9
Health care services	621-23	1,501	1,151	76.7
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	5,828	3,927	67.4
Form BRDI-1 companies				
All industries	21-23, 31-33, 42-81	2,690	2,032	75.5
Manufacturing industries	31-33	1,571	1,223	77.8
Food	311	47	37	78.7
Beverage and tobacco products	312	15	15	100.0
Textile, apparel, and leather products	313-316	18	17	94.4
Wood products	321	8	7	87.5
Paper	322	17	13	76.5
Printing and related support activities	323	6	5	83.3
Petroleum and coal products	324	4	4	100.0
Chemicals	325	368	289	78.5
Basic chemicals	3251	54	45	83.3
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	13	10	76.9
Pesticide, fertilizer, and other agricultural chemical	3253	8	7	87.5
Pharmaceuticals and medicines	3254	248	194	78.2
Soap, cleaning compound, and toilet preparation	3256	24	18	75.0
Paint, coating, adhesive, and other chemicals	3255, 3259	21	15	71.4
Plastics and rubber products	326	51	40	78.4
Nonmetallic mineral products	327	21	17	81.0
Primary metals	331	22	19	86.4
Fabricated metal products	332	35	25	71.4
Machinery	333	140	113	80.7
Agricultural implements	33311	8	5	62.5
Semiconductor machinery	333295	24	17	70.8

TABLE A-10. Unit response rates, by industry and type of survey form: 2011

Industry	NAICS code	Active reporting units <sup>a</sup>	Reporting units that met the response criteria <sup>b</sup>	% of reporting units that met the response criteria
Engine, turbine, and power transmission equipment	3336	14	12	85.7
Other machinery	other 333	94	79	84.0
Computer and electronic products	334	432	313	72.5
Communications equipment	3342	81	58	71.6
Semiconductor and other electronic components	3344	172	129	75.0
Navigational, measuring, electromedical, and control instruments	3345	106	74	69.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	28	16	57.1
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	26	21	80.8
Other measuring and controlling devices	other 3345	52	37	71.2
Other computer and electronic products	other 334	73	52	71.2
Electrical equipment, appliances, and components	335	73	56	76.7
Transportation equipment	336	147	119	81.0
Motor vehicles, bodies, trailers, and parts	3361-63	81	64	79.0
Aerospace products and parts	3364	52	42	80.8
Aircraft, aircraft engine, and aircraft parts	336411-13	43	33	76.7
Guided missile, space vehicle, and related parts	336414-15, 336419	9	9	100.0
Military armored vehicle, tank, and tank component	336992	D	D	D
Other transportation equipment	other 336	D	D	D
Furniture and related products	337	10	9	90.0
Miscellaneous manufacturing	339	157	125	79.6
Medical equipment and supplies	3391	116	90	77.6
Other miscellaneous	3399	41	35	85.4
Nonmanufacturing industries	21-23, 42-81	1,119	809	72.3
Mining, extraction, and support activities	21	23	16	69.6
Utilities	22	24	21	87.5
Wholesale trade	42	64	18	28.1
Electronic shopping and electronic auctions	454111-12	4	3	75.0
Transportation and warehousing	48-49	5	5	100.0
Information	51	305	213	69.8
Publishing	511	192	132	68.8
Newspaper, periodical, book, and directory publishers	5111	5	3	60.0
Software publishers	5112	187	129	69.0
Telecommunications	517	28	18	64.3
Data processing, hosting, and related services	518	52	38	73.1
Other information	other 51	33	25	75.8
Finance and insurance	52	42	37	88.1
Real estate and rental and leasing	53	5	5	100.0
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	592	451	76.2
Architectural, engineering, and related services	5413	53	41	77.4
Computer systems design and related services	5415	151	106	70.2
Scientific research and development services	5417	334	255	76.3
Biotechnology research and development	541711	163	130	79.8
Physical, engineering, and life sciences (except biotechnology) research and development	541712	167	121	72.5

TABLE A-10. Unit response rates, by industry and type of survey form: 2011

Industry	NAICS code	Active reporting units <sup>a</sup>	Reporting units that met the response criteria <sup>b</sup>	% of reporting units that met the response criteria
Social sciences and humanities research and development	541720	4	4	100.0
Other professional, scientific, and technical services	other 54	54	49	90.7
Health care services	621-23	14	12	85.7
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	41	28	68.3
Form BRDI-1A companies				
All industries	21-23, 31-33, 42-81	37,156	26,283	70.7
Manufacturing industries	31-33	16,876	12,116	71.8
Food	311	958	687	71.7
Beverage and tobacco products	312	246	176	71.5
Textile, apparel, and leather products	313-316	635	420	66.1
Wood products	321	657	489	74.4
Paper	322	399	290	72.7
Printing and related support activities	323	801	603	75.3
Petroleum and coal products	324	180	123	68.3
Chemicals	325	1,501	1,051	70.0
Basic chemicals	3251	291	216	74.2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	188	138	73.4
Pesticide, fertilizer, and other agricultural chemical	3253	109	68	62.4
Pharmaceuticals and medicines	3254	262	181	69.1
Soap, cleaning compound, and toilet preparation	3256	233	157	67.4
Paint, coating, adhesive, and other chemicals	3255, 3259	418	291	69.6
Plastics and rubber products	326	1,055	808	76.6
Nonmetallic mineral products	327	578	413	71.5
Primary metals	331	471	334	70.9
Fabricated metal products	332	1,940	1,449	74.7
Machinery	333	1,867	1,358	72.7
Agricultural implements	33311	216	148	68.5
Semiconductor machinery	333295	81	52	64.2
Engine, turbine, and power transmission equipment	3336	193	149	77.2
Other machinery	other 333	1,377	1,009	73.3
Computer and electronic products	334	1,606	1,074	66.9
Communications equipment	3342	229	144	62.9
Semiconductor and other electronic components	3344	405	275	67.9
Navigational, measuring, electromedical, and control instruments	3345	735	497	67.6
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	143	91	63.6
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	90	53	58.9
Other measuring and controlling devices	other 3345	502	353	70.3
Other computer and electronic products	other 334	237	158	66.7
Electrical equipment, appliances, and components	335	681	486	71.4
Transportation equipment	336	958	684	71.4
Motor vehicles, bodies, trailers, and parts	3361-63	487	358	73.5
Aerospace products and parts	3364	202	144	71.3
Aircraft, aircraft engine, and aircraft parts	336411-13	174	131	75.3
Guided missile, space vehicle, and related parts	336414-15, 336419	28	13	46.4
Military armored vehicle, tank, and tank component	336992	17	9	52.9
Other transportation equipment	other 336	252	173	68.7

