Business Research and Development and Innovation: 2008–10

Detailed Statistical Tables | NSF 13-332 | September 2013

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General Notes

The Business Research and Development and Innovation Survey (BRDIS), successor to the Survey of Industrial Research and Development (SIRD), is the primary source of information on research and development performed by businesses within the 50 states and the District of Columbia. The survey is conducted by the Census Bureau in accordance with an interagency agreement with the National Science Foundation's National Center for Science and Engineering Statistics. BRDIS reports and data can be found at http://www.nsf.gov/statistics/industry/.

BRDIS is an annual, nationally representative sample survey of approximately 43,000 companies, including companies in manufacturing and nonmanufacturing industries. The target population for BRDIS consists of all for-profit companies that have five or more employees and that perform R&D in the United States. The Business Register, a Census Bureau compilation that contains information on more than 3 million establishments with paid employees, serves as the frame from which the survey sample is selected. For companies with more than one establishment, data are summed to the company level. Companies are excluded from the frame if they are classified as farms or have fewer than five employees.

Survey results are used to assess trends in the performance and funding of R&D. Government agencies, corporations, and research organizations use these data to investigate productivity, formulate tax policy, and compare individual company performance with industry averages. Individual researchers in industry and academia use these data to investigate a variety of topics and in preparing professional papers, dissertations, and books. Total R&D expenditure statistics are used by the Bureau of Economic Analysis for inclusion in their System of National Accounts and Foreign Direct Investment programs. Furthermore, BRDIS statistics make it possible to more fully evaluate 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 the data to the Census Bureau's Longitudinal Establishment Data file, which contains information on the outputs and inputs of companies' manufacturing plants. Response to this annual survey is mandatory and confidential under Title 13 of the United States Code.

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

Errata

Updated September 2014

The title of table 106 has been corrected from “paid for by others” to “paid for and performed by the company.”

Updated November 2013

Tables 124, 139, and 141 contained errors in data reported and have been replaced with corrected versions. Specific corrections are as follows. Table 124: total number of full-time equivalent scientists and engineers column for several industries. Table 139: number of companies reporting R&D in the energy application area for mining, extraction, and support activities and other nonmanufacturing industries and in the environmental protection area for agricultural implement and other machinery manufacturing industries. Table 141: number of companies reporting R&D in medical clinical trials for other chemicals and other manufacturing industries, number of companies reporting R&D in nanotechnology for semiconductor machinery and other machinery manufacturing industries, and the amount of domestic R&D paid for in medical clinical trials for other chemicals.

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TABLE 1. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2008

Question	Survey item	Aggregate amount
Company and financial information (US$millions)		
1.6	Worldwide net sales and operating revenues	10,976,518
1.7	Net sales and operating revenues from domestic operations	7,796,340
2.6a + 4.4a	Domestic R&D performance	290,680
2.1	Worldwide R&D expense	328,040
2.3a	Performed by company	289,403
2.3b	Performed by others	38,636
2.5a	Companies in United States	22,502
2.5b	Companies outside United States	8,191
2.5c	U.S. federal government	132
2.5d	U.S. state and local governments	14
2.5e	Foreign governments	14
2.5f	Universities and colleges in United States	1,277
2.5g	Universities and colleges outside United States	513
2.5h	All other organizations	506
2.5	Undistributed	5,487
	Location of performance	
2.6a	United States	232,505
2.6b	Puerto Rico	226
2.6c	Canada	4,571
2.6d	China	2,555
2.6e	France	2,573
2.6f	Germany	7,619
2.6g	India	3,234
2.6h	Ireland	1,126
2.6i	Israel	2,203
2.6j	Italy	855
2.6k	Japan	2,487
2.6l	Russia	257
2.6m	Singapore	753
2.6n	South Korea	980
2.6o	Sweden	1,678
2.6p	United Kingdom	7,235
2.6q	Other foreign countries	15,103
2.6	Undistributed (foreign)	3,443
	R&D performed in United States	
2.7	Paid for by foreign operations or subsidiaries	6,657
2.8a	Gross annual payroll	112,527
2.8b	Fringe benefits	24,051
2.8c	Stock-based compensation	7,447
2.8d	Temporary staffing	5,890
2.8e	Expensed equipment	2,184
2.8f	Materials and supplies	15,610
2.8g	Lease and rental payments	2,381
2.8h	Depreciation and amortization	10,465
2.8i	All other costs	51,951
2.11	Performed at largest domestic location	154,700
2.13	Domestic R&D expense	260,172
2.15	Domestic capital expenditures for R&D	33,634
2.16a	Structures	4,604
2.16b	Equipment	11,219
2.16c	Capitalized software	3,402
2.16d	All other expenditures	2,528
2.16	Undistributed (from Form BRDI-1A only)	11,881
	Projected worldwide R&D expense for 2009	
2.17a	Performed by company in United States	239,091
2.17b	Performed by company outside United States	49,163

TABLE 1. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2008

Question	Survey item	Aggregate amount
2.17c	Performed by others	29,039
2.17d	Total	317,292
	R&D expense	
	R&D performed in United States	
3.17b	Basic research	10,028
3.17a	Applied research	36,425
3.16b	Development	186,050
3.22	Defense applications	9,718
3.23	Health or medical applications	66,404
3.24	Energy applications	16,107
3.25	Environmental protection applications	6,923
3.26	Agricultural applications	3,869
3.27	Software products	44,635
3.28	Software embedded in other projects	19,747
3.29	Processes	39,933
3.30	Medical clinical trials	18,426
3.31	Production of prototypes	15,309
3.32	Operation of pilot plants	3,613
3.33	Biotechnology	19,832
3.34	Nanotechnology	11,848
3.35	Social sciences	780
	Performed by others	
3.37b	Basic research projects	1,753
3.37a	Applied research projects	4,433
3.36b	Development projects	26,958
3.36	Undistributed (from Form BRDI-1A only)	5,492
	R&D paid for by others	
4.1	Worldwide	75,357
4.2a	Performed by company	62,752
4.2b	Performed by others	12,606
	Location of performance	
4.4a	United States	58,176
4.4b	Puerto Rico	24
4.4c	Canada	440
4.4d	China	35
4.4e	France	286
4.4f	Germany	305
4.4g	India	121
4.4h	Ireland	66
4.4i	Israel	21
4.4j	Italy	80
4.4k	Japan	186
4.4l	Russia	26
4.4m	Singapore	106
4.4n	South Korea	15
4.4o	Sweden	57
4.4p	United Kingdom	912
4.4q	Other foreign countries	1,144
4.4	Undistributed (foreign)	752
	R&D performed in United States	
4.6a	Gross annual payroll	22,782
4.6b	Fringe benefits	7,190
4.6c	Stock-based compensation	252
4.6d	Temporary staffing and leased employees	1,170
4.6e	Expensed equipment	314
4.6f	Materials and supplies	6,904
4.6g	Lease and rental payments	685

TABLE 1. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2008

Question	Survey item	Aggregate amount
4.6h	Depreciation and amortization	1,024
4.6i	All other costs	17,857
4.7a	Funded by contracts	41,011
4.7b	Funded by grants	5,451
4.7	Undistributed (from Form BRDI1-A only)	11,714
	Funding source	
4.8a	Funded by companies in United States	12,181
4.8b	Companies outside United States	8,877
4.8c	U.S. federal government	36,360
4.8d	U.S. state and local governments	306
4.8e	Foreign governments	48
4.8f	Other organizations in United States	334
4.8g	Other organizations outside United States	70
4.9a	Aerospace companies	1,527
4.9b	Computer or software product companies	619
4.9c	Electronic product companies	1,425
4.9d	Motor vehicle companies	869
4.9e	Petrochemical companies	104
4.9f	Pharmaceutical companies	6,498
4.9g	Other types of companies	2,198
4.9	Undistributed (from Form BRDI-1A only)	7,818
4.10a	Department of Defense	28,314
4.10b	Department of Energy	527
4.10c	National Aeronautics and Space Administration	2,136
4.10d	National Institutes of Health	877
4.10e	Other U.S. federal agencies	4,506
4.11	Independent R&D (IR&D)	3,371
	Projected R&D paid for by others in 2009	
4.13	Total worldwide	66,506
4.14	Performed by company in United States	58,330
4.15	Funded by U.S. federal government	35,512
	Performed in United States	
4.17b	Basic research	2,341
4.17a	Applied research	10,439
4.16b	Development	45,396
4.18	Medical clinical trials	5,738
4.19	Production of prototypes	7,960
4.20	Defense applications	31,782
4.21	Health or medical applications	9,698
4.22	Energy applications	2,081
4.23	Environmental protection applications	1,274
4.24	Agricultural applications	379
	Federally funded	
4.26b	Basic research	1,475
4.26a	Applied research	5,397
4.25b	Development	29,488
4.27	Production of prototypes	3,627
Employees (thousands)		
5.1	Worldwide	27,068
	R&D employees	
5.2	Total	1,867
5.3e(1)	Female	467
5.3e(2)	Male	1,399
5.3a(1)	Female engineers	177
5.3a(2)	Male engineers	894
5.3a(3)	All engineers	1,070
5.3b(1)	Female scientists	84

TABLE 1. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2008

Question	Survey item	Aggregate amount
5.3b(2)	Male scientists	146
5.3b(3)	All scientists	231
5.3c(1)	Female technicians	91
5.3c(2)	Male technicians	228
5.3c(3)	All technicians	320
5.3d(1)	Female support staff	119
5.3d(2)	Male support staff	126
5.3d(3)	All support staff	245
	R&D scientists and engineers	
5.4a	PhD degree holders	167
5.4b	Other higher education degree holders	956
5.4c	All other scientists and engineers	178
5.5	Domestic	18,515
	R&D employees	
5.6	Total	1,425
5.7e(1)	Female	356
5.7e(2)	Male	1,069
5.7a(1)	Female engineers	128
5.7a(2)	Male engineers	672
5.7a(3)	All engineers	799
5.7b(1)	Female scientists	68
5.7b(2)	Male scientists	120
5.7b(3)	All scientists	188
5.7c(1)	Female technicians	67
5.7c(2)	Male technicians	177
5.7c(3)	All technicians	244
5.7d(1)	Female support staff	93
5.7d(2)	Male support staff	101
5.7d(3)	All support staff	194
	R&D scientists and engineers	
5.8a	PhD degree holders	138
5.8b	Other higher education degree holders	719
5.8c	All other scientists and engineers	131

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2008.

TABLE 2. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	10,976,518	7,796,340	3,180,177
Manufacturing industries	31–33	7,091,291	4,681,443	2,409,849
Food	311	645,900	476,888	169,012
Beverage and tobacco products	312	192,056	130,661	61,396
Textiles, apparel, and leather products	313–316	168,918	141,481	27,437
Wood products	321	46,421	40,999	5,422
Paper	322	134,898	92,642	42,257
Printing and related support activities	323	20,743	16,597	4,146
Petroleum and coal products	324	D	271,430	D
Chemicals	325	1,394,686	902,410	492,276
Basic chemicals	3251	319,731	173,503	146,228
Resin, synthetic rubber, fibers, and filaments	3252	223,938	180,105	43,833
Pesticide, fertilizer, and other agricultural chemical	3253	40,727	32,021	8,706
Pharmaceuticals and medicines	3254	551,734	371,760	179,975
Soap, cleaning compound, and toilet preparation	3256	167,026	82,981	84,045
Paint, coating, adhesive, and other chemical	3255, 3259	91,529	62,041	29,489
Plastics and rubber products	326	203,730	162,697	41,033
Nonmetallic mineral products	327	95,218	78,828	16,390
Primary metals	331	197,077	154,706	42,370
Fabricated metal products	332	184,727	150,564	34,163
Machinery	333	457,287	278,700	178,587
Agricultural implement	33311	62,014	35,818	26,196
Semiconductor machinery	333295	17,877	7,328	10,549
Engine, turbine, and power transmission equipment	3336	41,120	30,863	10,257
Other machinery	other 333	336,276	204,691	131,585
Computer and electronic products	334	903,181	522,717	380,465
Communications equipment	3342	133,422	86,150	47,273
Semiconductor and other electronic components	3344	197,126	106,658	90,468
Navigational, measuring, electromedical, and control instruments	3345	253,815	180,705	73,110
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	81,999	60,251	21,748
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	98,083	75,426	22,656
Other measuring and controlling instruments	other 3345	73,734	45,028	28,706
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	318,818	149,203	169,614
Electrical equipment, appliances, and components	335	157,687	108,730	48,957
Transportation equipment	336	1,301,336	888,777	412,559
Automobiles, bodies, trailers, and parts	3361–3363	777,516	491,483	286,032
Aerospace products and parts	3364	496,971	372,438	124,533
Aircraft, aircraft engine, and aircraft parts	336411–336413	434,936	316,664	118,272
Guided missile, space vehicle, and related parts	336414, 336415, 336419	62,035	55,774	6,260
Military armored vehicle, tank, and tank components	336992	2,412	2,412	0
Other transportation	other 336	24,437	22,443	1,994
Furniture and related products	337	40,608	34,174	6,434
Miscellaneous manufacturing	339	D	228,441	D
Medical equipment and supplies	3391	181,611	151,700	29,911
Other miscellaneous manufacturing	3399	D	76,742	D
Nonmanufacturing industries	21–23, 42–81	3,885,226	3,114,898	770,328
Mining, extraction, and support activities	21	666,172	409,659	256,514
Utilities	22	332,110	314,855	17,255
Construction	23	99,494	45,544	53,950
Wholesale trade	42	268,134	247,904 i	20,230
Retail trade	44, 45	D	79,571	D
Electronic shopping and mail-order houses	4541	D	5,030	D

TABLE 2. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
Other retail trade	other 44, 45	74,541	74,541	0
Transportation and warehousing	48, 49	151,745	126,726	25,019
Information	51	989,653	776,062	213,591
Publishing	511	421,960	273,765	148,195
Newspaper, periodical, book, and directory publishers	5111	20,677	12,314	8,363
Software publishers	5112	401,283	261,451	139,831
Telecommunications	517	357,810	349,363	8,447
Internet service providers, Web search portals, and data processing services	518	144,200	104,885	39,315
Other information	other 51	65,683	48,049	17,635
Finance and insurance	52	431,619	377,279	54,340
Real estate and rental and leasing	53	21,222	18,328	2,894
Professional, scientific, and technical services	54	551,839	453,444	98,395
Architectural, engineering, and related services	5413	59,350	41,642	17,708
Computer systems design and related services	5415	252,143	204,868	47,275
Scientific R&D services	5417	144,899	136,105	8,794
Other professional, scientific, and technical services	other 54	95,447	70,829	24,618
Health care services	621–623	29,806	29,382	425
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	236,144	D
All companies	21–23, 31–33, 42–81	10,976,518	7,796,340	3,180,177
Small companies (number of employees)[a]				
5–499	–	816,310	737,892	78,418
5–99	–	290,618	270,007	20,611
5–49	–	157,350	147,593	9,757
5–24	–	75,300	73,151	2,149
25–49	–	82,050	74,442	7,607
50–99	–	133,268	122,414	10,854
100–249	–	266,754	242,803	23,950
250–499	–	258,937	225,081	33,856
Medium and large companies (number of employees)				
500–999	–	396,215	328,990	67,225
1,000–4,999	–	1,477,843	1,076,460	401,383
5,000–9,999	–	1,247,866	902,756	345,110
10,000–24,999	–	2,174,107	1,542,122	631,985
25,000 or more	–	4,864,177	3,208,120	1,656,057

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 = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 3. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
All business activities	21100–81390	10,976,518	7,796,340	3,180,177
Oil and gas extraction	21100	271,493	127,788	143,705
Coal mining	21210	15,238	11,826	3,412
Metal ore mining	21220	D	11,769	D
Nonmetallic mineral mining and quarrying	21230	7,278	6,005	1,273
Support activities for oil and gas operations	21300	56,139	35,364	20,776
Support activities for solid mineral operations	21310	D	D	0
Electric power generation, transmission, and distribution	22110	278,311	267,578	10,734
Natural gas distribution	22120	43,062	40,147	2,916
Water, sewage, and other systems	22130	3,237	3,174	64
Construction of buildings	23600	6,722	5,488	1,233
Heavy and civil engineering construction	23700	43,291	18,691	24,601
Specialty trade contractors	23800	11,842	10,029	1,814
Food	31100	475,588	394,404	81,184
Beverage	31210	143,008	83,691	59,317
Tobacco	31220	28,970	28,680	290
Textile mill products	31300	37,085	25,968	11,117
Apparel	31500	14,819	14,332	487
Leather and allied products	31600	5,316	4,692	624
Wood products	32100	34,563	28,183	6,381
Paper	32200	139,953	100,057	39,895
Printing and related support activities	32300	26,426	22,678	3,748
Petroleum and coal products	32400	896,228	525,009	371,219
Basic chemicals	32510	273,809	158,621	115,189
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	89,805	60,269	29,537
Pesticide, fertilizer, and other agricultural chemical	32530	40,337	28,010	12,327
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	582,910	445,985	136,925
In-vitro diagnostic substances	32542	22,317	15,353	6,964
Soap, cleaning compound, and toilet preparation	32591	142,212	69,942	72,271
Paint, adhesive, and other chemical	32592	113,118	63,149	49,968
Plastics and rubber products	32600	162,401	118,523	43,878
Clay and glass products	32710	36,417	24,394	12,023
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	48,680	43,373	5,307
Iron and steel mills, ferroalloy, and steel product from purchased steel	33110	114,650	95,255	19,395
Nonferrous metals production and processing	33130	90,024	59,752	30,272
Ferrous and nonferrous foundries	33150	12,429	11,137	1,292
Fabricated metal products	33200	188,359	142,788	45,571
Farm machinery and equipment	33311	48,185	27,543	20,642
Construction machinery	33312	32,109	18,228	13,881
Mining machinery and equipment	33313	75,046	40,859	34,186
Oil and gas field machinery and equipment	33314	D	7,554	D
Semiconductor machinery	33321	20,019	9,091	10,928
Industrial machinery, except semiconductor machinery	33322	26,984	19,452	7,532
Commercial, service industry, temperature control, and air-flow control machinery	33330	59,029	44,128	14,901
Engine, turbine, and power transmission equipment	33360	86,660	58,560	28,100
Metalworking and other general purpose machinery	33390	90,067	54,007	36,061
Computers and peripheral equipment	33410	233,024	143,642	89,381
Telephone apparatus	33421	48,816	26,447	22,369
Radio and television broadcasting and wireless communications equipment	33422	76,167	46,641	29,526

TABLE 3. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Communication equipment, except broadcasting, wireless, and telephone apparatus	33429	17,976	11,185	6,791
Audio and video equipment	33430	13,212	10,969	2,243
Semiconductor and other electronic components	33440	220,272	119,612	100,661
Electromedical, electrotherapeutic, and irradiation apparatus	33451	41,395	28,976	12,419
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	38,474	33,348	5,126
Measuring and control instruments (not listed elsewhere)	33459	57,989	37,609	20,381
Manufacturing and reproducing magnetic and optical media	33460	D	4,375	D
Electrical equipment, appliances, and components	33500	154,206	106,551	47,654
Motor vehicles	33610	521,541	346,591	174,950
Motor vehicle body and trailer	33620	D	9,363	D
Motor vehicle parts	33630	163,993	97,433	66,559
Aircraft	33641	97,635	97,973	S
Aircraft engine and engine parts	33642	42,829	35,056	7,773
Other aircraft parts and auxiliary equipment	33643	30,319	21,141	9,178
Guided missile, space vehicle, and related parts	33644	D	38,114	D
Railroad rolling stock	33651	7,248	6,354	894
Ship and boat building	33660	16,461	14,880	1,581
Motorcycle, bicycle, and parts	33691	8,423	8,078	345
Military armored vehicle, tank, and tank components	33692	13,341	13,092	249
All other transportation equipment	33699	9,513	7,131	2,382
Furniture and related products	33700	43,401	36,218	7,183
Medical equipment and supplies	33910	164,066	105,647	58,419
Miscellaneous manufacturing (not listed elsewhere)	33990	122,669	80,689	41,981
Merchant wholesalers, durable goods	42300	412,269	238,101	174,168
Merchant wholesalers, nondurable goods	42400	340,956	274,190	66,765
Wholesale electronic markets and agents and brokers	42500	2,600	2,481	119
Motor vehicle and parts dealers	44100	20,755	15,052	5,703
Electronics and appliance stores	44300	D	D	0
Food and beverage stores	44500	705	705	0
Clothing and clothing accessories stores	44800	2,456	2,110	346
General merchandise stores	45200	82,745	82,245	500
Electronic shopping and mail-order houses	45410	D	3,365	D
Nonstore retailers, except electronic shopping and mail-order houses	45490	860	773	87
Retail trade stores, including gasoline stations (not listed elsewhere)	45990	D	22,283	D
Air transportation	48100	D	24,519	D
Rail transportation	48200	D	26,301	D
Water transportation	48300	D	1,165	D
Truck transportation	48400	16,231	15,654	577
Transit and ground passenger transportation	48500	116	116	0
Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas	48610	D	10,515	D
Pipeline transportation of natural gas	48620	D	9,662	D
Scenic and sightseeing transportation	48700	2,310	2,310	0
Support activities for transportation	48800	15,566	10,869	4,697
Couriers and messengers	49200	D	D	D
Warehousing and storage	49300	31,235	28,723	2,512
Newspaper, periodical, book, and directory publishers (except Internet)	51110	17,053	12,383	4,670
Software publishers (except Internet)	51120	210,186	121,028	89,158
Motion picture and sound recording (except Internet)	51200	16,774	10,053	6,721
Radio and television broadcasting (except Internet)	51510	16,039	13,087	2,952
Cable and other subscription programming (except Internet)	51520	17,938	14,428	3,510

TABLE 3. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Internet publishing and broadcasting	51600	1,562	1,551	11
Wired telecommunications carriers	51710	D	99,917	D
Wireless telecommunications carriers (except satellite)	51720	135,248	134,162	1,085
Satellite telecommunications	51740	19,330	14,005	5,325
Cable and other program distribution	51750	D	73,506	D
Telecommunications services (not listed elsewhere)	51790	5,603	4,374	1,230
Internet service providers and Web search portals	51810	18,819	15,817	3,003
Data processing, hosting, and related services	51820	54,990	38,484	16,506
Information services (not listed elsewhere)	51900	22,362	13,803	8,560
Depository credit intermediation	52210	126,359 i	91,824 i	34,535
Nondepository credit intermediation	52220	159,542	130,102	29,440
Activities related to credit intermediation	52230	22,371 i	18,135	4,236
Securities, commodity contracts, and other financial investments and related activities	52300	64,517	46,863	17,654
Insurance carriers	52410	253,171	240,838	12,334
Agencies, brokerages, and other insurance-related activities	52420	7,633	6,366	1,267
Funds, trusts, and other financial vehicles	52500	D	D	D
Real estate	53100	D	6,053	D
Automotive equipment rental and leasing	53210	D	7,835	D
Consumer goods and general rental centers	53220	30,411	22,369	8,042
Commercial and industrial machinery and equipment rental and leasing	53240	15,496	10,164	5,332
Lessors of nonfinancial intangible assets	53300	D	D	D
Legal services	54110	92	92	0
Accounting, tax preparation, bookkeeping, and payroll services	54120	D	D	D
Architectural, engineering, and related services	54130	42,680	37,749	4,931
Specialized design services	54140	D	3,325	D
Computer systems design and related services	54150	210,916	124,832	86,084
Management, scientific, and technical consulting services	54160	52,497	33,588	18,909
Scientific R&D services	54170	27,137	22,604	4,533
Advertising and related services	54180	D	14,574	D
Professional, scientific, and technical services (not listed elsewhere)	54190	19,146	15,690	3,456
Management of companies and enterprises	55100	828	752	76
Business support services	56140	1,904	375	1,529
Travel arrangement and reservation services	56150	4,004	2,862	1,142
Investigation, security, and services to buildings and dwellings	56160	6,588	4,171	2,417
Office administrative, facilities, employment, and other support services	56190	33,324	30,612	2,712
Waste collection, treatment, and disposal	56210	2,445	2,445	0
Remediation and other waste management services	56290	D	11,451	D
Educational services	61100	2,547	2,421	126
Offices of physicians	62110	7,492	7,492	0
Offices of dentists and other health practitioners	62120	956	956 i	0
Medical and diagnostic laboratories	62150	20,968	19,930	1,037
Home health care services	62160	65	65	0
Outpatient care centers and other ambulatory health care services	62190	601	597	4
General medical and surgical hospitals	62210	2,451	2,451	0
Psychiatric, substance abuse, and specialty hospitals	62220	153	153	0
Nursing and residential care facilities	62300	7,121	7,040	81
Social assistance (except child day care services)	62400	D	D	D
Child day care services	62440	453	453	0
Performing arts, spectator sports, and related industries	71100	1,025	1,025	0
Amusement, gambling, and recreation industries	71300	22,054	16,912	5,143
Traveler accommodation services	72100	170	170	0

TABLE 3. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2008
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Food services and drinking places	72200	22,730	19,921	2,809
Automotive repair and maintenance	81110	4,749	4,730	19
Repair and maintenance, except automotive	81190	17,394	11,990	5,404
Personal care, death care, laundry, and other personal services	81200	D	1,065	D
Business, professional, labor, political, and similar organizations	81390	68	52	15
Less: intersegment eliminations	-	381,031	219,384	161,647
Undistributed	-	1,092,275	756,553	335,723

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.