TABLE A-10. Unit response rates, by industry and type of survey form: 2011

Industry	NAICS code	Active reporting units <sup>a</sup>	Reporting units that met the response criteria <sup>b</sup>	% of reporting units that met the response criteria
Furniture and related products	337	751	538	71.6
Miscellaneous manufacturing	339	1,592	1,133	71.2
Medical equipment and supplies	3391	637	478	75.0
Other miscellaneous	3399	955	655	68.6
Nonmanufacturing industries	21–23, 42–81	20,280	14,167	69.9
Mining, extraction, and support activities	21	664	500	75.3
Utilities	22	155	122	78.7
Wholesale trade	42	2,365	1,598	67.6
Electronic shopping and electronic auctions	454111–12	369	245	66.4
Transportation and warehousing	48–49	456	329	72.1
Information	51	2,136	1,482	69.4
Publishing	511	869	608	70.0
Newspaper, periodical, book, and directory publishers	5111	397	303	76.3
Software publishers	5112	472	305	64.6
Telecommunications	517	330	237	71.8
Data processing, hosting, and related services	518	480	304	63.3
Other information	other 51	457	333	72.9
Finance and insurance	52	675	517	76.6
Real estate and rental and leasing	53	443	297	67.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	60	39	65.0
Other real estate and rental and leasing	other 53	383	258	67.4
Professional, scientific, and technical services	54	5,743	4,039	70.3
Architectural, engineering, and related services	5413	1,068	815	76.3
Computer systems design and related services	5415	1,421	947	66.6
Scientific research and development services	5417	2,170	1,439	66.3
Biotechnology research and development	541711	605	427	70.6
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,365	880	64.5
Social sciences and humanities research and development	541720	200	132	66.0
Other professional, scientific, and technical services	other 54	1,084	838	77.3
Health care services	621–23	1,487	1,139	76.6
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	5,787	3,899	67.4

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

<sup>a</sup> 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.

<sup>b</sup> 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.

NOTES: Companies with \$7 million or more (reported or imputed) for total domestic R&D paid for by the company and others and performed by the company, in either of the two prior years of the BRDIS survey, received a long Form BRDI-1. Other companies received a Form BRDI-1A.

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

TABLE A-11. Companies that required an analyst action, by sampling stratum: 2011  
(Number of companies)

Stratum	Total	Companies deleted <sup>a</sup>	Companies requiring action due to merger or acquisition <sup>b</sup>	Companies requiring action due to analyst review <sup>c</sup>
Total	4,852	3,294	504	1,054
Known positive R&D	2,015	651	348	1,016
Certainties	1,735	440	293	1,002
Noncertainties	280	211	55	14
Known zero R&D	240	153	71	16
Certainties	145	72	64	9
Noncertainties	95	81	7	7
Unknown R&D	2,559	2,468	85	6
Certainties	853	800	50	3
Noncertainties	1,706	1,668	35	3
Cases not in the frame	38	22	0	16

<sup>a</sup> Companies are deleted when they are found to be out of business or out of scope for the survey during the reporting period.

<sup>b</sup> 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.

<sup>c</sup> These companies are added based on a review of historic R&D 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 R&D in any of the previous 5 survey years. Companies were said to have known zero R&D if they reported no R&D in all of the previous 5 survey years.

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

## **Appendix B. Survey Instruments**

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BRDI-1

BRDI-1A

BRDI-1(SUP1)

BRDI-1(SUP2)

BRDI-1(SUP3)



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

FORM  
**BRDI-1** (02-29-2012)

## 2011 BUSINESS R&D AND INNOVATION SURVEY

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

### DUE DATE:

#### Report electronically:

econhelp.census.gov/brdis

Username:

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  
DO NOT USE TO REPORT**

*(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 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.20

**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.32

**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.36

**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.40

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

## Changes from the 2010 survey

On the basis of extensive conversations with many of the 2010 survey respondents, the 2011 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](http://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](http://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](http://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?

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
- 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 2011, if possible, or for your company's fiscal year ending between April 2011 and March 2012.

## 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.





**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 2011?**

- 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:**

(MM) (DD) (YYYY)

Date your company ceased operations

**REPORTING INSTRUCTIONS:**

If your company ceased operations between April 1, 2011 and December 31, 2011, report only for the period January 1, 2011 to the date your company ceased operations. If your company ceased operations before April 1, 2011, 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 2011?**

- 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





**1-8 What was the amount of your company's worldwide net sales and revenues during 2011?**

**Include:**

- Sales and operating revenues from discontinued operations

**Exclude:**

- Non-operating income (i.e., dividends, interest)

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**1-9 How much of the amount reported in Question 1-8 was attributable to or originated from domestic operations?**

**Include:**

- Operating revenues and sales to foreign customers, including foreign subsidiaries

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**1-10 How much of the 2011 net sales and operating revenue amounts was for each business code listed or amended in Question 1-7:**

- (1) Worldwide net sales and operating revenues reported in Question 1-8  
 (2) Domestic net sales and operating revenues reported in Question 1-9

Business code (see page 6)	(1) Worldwide net sales and operating revenues			(2) Domestic net sales and operating revenues		
	\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.
a. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
g. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. Less eliminations – the sales and revenues that are eliminated in order to consolidate the business codes. . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
j. <b>Total</b> . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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 2009 to 2011, 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 2009 to 2011:**

- 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 2011 from:**

- a. New or significantly improved goods and services introduced during 2009 to 2011 that were **new to your market** .....    %
- b. New or significantly improved goods and services introduced during 2009 to 2011 that were **new only to your company**. .....    %
- c. Goods and services that were **unchanged or only marginally modified** during 2009 to 2011 (include the resale of new goods or services purchased from other companies) .....    %
- d. **Total sales in 2011** .....    %



## 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 2009 to 2011, 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

### 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 2011?

**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](http://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.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

#### 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 . . . . .                          | <input type="checkbox"/> | Yes |  | <input type="checkbox"/> | No |
| b. R&D paid for by government or private foundation grants . . . . .  | <input type="checkbox"/> | Yes |  | <input type="checkbox"/> | No |
| c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees) . . . . .                | <input type="checkbox"/> | Yes |  | <input type="checkbox"/> | No |
| d. Bid and proposal costs . . . . .   | <input type="checkbox"/> | Yes |  | <input type="checkbox"/> | No |
| e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (in-process R&D) . . . . . | <input type="checkbox"/> | Yes |  | <input type="checkbox"/> | 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.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

#### 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 2011.

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

#### 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 20**



**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. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
b. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
c. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
d. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
e. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
f. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
g. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
h. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
i. <b>Total</b> (equals Question 2-4)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>

**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]	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
b. All other countries (also, Puerto Rico) [Include R&D performed by foreign subsidiaries that is paid for by domestic operations]	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
c. <b>Total</b> (equals Question 2-4).	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>

**2-8** Copy the amount from Question 2-7, line a. This is the total domestic R&D paid for by your company in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>

**2-9** Copy the amount reported from Question 2-7, line b. This is the total foreign R&D paid for by your company in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>

SECTION 2



**2-10** How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2011 was for each of the following types of costs?

SECTION 2

	(1) Domestic			(2) Foreign			(3) Total worldwide		
	\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.
a. Salaries, wages, and fringe benefits	<input type="text"/>	<input type="text"/>	<input type="text"/>						
b. Stock-based compensation	<input type="text"/>	<input type="text"/>	<input type="text"/>						
c. Temporary staffing, including on-site consultants	<input type="text"/>	<input type="text"/>	<input type="text"/>						
d. Expensed equipment	<input type="text"/>	<input type="text"/>	<input type="text"/>						
e. Materials and supplies	<input type="text"/>	<input type="text"/>	<input type="text"/>						
f. Leased facilities and equipment	<input type="text"/>	<input type="text"/>	<input type="text"/>						
g. Depreciation and amortization on R&D property and equipment	<input type="text"/>	<input type="text"/>	<input type="text"/>						
h. Payments to business partners for collaborative R&D	<input type="text"/>	<input type="text"/>	<input type="text"/>						
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)	<input type="text"/>	<input type="text"/>	<input type="text"/>						
j. All other purchased services except R&D	<input type="text"/>	<input type="text"/>	<input type="text"/>						
k. All other costs	<input type="text"/>	<input type="text"/>	<input type="text"/>						
<b>l. Total</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>						

Total equals Question 2-8

Total equals Question 2-9

Total equals Question 2-4



**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.
<input type="text"/>								

**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.
<input type="text"/>								

**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 2011**.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**2-14** Of the amount reported in Question 2-13, how much R&D was performed in the following locations?