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2002 North American Industry Classification System industry definitions.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2008.

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

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
All industries	21–23, 31–33, 42–81	328,040	289,403	38,636
Manufacturing industries	31–33	239,162	209,660	29,502
Food	311	2,860	2,659	200
Beverage and tobacco products	312	1,057	900	157
Textiles, apparel, and leather products	313–316	1,197	1,169	27
Wood products	321	291	274	17
Paper	322	1,541	1,430	111
Printing and related support activities	323	327	321	6
Petroleum and coal products	324	1,505	D	D
Chemicals	325	88,141	68,592	19,550
Basic chemicals	3251	5,386	5,206	180
Resin, synthetic rubber, fibers, and filaments	3252	963	950	13
Pesticide, fertilizer, and other agricultural chemical	3253	1,488	1,312	176
Pharmaceuticals and medicines	3254	74,356	55,648	18,708
Soap, cleaning compound, and toilet preparation	3256	3,486	3,064	422
Paint, coating, adhesive, and other chemical	3255, 3259	2,463	2,412	51
Plastics and rubber products	326	2,187	2,053	135
Nonmetallic mineral products	327	1,817	1,615	202
Primary metals	331	845	768	77
Fabricated metal products	332	2,631	2,550	81
Machinery	333	12,250	11,764	486
Agricultural implement	33311	1,771	1,580	191
Semiconductor machinery	333295	2,518	2,476	42
Engine, turbine, and power transmission equipment	3336	1,461	1,372	89
Other machinery	other 333	6,501	6,337	164
Computer and electronic products	334	70,815	68,331	2,484
Communications equipment	3342	15,130	14,423	707
Semiconductor and other electronic components	3344	29,329	28,490	839
Navigational, measuring, electromedical, and control instruments	3345	13,307	12,666	641
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	6,127	5,731	396
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,498	D	D
Other measuring and controlling instruments	other 3345	3,682	D	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	13,048	12,752	297
Electrical equipment, appliances, and components	335	4,275	4,099	176
Transportation equipment	336	37,668	32,835	4,833
Automobiles, bodies, trailers, and parts	3361–3363	24,314	20,547	3,767
Aerospace products and parts	3364	12,875	11,850	1,025
Aircraft, aircraft engine, and aircraft parts	336411–336413	12,054	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	821	D	D
Military armored vehicle, tank, and tank components	336992	25	25	1
Other transportation	other 336	454	413	41
Furniture and related products	337	541	504	37
Miscellaneous manufacturing	339	9,217	D	D
Medical equipment and supplies	3391	6,669	5,940	729
Other miscellaneous manufacturing	3399	2,548	D	D
Nonmanufacturing industries	21–23, 42–81	88,877	79,743	9,134
Mining, extraction, and support activities	21	2,215	1,676	539
Utilities	22	430	197	233
Construction	23	1,450	D	D
Wholesale trade	42	2,849	2,442	407
Retail trade	44, 45	1,195	D	D
Electronic shopping and mail-order houses	4541	818	D	D
Other retail trade	other 44, 45	377	354	22
Transportation and warehousing	48, 49	182	136	46
Information	51	47,064	44,524	2,540
Publishing	511	35,802	34,126	1,676
Newspaper, periodical, book, and directory publishers	5111	240	233	7
Software publishers	5112	35,562	33,893	1,669

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

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
Telecommunications	517	D	1,776	D
Internet service providers, Web search portals, and data processing services	518	7,770	7,572	198
Other information	other 51	D	1,050	D
Finance and insurance	52	1,241	1,156	84
Real estate and rental and leasing	53	330	311	19
Professional, scientific, and technical services	54	28,351	23,493	4,858
Architectural, engineering, and related services	5413	1,841	1,495	346
Computer systems design and related services	5415	11,112	10,645	467
Scientific R&D services	5417	13,095	9,273	3,823
Other professional, scientific, and technical services	other 54	2,303	2,080	223
Health care services	621–623	1,196	1,033	163
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2,375	D	D
All companies	21–23, 31–33, 42–81	328,040	289,403	38,636
Small companies (number of employees)[a]				
5–499	–	59,255	50,922	8,333
5–99	–	31,792	26,682	5,109
5–49	–	22,187	18,479	3,708
5–24	–	12,983	10,571	2,412
25–49	–	9,203	7,907	1,296
50–99	–	9,605	8,204	1,401
100–249	–	16,489	14,555	1,933
250–499	–	10,975	9,684	1,291
Medium and large companies (number of employees)				
500–999	–	12,928	11,353	1,575
1,000–4,999	–	55,156	49,638	5,518
5,000–9,999	–	28,379	24,923	3,456
10,000–24,999	–	62,814	54,272	8,543
25,000 or more	–	109,507	98,297	11,211

* = amount < $500,000; D = data withheld to avoid disclosing operations of individual companies.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 5. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
All business activities	21100–81390	328,040	232,505
Oil and gas extraction	21100	1,215	609
Coal mining	21210	55	52
Metal ore mining	21220	67	57
Nonmetallic mineral mining and quarrying	21230	129	126
Support activities for oil and gas operations	21300	914	706
Support activities for solid mineral operations	21310	*	*
Electric power generation, transmission, and distribution	22110	437	237
Natural gas distribution	22120	19	1
Water, sewage, and other systems	22130	10	7
Construction of buildings	23600	377	367
Heavy and civil engineering construction	23700	40	31
Specialty trade contractors	23800	1,123	1,065
Food	31100	2,983	2,196
Beverage	31210	605	437
Tobacco	31220	D	D
Textile mill products	31300	474	318
Apparel	31500	448	424
Leather and allied products	31600	65	56
Wood products	32100	264	216
Paper	32200	1,130	896
Printing and related support activities	32300	297	291
Petroleum and coal products	32400	1,082 i	949 i
Basic chemicals	32510	3,806	2,871
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	1,152	889
Pesticide, fertilizer, and other agricultural chemical	32530	2,100	1,378
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	70,016	41,593
In-vitro diagnostic substances	32542	1,988	982
Soap, cleaning compound, and toilet preparation	32591	2,787	1,982
Paint, adhesive, and other chemical	32592	2,152	1,750
Plastics and rubber products	32600	2,536	2,099
Clay and glass products	32710	966 i	903 i
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	738	545
Iron and steel mills, ferroalloy, and steel product from purchased steel	33110	331	250
Nonferrous metals production and processing	33130	415	292
Ferrous and nonferrous foundries	33150	85	83
Fabricated metal products	33200	2,935	2,474
Farm machinery and equipment	33311	1,404	859
Construction machinery	33312	581	498
Mining machinery and equipment	33313	1,689	1,408
Oil and gas field machinery and equipment	33314	277	255 i
Semiconductor machinery	33321	2,553	2,152
Industrial machinery, except semiconductor machinery	33322	1,191	831
Commercial, service industry, temperature control, and air-flow control machinery	33330	1,110	859
Engine, turbine, and power transmission equipment	33360	2,386	1,859
Metalworking and other general purpose machinery	33390	2,039	1,394
Computers and peripheral equipment	33410	12,443	9,223
Telephone apparatus	33421	6,739	5,424
Radio and television broadcasting and wireless communications equipment	33422	5,958	4,184

TABLE 5. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
Communication equipment, except broadcasting, wireless, and telephone apparatus	33429	2,482	1,833
Audio and video equipment	33430	773	610
Semiconductor and other electronic components	33440	29,911	22,674
Electromedical, electrotherapeutic, and irradiation apparatus	33451	3,822	2,853
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	1,845	1,563
Measuring and control instruments (not listed elsewhere)	33459	3,458	2,614
Manufacturing and reproducing magnetic and optical media	33460	54	53
Electrical equipment, appliances, and components	33500	4,687	2,978
Motor vehicles	33610	18,296	8,305
Motor vehicle body and trailer	33620	70	62
Motor vehicle parts	33630	5,401	3,378
Aircraft	33641	4,053	3,915
Aircraft engine and engine parts	33642	2,433	1,612
Other aircraft parts and auxiliary equipment	33643	1,222	942
Guided missile, space vehicle, and related parts	33644	1,402	1,310
Railroad rolling stock	33651	195	146
Ship and boat building	33660	151	139
Motorcycle, bicycle, and parts	33691	199	173
Military armored vehicle, tank, and tank components	33692	107	111
All other transportation equipment	33699	176	148
Furniture and related products	33700	511	435
Medical equipment and supplies	33910	11,587	8,521
Miscellaneous manufacturing (not listed elsewhere)	33990	2,976	2,316
Merchant wholesalers, durable goods	42300	449	393
Merchant wholesalers, nondurable goods	42400	257	174
Wholesale electronic markets and agents and brokers	42500	14	12
Motor vehicle and parts dealers	44100	0	1
Electronics and appliance stores	44300	*	*
Food and beverage stores	44500	2	2
Clothing and clothing accessories stores	44800	1	8
General merchandise stores	45200	34	13
Electronic shopping and mail-order houses	45410	480	D
Nonstore retailers, except electronic shopping and mail-order houses	45490	12	1
Retail trade stores, including gasoline stations (not listed elsewhere)	45990	343	336
Air transportation	48100	D	D
Rail transportation	48200	37	37
Water transportation	48300	5	5
Truck transportation	48400	20	18
Transit and ground passenger transportation	48500	1	1
Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas	48610	0	0
Pipeline transportation of natural gas	48620	3	0
Scenic and sightseeing transportation	48700	0	0
Support activities for transportation	48800	36	30
Couriers and messengers	49200	D	D
Warehousing and storage	49300	26	30
Newspaper, periodical, book, and directory publishers (except Internet)	51110	180	156
Software publishers (except Internet)	51120	31,369	23,860
Motion picture and sound recording (except Internet)	51200	104	94
Radio and television broadcasting (except Internet)	51510	48	32
Cable and other subscription programming (except Internet)	51520	D	D
Internet publishing and broadcasting	51600	188	179
Wired telecommunications carriers	51710	673	511

TABLE 5. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
Wireless telecommunications carriers (except satellite)	51720	532 i	294
Satellite telecommunications	51740	153	121
Cable and other program distribution	51750	367	286
Telecommunications services (not listed elsewhere)	51790	501	393
Internet service providers and Web search portals	51810	4,558	3,718 i
Data processing, hosting, and related services	51820	3,515	3,004
Information services (not listed elsewhere)	51900	898	815
Depository credit intermediation	52210	284 i	282 i
Nondepository credit intermediation	52220	3	2
Activities related to credit intermediation	52230	430	376
Securities, commodity contracts, and other financial investments and related activities	52300	389	339
Insurance carriers	52410	199	145
Agencies, brokerages, and other insurance-related activities	52420	125 i	118 i
Funds, trusts, and other financial vehicles	52500	101	101
Real estate	53100	20	19
Automotive equipment rental and leasing	53210	D	D
Consumer goods and general rental centers	53220	296	131
Commercial and industrial machinery and equipment rental and leasing	53240	101	43
Lessors of nonfinancial intangible assets	53300	80	76
Legal services	54110	D	D
Accounting, tax preparation, bookkeeping, and payroll services	54120	676	577
Architectural, engineering, and related services	54130	1,742	1,365
Specialized design services	54140	75	58
Computer systems design and related services	54150	11,476	8,384
Management, scientific, and technical consulting services	54160	1,110	884
Scientific R&D services	54170	12,656	8,464
Advertising and related services	54180	37	60
Professional, scientific, and technical services (not listed elsewhere)	54190	439	374
Management of companies and enterprises	55100	11	11
Business support services	56140	125	83
Travel arrangement and reservation services	56150	27	19
Investigation, security, and services to buildings and dwellings	56160	137	61
Office administrative, facilities, employment, and other support services	56190	1,139	1,126
Waste collection, treatment, and disposal	56210	7	7
Remediation and other waste management services	56290	*	*
Educational services	61100	202	185
Offices of physicians	62110	40	30
Offices of dentists and other health practitioners	62120	202	201
Medical and diagnostic laboratories	62150	903	781
Home health care services	62160	3	3
Outpatient care centers and other ambulatory health care services	62190	53	7
General medical and surgical hospitals	62210	13	12
Psychiatric, substance abuse, and specialty hospitals	62220	0	0
Nursing and residential care facilities	62300	15	10
Social assistance (except child day care services)	62400	8	6
Child day care services	62440	1	1
Performing arts, spectator sports, and related industries	71100	24	24
Amusement, gambling, and recreation industries	71300	138	78
Traveler accommodation services	72100	0	0
Food services and drinking places	72200	481	480
Automotive repair and maintenance	81110	307	269
Repair and maintenance, except automotive	81190	99	55

TABLE 5. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
Personal care, death care, laundry, and other personal services	81200	37	30
Business, professional, labor, political, and similar organizations	81390	1	0
Undistributed	-	10,660	9,209

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

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2002 North American Industry Classification System industry definitions.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2008.

TABLE 6. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries and wages	Fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other
All industries	21–23, 31–33, 42–81	232,505	112,527	24,051	7,447	5,890	2,184	15,610	2,381	10,465	51,951
Manufacturing industries	31–33	164,386	73,177	18,219	4,198	3,179	1,403	13,522	1,666	7,855	41,167
Food	311	2,063	960	294	13	32	3	118	17	100	526
Beverage and tobacco products	312	777	310	101	D	18	3	86	4	37	D
Textiles, apparel, and leather products	313–316	802	428	61	*	20 i	4	44	18 i	34	194 i
Wood products	321	270	146	27	0	16 i	4 i	41 i	6 i	4 i	26 i
Paper	322	1,156	634	154	D	26	10	77	4	56	D
Printing and related support activities	323	312	160	28	0	7 i	2 i	31 i	11 i	11 i	61 i
Petroleum and coal products	324	D	436	108	0	D	2	74	12	23	551
Chemicals	325	55,042	20,609	6,934	1,354	846	292	4,058	653	2,815	17,482
Basic chemicals	3251	4,012	1,998	530	35 i	146 i	25 i	356 i	56 i	228 i	639 i
Resin, synthetic rubber, fibers, and filaments	3252	726	328	86	0	7	2	27	4	32	241
Pesticide, fertilizer, and other agricultural chemical	3253	941	372	129	3	3	1	77	19	218	119
Pharmaceuticals and medicines	3254	45,169	15,817	5,609	1,290	599	237	3,318	538	2,158	15,603
Soap, cleaning compound, and toilet preparation	3256	2,099	997	330	14	43	1	161	17	99	436
Paint, coating, adhesive, and other chemical	3255, 3259	2,095	1,097	250	11	48	27	119	19	81	444
Plastics and rubber products	326	1,713	909	187	14	20	15	199	8	44	317
Nonmetallic mineral products	327	1,509	747 i	203 i	3 i	167 i	25 i	91 i	10	64 i	199 i
Primary metals	331	654	262	55	*	4	1	165	2	18	147
Fabricated metal products	332	2,362	1,497	256	8 i	47 i	10 i	225 i	17 i	64 i	238 i
Machinery	333	9,846	4,429	1,142	125	205	71	982	58	384	2,450
Agricultural implement	33311	1,181	488	141	0	4	3	233	2	14	296
Semiconductor machinery	333295	2,113	691	205	109	29	14	228	10	193	634
Engine, turbine, and power transmission equipment	3336	1,280	598	114	1	84	20	127	18	45	273
Other machinery	other 333	5,272	2,652	681	15	88	34	394	28	132	1,247
Computer and electronic products	334	52,912	26,352	5,023	2,420	857	687	3,603	540	2,918	10,512
Communications equipment	3342	11,484	5,844	733	147	97	199	692	48	670	3,054
Semiconductor and other electronic components	3344	21,588	10,426	1,954	1,440	401	182	1,506	280	1,457	3,941
Navigational, measuring, electromedical, and control instruments	3345	10,463	4,987	1,317	185	194	58	860	91	275	2,496
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,896	2,249	439	103	87	30	407	24	111	1,446 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	2,803	1,307	534	28	47	9	199	46	85	548
Other measuring and controlling instruments	other 3345	2,764	1,431	344	54	61	18	254	22	79	502
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	9,377	5,095	1,019	647	165	249	546	120	516	1,020
Electrical equipment, appliances, and components	335	2,947	1,657	360	34	86	48	223	47	88	404

TABLE 6. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries and wages	Fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other
Transportation equipment	336	23,039	9,746	2,487	9	654	130	2,985	195	918	5,916
Automobiles, bodies, trailers, and parts	3361–3363	12,234	5,901	1,231	2 i	447	87	1,761	161	763	1,881
Aerospace products and parts	3364	10,371	3,616	1,189	5	184	30	1,172	32	134	4,008
Aircraft, aircraft engine, and aircraft parts	336411–336413	9,698	3,290	1,041	5	178	27	1,048	30	128	3,951
Guided missile, space vehicle, and related parts	336414, 336415, 336419	673	326	148	0	7	3	124	2	7	58
Military armored vehicle, tank, and tank components	336992	25	7	2	0	1	9	3	*	1	2
Other transportation	other 336	409	223	65	1	21	4	48	2	20	25
Furniture and related products	337	477	281	54	*	1 i	10 i	51 i	2 i	5 i	72 i
Miscellaneous manufacturing	339	D	3,614	746	184	D	85	470	63	271	1,692
Medical equipment and supplies	3391	5,179	2,421	510	163	87	68	371	43	230	1,285
Other miscellaneous manufacturing	3399	D	1,192	236	21	D	17	99	20	41	407
Nonmanufacturing industries	21–23, 42–81	68,118	39,350	5,831	3,249	2,711	781	2,088	715	2,610	10,784
Mining, extraction, and support activities	21	1,478	566	150	11	61	64	103	47	65	411
Utilities	22	190	79	17	1	16	1	19	1	17	39
Construction	23	D	592	262 i	1 i	32 i	7 i	274 i	7 i	16 i	D
Wholesale trade	42	1,944	1,138 i	219 i	19 i	17 i	25 i	36 i	26 i	83 i	380 i
Retail trade	44, 45	1,029	556 i	105	95	103	24	*	22	73	51
Electronic shopping and mail-order houses	4541	674	260	D	D	D	22	0	20	D	D
Other retail trade	other 44, 45	354	296 i	D	D	D	2 i	*	2 i	D	D
Transportation and warehousing	48, 49	134	97	14	0	0	1 i	10 i	1 i	3	8 i
Information	51	36,922	21,596	2,674	2,408	1,776	363	340	224	1,459	6,082
Publishing	511	27,871	16,193	2,179	1,559	1,182	183	276	190	810	5,299
Newspaper, periodical, book, and directory publishers	5111	205	101	21	1	16	*	4	*	10	52
Software publishers	5112	27,665	16,092	2,158	1,558	1,166	183	272	190	800	5,247
Telecommunications	517	1,601	923	62	8	80 i	59 i	20	15	203	231
Internet service providers, Web search portals, and data processing services	518	6,493	3,771	344	D	507	112	39	18	395	D
Other information	other 51	958	709	89	D	6	9	5	1	51	D
Finance and insurance	52	1,084	623	108	32	192	22 i	6	31	14	56
Real estate and rental and leasing	53	246	173	19	*	5	1	1	*	4	43
Professional, scientific, and technical services	54	20,539	11,444	2,055	638	444 i	269	1,229	345	845	3,269
Architectural, engineering, and related services	5413	1,378	810	193	12 i	35 i	17 i	70 i	5 i	35 i	201 i
Computer systems design and related services	5415	8,569	5,257	842	189 i	173 i	117 i	470 i	124 i	369 i	1,027 i
Scientific R&D services	5417	8,708	4,210	802	350	132	129	611	197	418	1,860
Other professional, scientific, and technical services	other 54	1,884	1,168	219	87 i	103 i	6 i	77 i	19 i	24 i	182 i
Health care services	621–623	1,032	629	106	41 i	20 i	3 i	60 i	6 i	23 i	143 i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	1,857 i	103	2	45 i	2	10	5	6	D

TABLE 6. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries and wages	Fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other
All companies	21–23, 31–33, 42–81	232,505	112,527	24,051	7,447	5,890	2,185	15,611	2,381	10,466	51,947
Small companies (number of employees)[a]											
5–499	–	46,396	28,098	4,397	1,209 i	940 i	396 i	2,693 i	586	1,481 i	6,596 i
5–99	–	24,890	15,755	2,399	505 i	472 i	177 i	1,392 i	266 i	676 i	3,247 i
5–49	–	17,642	11,465	1,705	332 i	324 i	113 i	967 i	168 i	429 i	2,138 i
5–24	–	10,333	6,993	1,073 i	142 i	187 i	53 i	585 i	67 i	182 i	1,050 i
25–49	–	7,309	4,472	632	190	137 i	60 i	382 i	101 i	247 i	1,088 i
50–99	–	7,248	4,290	694	173 i	148 i	64 i	425 i	98	247 i	1,109 i
100–249	–	12,933	7,762	1,081	376	272 i	123	784	200	448 i	1,888 i
250–499	–	8,572	4,581	917	327	197	96	517	120	357	1,461
Medium and large companies (number of employees)											
500–999	–	9,673	4,699	920	366	227	99	802	131	454	1,976
1,000–4,999	–	39,010	18,344	3,970	1,624	935	419	2,713	531	1,780	8,694
5,000–9,999	–	20,358	9,463	2,212	1,272 i	605	285	1,149	166	1,094	4,110
10,000–24,999	–	43,049	19,835	5,786	1,536	960	340	3,151	391	2,153	8,897
25,000 or more	–	74,020	32,088	6,765	1,440	2,223	647	5,102	576	3,505	21,674