	\$Bil.	Mil.	Thou.		\$Bil.	Mil.	Thou.
a. Canada . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	j. Netherlands . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Puerto Rico . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	k. Poland . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Europe</b>							
a. Austria . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	l. Russia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Belgium . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	m. Spain . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. Czech Rep. . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	n. Sweden . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. Denmark . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	o. Switzerland . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. Finland . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	p. United Kingdom . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. France . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	q. Other Europe . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
g. Germany . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	<b>Latin America</b>			
h. Ireland . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	a. Argentina . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. Italy . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	b. Brazil . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
				c. Chile . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

Question continues on next page



**2-14 (Continued)**

	\$Bil.	Mil.	Thou.
d. Mexico . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. Other Latin America . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

<b>Asia and Pacific</b>			
	\$Bil.	Mil.	Thou.
a. Australia . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. China . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. Hong Kong . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. India . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. Indonesia . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. Japan . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
g. Malaysia . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. New Zealand . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. Singapore . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
j. South Korea . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
k. Taiwan . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
l. Thailand . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
m. Other Asia/Pacific . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

<b>Middle East</b>			
	\$Bil.	Mil.	Thou.
a. Israel . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Other Middle East . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

<b>Africa</b>			
	\$Bil.	Mil.	Thou.
a. South Africa . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Other Africa . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

<b>Total</b> (equals Question 2-13) . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
---	----------------------	----------------------	----------------------

**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 2011.**

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>



**2-16 How much of the amount reported in Question 2-15 was performed in each state (including D.C.) in 2011?**

	\$Bil.	Mil.	Thou.		\$Bil.	Mil.	Thou.
Alabama . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Maine . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Alaska . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Maryland . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Arizona . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Massachusetts . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Arkansas . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Michigan . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
California . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Minnesota . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Colorado . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Mississippi . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Connecticut . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Missouri . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Delaware . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Montana . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
District of Columbia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Nebraska . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Florida . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Nevada . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Georgia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	New Hampshire . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Hawaii . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	New Jersey . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idaho . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	New Mexico . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Illinois . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	New York . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Indiana . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	North Carolina . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Iowa . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	North Dakota . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kansas . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Ohio . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kentucky . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Oklahoma . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Louisiana . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Oregon . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

Question continues on next page

SECTION 2



**2-16 (Continued)**

	\$Bil.	Mil.	Thou.		\$Bil.	Mil.	Thou.
Pennsylvania . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Vermont . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rhode Island . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Virginia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
South Carolina . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Washington . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
South Dakota . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	West Virginia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Tennessee . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Wisconsin . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Texas . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	Wyoming . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
Utah . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	<b>Total</b> (equals Question 2-15) . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**2-17 At what domestic location did your company perform the largest dollar amount of R&D in 2011?**

**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.
<input type="text"/>	<input type="text"/>	<input type="text"/>





**Domestic R&D performance paid for by foreign subsidiaries**

**2-22 How much of the amount reported in Question 2-15 was paid for by your company's foreign subsidiaries?**

**Example:** Company Y owns a subsidiary in France. In order to complete the development of a product in 2011, 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**Foreign R&D performance paid for by domestic operations**

**2-23 How much of the amount reported in Question 2-13 was paid for by your company's domestic operations?**

**Example:** Company Z owns a subsidiary in France. In order to complete the development of a product in 2011, 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**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 2011 that was performed by others.**

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**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 <u>inside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Your company's foreign owner (if your company is foreign-owned) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. Other companies located <u>outside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. U.S. federal government agencies or laboratories. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. U.S. state and local government agencies or laboratories. . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. Foreign government agencies or laboratories . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
g. All other organizations <u>inside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. All other organizations <u>outside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. <b>Total domestic R&amp;D paid for by your company that was performed by others</b> (equals Question 2-24) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

SECTION 2



**Projected R&D for 2012**

**2-26** What are your company's projected 2012 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?

**NOTE:** This amount is the 2012 projection for what is reported in Question 2-10, line I.

(1) Domestic			(2) Foreign			(3) Total worldwide		
\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.
<input type="text"/>								

**2-27** How much of the amount reported in Question 2-26, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?

Domestic		
\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**Capital expenditures**

**2-28** What was the amount of your company's capital expenditures in the domestic United States in 2011?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**2-29** How much of the amount reported in Question 2-28 was for R&D operations?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**Reporting information**

**2-30** Is the information in this section reported for the 2011 calendar year?

Yes

No → Enter time period covered below:

From (MM)   (YYYY)     to (MM)   (YYYY)

SECTION 2



# 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 2011 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 owner, if your company was foreign-owned . . . . .	□ □	□ □ □	□ □ □
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 R&D services provided 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. . . . .	□ □	□ □ □	□ □ □
<p><b>Exclude:</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>			
h. Developing, producing, and testing prototypes of customer's products prior to their introduction to the market (excluding defense-related prototyping reported in line d) . . . . .	□ □	□ □ □	□ □ □
i. All other R&D services provided to others not owned by your company. . . . .	□ □	□ □ □	□ □ □
j. <b>Total</b> . . . . .	□ □	□ □ □	□ □ □

SECTION 3



**3-2** Copy the amount from Question 3-1, line j. This is the total R&D paid for by others in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**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 32

**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.) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. All other countries (also, Puerto Rico) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. <b>Total</b> (equals Question 3-2). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-5** Copy the amount from Question 3-4, line a. This is the total domestic R&D paid for by others in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-6** Copy the amount from Question 3-4, line b. This is the total foreign R&D paid for by others in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>



**3-7** How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2011 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	<input type="text"/>	<input type="text"/>	<input type="text"/>						
b. Stock-based compensation	<input type="text"/>	<input type="text"/>	<input type="text"/>						
c. Temporary staffing, including on-site consultants	<input type="text"/>	<input type="text"/>	<input type="text"/>						
d. Expensed equipment	<input type="text"/>	<input type="text"/>	<input type="text"/>						
e. Materials and supplies	<input type="text"/>	<input type="text"/>	<input type="text"/>						
f. Leased facilities and equipment	<input type="text"/>	<input type="text"/>	<input type="text"/>						
g. Depreciation and amortization on R&D property and equipment	<input type="text"/>	<input type="text"/>	<input type="text"/>						
h. Payments to business partners for collaborative R&D	<input type="text"/>	<input type="text"/>	<input type="text"/>						
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)	<input type="text"/>	<input type="text"/>	<input type="text"/>						
j. All other purchased services except R&D	<input type="text"/>	<input type="text"/>	<input type="text"/>						
k. All other costs	<input type="text"/>	<input type="text"/>	<input type="text"/>						
<b>l. Total</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>						

Total equals Question 3-5

Total equals Question 3-6

Total equals Question 3-2



**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.
<input type="text"/>								

**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.
<input type="text"/>								

**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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-11 Of the amount reported in Question 3-10, how much R&D was performed in the following locations?**