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 7. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	232,505	10,028	36,425	186,050
Manufacturing industries	31–33	164,386	6,545	27,343	130,498
Food	311	2,063	84	304	1,674
Beverage and tobacco products	312	777	53	272	451
Textiles, apparel, and leather products	313–316	802	38	112	652
Wood products	321	270	7	52	211
Printing and related support activities	323	312	8	27	277 i
Chemicals	325	55,042	3,422	12,393	39,227
Pharmaceuticals and medicines	3254	45,169	2,882	9,907	32,379
Other chemicals	other 325	9,873	540	2,486	6,848
Plastics and rubber products	326	1,713	87	314	1,312
Nonmetallic mineral products	327	1,509	23	230 i	1,256 i
Primary metals	331	654	36	105	513
Fabricated metal products	332	2,362	59	283	2,020
Machinery	333	9,846	242	1,157	8,447
Computer and electronic products	334	52,912	1,333	7,140	44,439
Semiconductor and other electronic components	3344	21,588	249	2,525	18,813
Navigational, measuring, electromedical, and control instruments	3345	10,463	491	1,797	8,175
Other computer and electronic products	other 334	20,862	593	2,818	17,451
Electrical equipment, appliances, and components	335	2,947	102	496	2,348
Transportation equipment	336	23,039	628	2,730	19,681
Aerospace products and parts	3364	10,371	233	1,261	8,877
Other transportation	other 336	12,668	395	1,469	10,804
Furniture and related products	337	477	18	34	424
Other manufacturing	322, 324, 339	9,660	404	1,693	7,564
Nonmanufacturing industries	21–23, 42–81	68,118	3,483	9,082	55,552
Information	51	36,922	1,580	3,555	31,786
Publishing	511	27,871	1,104	2,557	24,210
Telecommunications	517	1,601	251 i	111	1,239
Internet service providers, Web search portals, and data processing services	518	6,493	208	830 i	5,455
Other information	other 51	958	18	56	883
Professional, scientific, and technical services	54	20,539	1,466	4,020	15,053
Architectural, engineering, and related services	5413	1,378	41	261	1,076
Computer systems design and related services	5415	8,569	218	696	7,653
Scientific R&D services	5417	8,708	1,069	2,859	4,781
Other professional, scientific, and technical services	other 54	1,884	138	204	1,542
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	10,657	437	1,507	8,713
All companies	–	232,505	10,028	36,425	186,050
Small companies (number of employees)[a]					
5–499	–	46,396	2,533	7,875	35,986
5–99	–	24,890	1,290	4,370	19,228
5–49	–	17,642	949	2,952	13,740
5–24	–	10,333	594	1,678	8,060
25–49	–	7,309	355	1,274	5,680
50–99	–	7,248	341	1,419	5,488
100–249	–	12,933	760	2,442	9,731
250–499	–	8,572	483	1,063	7,026
Medium and large companies (number of employees)					
500–999	–	9,673	583	1,685	7,405
1,000–4,999	–	39,010	1,212	5,145	32,653

TABLE 7. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	20,358	697	3,640	16,021
10,000–24,999	–	43,049	1,744	7,831	33,473
25,000 or more	–	74,020	3,259	10,249	60,512

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 8. Domestic R&D paid for and performed by the company, by state: 2008

(Millions of U.S. dollars)

State	Amount
All states	232,505
Alabama	922
Alaska	52 e
Arizona	3,268
Arkansas	399
California	54,231
Colorado	3,396
Connecticut	8,938
Delaware	1,441
District of Columbia	155
Florida	3,009
Georgia	2,501
Hawaii	176
Idaho	786
Illinois	7,984
Indiana	4,375
Iowa	1,041
Kansas	1,111
Kentucky	879
Louisiana	303 e
Maine	253
Maryland	2,327
Massachusetts	12,625
Michigan	12,105
Minnesota	5,327
Mississippi	179
Missouri	2,857
Montana	125
Nebraska	464
Nevada	612
New Hampshire	876
New Jersey	17,331
New Mexico	326
New York	9,061
North Carolina	4,903
North Dakota	218
Ohio	5,367
Oklahoma	521
Oregon	3,913
Pennsylvania	8,783
Rhode Island	489
South Carolina	1,125
South Dakota	98
Tennessee	1,451
Texas	12,830
Utah	1,326
Vermont	380
Virginia	2,856
Washington	12,724
West Virginia	272

TABLE 8. Domestic R&D paid for and performed by the company, by state: 2008

(Millions of U.S. dollars)

State	Amount
Wisconsin	3,277
Wyoming	52 e
Undistributed[a]	12,482

e = amount > 50% of value is modeled from hybrid estimator; see technical notes.

[a] Includes data reported on Form BRDI-1 that were not allocated to specific state. Data reported on Form BRDI-1A were allocated to the state in the address on the company's survey form, which is usually the company's headquarters.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2008.

TABLE 9. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
All industries	21–23, 31–33, 42–81	75,357	62,752	12,606
Manufacturing industries	31–33	49,503	40,666	8,837
Food	311	48	37	11
Beverage and tobacco products	312	D	3	D
Textiles, apparel, and leather products	313–316	14	12	2
Wood products	321	4	3	1
Paper	322	15	11	5
Printing and related support activities	323	67	37	30
Petroleum and coal products	324	D	D	D
Chemicals	325	5,659	3,648	2,011
Basic chemicals	3251	71	66	5
Resin, synthetic rubber, fibers, and filaments	3252	D	35	D
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D
Pharmaceuticals and medicines	3254	5,319	3,345	1,975
Soap, cleaning compound, and toilet preparation	3256	11	9	2
Paint, coating, adhesive, and other chemical	3255, 3259	69	D	D
Plastics and rubber products	326	114	106	8
Nonmetallic mineral products	327	51	46	5
Primary metals	331	46	42	5
Fabricated metal products	332	67	57	9
Machinery	333	323	269	54
Agricultural implement	33311	D	3	D
Semiconductor machinery	333295	70	63	7
Engine, turbine, and power transmission equipment	3336	82	63	18
Other machinery	other 333	D	140	D
Computer and electronic products	334	8,325	7,906	418
Communications equipment	3342	1,443	1,431	12
Semiconductor and other electronic components	3344	957	909	48
Navigational, measuring, electromedical, and control instruments	3345	5,403	5,102	302
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,131	1,123	8
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	4,124	D	D
Other measuring and controlling instruments	other 3345	148	D	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	520	464	57
Electrical equipment, appliances, and components	335	230	206	25
Transportation equipment	336	34,147	27,984	6,162 i
Automobiles, bodies, trailers, and parts	3361–3363	1,141	1,040	101
Aerospace products and parts	3364	32,967	26,907	6,060 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	25,725	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	7,242	D	D
Military armored vehicle, tank, and tank components	336992	D	7	D
Other transportation	other 336	D	30 i	D
Furniture and related products	337	*	*	*
Miscellaneous manufacturing	339	D	D	D
Medical equipment and supplies	3391	160	126	35
Other miscellaneous manufacturing	3399	D	D	D
Nonmanufacturing industries	21–23, 42–81	25,855	22,085	3,769
Mining, extraction, and support activities	21	39	D	D
Utilities	22	38	35	3
Construction	23	D	D	*
Wholesale trade	42	220	151	69
Retail trade	44, 45	2	2	*
Electronic shopping and mail-order houses	4541	1	1	*
Other retail trade	other 44, 45	1	1	0
Transportation and warehousing	48, 49	2	*	2
Information	51	902	828	75
Publishing	511	671	603	68
Newspaper, periodical, book, and directory publishers	5111	0	0	0
Software publishers	5112	671	603	68

TABLE 9. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
Telecommunications	517	88	83	5
Internet service providers, Web search portals, and data processing services	518	86	84	2
Other information	other 51	58	58	*
Finance and insurance	52	9	9	0
Real estate and rental and leasing	53	7 i	7 i	0
Professional, scientific, and technical services	54	24,059	20,611	3,448
Architectural, engineering, and related services	5413	2,535	2,126	409
Computer systems design and related services	5415	4,007	3,665	343
Scientific R&D services	5417	14,474	12,185	2,289
Other professional, scientific, and technical services	other 54	3,043	2,635	408
Health care services	621–623	425	282	143
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D
All companies	21–23, 31–33, 42–81	75,357	62,752	12,606
Small companies (number of employees)[a]				
5–499	–	14,651	12,131	2,520
5–99	–	9,999	8,577	1,422
5–49	–	7,647	6,453	1,193
5–24	–	4,713	4,076	637
25–49	–	2,934	2,377	556
50–99	–	2,352	2,123	229
100–249	–	2,635	1,842	794
250–499	–	2,017	1,712	304
Medium and large companies (number of employees)				
500–999	–	2,858	2,286	572
1,000–4,999	–	9,152	8,049	1,103
5,000–9,999	–	8,165	6,842	1,324
10,000–24,999	–	7,907	6,250	1,657
25,000 or more	–	32,624	27,194	5,430 i

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 10. Worldwide R&D paid for by others and performed by the company, by location of R&D performance, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	62,752	58,176	4,576
Manufacturing industries	31–33	40,666	39,368	1,298
Food	311	37	37	*
Beverage and tobacco products	312	3	3	0
Textiles, apparel, and leather products	313–316	12	12	0
Wood products	321	3	3	0
Paper	322	11	11	0
Printing and related support activities	323	37	37	*
Petroleum and coal products	324	D	D	0
Chemicals	325	3,648	3,207	441
Basic chemicals	3251	66	62	4
Resin, synthetic rubber, fibers, and filaments	3252	35	35	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	1
Pharmaceuticals and medicines	3254	3,345	2,962	383
Soap, cleaning compound, and toilet preparation	3256	9	9	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	53
Plastics and rubber products	326	106	104	2
Nonmetallic mineral products	327	46	46	*
Primary metals	331	42	42	*
Fabricated metal products	332	57	57	1
Machinery	333	269	258	11
Agricultural implement	33311	3	3	0
Semiconductor machinery	333295	63	59	4
Engine, turbine, and power transmission equipment	3336	63	63	0
Other machinery	other 333	140	133	7
Computer and electronic products	334	7,906	7,551	355
Communications equipment	3342	1,431	1,419	12
Semiconductor and other electronic components	3344	909	736	173
Navigational, measuring, electromedical, and control instruments	3345	5,102	4,997	105
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,123	1,119	4
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	D	3,739	D
Other measuring and controlling instruments	other 3345	D	139	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	464	399	65
Electrical equipment, appliances, and components	335	206	196	10
Transportation equipment	336	27,984	27,513	471
Automobiles, bodies, trailers, and parts	3361–3363	1,040	906	134
Aerospace products and parts	3364	26,907	26,570	337
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	21,163	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	5,407	D
Military armored vehicle, tank, and tank components	336992	7	7	0
Other transportation	other 336	30 i	30 i	0
Furniture and related products	337	*	*	0
Miscellaneous manufacturing	339	D	D	7
Medical equipment and supplies	3391	126	121	5
Other miscellaneous manufacturing	3399	D	D	3
Nonmanufacturing industries	21–23, 42–81	22,085	18,807	3,278
Mining, extraction, and support activities	21	D	24	D
Utilities	22	35	35	*
Construction	23	D	D	0
Wholesale trade	42	151	140	11
Retail trade	44, 45	2	2	0
Electronic shopping and mail-order houses	4541	1	1	0
Other retail trade	other 44, 45	1	1	0
Transportation and warehousing	48, 49	*	*	0
Information	51	828	772	55

TABLE 10. Worldwide R&D paid for by others and performed by the company, by location of R&D performance, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
Publishing	511	603	556	46
Newspaper, periodical, book, and directory publishers	5111	0	0	0
Software publishers	5112	603	556	46
Telecommunications	517	83	83	0
Internet service providers, Web search portals, and data processing services	518	84	75	9
Other information	other 51	58	58	0
Finance and insurance	52	9	8	1
Real estate and rental and leasing	53	7 i	7 i	0
Professional, scientific, and technical services	54	20,611	17,415	3,196
Architectural, engineering, and related services	5413	2,126	2,044	83
Computer systems design and related services	5415	3,665	3,577	88
Scientific R&D services	5417	12,185	9,205	2,980
Other professional, scientific, and technical services	other 54	2,635	2,590	45
Health care services	621–623	282	282	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D
All companies	21–23, 31–33, 42–81	62,752	58,176	4,576
Small companies (number of employees)[a]				
5–499	–	12,131	11,741	389
5–99	–	8,577	8,366	210
5–49	–	6,453	6,263	190
5–24	–	4,076	3,947	130
25–49	–	2,377	2,317	61
50–99	–	2,123	2,103	20
100–249	–	1,842	1,729	113
250–499	–	1,712	1,646	66
Medium and large companies (number of employees)				
500–999	–	2,286	2,213	73
1,000–4,999	–	8,049	7,327	722
5,000–9,999	–	6,842	4,406	2,435
10,000–24,999	–	6,250	5,688	562
25,000 or more	–	27,194	26,800	394

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 11. Worldwide, domestic, and foreign R&D paid for and performed by the company, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	289,403	232,505	56,899
Manufacturing industries	31–33	209,660	164,386	45,274
Food	311	2,659	2,063	596
Beverage and tobacco products	312	900	777	123
Textiles, apparel, and leather products	313–316	1,169	802	367
Wood products	321	274	270	4
Paper	322	1,430	1,156	274
Printing and related support activities	323	321	312	9
Petroleum and coal products	324	D	D	D
Chemicals	325	68,592	55,042	13,549
Basic chemicals	3251	5,206	4,012	1,194
Resin, synthetic rubber, fibers, and filaments	3252	950	726	224
Pesticide, fertilizer, and other agricultural chemical	3253	1,312	941	370
Pharmaceuticals and medicines	3254	55,648	45,169	10,479
Soap, cleaning compound, and toilet preparation	3256	3,064	2,099	965
Paint, coating, adhesive, and other chemical	3255, 3259	2,412	2,095	317
Plastics and rubber products	326	2,053	1,713	339
Nonmetallic mineral products	327	1,615	1,509	106
Primary metals	331	768	654	114
Fabricated metal products	332	2,550	2,362	188
Machinery	333	11,764	9,846	1,918
Agricultural implement	33311	1,580	1,181	399
Semiconductor machinery	333295	2,476	2,113	362
Engine, turbine, and power transmission equipment	3336	1,372	1,280	92
Other machinery	other 333	6,337	5,272	1,065
Computer and electronic products	334	68,331	52,912	15,419
Communications equipment	3342	14,423	11,484	2,939
Semiconductor and other electronic components	3344	28,490	21,588	6,902
Navigational, measuring, electromedical, and control instruments	3345	12,666	10,463	2,203
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	5,731	4,896	834
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	D	2,803	D
Other measuring and controlling instruments	other 3345	D	2,764	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	12,752	9,377	3,375
Electrical equipment, appliances, and components	335	4,099	2,947	1,152
Transportation equipment	336	32,835	23,039	9,796
Automobiles, bodies, trailers, and parts	3361–3363	20,547	12,234	8,313
Aerospace products and parts	3364	11,850	10,371	1,479
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	9,698	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	673	D
Military armored vehicle, tank, and tank components	336992	25	25	0
Other transportation	other 336	413	409	3
Furniture and related products	337	504	477	27
Miscellaneous manufacturing	339	D	D	D
Medical equipment and supplies	3391	5,940	5,179	762
Other miscellaneous manufacturing	3399	D	D	D
Nonmanufacturing industries	21–23, 42–81	79,743	68,118	11,625
Mining, extraction, and support activities	21	1,676	1,478	198
Utilities	22	197	190	6
Construction	23	D	D	0
Wholesale trade	42	2,442	1,944	499
Retail trade	44, 45	D	1,029	D
Electronic shopping and mail-order houses	4541	D	674	D
Other retail trade	other 44, 45	354	354	0
Transportation and warehousing	48, 49	136	134	2

TABLE 11. Worldwide, domestic, and foreign R&D paid for and performed by the company, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
Information	51	44,524	36,922	7,602
Publishing	511	34,126	27,871	6,255
Newspaper, periodical, book, and directory publishers	5111	233	205	27
Software publishers	5112	33,893	27,665	6,228
Telecommunications	517	1,776	1,601	175
Internet service providers, Web search portals, and data processing services	518	7,572	6,493	1,080
Other information	other 51	1,050	958	93
Finance and insurance	52	1,156	1,084	73
Real estate and rental and leasing	53	311	246	65
Professional, scientific, and technical services	54	23,493	20,539	2,954
Architectural, engineering, and related services	5413	1,495	1,378	117
Computer systems design and related services	5415	10,645	8,569	2,077
Scientific R&D services	5417	9,273	8,708	564
Other professional, scientific, and technical services	other 54	2,080	1,884	196
Health care services	621–623	1,033	1,032	1
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D
All companies	21–23, 31–33, 42–81	289,403	232,505	56,899
Small companies (number of employees)[a]				
5–499	–	50,922	46,396	4,526
5–99	–	26,682	24,890	1,792
5–49	–	18,479	17,642	836
5–24	–	10,571	10,333	238
25–49	–	7,907	7,309	598
50–99	–	8,204	7,248	956
100–249	–	14,555	12,933	1,622
250–499	–	9,684	8,572	1,112
Medium and large companies (number of employees)				
500–999	–	11,353	9,673	1,680
1,000–4,999	–	49,638	39,010	10,628
5,000–9,999	–	24,923	20,358	4,565
10,000–24,999	–	54,272	43,049	11,223
25,000 or more	–	98,297	74,020	24,277

* = amount < $500,000; D = data withheld to avoid disclosing operations of individual companies.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 12. R&D paid for by the company and others and performed by the company outside of the United States, by source of funds, industry, and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funding source: U.S. unit or foreign subsidiary	Funding source: Foreign parent or other company
All industries	21–23, 31–33, 42–81	61,475	56,899	4,576
Manufacturing industries	31–33	46,572	45,274	1,298
Food	311	596	596	*
Beverage and tobacco products	312	123	123	0
Textiles, apparel, and leather products	313–316	367	367	0
Wood products	321	4	4	0
Paper	322	274	274	0
Printing and related support activities	323	9	9	*
Petroleum and coal products	324	D	D	0
Chemicals	325	13,990	13,549	441
Basic chemicals	3251	1,198	1,194	4
Resin, synthetic rubber, fibers, and filaments	3252	224	224	0
Pesticide, fertilizer, and other agricultural chemical	3253	371	370	1
Pharmaceuticals and medicines	3254	10,862	10,479	383
Soap, cleaning compound, and toilet preparations	3256	965	965	0
Paint, coating, adhesive, and other chemical	3255, 3259	370	317	53
Plastics and rubber products	326	341	339	2
Nonmetallic mineral products	327	106	106	*
Primary metals	331	114	114	*
Fabricated metal products	332	188	188	1
Machinery	333	1,929	1,918	11
Agricultural implements	33311	399	399	0
Semiconductor machinery	333295	366	362	4
Engine, turbine, and power transmission equipment	3336	92	92	0
Other machinery	other 333	1,072	1,065	7
Computer and electronic products	334	15,774	15,419	355
Communications equipment	3342	2,951	2,939	12
Semiconductor and other electronic components	3344	7,075	6,902	173
Navigational, measuring, electromedical, and control instruments	3345	2,308	2,203	105
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	838	834	4
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	D	D	D
Other measuring and controlling instruments	other 3345	D	D	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	3,440	3,375	65
Electrical equipment, appliances, and components	335	1,162	1,152	10
Transportation equipment	336	10,267	9,796	471
Automobiles, bodies, trailers, and parts	3361–3363	8,448	8,313	134
Aerospace products and parts	3364	1,816	1,479	337
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,742	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	74	D	D
Military armored vehicle, tank, and tank components	336992	0	0	0
Other transportation equipment	other 336	3	3	0
Furniture and related products	337	27	27	0
Miscellaneous manufacturing	339	D	D	7
Medical equipment and supplies	3391	766	762	5
Other miscellaneous manufacturing	3399	D	D	3
Nonmanufacturing industries	21–23, 42–81	14,903	11,625	3,278
Mining, extraction, and support activities	21	D	198	D
Utilities	22	6	6	*
Construction	23	0	0	0
Wholesale trade	42	509	499	11

TABLE 12. R&D paid for by the company and others and performed by the company outside of the United States, by source of funds, industry, and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funding source: U.S. unit or foreign subsidiary	Funding source: Foreign parent or other company
Retail trade	44, 45	D	D	0
Electronic shopping and mail-order houses	4541	D	D	0
Other retail trade	other 44, 45	0	0	0
Transportation and warehousing	48, 49	2	2	0
Information	51	7,657	7,602	55
Publishing	511	6,301	6,255	46
Newspaper, periodical, book, and directory publishers	5111	27	27	0
Software publishers	5112	6,274	6,228	46
Telecommunications	517	175	175	0
Internet service providers, Web search portals, and data processing services	518	1,089 i	1,080	9
Other information	other 51	93	93	0
Finance and insurance	52	74	73	1 i
Real estate and rental and leasing	53	65	65	0
Professional, scientific, and technical services	54	6,150	2,954	3,196
Architectural, engineering, and related services	5413	200	117	83
Computer systems design and related services	5415	2,164	2,077	88
Scientific R&D services	5417	3,544	564	2,980
Other professional, scientific, and technical services	other 54	241	196	45
Health care services	621–623	1	1	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D
All companies	21–23, 31–33, 42–81	61,475	56,899	4,576
Small companies (number of domestic employees)[a]				
5–499	–	4,915	4,526	389
5–99	–	2,002	1,792	210
5–49	–	1,027	836	190
5–24	–	368	238	130
25–49	–	658	598	61
50–99	–	976	956	20
100–249	–	1,735	1,622	113
250–499	–	1,178	1,112	66
Medium and large companies (number of domestic employees)				
500–999	–	1,753	1,680	73
1,000–4,999	–	11,350	10,628	722
5,000–9,999	–	7,000	4,565	2,435
10,000–24,999	–	11,785	11,223	562
25,000 or more	–	24,671	24,277	394

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

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

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	290,680	12,368	46,864	231,447
Manufacturing industries	31–33	203,755	7,755	33,597	162,403
Food	311	2,100	85	334	1,681
Beverage and tobacco products	312	780	53	272	454
Textiles, apparel, and leather products	313–316	815	38	112	664
Wood products	321	273	7	52	215
Printing and related support activities	323	349	8	45	296 i
Chemicals	325	58,250	3,674	13,560	41,015
Pharmaceuticals and medicines	3254	48,131	3,038	11,037	34,056
Other chemicals	other 325	10,119	636	2,523	6,960
Plastics and rubber products	326	1,817	95	327	1,394
Nonmetallic mineral products	327	1,556	27	256 i	1,273 i
Primary metals	331	695	37	111	547
Fabricated metal products	332	2,419	59	285	2,075
Machinery	333	10,104	264	1,184	8,656
Computer and electronic products	334	60,464	1,632	7,976	50,856
Semiconductor and other electronic components	3344	22,324	267	2,573	19,484
Navigational, measuring, electromedical, and control instruments	3345	15,460	628	2,279	12,553
Other computer and electronic products	other 334	22,680	737	3,123	18,820
Electrical equipment, appliances, and components	335	3,143	107	555	2,481
Transportation equipment	336	50,552	1,216	6,754	42,583
Aerospace products and parts	3364	36,941	810	5,217	30,915
Other transportation	other 336	13,611	406	1,537	11,668
Furniture and related products	337	477	18	34	424
Other manufacturing	322, 324, 339	9,962	435	1,739	7,788
Nonmanufacturing industries	21–23, 42–81	86,926	4,613	13,267	69,044
Information	51	37,695	1,610	3,624	32,461
Publishing	511	28,427	1,124	2,611	24,693
Telecommunications	517	1,684	260 i	118	1,306
Internet service providers, Web search portals, and data processing services	518	6,567	208	831 i	5,528
Other information	other 51	1,016	18	64	934
Professional, scientific, and technical services	54	37,954	2,541	8,035	27,378
Architectural, engineering, and related services	5413	3,422	124	484	2,814
Computer systems design and related services	5415	12,146	291	814	11,041
Scientific R&D services	5417	17,913	1,900	5,847	10,166
Other professional, scientific, and technical services	other 54	4,474	225	891	3,357
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	11,277	463	1,608	9,206
All companies	–	290,680	12,368	46,864	231,447
Small companies (number of employees)[a]					
5–499	–	58,137	3,398	10,265	44,474
5–99	–	33,257	1,911	5,992	25,353
5–49	–	23,906	1,402	4,231	18,272
5–24	–	14,280	860	2,527	10,892
25–49	–	9,626	542	1,703	7,380
50–99	–	9,351	509	1,761	7,081
100–249	–	14,662	921	2,797	10,944
250–499	–	10,219	566	1,476	8,177
Medium and large companies (number of employees)					
500–999	–	11,886	940	2,139	8,808
1,000–4,999	–	46,336	1,461	5,916	38,960