	\$Bil.	Mil.	Thou.		\$Bil.	Mil.	Thou.
a. Canada . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	j. Netherlands. . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Puerto Rico. . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	k. Poland . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Europe</b>	\$Bil.	Mil.	Thou.	l. Russia. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
a. Austria . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	m. Spain. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Belgium . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	n. Sweden. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. Czech Rep. . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	o. Switzerland . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. Denmark. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	p. United Kingdom. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. Finland . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	q. Other Europe. . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. France. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	<b>Latin America</b>	\$Bil.	Mil.	Thou.
g. Germany. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	a. Argentina . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. Ireland . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	b. Brazil. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. Italy. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	c. Chile. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

Question continues on next page

SECTION 3



**3-11 (Continued)**

	\$Bil.	Mil.	Thou.
d. Mexico . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

e. Other Latin America . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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**Asia and Pacific**

	\$Bil.	Mil.	Thou.
a. Australia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

b. China . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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c. Hong Kong . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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d. India . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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e. Indonesia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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f. Japan . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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g. Malaysia . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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h. New Zealand . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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i. Singapore . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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	\$Bil.	Mil.	Thou.
j. South Korea . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

k. Taiwan . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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l. Thailand . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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m. Other Asia/Pacific . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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**Middle East**

	\$Bil.	Mil.	Thou.
a. Israel . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

b. Other Middle East . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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**Africa**

	\$Bil.	Mil.	Thou.
a. South Africa . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

b. Other Africa . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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<b>Total</b> (equals Question 3-10) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
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**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.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**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. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Question continues on next page



**3-13 (Continued)**

<b>Business code</b> (see page 6)		\$Bil.	Mil.	Thou.
c.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
d.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
e.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
f.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
g.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
h.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
i.	<b>Total</b> (equals Question 3-12).	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

**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 <u>inside</u> the United States . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
b. Your company's foreign owner (if your company is foreign-owned) . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. Other companies located <u>outside</u> the United States . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
d. U.S. federal government agencies or laboratories . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
e. U.S. state government agencies or laboratories . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
f. Foreign government agencies or laboratories . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
g. All other organizations <u>inside</u> the United States . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
h. All other organizations located <u>outside</u> the United States . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
i. <b>Total</b> (equals Question 3-12).	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

SECTION 3



**3-15** 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-16** How much of the amount reported in Question 3-15 was paid for by the following agencies?

	\$Bil.	Mil.	Thou.
a. Department of Defense . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Department of Energy . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. National Aeronautics and Space Administration . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. National Institutes of Health . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. All other . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. <b>Total</b> (equals Question 3-15). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-17** Subtract Question 3-15 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-18** 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 3-15
- (2) Domestic R&D paid for by nonfederal sources reported in Question 3-17
- (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	<input type="text"/>								
Alaska	<input type="text"/>								
Arizona	<input type="text"/>								
Arkansas	<input type="text"/>								

Question continues on next page



**3-18 (Continued)**

	<b>(1) Federal</b>			<b>(2) Nonfederal</b>			<b>(3) Total</b>		
	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>
California	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Colorado	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Connecticut	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Delaware	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
District of Columbia	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Florida	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Georgia	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Hawaii	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idaho	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Illinois	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Indiana	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Iowa	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kansas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Question continues on next page

SECTION 3



**3-18 (Continued)**

	<b>(1) Federal</b>			<b>(2) Nonfederal</b>			<b>(3) Total</b>		
	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>
Kentucky	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Louisiana	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Maine	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Maryland	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Massachusetts	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Michigan	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Minnesota	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mississippi	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Missouri	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Montana	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Nebraska	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Nevada	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
New Hampshire	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Question continues on next page



**3-18 (Continued)**

	<b>(1) Federal</b>			<b>(2) Nonfederal</b>			<b>(3) Total</b>		
	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>
New Jersey	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
New Mexico	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
New York	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
North Carolina	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
North Dakota	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Ohio	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Oklahoma	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Oregon	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Pennsylvania	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rhode Island	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
South Carolina	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
South Dakota	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Tennessee	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Question continues on next page

SECTION 3



**3-18 (Continued)**

	<b>(1) Federal</b>			<b>(2) Nonfederal</b>			<b>(3) Total</b>		
	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>	<u>\$Bil.</u>	<u>Mil.</u>	<u>Thou.</u>
Texas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Utah	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Vermont	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Virginia	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Washington	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
West Virginia	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Wisconsin	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Wyoming	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Total</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<i>Total equals Question 3-15</i>			<i>Total equals Question 3-17</i>			<i>Total equals Question 3-12</i>		

**3-19 At what domestic location did your company perform the largest dollar amount of R&D that was paid for by others in 2011?**

**Address 1**

**Address 2**

**City**

**State**

**ZIP**



**3-20** How much of the amount reported in Question 3-12 was from the location identified in Question 3-19?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-21** At what domestic location did your company perform the second largest dollar amount of R&D that was paid for by others in 2011?

Address 1

Address 2

City

State

ZIP

**3-22** How much of the amount reported in Question 3-12 was from the location identified in Question 3-21?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**Projected R&D paid for by others in 2012**

**3-23** What are your company's projected 2012 costs for R&D that will be paid for by others?

NOTE: This amount is the 2012 projection for what is reported in Question 3-2.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-24** How much of the projected costs in 2012 for R&D that will be paid for by others reported in Question 3-23 will be performed by your company in the United States?

NOTE: This amount is the 2012 projection for what is reported in Question 3-12.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-25** How much of the projected costs in 2012 for domestic R&D performed by your company that will be paid for by others reported in Question 3-24 will be paid for by the U.S. federal government?

NOTE: This amount is the 2012 projection for what is reported in Question 3-15.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

SECTION 3



# 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 2011.**

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**4-2 Is the amount entered in Question 4-1 greater than zero?**

- Yes → **Continue with Question 4-3**
- No → **Skip to Question 4-12 on page 33**

### Characteristics of domestic R&D paid for and performed by your company

**4-3 Copy the amount from Question 2-15. This is the domestic R&D paid for and performed by your company.**

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**4-4 How much of the amount reported in Question 4-3 was for the following categories?**

- 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 4-3). . . . .

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**4-5 If you reported any research in Question 4-4, line a, how much of that research was for the following categories?**

- 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 4-4, line a) . . . . .

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

SECTION 4



### 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 4-6 to 4-7.

- 4-6** What percentage of the amount reported in Question 4-3 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 2011, 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.

    %

- 4-7** What percentage of the amount reported in Question 4-3 had environmental protection applications, including pollution abatement?

    %

### 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 4-8 to 4-11.

- 4-8** What percentage of the amount reported in Question 4-3 was for software products?

    %

- 4-9** What percentage of the amount reported in Question 4-3 was for software embedded in other projects or products?

    %

- 4-10** What percentage of the amount reported in Question 4-3 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?

    %

- 4-11** What percentage of the amount reported in Question 4-3 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

- 4-12** 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

- 4-13** Is the amount entered in Question 4-12 greater than zero?

Yes → Continue with Question 4-14

No → Skip to Section 5 on page 36



**4-14 How much of the amount reported in Question 4-12 was for the following categories?**

	\$Bil.	Mil.	Thou.
a. <u>Research</u> —the planned, systematic pursuit of new knowledge or understanding. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. <u>Development</u> —the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. <b>Total</b> (equals Question 4-12). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**4-15 If you reported any research in Question 4-14, line a, how much of that research was for the following categories?**

	\$Bil.	Mil.	Thou.
a. <u>Applied research</u> —the activity aimed at solving a specific problem or meeting a specific commercial objective. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. <u>Basic research</u> —the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. <b>Total</b> (equals Question 4-14, line a). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**NOTE: You may report the same R&D in multiple areas for Questions 4-16 to 4-21.**

**4-16 What percentage of the amount reported in Question 4-12 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?** %

**4-17 What percentage of the amount reported in Question 4-12 had environmental protection applications, including pollution abatement?** %

**4-18 What percentage of the amount reported in Question 4-12 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** %

**4-19 What percentage of the amount reported in Question 4-12 was for nanotechnology—the science and technology involving work at the nanometer scale?** %

**4-20 What percentage of the amount reported in Question 4-12 was for software products?** %

**4-21 What percentage of the amount reported in Question 4-12 was for software embedded in other projects or products?** %

SECTION 4



**Domestic R&D performed by your company that was paid for by the U.S. federal government**

**4-22** Copy the amount from Question 3-15. This is domestic R&D performed by your company that was paid for by the U.S. federal government.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**4-23** Is the amount entered in Question 4-22 greater than zero?

- Yes → Continue with Question 4-24
- No → Skip to Section 5 on page 36

**4-24** How much of the amount reported in Question 4-22 was for the following categories?

- 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 4-22). . . . .

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

**4-25** If you reported any research in Question 4-24, line a, how much of that research was for the following categories?

- 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 4-24, line a). . . . .

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

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, 2011?**

**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 . . . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						

*Total equals  
Question 5-1*

**5-3 How many employees reported in Question 5-2 were R&D 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.

**All other employees include** employees who provide 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 . . . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						
b. All other employees . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						
c. <b>Total employees</b> . . . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						

*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 . . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

**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	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
b. Male R&D employees . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. <b>Total R&amp;D employees</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

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 . . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
b. R&D technicians and technologists. . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. R&D support staff (clerical and other) . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
d. <b>Total R&amp;D employees</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Total line equals Question 5-4



### Domestic full-time equivalents (FTEs)

**5-7** 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?

a. FTEs for full-time R&D employees Number  
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 proportion 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 portion 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.*



**5-8** 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?

a. FTEs for full-time R&D scientists, engineers, and managers

Number

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 solely on R&D

Use the proportion 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 portion 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, row a, column 1.*



## 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

<b>6-1</b>	<b>How many patents did your company <u>apply for</u> in 2011 from the U.S. Patent and Trademark Office (USPTO)?</b>	<b>Number</b>
		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

<b>6-2</b>	<b>What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> %
------------	---	---

<b>6-3</b>	<b>What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&amp;D activities?</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> %
------------	---	---

<b>6-4</b>	<b>How many patents were <u>issued</u> to your company in 2011 by the USPTO?</b>	<b>Number</b>
		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

<b>6-5</b>	<b>What percentage of your company's inventions <u>considered</u> for patenting in 2011 resulted in patent applications?</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> %
------------	--	---

#### Patent licensing

<b>6-6</b>	<b>What was the amount of your company's patent licensing revenue in 2011?</b>	\$Bil.	Mil.	Thou.
		<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>



**6-7 How many new agreements did your company enter into during 2011 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 2011?**

- 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 2011, 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) . . . . .            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Design patents (patents for appearance). . . . .             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Trademarks. . . . .  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Copyrights . . . . .   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Trade secrets . . . . .                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Mask works (copyright protection for semiconductor products) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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
- 33643 Other aircraft parts and auxiliary equipment manufacturing
- 33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
- 33660 Ship and boat building

**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
- 32403 Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal
- 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

**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
- 33990 Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)
- 32300 Printing and related support activities
- 32591 Soap, cleaning compound, and toilet preparations manufacturing
- 31990 Textile, apparel, and leather products manufacturing
- 31220 Tobacco manufacturing

**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**

- 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
- 62199 Other ambulatory health care services (ambulance, dental, home health care)
- 32541 Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
- 54173 Research and development services in biotechnology
- 54174 Research and development services in physical, engineering, and life sciences (except biotechnology)



**Information Technology - Goods and 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)
33429	Other communication equipment manufacturing (except radio, television, and wireless communication equipment)
51910	Other information services, including Internet publishing, broadcasting, and web search portals
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)

**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)
51790	Other telecommunications (not listed elsewhere)
51740	Satellite telecommunications
22100	Utilities
56200	Waste management and remediation services
51710	Wired telecommunications carriers
51720	Wireless telecommunications carriers (except satellite)

**Other Services**

72000	Accommodation and food services
56100	Administrative and support services
71000	Arts, entertainment, and recreation
23000	Construction
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)
81000	Other services (not listed elsewhere)
49200	Couriers, messengers, and express delivery services
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



**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](mailto:Paperwork@census.gov); use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2011 Business R&D and Innovation Survey** ~

PLEASE MAKE A COPY OF THIS FORM FOR YOUR RECORDS AND RETURN THE ORIGINAL





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

FORM  
**BRDI-1A** (02-16-2012)

## 2011 BUSINESS R&D AND INNOVATION SURVEY

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

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### 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 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.

### 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, patenting, and innovation.

~ 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 cover the following topical areas:

<b>Section 1: Company Information</b> . . . . .	p.4
<b>Topics:</b> company ownership, business(es), revenues, and innovation	
<b>Requires:</b> knowledge of the company's sales and revenues	
<b>Section 2: Financial Schedule A</b> . . . . .	p.9
<b>Topics:</b> R&D expenses and capital expenditures for R&D	
<b>Requires:</b> knowledge of your company's accounting concepts and access to financial records	
<b>Section 3: Financial Schedule B</b> . . . . .	p.13
<b>Topics:</b> costs for work that was funded, paid for, or reimbursed by others	
<b>Requires:</b> knowledge of your company's financial records related to R&D activities	
<b>Section 4: Management and Strategy of R&amp;D</b> . . . . .	p.18
<b>Topics:</b> characteristics of R&D reported in Sections 2 and 3	
<b>Requires:</b> familiarity with the technical and strategic aspects of your company's R&D	
<b>Section 5: Human Resources</b> . . . . .	p.22
<b>Topics:</b> your company's employees, focusing on those who work on R&D activities	
<b>Requires:</b> familiarity with human resources (HR) concepts and access to HR records	
<b>Section 6: Intellectual Property and Technology Transfer</b> . . . . .	p.26
<b>Topics:</b> intellectual property and technology transfer	
<b>Requires:</b> knowledge of your company's general business strategy, patenting, and licensing	

## Changes from the 2010 survey

On the basis of extensive conversations with many of the 2010 survey respondents, the 2011 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](http://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](http://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](http://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?

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
- 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 2011, if possible, or for your company's fiscal year ending between April 2011 and March 2012.