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

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	24,764	704	5,943	18,118
10,000–24,999	–	48,737	1,965	8,912	37,859
25,000 or more	–	100,820	3,901	13,689	83,229

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 14. Domestic R&D paid for by the company and others and performed by companies in business for less than 5 years, by character of work, industry, and company size: 2008
(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	10,044	766	1,532	7,746
Manufacturing industries	31–33	3,968	180	704	3,084
Food	311	49	5	6	39
Beverage and tobacco products	312	19	1	3	15
Textiles, apparel, and leather products	313–316	34	3	5	25
Wood products	321	18	*	*	17
Printing and related	323	*	0	0	*
Chemicals	325	1,412	83	276	1,053
Pharmaceuticals and medicines	3254	1,174	71	231	873
Other chemicals	other 325	237	12	45	180
Plastics and rubber products	326	47	7	21	19
Nonmetallic mineral products	327	22	1	5	16
Primary metals	331	8	*	2	6
Fabricated metal products	332	88	*	8 i	80
Machinery	333	147	5	18	124
Computer and electronic products	334	1,261	46	194	1,021
Semiconductor and other electronic components	3344	664	4	76	585
Navigational, measuring, electromedical, and control instruments	3345	250	20	76	153
Other computer and electronic products	other 334	347	22	42	283
Electrical equipment, appliances, and components	335	81	6	19	55
Transportation equipment	336	210	13	35	162
Aerospace products and parts	3364	65	11	1	52
Other transportation	other 336	145	2	34	109
Furniture and related products	337	31	*	3	28
Other manufacturing	322, 324, 339	542	9	109	424
Nonmanufacturing industries	21–23, 42–81	6,076	586	828	4,662
Information	51	1,320	25	98	1,197
Publishing	511	812	8	54	749
Telecommunications	517	178	3	20	154
Internet service providers, Web search portals, and data processing services	518	255	14	18	223
Other information	other 51	75	*	5	70
Professional, scientific, and technical services	54	3,492	516	617	2,359
Architectural, engineering, and related services	5413	124	8	23	93
Computer systems design and related services	5415	1,134	106	148	879
Scientific R&D services	5417	1,652	389	386	877
Other professional, scientific, and technical services	other 54	582	13	60	509
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	1,264	45	112	1,107
All companies	–	10,044	766	1,532	7,746
Small companies (number of domestic employees)[a]					
5–499	–	8,867	727	1,431	6,708
5–99	–	7,478	594	1,162	5,722
5–49	–	6,682	566	998	5,118
5–24	–	4,550	448	764	3,338
25–49	–	2,132	118	234	1,781
50–99	–	796	28	164	604
100–249	–	797	91	187	519
250–499	–	591	43	82	467
Medium and large companies (number of domestic employees)					
500–999	–	529	8	34	487
1,000–4,999	–	446	11	53	382

TABLE 14. Domestic R&D paid for by the company and others and performed by companies in business for less than 5 years, by character of work, industry, and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
5,000–9,999	–	66	5	9	52 i
10,000–24,999	–	136	16	4	117
25,000 or more	–	0	0	0	0

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 United States that performed or funded R&D. For 2008,companies were asked if they had been in business for less than 5 years only if sum of domestic R&D performance paid for by the company and domestic R&D performance paid for by others was positive. Companies were not asked if they had been in business for less than 5 years if they reported only R&D performance paid for by others. This was omitted in first cycle of survey. For 2009 second cycle of survey, all companies that reported domestic R&D performance paid for by the company or domestic R&D performance paid for by others were asked this question.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 15. Domestic R&D paid for by others and performed by the company, by business activity: 2008
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
All business activities	21100–81390	58,176
Oil and gas extraction	21100	7
Coal mining	21210	D
Metal ore mining	21220	0
Nonmetallic mineral mining and quarrying	21230	0
Support activities for oil and gas operations	21300	D
Support activities for solid mineral operations	21310	0
Electric power generation, transmission, and distribution	22110	187
Natural gas distribution	22120	0
Water, sewage, and other systems	22130	1
Construction of buildings	23600	6
Heavy and civil engineering construction	23700	0
Specialty trade contractors	23800	7
Food	31100	33
Beverage	31210	* i
Tobacco	31220	3
Textile mill products	31300	4 i
Apparel	31500	6
Leather and allied products	31600	0
Wood products	32100	*
Paper	32200	1
Printing and related support activities	32300	* i
Petroleum and coal products	32400	D
Basic chemicals	32510	47
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	22
Pesticide, fertilizer, and other agricultural chemical	32530	D
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	2,797
In-vitro diagnostic substances	32542	69
Soap, cleaning compound, and toilet preparation	32591	3
Paint, adhesive, and other chemical	32592	23
Plastics and rubber products	32600	76
Clay and glass products	32710	28
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	1
Iron and steel mills, ferroalloy, and steel product from purchased steel	33110	4
Nonferrous metals production and processing	33130	3
Ferrous and nonferrous foundries	33150	*
Fabricated metal products	33200	143
Farm machinery and equipment	33311	2 i
Construction machinery	33312	0
Mining machinery and equipment	33313	35
Oil and gas field machinery and equipment	33314	0
Semiconductor machinery	33321	27
Industrial machinery, except semiconductor machinery	33322	19
Commercial, service industry, temperature control, and air-flow control machinery	33330	22
Engine, turbine, and power transmission equipment	33360	123
Metalworking and other general purpose machinery	33390	66
Computers and peripheral equipment	33410	303
Telephone apparatus	33421	21
Radio and television broadcasting and wireless communications equipment	33422	858 i
Communication equipment, except broadcasting, wireless, and telephone apparatus	33429	527
Audio and video equipment	33430	D
Semiconductor and other electronic components	33440	480
Electromedical, electrotherapeutic, and irradiation apparatus	33451	1,899
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	4,962

TABLE 15. Domestic R&D paid for by others and performed by the company, by business activity: 2008
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
Measuring and control instruments (not listed elsewhere)	33459	100
Manufacturing and reproducing magnetic and optical media	33460	D
Electrical equipment, appliances, and components	33500	150
Motor vehicles	33610	665
Motor vehicle body and trailer	33620	1
Motor vehicle parts	33630	160
Aircraft	33641	5,881 i
Aircraft engine and engine parts	33642	1,918
Other aircraft parts and auxiliary equipment	33643	763
Guided missile, space vehicle, and related parts	33644	4,725
Railroad rolling stock	33651	D
Ship and boat building	33660	D
Motorcycle, bicycle, and parts	33691	0
Military armored vehicle, tank, and tank components	33692	256
All other transportation equipment	33699	63 i
Furniture and related products	33700	*
Medical equipment and supplies	33910	169
Miscellaneous manufacturing (not listed elsewhere)	33990	239
Merchant wholesalers, durable goods	42300	29
Merchant wholesalers, nondurable goods	42400	1
Wholesale electronic markets and agents and brokers	42500	13
Motor vehicle and parts dealers	44100	0
Electronics and appliance stores	44300	0
Food and beverage stores	44500	1
Clothing and clothing accessories stores	44800	0
General merchandise stores	45200	0
Electronic shopping and mail-order houses	45410	0
Nonstore retailers, except electronic shopping and mail-order houses	45490	0
Retail trade stores, including gasoline stations (not listed elsewhere)	45990	*
Air transportation	48100	0
Rail transportation	48200	*
Water transportation	48300	0
Truck transportation	48400	0
Transit and ground passenger transportation	48500	0
Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas	48610	0
Pipeline transportation of natural gas	48620	0
Scenic and sightseeing transportation	48700	0
Support activities for transportation	48800	6
Couriers and messengers	49200	0
Warehousing and storage	49300	*
Newspaper, periodical, book, and directory publishers (except Internet)	51110	0
Software publishers (except Internet)	51120	367
Motion picture and sound recording (except Internet)	51200	0
Radio and television broadcasting (except Internet)	51510	0
Cable and other subscription programming (except Internet)	51520	0
Internet publishing and broadcasting	51600	*
Wired telecommunications carriers	51710	0
Wireless telecommunications carriers (except satellite)	51720	1 i
Satellite telecommunications	51740	D
Cable and other program distribution	51750	9
Telecommunications services (not listed elsewhere)	51790	59
Internet service providers and Web search portals	51810	7
Data processing, hosting, and related services	51820	44 i
Information services (not listed elsewhere)	51900	D
Depository credit intermediation	52210	0
Nondepository credit intermediation	52220	0

TABLE 15. Domestic R&D paid for by others and performed by the company, by business activity: 2008
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
Activities related to credit intermediation	52230	0
Securities, commodity contracts, and other financial investments and related activities	52300	1 i
Insurance carriers	52410	0
Agencies, brokerages, and other insurance-related activities	52420	7
Funds, trusts, and other financial vehicles	52500	0
Real estate	53100	0
Automotive equipment rental and leasing	53210	0
Consumer goods and general rental centers	53220	0
Commercial and industrial machinery and equipment rental and leasing	53240	0
Lessors of nonfinancial intangible assets	53300	0
Legal services	54110	0
Accounting, tax preparation, bookkeeping, and payroll services	54120	0
Architectural, engineering, and related services	54130	5,558
Specialized design services	54140	570
Computer systems design and related services	54150	3,085
Management, scientific, and technical consulting services	54160	753
Scientific R&D services	54170	8,093
Advertising and related services	54180	*
Professional, scientific, and technical services (not listed elsewhere)	54190	822
Management of companies and enterprises	55100	*
Business support services	56140	*
Travel arrangement and reservation services	56150	0
Investigation, security, and services to buildings and dwellings	56160	1
Office administrative, facilities, employment, and other support services	56190	91
Waste collection, treatment, and disposal	56210	0
Remediation and other waste management services	56290	0
Educational services	61100	8
Offices of physicians	62110	21
Offices of dentists and other health practitioners	62120	0
Medical and diagnostic laboratories	62150	291
Home health care services	62160	0
Outpatient care centers and other ambulatory health care services	62190	5
General medical and surgical hospitals	62210	23
Psychiatric, substance abuse, and specialty hospitals	62220	0
Nursing and residential care facilities	62300	0
Social assistance (except child day care services)	62400	0
Child day care services	62440	0
Performing arts, spectator sports, and related industries	71100	0
Amusement, gambling, and recreation industries	71300	D
Traveler accommodation services	72100	0
Food services and drinking places	72200	0
Automotive repair and maintenance	81110	0
Repair and maintenance, except automotive	81190	0
Personal care, death care, laundry, and other personal services	81200	0
Business, professional, labor, political, and similar organizations	81390	0
Undistributed	-	9,338

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

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2002 North American Industry Classification System industry definitions.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2008.

TABLE 16. Domestic R&D paid for by others and performed by the company, by source of funds and state: 2008

(Millions of U.S. dollars)

State	Total	Federal	Nonfederal
All states	58,176	36,360	21,816
Alabama	2,177	2,052	125
Alaska	17 e	6 e	10 e
Arizona	1,964 i	1,520 i	444
Arkansas	44 e	11 e	34 e
California	13,301	8,900 i	4,402
Colorado	623	394 i	229 e
Connecticut	1,580	D	D
Delaware	D	D	D
District of Columbia	416 i	334 i	82 e
Florida	1,169	669 i	500 e
Georgia	843 i	501 i	342 e
Hawaii	93	65	29 e
Idaho	175	9 e	166
Illinois	916	327	589
Indiana	616	209	407
Iowa	468	211	257
Kansas	489	201	288
Kentucky	54 e	13 e	42 e
Louisiana	108 e	44 i	64 e
Maine	55	32	23 e
Maryland	2,006	1,352 i	654
Massachusetts	2,403	1,472 i	931
Michigan	1,637	376 i	1,261
Minnesota	401	178	223 e
Mississippi	73	54	20 e
Missouri	D	D	D
Montana	23 e	8	15 e
Nebraska	97	14 e	83
Nevada	65 e	23 e	42 e
New Hampshire	1,293	1,166	127
New Jersey	1,723	264	1,459
New Mexico	409	238	172
New York	2,394 i	1,518 i	876
North Carolina	1,343	267	1,076
North Dakota	85	4 e	81
Ohio	2,038	1,450	588
Oklahoma	74 e	27	47 e
Oregon	161 e	49	112 e
Pennsylvania	952	309	643
Rhode Island	49	29	20 e
South Carolina	96 e	31	65 e
South Dakota	35	4 e	31
Tennessee	157 e	44 e	113 e
Texas	3,336	2,106	1,231
Utah	619	532	87 e
Vermont	42	12	30
Virginia	3,286 i	2,759 i	527 e
Washington	1,152	717	435
West Virginia	62	39	23

TABLE 16. Domestic R&D paid for by others and performed by the company, by source of funds and state: 2008

(Millions of U.S. dollars)

State	Total	Federal	Nonfederal
Wisconsin	521	100	421
Wyoming	11 e	4 e	7 e
Undistributed[a]	2,867 i	1,369 i	1,499

D = data withheld to avoid disclosing operations of individual companies; e = > 50% of value is modeled from hybrid estimator; i = > 50% of value imputed.

[a] Includes data reported on Form BRDI-1 that were not allocated to specific state. Data reported on Form BRDI-1A were allocated to state in address on the company's survey form, which is usually the company's headquarters.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2008.

TABLE 17. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2008
(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, in United States	All other, outside United States
All industries	21–23, 31–33, 42–81	58,176	12,181	8,877	36,360	306	48	334	70
Manufacturing industries	31–33	39,368	3,444	4,712	31,102	19	D	49	D
Food	311	37	3	32	2	0	0	0	0
Beverage and tobacco products	312	3	*	3	0	0	0	0	0
Textiles, apparel, and leather products	313–316	12	3	1 i	D	D	0	0	0
Wood products	321	3	3	0	0	0	0	0	0
Paper	322	11	D	D	D	D	0	*	0
Printing and related support activities	323	37	5	0	32	0	0	0	0
Petroleum and coal products	324	D	1	D	*	0	0	0	0
Chemicals	325	3,207	814	2,182	197	4	0	9	2
Basic chemicals	3251	62	5	23	33	1	0	*	0
Resin, synthetic rubber, fibers, and filaments	3252	35	D	D	12	*	0	*	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	1	0	0	0	0
Pharmaceuticals and medicines	3254	2,962	796	2,017	137	2	0	7	2
Soap, cleaning compound, and toilet preparation	3256	9	1	2	6	0	0	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	*	8	*	0	1	0
Plastics and rubber products	326	104	76	23	4	0	0	*	*
Nonmetallic mineral products	327	46	11	2	33	*	0	*	0
Primary metals	331	42	31	*	9	2	0	0	0
Fabricated metal products	332	57	34	7	16	*	*	0	0
Machinery	333	258	95	97	62	1	1	1	*
Agricultural implement	33311	3	3	0	0	0	0	*	0
Semiconductor machinery	333295	59	1	26	32	0	0	0	0
Engine, turbine, and power transmission equipment	3336	63	22	32	9	0	0	0	0
Other machinery	other 333	133	69	39	21	1	1	1	*
Computer and electronic products	334	7,551	1,520	1,338	4,646	4	11	31	1
Communications equipment	3342	1,419 i	106	D	D	*	0	D	0
Semiconductor and other electronic components	3344	736	D	D	D	3	1	D	*
Navigational, measuring, electromedical, and control instruments	3345	4,997	1,010	326	3,635	1	10	14	1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,119 i	18	1	1,098 i	*	1	*	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,739	983	323	2,410	*	9	13	1
Other measuring and controlling instruments	other 3345	139	9	2	127	*	*	1	0
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	399	D	286	51	0	0	D	0
Electrical equipment, appliances, and components	335	196	34	66	91	1	4 i	*	0
Transportation equipment	336	27,513	774	768	25,941 i	D	D	1	D
Automobiles, bodies, trailers, and parts	3361–3363	906	D	D	D	*	D	*	D
Aerospace products and parts	3364	26,570	649	D	25,805 i	D	D	1	*
Aircraft, aircraft engine, and aircraft parts	336411–336413	21,163	D	D	D	3	D	1	*
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5,407	D	0	D	D	*	0	0
Military armored vehicle, tank, and tank components	336992	7	D	0	D	0	0	0	0
Other transportation	other 336	30 i	D	2 i	D	0	2 i	*	0

TABLE 17. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2008
(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, in United States	All other, outside United States
Furniture and related products	337	*	* i	0	0	0	0	0	0
Miscellaneous manufacturing	339	D	D	D	54	1	*	6	0
Medical equipment and supplies	3391	121	35	62	20	0	*	5	0
Other miscellaneous manufacturing	3399	D	D	D	34	1	0	1	0
Nonmanufacturing industries	21–23, 42–81	18,807	8,737	4,166	5,258	287	D	285	D
Mining, extraction, and support activities	21	24	3	D	5	0	*	D	0
Utilities	22	35	D	0	D	1	0	D	0
Construction	23	D	D	0	0	*	0	0	0
Wholesale trade	42	140	21	72	46	0	0	0	2
Retail trade	44, 45	2	1	0	0	1	0	0	0
Electronic shopping and mail-order houses	4541	1	1	0	0	0	0	0	0
Other retail trade	other 44, 45	1	0	0	0	1	0	0	0
Transportation and warehousing	48, 49	*	0	*	*	0	0	0	0
Information	51	772	217	315	229	1	7	3	*
Publishing	511	556	117	D	176	D	D	3	*
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0	0	0	0
Software publishers	5112	556	117	D	176	D	D	3	*
Telecommunications	517	83	11	38	35	0	0	*	0
Internet service providers, Web search portals, and data processing services	518	75	73	1	1	0	*	0	0
Other information	other 51	58	16 i	D	17 i	D	D	* i	0
Finance and insurance	52	8	7	* i	0	0	0	0	0
Real estate and rental and leasing	53	7 i	7 i	0	0	0	0	0	0
Professional, scientific, and technical services	54	17,415	8,221	3,753	4,844	276	D	256	D
Architectural, engineering, and related services	5413	2,044	830	194	928	D	0	D	0
Computer systems design and related services	5415	3,577	1,183	1,490	784	119	0	1	0
Scientific R&D services	5417	9,205	4,726	2,008	2,115	107	D	D	D
Other professional, scientific, and technical services	other 54	2,590	1,481	61	1,016	D	4	D	0
Health care services	621–623	282	237	3	16	4	*	21	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D	D	4	0	*	0
All companies	21–23, 31–33, 42–81	58,176	12,181	8,877	36,360	306	48	334	70
Small companies (number of domestic employees)[a]									
5–499	–	11,741	5,635	1,597	4,117	123	21 i	202	46
5–99	–	8,366	4,459	895	2,667	115	11 i	183	36
5–49	–	6,263	3,474	556	1,972	103	4 i	119	36
5–24	–	3,947	2,415	364	1,086	35	*	44	2
25–49	–	2,317	1,059	191	886	68	3 i	75	34
50–99	–	2,103	985	340	695	12	7 i	64	* i
100–249	–	1,729	681	297	718	3	7	14	8
250–499	–	1,646	496	404	732	6	2 i	5 i	2 i
Medium and large companies (number of domestic employees)									
500–999	–	2,213	399	1,022	747	25	*	20	* i

TABLE 17. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2008
(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, in United States	All other, outside United States
1,000–4,999	–	7,327	1,396	3,539	2,162 i	128	D	78	D
5,000–9,999	–	4,406	2,318	912	1,168	1	D	D	0
10,000–24,999	–	5,688	994	1,625	3,024	29	1	15	0
25,000 or more	–	26,800	1,438	182	25,142 i	1	20	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 = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 18. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries and wages	Fringe benefits	Stock-based compen-sation	Tempo-rary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreci-ation	Other
All industries	21–23, 31–33, 42–81	58,176	22,782	7,190	252	1,170 i	314 i	6,904	685 i	1,024	17,857 i
Manufacturing industries	31–33	39,368	13,527	5,122	86	576	157	5,161	164	558	14,017 i
Food	311	37	16	8	0	2	*	2	*	1	7
Beverage and tobacco products	312	3	2	*	0	*	*	*	*	*	*
Textiles, apparel, and leather products	313–316	12	6	*	0	* i	* i	2	* i	* i	3 i
Wood products	321	3	2	1	0	0	0	*	0	0	*
Paper	322	11	5	1	*	*	0	D	* i	D	4
Printing and related support activities	323	37	20	3	1 i	1 i	* i	2 i	* i	2 i	8 i
Petroleum and coal products	324	D	D	D	0	1	2	D	0	D	D
Chemicals	325	3,207	1,421	340	65	58	11	158	31	107	1,017
Basic chemicals	3251	62	31	8	0	2	1	5	*	2	12
Resin, synthetic rubber, fibers, and filaments	3252	35	11	D	* i	1	1	D	1	1	D
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	D	D	* i	D	1 i	6	D
Pharmaceuticals and medicines	3254	2,962	1,326	299	D	D	9	139	29	97	950
Soap, cleaning compound, and toilet preparation	3256	9	3	1	* i	* i	* i	1 i	* i	1 i	3 i
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	1	0	0	*	2	0	0	D
Plastics and rubber products	326	104	60	13	0	1 i	1 i	5 i	1 i	3 i	20 i
Nonmetallic mineral products	327	46	18	3	0	* i	*	7	0	4	14
Primary metals	331	42	12	1	* i	* i	2 i	10 i	* i	* i	16 i
Fabricated metal products	332	57	37	6	*	* i	*	9 i	1 i	1 i	4 i
Machinery	333	258	127	29	2 i	5	3	44	3 i	4 i	42
Agricultural implement	33311	3	1	*	* i	* i	* i	* i	* i	* i	* i
Semiconductor machinery	333295	59	36	6	1 i	1 i	* i	6 i	2 i	2 i	5 i
Engine, turbine, and power transmission equipment	3336	63	24	7	* i	3	1 i	11 i	1	1 i	15 i
Other machinery	other 333	133	66	16	*	1	2	26	*	1	21
Computer and electronic products	334	7,551	3,087	907	17 i	188 i	88 i	1,425	80	315	1,444
Communications equipment	3342	1,419 i	416	106	0	17	D	177 i	3	46 i	D
Semiconductor and other electronic components	3344	736	322	103	5	5	2	56	9	91	143
Navigational, measuring, electromedical, and control instruments	3345	4,997	2,100	683	9 i	165 i	72 i	1,163	66	143	597
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,119 i	557 i	68 i	7 i	12 i	D	260 i	26 i	52 i	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,739	1,495	596	2	152 i	19	885	40	90	460
Other measuring and controlling instruments	other 3345	139	48	19	0	1 i	D	17	* i	1 i	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	399	250	16	2	2	D	29	3	35	D