## 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.





**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 2011?**

- 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:**

(MM) (DD) (YYYY)

Date your company ceased operations

**REPORTING INSTRUCTIONS:**

If your company ceased operations between April 1, 2011 and December 31, 2011, report only for the period January 1, 2011 to the date your company ceased operations. If your company ceased operations before April 1, 2011, 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 2011?**

- 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



**1-7 What business code from the list below or the codes on pages 30-31 accounts for the largest share of your company's operations in 2011?**

**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 code from pages 30-31 that best applies to your company.**

**Business code**

--	--	--	--

Business code (see pages 30-31)	Description

**1-8 What was the amount of your company's worldwide net sales and revenues during 2011?**

**Include:**

- Sales and operating revenues from discontinued operations

**Exclude:**

- Non-operating income (i.e., dividends, interest)

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**1-9 How much of the amount reported in Question 1-8 was attributable to or originated from domestic operations?**

**Include:**

- Operating revenues and sales to foreign customers, including foreign subsidiaries

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**1-10 How much of the 2011 net sales and operating revenue amounts was for the business code reported in Question 1-7:**

- (1) Worldwide net sales and operating revenues reported in Question 1-8  
 (2) Domestic net sales and operating revenues reported in Question 1-9

	Business code	(1) Worldwide net sales and operating revenues			(2) Domestic net sales and operating revenues		
		\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.
a.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
b.	All other sales and operating revenues. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
c.	<b>Total</b> . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

*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 2009 to 2011, 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 2009 to 2011:**

- 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 2011 from:**

- a. New or significantly improved goods and services introduced during 2009 to 2011 that were **new to your market** .....    %
- b. New or significantly improved goods and services introduced during 2009 to 2011 that were **new only to your company**. .....    %
- c. Goods and services that were **unchanged or only marginally modified** during 2009 to 2011 (include the resale of new goods or services purchased from other companies) .....    %
- d. **Total sales in 2011** .....    %



## 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 2009 to 2011, 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

## 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 2011?**

**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](http://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.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**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.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**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 2011.**

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**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 13**



**R&D paid for by your company**

**2-6 Of the amount reported in Question 2-4, what were the costs for the business code reported in Question 1-7?**

Business code (see page 6)	\$Bil.	Mil.	Thou.
a. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> .....	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
b. All other R&D paid for by your company .....	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. <b>Total</b> (equals Question 2-4). .....	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

**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] .....	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
b. All other countries (also, Puerto Rico) [Include R&D performed by foreign subsidiaries that is paid for by domestic operations] .....	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. <b>Total</b> (equals Question 2-4). .....	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

**2-8 Copy the amount from Question 2-7, line a. This is the total domestic R&D paid for by your company in 2011.**

\$Bil.	Mil.	Thou.
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

**2-9 Copy the amount reported from Question 2-7, line b. This is the total foreign R&D paid for by your company in 2011.**

\$Bil.	Mil.	Thou.
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

**2-10 How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2011 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	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. Temporary staffing, including on-site consultants	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
h. Payments to business partners for collaborative R&D	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>



**2-10 (Continued)**

	(1) Domestic			(2) Foreign			(3) Total worldwide		
	\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
k. All other costs	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>l. Total</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<i>Total equals Question 2-8</i>			<i>Total equals Question 2-9</i>			<i>Total equals Question 2-4</i>		

**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.
	<input type="text"/>								

**2-12 - 2-14 Not applicable to this form**

**2-15 Subtract Question 2-11 from Question 2-10, line l, for column 1 only and enter the result here. This is the domestic R&D paid for and performed by your company in 2011.**

	\$Bil.	Mil.	Thou.
	<input type="text"/>	<input type="text"/>	<input type="text"/>

**2-16 In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D reported in Question 2-15, and how much of that R&D was performed in this state?**

State  .....

	\$Bil.	Mil.	Thou.
	<input type="text"/>	<input type="text"/>	<input type="text"/>

**2-17 At what domestic location did your company perform the largest dollar amount of R&D in 2011?**

**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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**2-19** How much of the amount reported in Question 2-15 was for the business code reported in Question 2-6?

Business Code (see page 6)

<input type="text"/>									
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

**2-20** - **2-25** Not applicable to this form

**Projected R&D for 2012**

**2-26** What are your company's projected 2012 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?

**NOTE:** This amount is the 2012 projection for what is reported in Question 2-10, line I.

(1) Domestic			(2) Foreign			(3) Total worldwide		
\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.	\$Bil.	Mil.	Thou.
<input type="text"/>								

**2-27** How much of the amount reported in Question 2-26, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?

<b>Domestic</b>		
\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**Capital expenditures**

**2-28** What was the amount of your company's capital expenditures in the domestic United States in 2011?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**2-29** How much of the amount reported in Question 2-28 was for R&D operations?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>



# 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 and for units or parts of your company defined by geography (countries, states).

**3-1 What were your company's total worldwide costs (both direct and indirect) in 2011 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 owner, if your company was foreign-owned . . . . .	□ □	□ □ □	□ □ □
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 R&D services provided 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. . . . .	□ □	□ □ □	□ □ □

**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

h. Developing, producing, and testing prototypes of customer's products prior to their introduction to the market (excluding defense-related prototyping reported in line d) . . . . .	□ □	□ □ □	□ □ □
i. All other R&D services provided to others not owned by your company. . . . .	□ □	□ □ □	□ □ □
<b>j. Total.</b> . . . . .	□ □	□ □ □	□ □ □



**3-2** Copy the amount from Question 3-1, line j. This is the total R&D paid for by others in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**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 18

**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.) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. All other countries (also, Puerto Rico) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. <b>Total</b> (equals Question 3-2). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-5** Copy the amount from Question 3-4, line a. This is the total domestic R&D paid for by others in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-6** Copy the amount from Question 3-4, line b. This is the total foreign R&D paid for by others in 2011.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>



**3-7 How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2011 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	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. Temporary staffing, including on-site consultants	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. Payments to business partners for collaborative R&D	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
k. All other costs	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>l. Total</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<i>Total equals Question 3-5</i>			<i>Total equals Question 3-6</i>			<i>Total equals Question 3-2</i>		

**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.
	<input type="text"/>								

**3-9 - 3-11 Not applicable to this form**

**Domestic R&D performed by your company that was paid for by others**

**3-12 Subtract Question 3-8, column 1, from Question 3-5 and enter the result here. This is the domestic R&D performed by your company that was paid for by others.**

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-13 Not applicable to this form**



**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 <u>inside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Your company's foreign owner (if your company is foreign-owned) . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. Other companies located <u>outside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. U.S. federal government agencies or laboratories . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. U.S. state government agencies or laboratories . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. Foreign government agencies or laboratories . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
g. All other organizations <u>inside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. All other organizations located <u>outside</u> the United States . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. <b>Total</b> (equals Question 3-12). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-15 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-16 How much of the amount reported in Question 3-15 was paid for by the following agencies?**

	\$Bil.	Mil.	Thou.
a. Department of Defense . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. Department of Energy . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. National Aeronautics and Space Administration . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. National Institutes of Health . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. All other . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. <b>Total</b> (equals Question 3-15). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>



**3-17** Subtract Question 3-15 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**3-18** In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D paid for by others in 2011?

State

How much of the following three amounts was performed in the state reported above:

- (1) Domestic R&D paid for by the U.S. federal government reported in Question 3-15
- (2) Domestic R&D paid for by nonfederal sources reported in Question 3-17
- (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.
<input type="text"/>								

**3-19** – **3-22** Not applicable to this form

**Projected R&D paid for by others in 2012**

**3-23** What are your company's projected 2012 costs for R&D that will be paid for by others?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

NOTE: This amount is the 2012 projection for what is reported in Question 3-2.

**3-24** How much of the projected costs in 2012 for R&D that will be paid for by others reported in Question 3-23 will be performed by your company in the United States?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

NOTE: This amount is the 2012 projection for what is reported in Question 3-12.