TABLE 18. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries and wages	Fringe benefits	Stock-based compen-sation	Tempo-rary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreci-ation	Other
Electrical equipment, appliances, and components	335	196	98	22	0	5 i	2 i	36 i	* i	9 i	25 i
Transportation equipment	336	27,513	8,486 i	3,761 i	1	310	48	3,430	38	100	11,339 i
Automobiles, bodies, trailers, and parts	3361–3363	906	312	125	0	34	D	45	D	44	D
Aerospace products and parts	3364	26,570	8,162 i	3,633 i	1	277	45	3,374	15	55	11,009 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	21,163	6,469	2,976	1	D	D	2,569	15	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5,407	1,692 i	657 i	0	D	D	804	*	D	D
Military armored vehicle, tank, and tank components	336992	7	D	D	0	D	D	D	D	D	D
Other transportation	other 336	30 i	D	D	*	D	0	D	D	D	D
Furniture and related products	337	*	*	0	0	0	0	* i	0	0	* i
Miscellaneous manufacturing	339	D	D	D	1	4 i	1 i	D	8 i	D	D
Medical equipment and supplies	3391	121	57	11	1	2	*	11	3	6	30
Other miscellaneous manufacturing	3399	D	D	D	0	2 i	1 i	D	5 i	D	D
Nonmanufacturing industries	21–23, 42–81	18,807	9,254	2,068	165 i	594 i	157 i	1,743 i	521 i	466 i	3,840 i
Mining, extraction, and support activities	21	24	6	2	*	2	*	1	*	1	13
Utilities	22	35	8	6	*	D	D	D	*	0	D
Construction	23	D	2 i	* i	0	0	0	D	0	0	D
Wholesale trade	42	140	73	20	0	D	*	D	1	*	46
Retail trade	44, 45	2	1	0	0	0	0	1	0	0	0
Electronic shopping and mail-order houses	4541	1	1	0	0	0	0	0	0	0	0
Other retail trade	other 44, 45	1	0	0	0	0	0	1	0	0	0
Transportation and warehousing	48, 49	*	*	*	0	0	0	0	0	0	*
Information	51	772	537	62	9	D	D	17	14	14	105
Publishing	511	556	398	51	6	D	D	14	8	9	61
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0	0	0	0	0	0
Software publishers	5112	556	398	51	6	D	D	14	8	9	61
Telecommunications	517	83	51	5	0	D	D	* i	3	2 i	20 i
Internet service providers, Web search portals, and data processing services	518	75	50	6	2 i	4 i	* i	* i	1 i	* i	12 i
Other information	other 51	58	38 i	*	1 i	1 i	* i	2 i	2 i	2 i	12 i
Finance and insurance	52	8	7	* i	0	0	0	0	0	0	0
Real estate and rental and leasing	53	7 i	4 i	* i	0	0	0	0	0	0	3 i
Professional, scientific, and technical services	54	17,415	8,350	1,911	156 i	576 i	147 i	1,681 i	504 i	448 i	3,641 i
Architectural, engineering, and related services	5413	2,044	1,078	252	* i	8 i	52 i	222 i	30 i	15 i	386 i
Computer systems design and related services	5415	3,577	1,618	403	16 i	270 i	12 i	219 i	176 i	55 i	807 i
Scientific R&D services	5417	9,205	4,435	937	137	274	61	803	255	334	1,971

TABLE 18. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries and wages	Fringe benefits	Stock-based compen-sation	Tempo-rary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreci-ation	Other
Other professional, scientific, and technical services	other 54	2,590	1,219	319	2 i	25	22 i	438 i	43 i	44 i	477 i
Health care services	621–623	282	186	45	* i	1 i	1	38 i	1 i	3	7 i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	81	23	0	D	*	D	1	*	D
All companies	21–23, 31–33, 42–81	58,176	22,782	7,190	252	1,170 i	314 i	6,904	685 i	1,024	17,857 i
Small companies (number of domestic employees)[a]											
5–499	–	11,741	6,175	1,303	66 i	230 i	108 i	1,193 i	259 i	283 i	2,126 i
5–99	–	8,366	4,395	900	46 i	132 i	82 i	880 i	175 i	193 i	1,562 i
5–49	–	6,263	3,266	646	34 i	96 i	63 i	682 i	135 i	145 i	1,196 i
5–24	–	3,947	2,013	358	21 i	63 i	44 i	486 i	83 i	93 i	784 i
25–49	–	2,317	1,252	288	14 i	33 i	19 i	196 i	52 i	52 i	412 i
50–99	–	2,103	1,130	254	12 i	36 i	19 i	198 i	39 i	48 i	367 i
100–249	–	1,729	986	206	11	40	12	147	34	42 i	251
250–499	–	1,646	793	197	9	57	13	166 i	50	48	313
Medium and large companies (number of domestic employees)											
500–999	–	2,213	913	287	34	95	18	202	50	63	551
1,000–4,999	–	7,327	3,045	735	91	324 i	85 i	706 i	216 i	232	1,893
5,000–9,999	–	4,406	2,005	439	12 i	98	31	650	87	143	941
10,000–24,999	–	5,688	2,137	739	45	110	27	826	12	168	1,623
25,000 or more	–	26,800	8,506 i	3,687	5	313	45	3,326	62	134	10,722 i

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 19. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	58,176	2,341	10,439	45,396
Manufacturing industries	31–33	39,368	1,210	6,254	31,904
Food	311	37	*	30	6
Beverage and tobacco products	312	3	0	0	3
Textiles, apparel, and leather products	313–316	12	*	*	12
Wood products	321	3	0	0	3
Printing and related support activities	323	37	0	18	19
Chemicals	325	3,207	252	1,167	1,788
Pharmaceuticals and medicines	3254	2,962	156	1,130	1,676
Other chemicals	other 325	246	96	38	112
Plastics and rubber products	326	104	8	13	82
Nonmetallic mineral products	327	46	4	25	17
Primary metals	331	42	1	6	35
Fabricated metal products	332	57	*	2	54
Machinery	333	258	22	27	209
Computer and electronic products	334	7,551	299	835	6,417
Semiconductor and other electronic components	3344	736	18	48	671
Navigational, measuring, electromedical, and control instruments	3345	4,997	137	482	4,378
Other computer and electronic products	other 334	1,818	144	306	1,368 i
Electrical equipment, appliances, and components	335	196	4	59	133
Transportation equipment	336	27,513	588	4,024	22,901
Aerospace products and parts	3364	26,570	577	3,956	22,038
Other transportation	other 336	943	11	68	864
Furniture and related products	337	*	*	*	*
Other manufacturing	322, 324, 339	302	32	46	224
Nonmanufacturing industries	21–23, 42–81	18,807	1,131	4,185	13,491
Information	51	772	29	69	674
Publishing	511	556	20	54	483
Telecommunications	517	83	9	7	67
Internet service providers, Web search portals, and data processing services	518	75	1	1	73 i
Other information	other 51	58	0	7 i	50 i
Professional, scientific, and technical services	54	17,415	1,075	4,015	12,325
Architectural, engineering, and related services	5413	2,044	83	223	1,738
Computer systems design and related services	5415	3,577	73	117	3,387
Scientific R&D services	5417	9,205	832	2,988	5,385
Other professional, scientific, and technical services	other 54	2,590	87	687	1,815
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	620	26	101	492
All companies	–	58,176	2,341	10,439	45,396
Small companies (number of domestic employees)[a]					
5–499	–	11,741	866	2,390	8,486
5–99	–	8,366	622	1,621	6,123
5–49	–	6,263	454	1,279	4,531
5–24	–	3,947	266	849	2,831
25–49	–	2,317	187	430	1,700
50–99	–	2,103	168	342	1,593
100–249	–	1,729	160	356	1,213
250–499	–	1,646	83	413	1,150
Medium and large companies (number of domestic employees)					
500–999	–	2,213	357	454	1,402
1,000–4,999	–	7,327	248	771	6,307

TABLE 19. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	4,406	6	2,303	2,097
10,000–24,999	–	5,688	221	1,081	4,386
25,000 or more	–	26,800	642	3,441	22,717

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 20. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	36,360	1,475 i	5,397 i	29,488 i
Manufacturing industries	31–33	31,102	680 i	4,574 i	25,848 i
Food	311	2	* i	* i	2 i
Beverage and tobacco products	312	0	0	0	0
Textiles, apparel, and leather products	313–316	D	* i	*	D
Wood products	321	0	0	0	0
Printing and related	323	32	0	14 i	18 i
Chemicals	325	197	2	69 i	126 i
Pharmaceuticals and medicines	3254	137	1	50 i	87 i
Other chemicals	other 325	59	1 i	19 i	39 i
Plastics and rubber products	326	4	1 i	1 i	2 i
Nonmetallic mineral products	327	33	3 i	18 i	11 i
Primary metals	331	9	*	2	7
Fabricated metal products	332	16	*	1 i	15 i
Machinery	333	62	D	6	D i
Computer and electronic products	334	4,646	116 i	602 i	3,928 i
Semiconductor and other electronic components	3344	D	D	29 i	D i
Navigational, measuring, electromedical, and control instruments	3345	3,635	107 i	462 i	3,066 i
Other computer and electronic products	other 334	D	D	112 i	D i
Electrical equipment, appliances, and components	335	91	1	34 i	55 i
Transportation equipment	336	25,941 i	545 i	3,817 i	21,578 i
Aerospace products and parts	3364	25,805 i	545 i	3,784 i	21,476 i
Other transportation	other 336	136	1	34 i	102
Furniture and related products	337	0	0	0	0
Other manufacturing	322, 324, 339	D	D	8	D i
Nonmanufacturing industries	21–23, 42–81	5,258	796 i	823 i	3,640 i
Information	51	229	8	47 i	174 i
Publishing	511	176	8	34 i	134
Telecommunications	517	35	* i	8 i	27 i
Internet service providers, Web search portals, and data processing services	518	1	0	* i	1 i
Other information	other 51	17 i	0	4 i	13 i
Professional, scientific, and technical services	54	4,844	769 i	752 i	3,322 i
Architectural, engineering, and related services	5413	928	33	133 i	763 i
Computer systems design and related services	5415	784	151 i	23 i	610 i
Scientific R&D services	5417	2,115	573 i	422 i	1,121 i
Other professional, scientific, and technical services	other 54	1,016	14	175 i	828
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	186	18 i	24 i	145 i
All companies	–	36,360	1,475 i	5,397 i	29,488 i
Small companies (number of domestic employees)[a]					
5–499	–	4,117	552	650	2,915
5–99	–	2,667	428	340	1,899
5–49	–	1,972	304 i	264	1,405
5–24	–	1,086	133 i	171	782
25–49	–	886	171	93	623
50–99	–	695	124	76	494
100–249	–	718	102	163	453
250–499	–	732	22 i	147 i	563
Medium and large companies (number of domestic employees)					
500–999	–	747	218	130	399
1,000–4,999	–	2,162 i	D	D	1,695 i

TABLE 20. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	1,168	D	D	829
10,000–24,999	–	3,024	D	D	2,247 i
25,000 or more	–	25,142 i	593 i	3,146 i	21,403 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 = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 21. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
All industries	21–23, 31–33, 42–81	36,360	28,314	527	2,136	877	4,506
Manufacturing industries	31–33	31,102	25,130 i	351	1,705	245	3,671
Food	311	2	1	1	0	0	* i
Beverage and tobacco products	312	0	0	0	0	0	0
Textiles, apparel, and leather products	313–316	D	D	0	0	0	0
Wood products	321	0	0	0	0	0	0
Paper	322	D	D	3	0	0	1
Printing and related support activities	323	32	0	0	0	32	0
Petroleum and coal products	324	*	0	*	0	0	0
Chemicals	325	197	59	26	*	96	16
Basic chemicals	3251	33	15	16	0	*	2
Resin, synthetic rubber, fibers, and filaments	3252	12	D	D	0	*	*
Pesticide, fertilizer, and other agricultural chemical	3253	1	1	0	0	0	0
Pharmaceuticals and medicines	3254	137	28	0	*	96	14
Soap, cleaning compound, and toilet preparation	3256	6	6	0	0	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	8	D	D	*	0	*
Plastics and rubber products	326	4	2	0	0	0	2
Nonmetallic mineral products	327	33	11	11	1	8	1
Primary metals	331	9	7	D	0	0	D
Fabricated metal products	332	16	7	8	0	0	*
Machinery	333	62	25	22	*	*	14
Agricultural implement	33311	0	0	0	0	0	0
Semiconductor machinery	333295	32	7	18	*	*	7
Engine, turbine, and power transmission equipment	3336	9	7	2	0	0	0
Other machinery	other 333	21	12	2	*	0	8
Computer and electronic products	334	4,646	2,598	34	120	90	1,805
Communications equipment	3342	D	D	0	2 i	D	D
Semiconductor and other electronic components	3344	D	D	13	3	D	D
Navigational, measuring, electromedical, and control instruments	3345	3,635	1,836	21	115	63	1,599
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,098 i	D	7	12 i	D	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	2,410	D	4	103	0	D
Other measuring and controlling instruments	other 3345	127	D	10	*	D	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	51	41	*	0	D	D
Electrical equipment, appliances, and components	335	91	54	16	1	6	13 i
Transportation equipment	336	25,941 i	22,314 i	228	1,582	6	1,811
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D	2 i	* i	3
Aerospace products and parts	3364	25,805 i	22,221 i	D	1,579	6	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	18,322	D	960	3	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	3,899 i	3 i	619	3 i	D
Military armored vehicle, tank, and tank components	336992	D	D	0	0	0	0
Other transportation	other 336	D	D	* i	2 i	* i	D

TABLE 21. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
Furniture and related products	337	0	0	0	0	0	0
Miscellaneous manufacturing	339	54	D	D	0	7	D
Medical equipment and supplies	3391	20	14	*	0	5	1
Other miscellaneous manufacturing	3399	34	D	D	0	2	D
Nonmanufacturing industries	21–23, 42–81	5,258	3,184	175	431	633	835
Mining, extraction, and support activities	21	5	D	D	0	0	*
Utilities	22	D	1	D	0	0	0
Construction	23	0	0	0	0	0	0
Wholesale trade	42	46	11	0	0	32	2 i
Retail trade	44, 45	0	0	0	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0	0	0	0
Other retail trade	other 44, 45	0	0	0	0	0	0
Transportation and warehousing	48, 49	*	0	0	0	0	*
Information	51	229	161	1	5	5	57
Publishing	511	176	129	1	3	5	38
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0	0
Software publishers	5112	176	129	1	3	5	38
Telecommunications	517	35	31	0	1	0	3
Internet service providers, Web search portals, and data processing services	518	1	1	0	0	0	0
Other information	other 51	17 i	0	0	0	0	17 i
Finance and insurance	52	0	0	0	0	0	0
Real estate and rental and leasing	53	0	0	0	0	0	0
Professional, scientific, and technical services	54	4,844	3,003	86	426	586	743
Architectural, engineering, and related services	5413	928	641	23	228	D	D
Computer systems design and related services	5415	784	545	2	*	158	78
Scientific R&D services	5417	2,115	1,079	43	66	386	541
Other professional, scientific, and technical services	other 54	1,016	738	18	132	D	D
Health care services	621–623	16	5	0	0	10	1
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	56	*	0	31
All companies	21–23, 31–33, 42–81	36,360	28,314	527	2,136	877	4,506
Small companies (number of domestic employees)[a]							
5–499	–	4,117	2,771	126	127	660	433 i
5–99	–	2,667	1,599	92	85	573	319 i
5–49	–	1,972	1,200	51	56	375	290 i
5–24	–	1,086	638	32	20	300	97
25–49	–	886	562	19	37	75	194 i
50–99	–	695	399	40	28	198	29
100–249	–	718	533	25	35	57	68
250–499	–	732	640	9	7	30	46 i
Medium and large companies (number of domestic employees)							
500–999	–	747	473	4	D	66	D

TABLE 21. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
1,000–4,999	–	2,162 i	951 i	75	112	116	908 i
5,000–9,999	–	1,168	927	34	192	0	16 i
10,000–24,999	–	3,024	2,278	20	D	28 i	D
25,000 or more	–	25,142 i	20,913 i	269	1,070	8	2,882

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

DOD = Department of Defense; DOE = Department of Energy; NAICS = 2002 North American Industry Classification System; NASA = National Aeronautics and Space Administration; NIH = National Institutes of Health.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 22. 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: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign-located companies		Foreign governments	All other
			Companies' foreign subsidiaries[a]	Parents and independent companies		
All industries	21–23, 31–33, 42–81	15,652	6,657	8,877	48	70
Manufacturing industries	31–33	10,203	5,448	4,712	D	D
Food	311	111	79	32	0	0
Beverage and tobacco products	312	D	D	3	0	0
Textiles, apparel, and leather products	313–316	5	4	1 i	0	0
Wood products	321	0	0	0	0	0
Paper	322	8	D	D	0	0
Printing and related support activities	323	0	0	0	0	0
Petroleum and coal products	324	D	D	D	0	0
Chemicals	325	3,987	1,802	2,182	0	2
Basic chemicals	3251	D	D	23	0	0
Resin, synthetic rubber, fibers, and filaments	3252	21	D	D	0	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	0	D	0	0
Pharmaceuticals and medicines	3254	3,483	1,465	2,017	0	2
Soap, cleaning compound, and toilet preparation	3256	4	2	2	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	*	0	0
Plastics and rubber products	326	35	11	23	0	*
Nonmetallic mineral products	327	5	3	2	0	0
Primary metals	331	10	10	*	0	0
Fabricated metal products	332	21	15	7	*	0
Machinery	333	222	124	97	1	*
Agricultural implements	33311	3	3	0	0	0
Semiconductor machinery	333295	27	2	26	0	0
Engine, turbine, and power transmission equipment	3336	33	1	32	0	0
Other machinery	other 333	159	119	39	1	*
Computer and electronic products	334	3,728	2,378	1,338	11	1
Communications equipment	3342	554	D	D	0	0
Semiconductor and other electronic components	3344	1,476	D	D	1	*
Navigational, measuring, electromedical, and control instruments	3345	888	550	326	10	1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	329	327	1	1	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	D	D	323	9	1
Other measuring and controlling instruments	other 3345	D	D	2	*	0
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	810	525	286	0	0
Electrical equipment, appliances, and components	335	117	47	66	4 i	0
Transportation equipment	336	1,137	D	768	D	D
Automobiles, bodies, trailers, and parts	3361–3363	785	D	D	D	D
Aerospace products and parts	3364	340	D	D	D	*
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	D	D	D	*

TABLE 22. 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: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign-located companies		Foreign governments	All other
			Companies' foreign subsidiaries[a]	Parents and independent companies		
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	0	*	0
Military armored vehicle, tank, and tank components	336992	D	D	0	0	0
Other transportation equipment	other 336	D	D	2 i	2 i	0
Furniture and related products	337	0	0	0	0	0
Miscellaneous manufacturing	339	601	D	D	*	0
Medical equipment and supplies	3391	558	496	62	*	0
Other miscellaneous manufacturing	3399	43	D	D	0	0
Nonmanufacturing industries	21–23, 42–81	5,449	1,209	4,166	D	D
Mining, extraction, and support activities	21	D	D	D	*	0
Utilities	22	0	0	0	0	0
Construction	23	0	0	0	0	0
Wholesale trade	42	77	3	72	0	2
Retail trade	44, 45	0	0	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0	0	0
Other retail trade	other 44, 45	0	0	0	0	0
Transportation and warehousing	48, 49	*	*	*	0	0
Information	51	680	358	315	7	*
Publishing	511	398	D	D	D	*
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0
Software publishers	5112	398	D	D	D	*
Telecommunications	517	77	40	38	0	0
Internet service providers, Web search portals, and data processing services	518	D	D	1	*	0
Other information	other 51	D	D	D	D	0
Finance and insurance	52	D	D	* i	0	0
Real estate and rental and leasing	53	0	0	0	0	0
Professional, scientific, and technical services	54	4,363	545	3,753	D	D
Architectural, engineering, and related services	5413	D	D	194	0	0
Computer systems design and related services	5415	1,772	282	1,490	0	0
Scientific R&D services	5417	2,318	250	2,008	D	D
Other professional, scientific, and technical services	other 54	D	D	61	4	0
Health care services	621–623	3	*	3	*	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D	0	0
All companies	21–23, 31–33, 42–81	15,652	6,657	8,877	48	70
Small companies (number of domestic employees)[b]						
5–499	–	2,109	446	1,597	21 i	46
5–99	–	1,123	180	895	11 i	36
5–49	–	678	83	556	4 i	36
5–24	–	377	11	364	*	2

TABLE 22. 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: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign-located companies		Foreign governments	All other
			Companies' foreign subsidiaries[a]	Parents and independent companies		
25–49	–	301	73	191	3 i	34
50–99	–	444	97	340	7 i	* i
100–249	–	463	150	297	7	8
250–499	–	523	115	404	2 i	2 i
Medium and large companies (number of domestic employees)						
500–999	–	1,275	253	1,022	*	* i
1,000–4,999	–	5,795	2,231	3,539	D	D
5,000–9,999	–	1,369	D	912	D	0
10,000–24,999	–	2,866	1,240	1,625	1	0
25,000 or more	–	2,238	D	182	20	D

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

NAICS = 2002 North American Industry Classification System.

[a] Subsidiaries estimates only include adjustment to weight for unit nonresponse; remaining details include weight adjustment and item-level imputation. See technical notes document for details on methodology implemented.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 23. Worldwide R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	U.S. companies	Foreign companies	U.S. federal government	State governments	Foreign governments	U.S. universities or colleges	Foreign universities or colleges	All other	Undistributed
All industries	21–23, 31–33, 42–81	38,636	22,502	8,191	132	14	14	1,277	513	506	5,487
Manufacturing industries	31–33	29,502	18,480	7,158	112	11	7	1,104	499	237	1,894
Food	311	200	112	23	*	0	*	11	2	6	–
Beverage and tobacco products	312	157	127	18	*	*	*	8	2	0	–
Textiles, apparel, and leather products	313–316	27	11	2	0	0	*	1	D	0	–
Wood products	321	17	9	1	0	0	0	*	*	0	–
Paper	322	111	D	D	0	0	0	D	D	0	–
Printing and related support activities	323	6	0	0	0	0	0	0	0	0	–
Petroleum and coal products	324	D	D	D	0	0	0	D	1	0	–
Chemicals	325	19,550	13,281	3,901	76	3	3	869	416	153	–
Basic chemicals	3251	180	74	44	3	0	*	17	7	*	–
Resin, synthetic rubber, fibers, and filaments	3252	13	2	4	*	*	0	2	D	0	–
Pesticide, fertilizer, and other agricultural chemical	3253	176	D	D	0	0	0	29	D	3	–
Pharmaceuticals and medicines	3254	18,708	12,744	3,734	73	2	3	816	399	150	–
Soap, cleaning compound, and toilet preparation	3256	422	331	71	0	0	0	4	D	0	–
Paint, coating, adhesive, and other chemical	3255, 3259	51	D	D	*	*	0	1	D	*	–
Plastics and rubber products	326	135	74	41	*	*	0	1	1	*	–
Nonmetallic mineral products	327	202	94 i	97 i	* i	0	0	4 i	1 i	*	–
Primary metals	331	77	14	D	*	0	*	1	3	2	–
Fabricated metal products	332	81	41	2	0	0	0	1	*	0	–
Machinery	333	486	306	94	*	*	*	10	1	2	–
Agricultural implement	33311	191	D	D	0	0	0	1	0	0	–
Semiconductor machinery	333295	42	26	8	*	0	0	2 i	0	0	–
Engine, turbine, and power transmission equipment	3336	89	65	10	0	0	0	*	*	*	–
Other machinery	other 333	164	D	D	*	*	*	8	1	2	–
Computer and electronic products	334	2,484	1,382	547	1	*	1	63	38	40	–
Communications equipment	3342	707	347	275	*	0	0	2	*	0	–
Semiconductor and other electronic components	3344	839	549	113	0	0	0	2	D	*	–
Navigational, measuring, electromedical, and control instruments	3345	641	288	114	*	*	1	55	D	D	–
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	396	147	47	*	*	1	53	12	15	–
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	D	117	37	*	*	*	2	D	D	–
Other measuring and controlling instruments	other 3345	D	24	30	0	0	0	*	D	0	–
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	297	197	45	*	0	0	4	*	D	–
Electrical equipment, appliances, and components	335	176	91	40	*	0	*	1	*	4	–
Transportation equipment	336	4,833	2,368	2,187	31	7	D	56	23	26	–
Automobiles, bodies, trailers, and parts	3361–3363	3,767	1,590	2,024	D	*	D	25	D	2	–
Aerospace products and parts	3364	1,025	D	161	D	6	3	31	D	24	–
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	656	161	D	D	3	D	D	D	–
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	*	*	D	0	D	*	D	–

TABLE 23. Worldwide R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	U.S. companies	Foreign companies	U.S. federal government	State governments	Foreign governments	U.S. universities or colleges	Foreign universities or colleges	All other	Undistributed
Military armored vehicle, tank, and tank components	336992	1	1	0	0	0	0	0	0	0	–
Other transportation	other 336	41	D	2	0	1	0	*	0	0	–
Furniture and related products	337	37	18	2	0	0	0	*	0	0	–
Miscellaneous manufacturing	339	D	406	115	3	*	D	29	4	2	–
Medical equipment and supplies	3391	729	385	104	3	*	D	27	4	1	–
Other miscellaneous manufacturing	3399	D	21	10	*	0	0	2	*	*	–
Nonmanufacturing industries	21–23, 42–81	9,134	4,021	1,033	20	3	6	173	14	269	3,595
Mining, extraction, and support activities	21	539	D	D	D	0	D	D	3	0	–
Utilities	22	233	75	*	0	3	0	3	0	D	–
Construction	23	D	2	*	0	0	0	*	0	0	–
Wholesale trade	42	407	46 i	13	0	0	0	* i	0	0	–
Retail trade	44, 45	D	0	0	0	0	0	0	0	0	–
Electronic shopping and mail-order houses	4541	D	0	0	0	0	0	0	0	0	–
Other retail trade	other 44, 45	22	0	0	0	0	0	0	0	0	–
Transportation and warehousing	48, 49	46	44	2	0	0	0	*	0	0	–
Information	51	2,540	1,611	336	0	0	D	D	*	D	–
Publishing	511	1,676	892	301	0	0	0	4	*	D	–
Newspaper, periodical, book, and directory publishers	5111	7	4	1	0	0	0	0	0	0	–
Software publishers	5112	1,669	887	300	0	0	0	4	*	D	–
Telecommunications	517	D	D	*	0	0	0	D	*	0	–
Internet service providers, Web search portals, and data processing services	518	198	114	29	0	0	D	0	*	*	–
Other information	other 51	D	D	5	0	0	0	D	*	*	–
Finance and insurance	52	84	61	15	0	0	0	*	*	D	–
Real estate and rental and leasing	53	19	7	1	0	0	0	0	0	0	–
Professional, scientific, and technical services	54	4,858	1,768	355	D	*	D	81	9	5	–
Architectural, engineering, and related services	5413	346	181	3	0	*	0	3	*	0	–
Computer systems design and related services	5415	467	103	58	0	0	0	*	*	0	–
Scientific R&D services	5417	3,823	1,383	288	6	*	D	76	9	4	–
Other professional, scientific, and technical services	other 54	223	101	7	D	0	D	2	*	1	–
Health care services	621–623	163	86	70	0	0	0	2	1	0	–
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D	0	0	0	*	*	*	–
All companies	21–23, 31–33, 42–81	38,636	22,502	8,191	132	14	14	1,277	513	506	5,487
Small companies (number of domestic employees)[a]											–
5–499	–	8,333	2,527	710	14	3	1	120	22	70	–
5–99	–	5,109	831	276	3	*	*	45	14	13	–
5–49	–	3,708	442	133	1	*	0	28	8	3	–
5–24	–	2,412	166	51	1	0	0	8	3	1	–
25–49	–	1,296	275	82	*	*	0	20	6	3	–
50–99	–	1,401	389	143	1	*	*	18	5	10	–
100–249	–	1,933	939	259	8	2	1	D	4	D	–
250–499	–	1,291	757	175	3	* i	* i	D	4	D	–

TABLE 23. Worldwide R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	U.S. companies	Foreign companies	U.S. federal government	State governments	Foreign governments	U.S. universities or colleges	Foreign universities or colleges	All other	Undistributed
Medium and large companies (number of domestic employees)											
500–999	–	1,575	1,016	358	1	*	*	19	5	6	–
1,000–4,999	–	5,518	3,663	1,124	2	2	8	136	13	259	–
5,000–9,999	–	3,456	2,414	664	D	D	1	276	21	18	–
10,000–24,999	–	8,543	5,971	1,690	D	D	*	381	259	103	–
25,000 or more	–	11,211	6,911	3,645	37	1	4	346	193	50	–

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

NOTES: NAICS 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. Detailed data were not collected on BRDI-1A questionnaire. Statistics are representative of companies located in 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, 2008.

TABLE 24. Capital expenditures for domestic R&D paid for by the company and others and performed by the company, by type, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
All industries	21–23, 31–33, 42–81	33,634	4,604	11,219	3,402	2,528	11,881
Manufacturing industries	31–33	18,424	2,953	8,734	1,490	1,682	3,566
Food	311	327	D	88	4	6	D
Beverage and tobacco products	312	D	D	D	2	D	9
Textiles, apparel, and leather products	313–316	D	3	7	2	1	D
Wood products	321	24	0	9	0	0	15
Paper	322	85	3	59	2	6	15
Printing and related support activities	323	49 i	4	3	D	*	D
Petroleum and coal products	324	72	4	D	4	D	14
Chemicals	325	3,477	841	1,510	246	183	697
Basic chemicals	3251	365	79	251	2	D	D
Resin, synthetic rubber, fibers, and filaments	3252	55	5 i	38 i	0	0	12
Pesticide, fertilizer, and other agricultural chemical	3253	117	26	49	D	D	4
Pharmaceuticals and medicines	3254	2,685	700	1,030	227	137	592
Soap, cleaning compound, and toilet preparation	3256	150	22	103	5	6	14
Paint, coating, adhesive, and other chemical	3255, 3259	106	9	40	D	6	D
Plastics and rubber products	326	227	22	62	8	45	91
Nonmetallic mineral products	327	74	12	32 i	6 i	9 i	17
Primary metals	331	142	7	D	1	*	D
Fabricated metal products	332	341	3	42	9	5	282
Machinery	333	2,383	947	821	206	143	266
Agricultural implement	33311	78	10	35	8	10	15
Semiconductor machinery	333295	146	11	115	2	12	6
Engine, turbine, and power transmission equipment	3336	1,510	D	428	125	78	D
Other machinery	other 333	649	D	243	71	43	D
Computer and electronic products	334	5,546	376	2,867	746	786	771
Communications equipment	3342	1,580	2	1,044	180	212	D
Semiconductor and other electronic components	3344	2,160	288	1,084	317	D	D
Navigational, measuring, electromedical, and control instruments	3345	869	19	239	110	302	199
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	497	10	76	73	238	100
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	208	7	76	18	60	47
Other measuring and controlling instruments	other 3345	164	2	87	19	4	52
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	937	67	500	138 i	108	124
Electrical equipment, appliances, and components	335	940	30	656	7	26	221
Transportation equipment	336	2,525	404 i	1,425	202	332	162
Automobiles, bodies, trailers, and parts	3361–3363	1,351	227	724	153	156	91
Aerospace products and parts	3364	1,106 i	D	673 i	46	170	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,054 i	D	646 i	41	167	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	52	D	27	5	3	D
Military armored vehicle, tank, and tank components	336992	2	1	1	*	*	0
Other transportation	other 336	65	D	28	3	6	D
Furniture and related products	337	111	0	28 i	1 i	13 i	69

TABLE 24. Capital expenditures for domestic R&D paid for by the company and others and performed by the company, by type, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
Miscellaneous manufacturing	339	1,024	28	281	41	104	572
Medical equipment and supplies	3391	878	23	249	31	44	531
Other miscellaneous manufacturing	3399	147	5	32	10	60	40
Nonmanufacturing industries	21–23, 42–81	15,210	1,651	2,485	1,912	846	8,317
Mining, extraction, and support activities	21	162	22	52	2	20	66
Utilities	22	116	D	18	4	D	57
Construction	23	1,191	*	*	*	5	1,186
Wholesale trade	42	1,375 i	168 i	189 i	3 i	111 i	905
Retail trade	44, 45	243	0	D	23	D	142
Electronic shopping and mail-order houses	4541	122	0	D	23	D	21
Other retail trade	other 44, 45	121	0	1	*	*	120
Transportation and warehousing	48, 49	131	D	25	D	1	41
Information	51	6,821	1,270	1,599	1,214	156	2,583
Publishing	511	3,758	D	D	915	100	1,818
Newspaper, periodical, book, and directory publishers	5111	31	1	3	8	17	2
Software publishers	5112	3,727	D	D	908	83	1,815
Telecommunications	517	383	*	24	37	9	313
Internet service providers, Web search portals, and data processing services	518	2,536	D	D	227 i	23	414
Other information	other 51	144	34	13	34	23	40
Finance and insurance	52	221	*	11	193	5	12
Real estate and rental and leasing	53	38	0	1	1	*	36
Professional, scientific, and technical services	54	3,681	157	528	351	507	2,138
Architectural, engineering, and related services	5413	309	17	17	1	10	264
Computer systems design and related services	5415	1,381	15	164	288	138	775
Scientific R&D services	5417	1,373	125	247	45	356	600
Other professional, scientific, and technical services	other 54	618	0	99 i	17 i	2	500
Health care services	621–623	143	0	8	1	*	134
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1,088	1	D	D	5	1,019
All companies	21–23, 31–33, 42–81	33,634	4,604	11,219	3,402	2,528	11,881
Small companies (number of employees)[b]							
5–499	–	12,492	248	766	231	268	10,980
5–99	–	8,242	43	164	55	76	7,903
5–49	–	6,537	23	64	15	56	6,379
5–24	–	4,390	6	24	4	19	4,338
25–49	–	2,147	17	41	11	37	2,041
50–99	–	1,705	20	100	40	21	1,524
100–249	–	3,195	123	336	91	87	2,560
250–499	–	1,055	82	266	85	105	518
Medium and large companies (number of domestic employees)							
500–999	–	1,074	169	430	120	168	186
1,000–4,999	–	5,573	1,273	2,645	643	746	267

TABLE 24. Capital expenditures for domestic R&D paid for by the company and others and performed by the company, by type, industry, and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
5,000–9,999	–	3,459	1,062	1,648	478	226	46
10,000–24,999	–	4,394	916	2,237	645	362 i	234
25,000 or more	–	6,643	937	3,493	1,284	759	170

* = 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 = 2002 North American Industry Classification System.

[a] Detailed data for capital expenditures for domestic R&D detailed data were not collected on Form BRDI-1A (questionnaire sent to smaller firms). Form BRDI-1A total capital expenditure data are included in undistributed column.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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, 2008.

TABLE 25. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2008

Industry and company size	NAICS code	Employment (thousands of employees)					
		Total			R&D		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	27,068	18,515	8,552	1,867	1,425	442
Manufacturing industries	31–33	16,745	10,173	6,571	1,143	850	293
Food	311	1,470	1,086	384	18	14	4
Beverage and tobacco products	312	539	310	229	4	3	1
Textiles, apparel, and leather products	313–316	577	361	216	10	6	4 i
Wood products	321	165	144	21	3	3	*
Paper	322	370	232	138	12	8	4
Printing and related support activities	323	103	83	19	3	3	*
Petroleum and coal products	324	257	74	183	7	6	1
Chemicals	325	2,471	1,396	1,074	229	175	55
Basic chemicals	3251	467	248	219	27	19	7
Resin, synthetic rubber, fibers, and filaments	3252	236	125	111	5	4	1
Pesticide, fertilizer, and other agricultural chemical	3253	84	64	19	6	5	1
Pharmaceuticals and medicines	3254	1,082	654	428	159	123	36
Soap, cleaning compound, and toilet preparation	3256	350	147	203	17	11	6
Paint, coating, adhesive, and other chemical	3255, 3259	252	158	94	15	12	3
Plastics and rubber products	326	636	453	183	23	17	6
Nonmetallic mineral products	327	284	220	64	12	9	3 i
Primary metals	331	349	224	124	7	7	1
Fabricated metal products	332	788	633	154	32	29	3 i
Machinery	333	1,433	831	602	78	60	18
Agricultural implement	33311	147	89	58	10	7	3
Semiconductor machinery	333295	42	27	15	9	7	2
Engine, turbine, and power transmission equipment	3336	131	97	34	9	7	1
Other machinery	other 333	1,113	617	496	50	38	11
Computer and electronic products	334	2,531	1,292	1,239	387	276	111
Communications equipment	3342	301	183	118	80	54	26
Semiconductor and other electronic components	3344	754	320	434	147	99	48
Navigational, measuring, electromedical, and control instruments	3345	887	537	350	95	76	18
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	278	149	129	27	20	7
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	276	231	45	40	37	3
Other measuring and controlling instruments	other 3345	333	157	175	28	19	8
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	589	252	337	65	47	18
Electrical equipment, appliances, and components	335	568	282	287	31	20	11
Transportation equipment	336	3,154	1,807	1,347	228	165	63
Automobiles, bodies, trailers, and parts	3361–3363	1,756	757	999	101	57	44
Aerospace products and parts	3364	1,328	984	345	123	103	19
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,095	765	330	115	96	18
Guided missile, space vehicle, and related parts	336414, 336415, 336419	233	218 i	15	8 i	7	1 i
Military armored vehicle, tank, and tank components	336992	3	3	0	*	*	0

TABLE 25. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2008

Industry and company size	NAICS code	Employment (thousands of employees)					
		Total			R&D		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Other transportation	other 336	67	63	4	4	4	*
Furniture and related products	337	205	181	23	5	5	*
Miscellaneous manufacturing	339	846	563	283	53	45	8
Medical equipment and supplies	3391	443	319	124	31	26	5
Other miscellaneous manufacturing	3399	403	244	159	22	18	4
Nonmanufacturing industries	21–23, 42–81	10,323	8,342	1,981	725	575	149
Mining, extraction, and support activities	21	302	190	112	7	6	1
Utilities	22	368	351	17	1	1	*
Construction	23	218	185	34	5	5	* i
Wholesale trade	42	401	245	156	18	15	3
Retail trade	44, 45	431	424	7	6	4	2
Electronic shopping and mail-order houses	4541	20	12	7	4	3	2
Other retail trade	other 44, 45	412	412	0	1	1	0
Transportation and warehousing	48, 49	866	762	104	3	2	1 i
Information	51	3,493	2,662	831	304	224	79
Publishing	511	2,005	1,368	637	218	153	65
Newspaper, periodical, book, and directory publishers	5111	103	52	51	2	1	1
Software publishers	5112	1,903	1,317	586	216	151	64
Telecommunications	517	832	809	23	31	29	2
Internet service providers, Web search portals, and data processing services	518	452	311	140	48	36	12 i
Other information	other 51	204	173	31	7	6	1
Finance and insurance	52	580	497	83	8	7	1
Real estate and rental and leasing	53	142	132	10	3	3	1
Professional, scientific, and technical services	54	1,712	1,177	535	328	267	60
Architectural, engineering, and related services	5413	195	137	57	39	38	1
Computer systems design and related services	5415	646	457	188	136	100	36
Scientific R&D services	5417	293	259	34	115	94	21
Other professional, scientific, and technical services	other 54	579	323	255	37	35	2
Health care services	621–623	202	201	1	12	12	*
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1,608	1,517	90	30	29	1
All companies	21–23, 31–33, 42–81	27,066	18,515	8,550	1,867	1,425	442
Small companies (number of domestic employees)[a]							
5–499	–	3,340	2,864	476	457	411	46
5–99	–	1,225	1,116	110	261	243	18
5–49	–	716	653	63	184	173	11
5–24	–	383	354	29	113	109	3
25–49	–	333	299	34	71	64	7
50–99	–	509	462	47	77	70	7
100–249	–	1,207	1,039	168	124	106	18
250–499	–	907	710	198	72	61	11

TABLE 25. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2008

Industry and company size	NAICS code	Employment (thousands of employees)					
		Total			R&D		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Medium and large companies (number of domestic employees)							
500–999	–	980	669	311	78	63	14
1,000–4,999	–	4,056	2,587	1,470	312	224	87
5,000–9,999	–	2,623	1,464	1,159	191	125	66
10,000–24,999	–	5,580	3,903	1,677	283	191	92
25,000 or more	–	10,487	7,029	3,458	547	411	137

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 26. 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: 2008

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	352,155	290,680	61,475	1,867	1,425	442	188.6	204.0	139.1
Manufacturing industries	31–33	250,326	203,755	46,572	1,143	850	293	219.0	239.7	158.9
Food	311	2,696	2,100	596	18	14	4	149.8	150.0	149.0
Beverage and tobacco products	312	903	780	123	4	3	1	225.8	260.0	123.0
Textiles, apparel, and leather products	313–316	1,182	815	367	10	6	4 i	118.2	135.8	91.8
Wood products	321	278	273	4	3	3	*	92.7	91.0	NA
Paper	322	1,440	1,167	274	12	8	4	120.0	145.9	68.5
Printing and related support activities	323	358	349	9	3	3	*	119.3	116.3	NA
Petroleum and coal products	324	D	1,358	D	7	6	1	D	226.3	D
Chemicals	325	72,240	58,250	13,990	229	175	55	315.5	332.9	254.4
Basic chemicals	3251	5,272	4,074	1,198	27	19	7	195.3	214.4	171.1
Resin, synthetic rubber, fibers, and filaments	3252	985	761	224	5	4	1	197.0	190.3	224.0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	371	6	5	1	D	D	371.0
Pharmaceuticals and medicines	3254	58,993	48,131	10,862	159	123	36	371.0	391.3	301.7
Soap, cleaning compound, and toilet preparation	3256	3,073	2,108	965	17	11	6	180.8	191.6	160.8
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	370	15	12	3	D	D	123.3
Plastics and rubber products	326	2,158	1,817	341	23	17	6	93.8	106.9	56.8
Nonmetallic mineral products	327	1,661	1,556	106	12	9	3 i	138.4	172.9	35.3
Primary metals	331	809	695	114	7	7	1	115.6	99.3	114.0
Fabricated metal products	332	2,607	2,419	188	32	29	3 i	81.5	83.4	62.7
Machinery	333	12,034	10,104	1,929	78	60	18	154.3	168.4	107.2
Agricultural implement	33311	1,583	1,184	399	10	7	3	158.3	169.1	133.0
Semiconductor machinery	333295	2,539	2,172	366	9	7	2	282.1	310.3	183.0
Engine, turbine, and power transmission equipment	3336	1,435	1,343	92	9	7	1	159.4	191.9	92.0
Other machinery	other 333	6,477	5,405	1,072	50	38	11	129.5	142.2	97.5
Computer and electronic products	334	76,237	60,464	15,774	387	276	111	197.0	219.1	142.1
Communications equipment	3342	15,854	12,903	2,951	80	54	26	198.2	238.9	113.5
Semiconductor and other electronic components	3344	29,399	22,324	7,075	147	99	48	200.0	225.5	147.4
Navigational, measuring, electromedical, and control instruments	3345	17,768	15,460	2,308	95	76	18	187.0	203.4	128.2
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	6,853	6,015	838	27	20	7	253.8	300.8	119.7
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	D	6,541	D	40	37	3	D	176.8	D
Other measuring and controlling instruments	other 3345	D	2,903	D	28	19	8	D	152.8	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	13,216	9,776	3,440	65	47	18	203.3	208.0	191.1
Electrical equipment, appliances, and components	335	4,305	3,143	1,162	31	20	11	138.9	157.2	105.6
Transportation equipment	336	60,819	50,552	10,267	228	165	63	266.8	306.4	163.0
Automobiles, bodies, trailers, and parts	3361–3363	21,587	13,140	8,448	101	57	44	213.7	230.5	192.0
Aerospace products and parts	3364	38,757	36,941	1,816	123	103	19	315.1	358.7	95.6
Aircraft, aircraft engine, and aircraft parts	336411–336413	32,603	30,861	1,742	115	96	18	283.5	321.5	96.8
Guided missile, space vehicle, and related parts	336414, 336415, 336419	6,154	6,080	74	8 i	7	1 i	769.3	868.6	74.0
Military armored vehicle, tank, and tank components	336992	32	32	0	*	*	0	NA	NA	NA
Other transportation	other 336	443	440	3	4	4	*	110.8	110.0	NA