**3-25** How much of the projected costs in 2012 for domestic R&D performed by your company that will be paid for by others reported in Question 3-24 will be paid for by the U.S. federal government?

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

NOTE: This amount is the 2012 projection for what is reported in Question 3-15.



## 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 2011.**

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**4-2 Is the amount entered in Question 4-1 greater than zero?**

- Yes → **Continue with Question 4-3**
- No → **Skip to Question 4-12 on page 19**

#### Characteristics of domestic R&D paid for and performed by your company

**4-3 Copy the amount from Question 2-15. This is the domestic R&D paid for and performed by your company.**

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**4-4 How much of the amount reported in Question 4-3 was for the following categories?**

- 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 4-3). . . . .

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>

**4-5 If you reported any research in Question 4-4, line a, how much of that research was for the following categories?**

- 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 4-4, line a) . . . . .

\$Bil.	Mil.	Thou.
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>



## 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 4-6 to 4-7.

**4-6** What percentage of the amount reported in Question 4-3 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 2011, 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.

    %

**4-7** What percentage of the amount reported in Question 4-3 had environmental protection applications, including pollution abatement?

    %

## 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 4-8 to 4-11.

**4-8** What percentage of the amount reported in Question 4-3 was for software products?

    %

**4-9** What percentage of the amount reported in Question 4-3 was for software embedded in other projects or products?

    %

**4-10** What percentage of the amount reported in Question 4-3 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?

    %

**4-11** What percentage of the amount reported in Question 4-3 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

**4-12** 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.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**4-13** Is the amount entered in Question 4-12 greater than zero?

Yes → Continue with Question 4-14

No → Skip to Section 5 on page 22



**4-14 How much of the amount reported in Question 4-12 was for the following categories?**

	\$Bil.	Mil.	Thou.
a. <u>Research</u> —the planned, systematic pursuit of new knowledge or understanding. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. <u>Development</u> —the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes . . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. <b>Total</b> (equals Question 4-12). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**4-15 If you reported any research in Question 4-14, line a, how much of that research was for the following categories?**

	\$Bil.	Mil.	Thou.
a. <u>Applied research</u> —the activity aimed at solving a specific problem or meeting a specific commercial objective. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. <u>Basic research</u> —the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use. . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. <b>Total</b> (equals Question 4-14, line a). . . . .	<input type="text"/>	<input type="text"/>	<input type="text"/>

**NOTE: You may report the same R&D in multiple areas for Questions 4-16 to 4-21.**

**4-16 What percentage of the amount reported in Question 4-12 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?**  %

**4-17 What percentage of the amount reported in Question 4-12 had environmental protection applications, including pollution abatement?**  %

**4-18 What percentage of the amount reported in Question 4-12 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?**  %

**4-19 What percentage of the amount reported in Question 4-12 was for nanotechnology—the science and technology involving work at the nanometer scale?**  %

**4-20 What percentage of the amount reported in Question 4-12 was for software products?**  %

**4-21 What percentage of the amount reported in Question 4-12 was for software embedded in other projects or products?**  %



**Domestic R&D performed by your company that was paid for by the U.S. federal government**

**4-22** Copy the amount from Question 3-15. This is domestic R&D performed by your company that was paid for by the U.S. federal government.

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>

**4-23** Is the amount entered in Question 4-22 greater than zero?

- Yes → Continue with Question 4-24
- No → Skip to Section 5 on page 22

**4-24** How much of the amount reported in Question 4-22 was for the following categories?

- 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 4-22). . . . .

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

**4-25** If you reported any research in Question 4-24, line a, how much of that research was for the following categories?

- 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 4-24, line a). . . . .

\$Bil.	Mil.	Thou.
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>



# 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, 2011?**

**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 . . . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						

*Total equals  
Question 5-1*

**5-3 How many employees reported in Question 5-2 were R&D 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.

**All other employees include** employees who provide 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 . . . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						
b. All other employees . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						
c. <b>Total employees</b> . . . . .	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>							<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> <td style="border: 1px solid black; width: 25px; height: 25px;"></td> </tr> </table>						

*Total line equals Question 5-2*



**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 . . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

**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	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
b. Male R&D employees . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. <b>Total R&amp;D employees</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

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 . . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
b. R&D technicians and technologists. . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. R&D support staff (clerical and other) . . . .	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
d. <b>Total R&amp;D employees</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Total line equals Question 5-4



**Domestic full-time equivalents (FTEs)**

**5-7** 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?

a. FTEs for full-time R&D employees Number  
 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 proportion 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 portion 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.*



**5-8** 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?

a. FTEs for full-time R&D scientists, engineers, and managers

Number

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 solely on R&D

Use the proportion 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 portion 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, row a, column 1.*



## 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

<b>6-1</b>	<b>How many patents did your company <u>apply for</u> in 2011 from the U.S. Patent and Trademark Office (USPTO)?</b>	<b>Number</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
------------	--	--

<b>6-2</b>	<b>What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?</b>	<input style="width: 20px; height: 20px;" type="text"/> %
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<b>6-3</b>	<b>What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&amp;D activities?</b>	<input style="width: 20px; height: 20px;" type="text"/> %
------------	---	---

<b>6-4</b>	<b>How many patents were <u>issued</u> to your company in 2011 by the USPTO?</b>	<b>Number</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
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<b>6-5</b>	<b>What percentage of your company's inventions <u>considered</u> for patenting in 2011 resulted in patent applications?</b>	<input style="width: 20px; height: 20px;" type="text"/> %
------------	--	---

#### Patent licensing

<b>6-6</b>	<b>What was the amount of your company's patent licensing revenue in 2011?</b>	\$Bil.	Mil.	Thou.	
		<input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	



**6-7** How many new agreements did your company enter into during 2011 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 2011?

- 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 2011, 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) . . . . .            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Design patents (patents for appearance). . . . .             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Trademarks. . . . .  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Copyrights . . . . .   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Trade secrets . . . . .                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Mask works (copyright protection for semiconductor products) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



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**Business codes**

(used in Sections 1 and 2)

**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
- 33643 Other aircraft parts and auxiliary equipment manufacturing
- 33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
- 33660 Ship and boat building

**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
- 32403 Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal
- 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

**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
- 33990 Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)
- 32300 Printing and related support activities
- 32591 Soap, cleaning compound, and toilet preparations manufacturing
- 31990 Textile, apparel, and leather products manufacturing
- 31220 Tobacco manufacturing

**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**

- 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
- 62199 Other ambulatory health care services (ambulance, dental, home health care)
- 32541 Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
- 54173 Research and development services in biotechnology
- 54174 Research and development services in physical, engineering, and life sciences (except biotechnology)



**Information Technology - Goods and 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)
33429	Other communication equipment manufacturing (except radio, television, and wireless communication equipment)
51910	Other information services, including Internet publishing, broadcasting, and web search portals
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)

**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)
51790	Other telecommunications (not listed elsewhere)
51740	Satellite telecommunications
22100	Utilities
56200	Waste management and remediation services
51710	Wired telecommunications carriers
51720	Wireless telecommunications carriers (except satellite)

**Other Services**

72000	Accommodation and food services
56100	Administrative and support services
71000	Arts, entertainment, and recreation
23000	Construction
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)
81000	Other services (not listed elsewhere)
49200	Couriers, messengers, and express delivery services
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



**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 12 hours to complete this form, with 2.2 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](mailto: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





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

FORM

**BRDI-1(SUP1)** (02-15-2012)

## 2011 BRDIS Research and Development Services Follow-up

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

### DUE DATE:

#### Report by mail:

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

#### For information or assistance:

- [econhelp.census.gov/brdis](http://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  
DO NOT USE TO REPORT**

*(Please correct any errors in this mailing address)*

### What does this survey follow-up cover?

This survey supplement requests information about the costs reported by your company in Section 3 of the Business Research and Development and Innovation Survey (BRDIS) about your company's research and development (R&D) that was funded, paid for, or reimbursed by others.