TABLE 26. 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: 2008

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Furniture and related products	337	504	477	27	5	5	*	100.8	95.4	NA
Miscellaneous manufacturing	339	D	7,437	D	53	45	8	D	165.3	D
Medical equipment and supplies	3391	6,066	5,300	766	31	26	5	195.7	203.8	153.2
Other miscellaneous manufacturing	3399	D	2,137	D	22	18	4	D	118.7	D
Nonmanufacturing industries	21–23, 42–81	101,829	86,926	14,903	725	575	149	3278.0	151.2	100.0
Mining, extraction, and support activities	21	D	1,502	D	7	6	1	D	250.3	D
Utilities	22	232	226	6	1	1	*	*	226.0	NA
Construction	23	D	D	0	5	5	* i	D	D	NA
Wholesale trade	42	2,593	2,084	509	18	15	3	144.1	138.9	169.7
Retail trade	44, 45	D	1,031	D	6	4	2	D	257.8	D
Electronic shopping and mail-order houses	4541	D	676	D	4	3	2	D	225.3	D
Other retail trade	other 44, 45	355	355	0	1	1	0	355.0	355.0	NA
Transportation and warehousing	48, 49	136	135	2	3	2	1 i	45.3	67.5	2.0
Information	51	45,352	37,695	7,657	304	224	79	149.2	168.3	96.9
Publishing	511	34,729	28,427	6,301	218	153	65	46.0	185.8	27.0
Newspaper, periodical, book, and directory publishers	5111	233	205	27	2	1	1	0.0	205.0	27.0
Software publishers	5112	34,496	28,222	6,274	216	151	64	46.0	186.9	98.0
Telecommunications	517	1,859	1,684	175	31	29	2	0.0	58.1	87.5
Internet service providers, Web search portals, and data processing services	518	7,656	6,567	1,089 i	48	36	12 i	9.0	182.4	90.8
Other information	other 51	1,108	1,016	93	7	6	1	0.0	169.3	93.0
Finance and insurance	52	1,165	1,091	74	8	7	1	1.0	155.9	74.0
Real estate and rental and leasing	53	318	253	65	3	3	1	0.0	84.3	65.0
Professional, scientific, and technical services	54	44,104	37,954	6,150	328	267	60	3196.0	142.1	102.5
Architectural, engineering, and related services	5413	3,621	3,422	200	39	38	1	83.0	90.1	200.0
Computer systems design and related services	5415	14,310	12,146	2,164	136	100	36	88.0	121.5	60.1
Scientific R&D services	5417	21,458	17,913	3,544	115	94	21	2980.0	190.6	168.8
Other professional, scientific, and technical services	other 54	4,715	4,474	241	37	35	2	45.0	127.8	120.5
Health care services	621–623	1,315	1,313	1	12	12	*	0.0	109.4	NA
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2,331	D	D	30	29	1	8.0	D	D
All companies	21–23, 31–33, 42–81	352,155	290,680	61,475	1,867	1,425	442	188.6	204.0	139.1
Small companies (number of employees)[a]										
5–499	–	63,053	58,137	4,915	457	411	46	138.0	141.5	106.8
5–99	–	35,259	33,257	2,002	261	243	18	135.1	136.9	111.2
5–49	–	24,932	23,906	1,027	184	173	11	135.5	138.2	93.4
5–24	–	14,648	14,280	368	113	109	3	129.6	131.0	122.7
25–49	–	10,284	9,626	658	71	64	7	144.8	150.4	94.0
50–99	–	10,327	9,351	976	77	70	7	134.1	133.6	139.4
100–249	–	16,397	14,662	1,735	124	106	18	132.2	138.3	96.4
250–499	–	11,396	10,219	1,178	72	61	11	158.3	167.5	107.1
Medium and large companies (number of employees)										
500–999	–	13,639	11,886	1,753	78	63	14	174.9	188.7	125.2

TABLE 26. 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: 2008

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
1,000–4,999	–	57,686	46,336	11,350	312	224	87	184.9	206.9	130.5
5,000–9,999	–	31,765	24,764	7,000	191	125	66	166.3	198.1	106.1
10,000–24,999	–	60,522	48,737	11,785	283	191	92	213.9	255.2	128.1
25,000 or more	–	125,491	100,820	24,671	547	411	137	229.4	245.3	180.1

* = amount < $500,000 or 500 employees; D = data withheld to avoid disclosing operations of individual companies; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse; NA = not available.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 27. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
All industries	21–23, 31–33, 42–81	27,068	1,867	6.9	18,515	1,425	7.7	8,552	442	5.2
Manufacturing industries	31–33	16,745	1,143	6.8	10,173	850	8.4	6,571	293	4.5
Food	311	1,470	18	1.2	1,086	14	1.3	384	4	1.0
Beverage and tobacco products	312	539	4	0.7	310	3	1.0	229	1	0.4
Textiles, apparel, and leather products	313–316	577	10	1.7	361	6	1.7	216	4 i	1.9
Wood products	321	165	3	1.8	144	3	2.1	21	*	NA
Paper	322	370	12	3.2	232	8	3.4	138	4	2.9
Printing and related support activities	323	103	3	2.9	83	3	3.6	19	*	NA
Petroleum and coal products	324	257	7	2.7	74	6	8.1	183	1	0.5
Chemicals	325	2,471	229	9.3	1,396	175	12.5	1,074	55	5.1
Basic chemicals	3251	467	27	5.8	248	19	7.7	219	7	3.2
Resin, synthetic rubber, fibers, and filaments	3252	236	5	2.1	125	4	3.2	111	1	0.9
Pesticide, fertilizer, and other agricultural chemical	3253	84	6	7.1	64	5	7.8	19	1	5.3
Pharmaceuticals and medicines	3254	1,082	159	14.7	654	123	18.8	428	36	8.4
Soap, cleaning compound, and toilet preparation	3256	350	17	4.9	147	11	7.5	203	6	3.0
Paint, coating, adhesive, and other chemical	3255, 3259	252	15	6.0	158	12	7.6	94	3	3.2
Plastics and rubber products	326	636	23	3.6	453	17	3.8	183	6	3.3
Nonmetallic mineral products	327	284	12	4.2	220	9	4.1	64	3 i	4.7
Primary metals	331	349	7	2.0	224	7	3.1	124	1	0.8
Fabricated metal products	332	788	32	4.1	633	29	4.6	154	3 i	1.9
Machinery	333	1,433	78	5.4	831	60	7.2	602	18	3.0
Agricultural implement	33311	147	10	6.8	89	7	7.9	58	3	5.2
Semiconductor machinery	333295	42	9	21.4	27	7	25.9	15	2	13.3
Engine, turbine, and power transmission equipment	3336	131	9	6.9	97	7	7.2	34	1	2.9
Other machinery	other 333	1,113	50	4.5	617	38	6.2	496	11	2.2
Computer and electronic products	334	2,531	387	15.3	1,292	276	21.4	1,239	111	8.9
Communications equipment	3342	301	80	26.6	183	54	29.5	118	26	22.0
Semiconductor and other electronic components	3344	754	147	19.5	320	99	30.9	434	48	11.1
Navigational, measuring, electromedical, and control instruments	3345	887	95	10.7	537	76	14.2	350	18	5.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	278	27	9.7	149	20	13.4	129	7	5.4
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	276	40	14.5	231	37	16.0	45	3	6.7
Other measuring and controlling instruments	other 3345	333	28	8.4	157	19	12.1	175	8	4.6
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	589	65	11.0	252	47	18.7	337	18	5.3
Electrical equipment, appliances, and components	335	568	31	5.5	281	20	7.1	287	11	3.8
Transportation equipment	336	3,154	228	7.2	1,807	165	9.1	1,347	63	4.7

TABLE 27. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
Automobiles, bodies, trailers, and parts	3361–3363	1,756	101	5.8	757	57	7.5	999	44	4.4
Aerospace products and parts	3364	1,328	123	9.3	984	103	10.5	345	19	5.5
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,095	115	10.5	765	96	12.5	330	18	5.5
Guided missile, space vehicle, and related parts	336414, 336415, 336419	233	8 i	3.4	218 i	7	3.2	15	1 i	6.7
Military armored vehicle, tank, and tank components	336992	3	*	NA	3	*	NA	0	0	NA
Other transportation	other 336	67	4	6.0	63	4	6.3	4	*	NA
Furniture and related products	337	205	5	2.4	181	5	2.8	23	*	NA
Miscellaneous manufacturing	339	846	53	6.3	563	45	8.0	283	8	2.8
Medical equipment and supplies	3391	443	31	7.0	319	26	8.2	124	5	4.0
Other miscellaneous manufacturing	3399	403	22	5.5	244	18	7.4	159	4	2.5
Nonmanufacturing industries	21–23, 42–81	10,323	725	7.0	8,342	575	6.9	1,981	149	7.5
Mining, extraction, and support activities	21	302	7	2.3	190	6	3.2	112	1	0.9
Utilities	22	368	1	0.3	351	1	0.3	17	*	NA
Construction	23	218	5	2.3	185	5	2.7	34	* i	NA
Wholesale trade	42	401	18	4.5	245	15	6.1	156	3	1.9
Retail trade	44, 45	431	6	1.4	424	4	0.9	7	2	28.6
Electronic shopping and mail-order houses	4541	20	4	20.0	12	3	25.0	7	2	28.6
Other retail trade	other 44, 45	412	1	0.2	412	1	0.2	0	0	NA
Transportation and warehousing	48, 49	866	3	0.3	762	2	0.3	104	1 i	1.0
Information	51	3,493	304	8.7	2,662	224	8.4	831	79	9.5
Publishing	511	2,005	218	10.9	1,368	153	11.2	637	65	10.2
Newspaper, periodical, book, and directory publishers	5111	103	2	1.9	52	1	1.9	51	1	2.0
Software publishers	5112	1,903	216	11.4	1,317	151	11.5	586	64	10.9
Telecommunications	517	832	31	3.7	809	29	3.6	23	2	8.7
Internet service providers, Web search portals, and data processing services	518	452	48	10.6	311	36	11.6	140	12 i	8.6
Other information	other 51	204	7	3.4	173	6	3.5	31	1	3.2
Finance and insurance	52	580	8	1.4	497	7	1.4	83	1	1.2
Real estate and rental and leasing	53	142	3	2.1	132	3	2.3	10	1	10.0
Professional, scientific, and technical services	54	1,712	328	19.2	1,177	267	22.7	535	60	11.2
Architectural, engineering, and related services	5413	195	39	20.0	137	38	27.7	57	1	1.8
Computer systems design and related services	5415	646	136	21.1	457	100	21.9	188	36	19.1
Scientific R&D services	5417	293	115	39.2	259	94	36.3	34	21	61.8
Other professional, scientific, and technical services	other 54	579	37	6.4	323	35	10.8	255	2	0.8
Health care services	621–623	202	12	5.9	201	12	6.0	1	*	NA
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1,608	30	1.9	1,517	29	1.9	90	1	1.1

TABLE 27. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2008

(Thousands of employees)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
All companies	21–23, 31–33, 42–81	27,066	1,867	6.9	18,515	1,425	7.7	8,550	442	5.2
Small companies (number of domestic employees)[a]										
5–499	–	3,340	457	13.7	2,864	411	14.4	476	46	9.7
5–99	–	1,225	261	21.3	1,116	243	21.8	110	18	16.4
5–49	–	716	184	25.7	653	173	26.5	63	11	17.5
5–24	–	383	113	29.5	354	109	30.8	29	3	10.3
25–49	–	333	71	21.3	299	64	21.4	34	7	20.6
50–99	–	509	77	15.1	462	70	15.2	47	7	14.9
100–249	–	1,207	124	10.3	1,039	106	10.2	168	18	10.7
250–499	–	907	72	7.9	710	61	8.6	198	11	5.6
Medium and large companies (number of domestic employees)										
500–999	–	980	78	8.0	669	63	9.4	311	14	4.5
1,000–4,999	–	4,056	312	7.7	2,587	224	8.7	1,470	87	5.9
5,000–9,999	–	2,623	191	7.3	1,464	125	8.5	1,159	66	5.7
10,000–24,999	–	5,580	283	5.1	3,903	191	4.9	1,677	92	5.5
25,000 or more	–	10,487	547	5.2	7,029	411	5.8	3,458	137	4.0

* = amount < 500 employees; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse; NA = not available.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 28. Worldwide R&D employment, by occupation, sex, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All industries	21–23, 31–33, 42–81	1,070	894	177	231	146	84	320	228	91	245	126	119
Manufacturing industries	31–33	654	564	90	162	102	60	178	133	45	148	77	72
Food	311	3	2	1	7	3	3	5	3	3	3	2	2
Beverage and tobacco products	312	1	1	*	1	1	1	1	1	*	*	*	*
Textiles, apparel, and leather products	313–316	4	3	1	1	1	*	3	2	1	3	1	2
Wood products	321	1	1	*	1	*	*	1	1	*	1	*	*
Paper	322	6	4	1	4	3	1	2	1	1	1	*	*
Printing and related support activities	323	1	1	*	*	*	*	1	*	*	1	1	*
Petroleum and coal products	324	3 i	2 i	1 i	2 i	1 i	* i	2 i	1 i	* i	* i	* i	* i
Chemicals	325	33	24	9	112	64	48	43	26	17	41	14	27
Basic chemicals	3251	4	3	1	11	8	3	9	7	3	2	1	1
Resin, synthetic rubber, fibers, and filaments	3252	2	1	*	1	1	*	2	2	*	*	*	*
Pesticide, fertilizer, and other agricultural chemical	3253	* i	* i	* i	3 i	3 i	1 i	2 i	1 i	* i	1 i	* i	* i
Pharmaceuticals and medicines	3254	15	10	5	84	45	39	25	13	12	35	12	24
Soap, cleaning compound, and toilet preparation	3256	6	4	2	8	4	4	2	1	1	2	*	1
Paint, coating, adhesive, and other chemical	3255, 3259	6	5	1	5	3	1	3	2	1	1	*	1
Plastics and rubber products	326	12	11	1	2	2	*	6	5	1	3	2	1
Nonmetallic mineral products	327	5 i	4 i	1 i	1 i	1 i	* i	4	4	* i	2	1	*
Primary metals	331	2	2	*	*	*	*	2	2	*	3	2	1
Fabricated metal products	332	17	16	1	1	1	*	9	8	1	5	4	1
Machinery	333	55	50	5	2	2	*	13	11	1	7	5	2
Agricultural implements	33311	8	8	1	*	*	*	1	1	*	1	*	*
Semiconductor machinery	333295	7	6	1	1	*	*	1	1	*	1	1	*
Engine, turbine, and power transmission equipment	3336	5	4	*	*	*	*	2	2	*	1	1	*
Other machinery	other 333	35	32	3	1	1 i	*	8	7	1	5	4	2
Computer and electronic products	334	300	260	40	13 i	10 i	3 i	34	26	8	39	20	19 i
Communications equipment	3342	63	54	9	*	*	* i	6 i	4 i	1 i	11	7	4
Semiconductor and other electronic components	3344	124	108	16	3	2	*	12	10	3	8	5	4
Navigational, measuring, electromedical, and control instruments	3345	60	52 i	8	9 i	7 i	2 i	12	9	3	13 i	4	10 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	17 i	14 i	3	3 i	2 i	1 i	3	2	1	3	1	2
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	24 i	21 i	3 i	4 i	3 i	1 i	5 i	4 i	1 i	8 i	1 i	7 i
Other measuring and controlling instruments	other 3345	20	17	2	2	2	*	4	3	1	2	1	1
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	53	46	7	1	1	*	4	3	1	6	4	2
Electrical equipment, appliances, and components	335	20	18	2	3	2	1	6	5	1	3	2	1
Transportation equipment	336	161	138	23	7	6	1	34	28	6	26 i	17 i	9 i
Automobiles, bodies, trailers, and parts	3361–3363	77	64	13	5	4	1	15	12	3	5	4	2
Aerospace products and parts	3364	82	72	10	3	2	1	18	15	3	20 i	13 i	7 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	77	68	9	2	2	1	16	14	3	19 i	13 i	7 i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5 i	5 i	* i	*	*	*	1	1 i	* i	1 i	1 i	*
Military armored vehicle, tank, and tank components	336992	*	*	*	*	*	0	*	*	0	*	*	*

TABLE 28. Worldwide R&D employment, by occupation, sex, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Other transportation equipment	other 336	3	2	*	*	*	0	1	1	*	1	*	*
Furniture and related products	337	3	2	*	*	*	*	2	1	*	1	1	*
Miscellaneous manufacturing	339	28	23	4	5	3	2	12	8	4	8	4	4
Medical equipment and supplies	3391	16	13	3	4	3	1	6	4	2	5	2	3
Other miscellaneous manufacturing	3399	12	11	2	1	1	*	6	4	2	3	2	1
Nonmanufacturing industries	21–23, 42–81	416	329	87	69	45	24	142	96	46	97	50	47
Mining, extraction, and support activities	21	4	3	*	1	*	*	2	2	*	1	*	*
Utilities	22	1	*	*	*	*	*	*	* i	* i	*	*	*
Construction	23	1	1	*	*	*	*	*	*	*	4	4	1
Wholesale trade	42	7	6	1 i	2 i	1	1 i	5	4	2 i	3 i	2	1 i
Retail trade	44, 45	6	4	1	0	0	0	*	*	*	* i	* i	* i
Electronic shopping and mail-order houses	4541	4	3	1	0	0	0	*	* i	* i	* i	* i	* i
Other retail trade	other 44, 45	1	1	*	0	0	0	*	*	*	*	0	*
Transportation and warehousing	48, 49	2	1	1	*	*	*	*	*	*	*	*	*
Information	51	234	183 i	51 i	10	8	2	36	28	8	23	15	8 i
Publishing	511	173	137	36 i	8	7	1	19	14	5	17	11 i	6 i
Newspaper, periodical, book, and directory publishers	5111	1	1	*	*	*	*	1	*	*	*	*	*
Software publishers	5112	172	136	36 i	8	7	1	18	13	5	17	11 i	6 i
Telecommunications	517	25 i	22 i	4 i	* i	* i	* i	4	3 i	1 i	1 i	1 i	* i
Internet service providers, Web search portals, and data processing services	518	33	22	11	1	1	*	12	10	2	2	1	1
Other information	other 51	2	2	*	*	*	*	1	1	*	3	3	1
Finance and insurance	52	6	4	2 i	*	*	*	1	1 i	1 i	1 i	* i	1 i
Real estate and rental and leasing	53	1	1	*	*	*	* i	1	*	*	1	*	*
Professional, scientific, and technical services	54	147	118	28	48	30	18	88	57	31	45	18	27
Architectural, engineering, and related services	5413	20	17	3	4	3	1	8	6	2	7	4	3
Computer systems design and related services	5415	82	66	17	5	4	1	41	32	9	7	4	3
Scientific R&D services	5417	27	22	5	34	19	14	29	12	17	26	9	17
Other professional, scientific, and technical services	other 54	17	14	3	5	4	1	10	7	3	5	1	3
Health care services	621–623	1	1	*	4	3	2	2	*	2	5	*	5
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	7 i	6 i	2 i	4	2	2	5	3 i	2 i	14	9	5
All companies	21–23, 31–33, 42–81	1,070	894	177	231	146	84	320	228	91	245	126	119
Small companies (number of domestic employees)[a]													
5–499	–	231	201	30	57	40	17	94	69	26	74	40	33
5–99	–	130	115	15	35	25	10	56	40	16	39	20	18
5–49	–	93	82	11	23	18	5	40	29	10	28	14	14
5–24	–	57	51	6	13	11	2	23	17	7	19	9	10
25–49	–	36	32	4	10	7	3	16	13	4	9	5	4
50–99	–	37	33	4	11	7	4	17	11	6	11	6	5
100–249	–	59	50	9	15	9	5	23	18	6	27	16	11
250–499	–	42	36	6	8	5	2	15	11	4	8	4	4
Medium and large companies (number of domestic employees)													
500–999	–	44	37	7	9	6	3	16	12	4	9	5	4

TABLE 28. Worldwide R&D employment, by occupation, sex, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
1,000–4,999	–	196	164	33	34	21	14	49	34	15	31	16	15
5,000–9,999	–	99	80	19	22	14	9	37	24	12	33	17	16
10,000–24,999	–	147 i	123 i	24 i	51	31	20	49	36	13	36	15	21
25,000 or more	–	353	290 i	64	57	35	22 i	75	54	21	62 i	33 i	29 i

* = amount < 500 employees; i = > 50% of value imputed.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 29. Worldwide, domestic, and foreign R&D scientists and engineers and their managers, by highest academic degree, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Worldwide				Domestic				Foreign			
		Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education
All industries	21–23, 31–33, 42–81	1,301	167	956	178	987	138	719	131	314	29 i	237 i	47 i
Manufacturing industries	31–33	816	111	589	116	597	88	424	84	220	23 i	165 i	32
Food	311	9	1	6	2	7	1	5	1	2	* i	2 i	1
Beverage and tobacco products	312	3	*	2	*	2	*	1	*	1	*	*	*
Textiles, apparel, and leather products	313–316	5	1 i	4 i	* i	2	*	2	*	2 i	* i	2 i	* i
Wood products	321	2	*	1	1	2	*	1	1	*	0	*	*
Paper	322	9	1	3	5	6	1	3	2	3	*	*	3
Printing and related support activities	323	1	*	1	*	1	*	1 i	*	* i	* i	* i	*
Petroleum and coal products	324	5	1 i	4 i	1 i	4 i	1 i	3 i	* i	1 i	* i	1 i	* i
Chemicals	325	145	44	86	14	111	36	66	10	33	8	20	5 i
Basic chemicals	3251	15	6	8	1	11	5	6	1	4	1	2	*
Resin, synthetic rubber, fibers, and filaments	3252	3	1 i	2 i	*	2	1	2 i	*	*	*	* i	* i
Pesticide, fertilizer, and other agricultural chemical	3253	4	1 i	2 i	* i	3 i	1 i	2 i	* i	1 i	* i	* i	*
Pharmaceuticals and medicines	3254	99	31	56	12	78	25	45	8	21	5 i	11	4 i
Soap, cleaning compound, and toilet preparation	3256	14	2	11	*	9	2	7	*	5	1	5	*
Paint, coating, adhesive, and other chemical	3255, 3259	11	3	6	1	8	3	5	1	2	1	1	*
Plastics and rubber products	326	14	1	11	1	9	1	7	1	5 i	* i	4 i	*
Nonmetallic mineral products	327	6	1 i	5 i	*	5	1 i	4 i	*	1	* i	1 i	* i
Primary metals	331	3	1	2	*	2	*	2	* i	*	*	*	* i
Fabricated metal products	332	18	*	14	3	16	*	12	3	2	* i	2 i	* i
Machinery	333	58	6	45	7	43	4 i	34	5	14	2 i	10 i	2
Agricultural implements	33311	9	*	7	1	6	*	5	* i	3	*	2	1
Semiconductor machinery	333295	7	1 i	5 i	1 i	5	1 i	4 i	1 i	2	* i	2 i	* i
Engine, turbine, and power transmission equipment	3336	5	1	3	1	4	1	3	1	1	* i	*	*
Other machinery	other 333	37	3	29	4	28	2 i	23	3	9	1 i	6 i	1 i
Computer and electronic products	334	314	29 i	232 i	53 i	223	21 i	164 i	38 i	90	8 i	68 i	15 i
Communications equipment	3342	63	3 i	48 i	13	44	2 i	31 i	12	19	1 i	17 i	2 i
Semiconductor and other electronic components	3344	126	13 i	95 i	18 i	84	10 i	63 i	12 i	42	4 i	32 i	6 i
Navigational, measuring, electromedical, and control instruments	3345	69	8 i	55 i	7 i	56	6	45	5	14	2 i	10 i	2 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	20	3 i	15 i	2 i	15	2	11	1	5 i	1 i	4 i	1 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	27	2 i	23 i	3 i	26 i	1 i	22 i	3 i	1 i	* i	1 i	* i
Other measuring and controlling instruments	other 3345	22	3	17	2	15	2	11	1	7	1 i	5 i	1 i
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	55	5 i	35 i	15 i	39	4 i	26 i	9 i	16	1 i	9 i	6 i
Electrical equipment, appliances, and components	335	23	2	18	2	15	1 i	12	1 i	8	1 i	6 i	1 i
Transportation equipment	336	168	19 i	132	17	118	16	87	14	51	3	45	3
Automobiles, bodies, trailers, and parts	3361–3363	81	3	73	5	46	2	41	3	35	1	32	2
Aerospace products and parts	3364	85	16 i	57	11 i	69	14 i	45	10 i	15	2	13	1
Aircraft, aircraft engine, and aircraft parts	336411–336413	79	15 i	54	11 i	64	13 i	41	10 i	15	2	13	1