### Why did my company receive this survey follow-up?

Only companies reporting R&D paid for by others in three specific business codes related to R&D services are mailed this follow-up. Your company met this criterion. Including these questions in a follow-up lets the Census Bureau use more industry-specific language than on the main BRDIS survey which is mailed to companies in every industry.

### Who should answer this survey follow-up?

The same people who completed Section 3 (Financial Schedule B) of the 2011 BRDIS should complete this survey follow-up.

### 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 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.



**Estimates are acceptable**

**S-1 What is your company's primary business?**

**S-2 In BRDI-1 Question 3-14, lines a, b, and c, your company reported of R&D paid for by other companies. Using the included list of business codes, allocate this amount based on the industries of the companies that paid for the R&D.**

	Business Code (see page 3)		\$Bil.	Mil.	Thou.
a.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
b.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
c.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
d.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
e.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
f.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
g.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
h.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
i.	<b>Total</b> (equals BRDI-1 Question 3-14, lines a, b, and c). . . . .		<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>

**S-3 In BRDI-1 Question 3-16, line e, your company reported of R&D paid for by U.S. federal government agencies not listed in Question 3-16, lines a - d. How much of that amount was paid for by the following agencies?**

	\$Bil.	Mil.	Thou.
a. Department of Homeland Security. . . . .	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
b. Department of Transportation . . . . .	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
c. Environmental Protection Agency . . . . .	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
d. National Science Foundation. . . . .	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
e. All other . . . . .	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
f. <b>Total</b> (equals BRDI-1 Question 3-16, line e). . . . .	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>



## Business codes

### Aerospace & 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
33643	Other aircraft parts and auxiliary equipment manufacturing
33452	Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33660	Ship and boat building

### Automobiles, Motorcycles, & 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
32403	Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal
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

## 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
33990	Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)
32300	Printing and related support activities
32591	Soap, cleaning compound, and toilet preparations manufacturing
31990	Textile, apparel, and leather products manufacturing
31220	Tobacco manufacturing

## 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

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
62199	Other ambulatory health care services (ambulance, dental, home health care)
32541	Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
54173	Research and development services in biotechnology
54174	Research and development services in physical, engineering, and life sciences (except biotechnology)



**Information Technology - Goods and 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)
33429	Other communication equipment manufacturing, (except radio, television, and wireless communication equipment)
51910	Other information services including internet publishing, broadcasting, and web search portals
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)

**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)
51790	Other telecommunications (not listed elsewhere)
51740	Satellite telecommunications
22100	Utilities
56200	Waste management and remediation services
51710	Wired telecommunications carriers
51720	Wireless telecommunications carriers (except satellite)

**Other Services**

72000	Accommodation and food services
56100	Administrative and support services
71000	Arts, entertainment, and recreation
23000	Construction
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)
81000	Other services (not listed elsewhere)
49200	Couriers, messengers, and express delivery services
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





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

FORM  
**BRDI-1(SUP2)** (02-15-2012)

## 2011 BRDIS Research and Development Services Follow-up

M1B No. 0607-0912: Approval Expires 01/31/2015

### DUE DATE:

#### Report by mail:

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

#### For information or assistance:

- [econhelp.census.gov/brdis](http://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  
DO NOT USE TO REPORT**

*(Please correct any errors in this mailing address)*

### What does this survey follow-up cover?

This survey supplement requests information about the costs reported by your company in Section 3 of the Business Research and Development and Innovation Survey (BRDIS) about your company's research and development (R&D) that was funded, paid for, or reimbursed by others.

### Why did my company receive this survey follow-up?

Only companies reporting R&D paid for by others in three specific business codes related to R&D services are mailed this follow-up. Your company met this criterion. Including these questions in a follow-up lets the Census Bureau use more industry-specific language than on the main BRDIS survey which is mailed to companies in every industry.

### Who should answer this survey follow-up?

The same people who completed Section 3 (Financial Schedule B) of the 2011 BRDIS should complete this survey follow-up.

### 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 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.



**Estimates are acceptable**

**S-1 What is your company's primary business?**

**S-2 Not applicable.**

**S-3 In BRDI-1 Question 3-16, line e, your company reported \_\_\_\_\_ of R&D paid for by U.S. federal government agencies not listed in Question 3-16, lines a - d. How much of that amount was paid for by the following agencies?**

	\$Bil.	Mil.	Thou.
a. Department of Homeland Security. . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
b. Department of Transportation . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
c. Environmental Protection Agency . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
d. National Science Foundation. . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
e. All other . . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
f. <b>Total</b> (equals BRDI-1 Question 3-16, line e). . . . .	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>





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

FORM

**BRDI-1(SUP3)** (02-15-2012)

## 2011 BRDIS Research and Development Services Follow-up

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

### DUE DATE:

#### Report by mail:

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

#### For information or assistance:

- [econhelp.census.gov/brdis](http://econhelp.census.gov/brdis)
- Call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)
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### 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.



**Estimates are acceptable**

**S-1 What is your company's primary business?**

**S-2 In BRDI-1 Question 3-14, lines a, b, and c, your company reported of R&D paid for by other companies. Using the included list of business codes, allocate this amount based on the industries of the companies that paid for the R&D.**

	Business Code (see page 3)		\$Bil.	Mil.	Thou.
a.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
b.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
c.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
d.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
e.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
f.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
g.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
h.	<input style="width: 40px; height: 20px;" type="text"/>	.....	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
i.	<b>Total</b> (equals BRDI-1 Question 3-14, lines a, b, and c). . . . .		<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>

**S-3 Not applicable.**



**Business codes****Aerospace & 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
33643	Other aircraft parts and auxiliary equipment manufacturing
33452	Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33660	Ship and boat building

**Automobiles, Motorcycles, & 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
32403	Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal
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

**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
33990	Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)
32300	Printing and related support activities
32591	Soap, cleaning compound, and toilet preparations manufacturing
31990	Textile, apparel, and leather products manufacturing
31220	Tobacco manufacturing

**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**

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
62199	Other ambulatory health care services (ambulance, dental, home health care)
32541	Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
54173	Research and development services in biotechnology
54174	Research and development services in physical, engineering, and life sciences (except biotechnology)



**Information Technology - Goods and 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)
33429	Other communication equipment manufacturing, (except radio, television, and wireless communication equipment)
51910	Other information services including internet publishing, broadcasting, and web search portals
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)

**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)
51790	Other telecommunications (not listed elsewhere)
51740	Satellite telecommunications
22100	Utilities
56200	Waste management and remediation services
51710	Wired telecommunications carriers
51720	Wireless telecommunications carriers (except satellite)

**Other Services**

72000	Accommodation and food services
56100	Administrative and support services
71000	Arts, entertainment, and recreation
23000	Construction
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)
81000	Other services (not listed elsewhere)
49200	Couriers, messengers, and express delivery services
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



## Suggested Citation, Acknowledgments

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### National Center for Science and Engineering Statistics

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