TABLE 29. Worldwide, domestic, and foreign R&D scientists and engineers and their managers, by highest academic degree, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Worldwide				Domestic				Foreign			
		Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5	2 i	3	* i	5	2	3 i	*	* i	* i	* i	* i
Military armored vehicle, tank, and tank components	336992	*	*	*	*	*	*	*	*	0	0	0	0
Other transportation equipment	other 336	3	*	2	1	2	*	1	1	*	0	*	0
Furniture and related products	337	3	*	2	1	3	*	2 i	*	*	* i	* i	* i
Miscellaneous manufacturing	339	33	4	21	8	27	4	18	6	5	*	3	2
Medical equipment and supplies	3391	20	3	12	4	17	3	10	4	3	*	2	1
Other miscellaneous manufacturing	3399	13	1	9	3	10	1	8	2	3	*	1	1
Nonmanufacturing industries	21–23, 42–81	485	56	367	62	391	49	295	46	94	6 i	72 i	15 i
Mining, extraction, and support activities	21	4	1	3	*	4	1 i	2 i	*	*	* i	* i	* i
Utilities	22	1	* i	*	* i	1	* i	*	* i	*	*	*	0
Construction	23	1	*	1	*	1 i	* i	1 i	* i	* i	0	* i	0
Wholesale trade	42	9	1	6	2	8	1 i	5 i	2 i	1 i	* i	1 i	* i
Retail trade	44, 45	6	*	5	*	4	* i	4	* i	1	0	1	* i
Electronic shopping and mail-order houses	4541	4	0	4	* i	3	0	3	*	1	0	1	* i
Other retail trade	other 44, 45	1	*	1	*	1	* i	1 i	* i	0	0	0	0
Transportation and warehousing	48, 49	2	* i	1	1	1	* i	* i	1	1 i	* i	*	0
Information	51	244	17	194	33	182	13	145 i	23	63	4	49	9 i
Publishing	511	182	15	143	24	126	11	98	17	55	4	44	7 i
Newspaper, periodical, book, and directory publishers	5111	1	*	1	*	1 i	* i	1 i	* i	* i	* i	* i	* i
Software publishers	5112	180	15	142	24	125	11	98	17	55	4	44	7
Telecommunications	517	26 i	1 i	23 i	2 i	25 i	1 i	22 i	2 i	1 i	* i	1 i	* i
Internet service providers, Web search portals, and data processing services	518	34	1 i	27	6 i	28 i	1 i	23 i	4	6	* i	4 i	2 i
Other information	other 51	3	* i	2	*	2	*	2	*	*	* i	* i	* i
Finance and insurance	52	6	* i	4 i	2	5	*	3	2	1 i	*	1 i	* i
Real estate and rental and leasing	53	2	* i	1	* i	1	* i	1 i	* i	*	* i	* i	0
Professional, scientific, and technical services	54	195	32	142	20	169	31	123	15	26	2 i	19 i	5 i
Architectural, engineering, and related services	5413	24	2	21	1	24	2	20	1	1	*	1 i	*
Computer systems design and related services	5415	88	7	68	13	69	6	54	9	19	1 i	14 i	4 i
Scientific R&D services	5417	60	19	36	5	55	18	33	4	5	1	3	1 i
Other professional, scientific, and technical services	other 54	23	4	17	1	21	4	17	1	1	* i	1	* i
Health care services	621–623	5	2	3	*	5	2	3	*	* i	* i	* i	* i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	11 i	1	7 i	3 i	10	1	7 i	3 i	1	*	*	1
All companies	21–23, 31–33, 42–81	1,301	167	956	178	987	138	719	131	314	29 i	237 i	47 i
Small companies (number of domestic employees)[b]													
5–499	–	288	45	216	27	256	41	192	23	32 i	4 i	24 i	4 i
5–99	–	165	28	123	14	153	27	114	12	12 i	1 i	9 i	1 i
5–49	–	117	20	87	9	110	20	81	8	7 i	* i	6 i	1 i
5–24	–	70	14	52	5	68	14	50	5	2 i	* i	2 i	* i
25–49	–	46	7	35	4	41	6	31	4	5 i	* i	4 i	1 i

TABLE 29. Worldwide, domestic, and foreign R&D scientists and engineers and their managers, by highest academic degree, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Worldwide				Domestic				Foreign			
		Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education
50–99	–	48	8	36	5	44	7	32	4	5 i	* i	4 i	1 i
100–249	–	74	11	56	7	62	9	47	6	12 i	2 i	9 i	2 i
250–499	–	49	6	38	6	41	5	31	4	8	1 i	6 i	1 i
Medium and large companies (number of domestic employees)													
500–999	–	53	6	40	6	42	5	32	5	10	1 i	8	2
1,000–4,999	–	231	27	167	36	165	21	117	27	66	6 i	50 i	9 i
5,000–9,999	–	121	13	89	20	82	10 i	59	13	39	3 i	30 i	6 i
10,000–24,999	–	198	24	145 i	29	136	18	97	20	62	5 i	48 i	9 i
25,000 or more	–	410	52 i	298	60	307	42	221	43	104	10	77	17

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

NAICS = 2002 North American Industry Classification System.

[a] Includes EngD, ScD; excludes MD, JD, and EdD.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 30. Domestic R&D employment, by occupation, sex, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All industries	21–23, 31–33, 42–81	799	672	128	188	120	68	244	177	67	194	101	93
Manufacturing industries	31–33	470	410	60	126	80	47	137	104	33	116	61	55
Food	311	2	2	1	5	3	2	4	2	2	3	1	1
Beverage and tobacco products	312	1	1	*	1	1	*	1	*	*	*	*	*
Textiles, apparel, and leather products	313–316	2	2	*	*	*	*	2	1	1	3	1	2
Wood products	321	1	1	*	1	*	*	1	1	*	*	*	*
Paper	322	3	2	1	3	2	1	1	1	*	1	*	*
Printing and related support activities	323	1	1	*	*	*	* i	1	*	*	1 i	1 i	* i
Petroleum and coal products	324	2 i	2 i	1 i	1 i	1 i	* i	1 i	1 i	* i	* i	* i	* i
Chemicals	325	24	18	6	87	50	37	33	20	13	30	11	20
Basic chemicals	3251	3	2	1	8	6	2	6 i	5 i	2 i	2 i	1	1
Resin, synthetic rubber, fibers, and filaments	3252	1	1	*	1	1	*	1	1	*	*	*	*
Pesticide, fertilizer, and other agricultural chemical	3253	* i	* i	* i	3 i	2 i	1 i	1 i	1 i	* i	* i	* i	* i
Pharmaceuticals and medicines	3254	11	8	4	67	36	31	20	10	10	26	9	17
Soap, cleaning compound, and toilet preparation	3256	4	2	1	5	3	2	1	1	1	1	*	1
Paint, coating, adhesive, and other chemical	3255, 3259	4	4	1	4	3	1	3	2	1	1	*	*
Plastics and rubber products	326	8	7	1	1	1	*	5	4	1	3	2	1
Nonmetallic mineral products	327	4 i	4	* i	1 i	1 i	* i	3	3	* i	1	1	*
Primary metals	331	2	2	*	*	*	*	2	2	*	3	2	1
Fabricated metal products	332	15	14	1	1	1	*	8	7	1	5	4	1
Machinery	333	42	38	4	2 i	2 i	* i	10	9	1	6	4	2
Agricultural implements	33311	6	5	*	*	*	*	1	1	*	*	*	*
Semiconductor machinery	333295	5	4	*	*	*	*	1	1	*	1	*	*
Engine, turbine, and power transmission equipment	3336	4	4	*	*	*	*	2 i	2	*	1 i	*	* i
Other machinery	other 333	27	25	2 i	1 i	1 i	* i	6	6	*	4	3	1
Computer and electronic products	334	212	184	27	12	9	2	24	19	5	28	14	14
Communications equipment	3342	44	38	6	*	*	* i	3	2	*	8	5	2
Semiconductor and other electronic components	3344	82	72	10	2	2	*	9	7	2	6	3	2
Navigational, measuring, electromedical, and control instruments	3345	48	42	6	8	6	2	10	8	2	11	3	8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	12	10	2	3	2	1	3	2	1	2	1	1
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	22 i	20 i	3 i	4	3	1	4 i	3 i	1 i	7 i	1 i	6 i
Other measuring and controlling instruments	other 3345	13	12	1	2	1	*	3	2	*	2	1	1
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	38	32	6 i	1	1	*	3	2	1 i	5	3	2
Electrical equipment, appliances, and components	335	13	12	1	1 i	1 i	* i	4	3	1	2	1	1
Transportation equipment	336	113	100	14	4	3	1	25	21	3	23 i	15 i	8 i
Automobiles, bodies, trailers, and parts	3361–3363	44	38	6	2	2	*	8	7	1	3	2	1
Aerospace products and parts	3364	67	60	8	2	2	*	16	13	2 i	19 i	12 i	7 i

TABLE 30. Domestic R&D employment, by occupation, sex, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Aircraft, aircraft engine, and aircraft parts	336411–336413	62	55	7	2	1	*	15	12	2 i	18 i	11 i	6 i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5	5	*	*	*	*	1 i	1 i	* i	1	1	*
Military armored vehicle, tank, and tank components	336992	*	*	*	*	*	0	*	*	0	*	*	*
Other transportation equipment	other 336	2	2	*	*	*	0	1	1	* i	1	*	*
Furniture and related products	337	3	2	*	*	*	*	2 i	1 i	*	1 i	1 i	* i
Miscellaneous manufacturing	339	23	20	3	4	3	1	11	8	3	7	3	3
Medical equipment and supplies	3391	13	11	2	4	2	1	5	4	2	4	2	2
Other miscellaneous manufacturing	3399	10	9	1 i	1	1	*	5	4	1	3	2	1
Nonmanufacturing industries	21–23, 42–81	329	262	67	62	40	22	107	72	34	78	40	38
Mining, extraction, and support activities	21	3	3	*	1	*	*	2	2	*	*	*	*
Utilities	22	*	*	*	* i	* i	* i	* i	* i	* i	*	*	*
Construction	23	1 i	1 i	* i	*	*	*	*	*	*	4	4	1
Wholesale trade	42	6 i	6 i	1 i	1 i	1 i	1 i	4 i	3 i	1 i	3 i	2 i	1 i
Retail trade	44, 45	4	3	1	0	0	0	*	*	*	*	*	*
Electronic shopping and mail-order houses	4541	3	2	1	0	0	0	*	*	*	*	*	*
Other retail trade	other 44, 45	1	1	*	0	0	0	*	*	*	*	0	*
Transportation and warehousing	48, 49	1	1	*	*	*	*	*	*	*	*	*	*
Information	51	174	136 i	38 i	7	6	1	27	21	6	16	10	6
Publishing	511	120	95	25 i	6	5	1	16	12	4	11	7 i	4 i
Newspaper, periodical, book, and directory publishers	5111	1 i	1 i	* i	* i	* i	*	* i	* i	* i	* i	* i	* i
Software publishers	5112	119	95	25 i	6	5	1	15	11	4	10	6 i	4 i
Telecommunications	517	25 i	21 i	4 i	* i	* i	* i	3 i	3 i	1 i	1 i	* i	* i
Internet service providers, Web search portals, and data processing services	518	27 i	18 i	9 i	1	1	*	7	6	2	1	1	1
Other information	other 51	2	2	*	*	*	*	1	1	*	3	2	1
Finance and insurance	52	5	4	2	* i	*	* i	1	1	*	1	* i	1
Real estate and rental and leasing	53	1	1	*	*	*	* i	1	*	*	1	*	*
Professional, scientific, and technical services	54	125	101	23	45	28	16	63	41	22	35	15	20
Architectural, engineering, and related services	5413	20	16	3	4	3	1	8	6	2	7	4	3
Computer systems design and related services	5415	64	51	13	5	4	1	25	20	6	6	3	3
Scientific R&D services	5417	25	20	4	31	18	13	21	9	12	18	6	12
Other professional, scientific, and technical services	other 54	16	13	3	5	4	1	9	6	3	5	1	3
Health care services	621–623	1	1	*	4	3	1	2	*	2	5	*	5
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	7 i	6 i	2 i	3	1	2	5 i	3 i	2 i	14	9	5
All companies	21–23, 31–33, 42–81	799	672	128	188	120	68	244	177	67	194	101	93
Small companies (number of domestic employees)[a]													
5–499	–	201	177	24	54	38	16	86	63	23	69	38	31
5–99	–	119	106	13	34	25	9	52	37	15	37	19	18
5–49	–	87	77	10	23	18	5	37	27	10	27	13	13

TABLE 30. Domestic R&D employment, by occupation, sex, industry, and company size: 2008

(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
5–24	–	55	49	6	13	11	2	22	16	6	19	9	10
25–49	–	31	28	3	10	7	3	15	11	3	8	5	3
50–99	–	33	29	3	11	7	4	16	10	5	10	6	4
100–249	–	48	41	7	14	9	5	20	16	5	25	15	10
250–499	–	34	29	5	7	5	2	13	10	4	7	4	4
Medium and large companies (number of domestic employees)													
500–999	–	34	29	5	8	5	3	13	10	3	8	5	3
1,000–4,999	–	138	116	22	28	16	11	37	26	11	22	11	11
5,000–9,999	–	65	52	13	17	10	7	21	15	6	22	12	10
10,000–24,999	–	95	80	15	41	25	16	31	23	8	24	10	15
25,000 or more	–	266	218 i	48 i	41	25	15	55	40	15	49 i	26 i	23 i

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 31. Domestic full-time equivalent R&D scientists and engineers, total and federally funded, by industry and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Total	Federally funded
All industries	21–23, 31–33, 42–81	832	61
Manufacturing industries	31–33	430	30
Food	311	4	*
Beverage and tobacco products	312	2	0
Textiles, apparel, and leather products	313–316	2	*
Wood products	321	1	0
Paper	322	6	*
Printing and related support activities	323	1	*
Petroleum and coal products	324	1	0
Chemicals	325	105	1
Basic chemicals	3251	10	*
Resin, synthetic rubber, fibers, and filaments	3252	2	*
Pesticide, fertilizer, and other agricultural chemical	3253	4	*
Pharmaceuticals and medicines	3254	74	1
Soap, cleaning compound, and toilet preparation	3256	8	*
Paint, coating, adhesive, and other chemical	3255, 3259	7	*
Plastics and rubber products	326	6	*
Nonmetallic mineral products	327	4	*
Primary metals	331	2	*
Fabricated metal products	332	11	*
Machinery	333	23	*
Agricultural implements	33311	2	0
Semiconductor machinery	333295	5	*
Engine, turbine, and power transmission equipment	3336	4	*
Other machinery	other 333	12	*
Computer and electronic products	334	135	11
Communications equipment	3342	27	1
Semiconductor and other electronic components	3344	41	1
Navigational, measuring, electromedical, and control instruments	3345	37	8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	16	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	9	6
Other measuring and controlling instruments	other 3345	12	1
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	31	1
Electrical equipment, appliances, and components	335	11	1
Transportation equipment	336	82	16
Automobiles, bodies, trailers, and parts	3361–3363	34	*
Aerospace products and parts	3364	45	16
Aircraft, aircraft engine, and aircraft parts	336411–336413	40	12
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5	4
Military armored vehicle, tank, and tank components	336992	*	*
Other transportation equipment	other 336	2	0
Furniture and related products	337	3	*
Miscellaneous manufacturing	339	32	1
Medical equipment and supplies	3391	25	*
Other miscellaneous manufacturing	3399	7	*
Nonmanufacturing industries	21–23, 42–81	402	30
Mining, extraction, and support activities	21	2	*
Utilities	22	*	*
Construction	23	*	0
Wholesale trade	42	4	* i
Retail trade	44, 45	4	0
Electronic shopping and mail-order houses	4541	4	0
Other retail trade	other 44, 45	* i	0
Transportation and warehousing	48, 49	1	*
Information	51	244	1

TABLE 31. Domestic full-time equivalent R&D scientists and engineers, total and federally funded, by industry and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Total	Federally funded
Publishing	511	222	1
Newspaper, periodical, book, and directory publishers	5111	1	0
Software publishers	5112	221	1
Telecommunications	517	3	*
Internet service providers, Web search portals, and data processing services	518	18	*
Other information	other 51	1	0
Finance and insurance	52	4	0
Real estate and rental and leasing	53	1 i	0
Professional, scientific, and technical services	54	133	28
Architectural, engineering, and related services	5413	19	5
Computer systems design and related services	5415	57	8
Scientific R&D services	5417	42	8
Other professional, scientific, and technical services	other 54	15	6
Health care services	621–623	4	1
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	4	*
All companies	21–23, 31-33, 42–81	832	61
Small companies (number of domestic employees)[a]			
5–499	–	314	26
5–99	–	237	21
5–49	–	203	15
5–24	–	169	9
25–49	–	34	6
50–99	–	34	6
100–249	–	46	4
250–499	–	31	2
Medium and large companies (number of domestic employees)			
500–999	–	34	2
1,000–4,999	–	119	4
5,000–9,999	–	59	3
10,000–24,999	–	108	5
25,000 or more	–	198	20

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 32. Foreign R&D employment, by occupation, sex, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All industries	21–23, 31–33, 42–81	271	222	49 i	43	27	16	76 i	52 i	24 i	51	25	26
Manufacturing industries	31–33	184	154	30	36	22	14	40 i	28 i	12 i	33 i	16	17
Food	311	1 i	* i	* i	2 i	1	1	1	*	1	1 i	* i	* i
Beverage and tobacco products	312	*	*	*	*	*	*	*	*	*	*	*	*
Textiles, apparel, and leather products	313–316	2 i	2 i	* i	* i	* i	* i	1 i	1 i	* i	* i	* i	* i
Wood products	321	*	*	* i	*	*	0	*	*	0	*	*	*
Paper	322	3	2	1	*	*	*	1	*	*	*	*	*
Printing and related support activities	323	*	*	*	* i	* i	* i	* i	*	* i	* i	* i	* i
Petroleum and coal products	324	1 i	1 i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Chemicals	325	9	6	3	24	14	11	10	6	4	11	4	8
Basic chemicals	3251	1	1	*	3	2	1	3	2	1	1	*	*
Resin, synthetic rubber, fibers, and filaments	3252	*	*	*	*	*	*	1 i	*	* i	*	*	*
Pesticide, fertilizer, and other agricultural chemical	3253	* i	* i	* i	1 i	1 i	* i	* i	* i	* i	* i	* i	* i
Pharmaceuticals and medicines	3254	3 i	2 i	1 i	17	9	8	5	3	3	9	3	6
Soap, cleaning compound, and toilet preparation	3256	2	2	1	3	1	1	1	*	*	1	*	1
Paint, coating, adhesive, and other chemical	3255, 3259	2	1	*	1	1	*	1	*	*	*	*	*
Plastics and rubber products	326	4 i	4 i	*	1 i	1 i	*	1	1	*	1 i	*	* i
Nonmetallic mineral products	327	1 i	1 i	* i	* i	* i	* i	1 i	1 i	* i	* i	* i	* i
Primary metals	331	*	*	*	*	*	*	* i	* i	* i	* i	* i	*
Fabricated metal products	332	2 i	2 i	* i	*	*	* i	1 i	1 i	* i	* i	* i	* i
Machinery	333	14	12	1	* i	* i	* i	2 i	2 i	* i	2 i	1	1 i
Agricultural implements	33311	3	2	*	*	*	*	*	*	*	*	*	*
Semiconductor machinery	333295	2	2	*	*	*	*	*	*	*	*	*	*
Engine, turbine, and power transmission equipment	3336	1	1	*	*	*	*	*	*	*	1 i	*	* i
Other machinery	other 333	8 i	8 i	1 i	* i	* i	* i	2 i	2 i	* i	1 i	1 i	* i
Computer and electronic products	334	89	76 i	13 i	2 i	1 i	* i	9 i	7 i	2 i	11 i	6 i	5 i
Communications equipment	3342	19 i	16 i	3 i	* i	* i	* i	3 i	2 i	1 i	4 i	2 i	1 i
Semiconductor and other electronic components	3344	41	36	6	* i	* i	* i	3	3	1	3	2	1
Navigational, measuring, electromedical, and control instruments	3345	13 i	11 i	2 i	1 i	1 i	* i	2 i	1 i	1 i	3 i	1 i	2 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	5 i	4 i	1 i	1 i	* i	* i	1 i	1 i	* i	1 i	* i	1 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	1 i	1 i	* i	* i	* i	* i	* i	* i	* i	1 i	* i	1 i
Other measuring and controlling instruments	other 3345	7	5	1	* i	* i	* i	1 i	1 i	* i	1 i	*	* i
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	15	14 i	2 i	* i	* i	*	1	1	*	2	1	1
Electrical equipment, appliances, and components	335	7 i	6 i	1 i	1 i	1 i	* i	2 i	2 i	* i	1 i	* i	* i
Transportation equipment	336	48	39	9	3	3	1	9 i	6 i	3 i	4 i	2 i	1 i
Automobiles, bodies, trailers, and parts	3361–3363	33	26	7	2	2	*	7 i	5 i	2 i	2 i	1 i	1 i

TABLE 32. Foreign R&D employment, by occupation, sex, industry, and company size: 2008
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Aerospace products and parts	3364	15	13	2	1	1	*	2	2	1	2	1	*
Aircraft, aircraft engine, and aircraft parts	336411–336413	14	13	2	1	1	*	2	1	*	1	1	*
Guided missile, space vehicle, and related parts	336414, 336415, 336419	* i	* i	* i	* i	* i	0	* i	* i	* i	* i	* i	* i
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0	0	0	0	0	0	0	0
Other transportation equipment	other 336	*	*	*	0	0	0	*	*	0	0	0	0
Furniture and related products	337	*	*	*	*	*	*	*	*	*	*	*	*
Miscellaneous manufacturing	339	5	4	1	1	*	*	1	1	1	2	1	1
Medical equipment and supplies	3391	2	2	*	1	*	*	1	*	*	1	1	1
Other miscellaneous manufacturing	3399	2	2	1	*	*	*	1	*	*	*	*	*
Nonmanufacturing industries	21–23, 42–81	87	68 i	20 i	7	5	3	36 i	24 i	12 i	19	9 i	9
Mining, extraction, and support activities	21	*	*	*	*	*	*	*	*	*	*	*	*
Utilities	22	*	*	*	0	0	0	*	*	*	*	0	*
Construction	23	* i	* i	0	0	0	0	0	0	0	0	0	0
Wholesale trade	42	1 i	1 i	* i	* i	* i	* i	1 i	1 i	1 i	* i	* i	* i
Retail trade	44, 45	2	1	*	0	0	0	* i	* i	* i	* i	* i	* i
Electronic shopping and mail-order houses	4541	2	1	*	0	0	0	* i	* i	* i	* i	* i	* i
Other retail trade	other 44, 45	0	0	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48, 49	1 i	* i	* i	0	0	0	0	0	0	0	0	0
Information	51	61	47 i	13 i	2	2 i	* i	9 i	7 i	2 i	8	5 i	2 i
Publishing	511	53	42	12 i	2	2 i	* i	3	2	1 i	6	4 i	2 i
Newspaper, periodical, book, and directory publishers	5111	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Software publishers	5112	53	41	11 i	2	2 i	* i	3	2	1 i	6	4 i	2 i
Telecommunications	517	1 i	1 i	* i	* i	* i	* i	1 i	1 i	* i	* i	* i	* i
Internet service providers, Web search portals, and data processing services	518	6 i	5 i	2 i	* i	* i	* i	5 i	4 i	1 i	* i	* i	* i
Other information	other 51	* i	* i	* i	* i	* i	0	* i	* i	* i	1 i	1 i	* i
Finance and insurance	52	1 i	* i	* i	0	0	0	* i	* i	* i	* i	* i	* i
Real estate and rental and leasing	53	*	*	*	0	0	0	*	*	*	*	*	*
Professional, scientific, and technical services	54	22 i	17 i	5 i	4	2	2	24	15 i	9	10	4	6
Architectural, engineering, and related services	5413	1	1 i	*	*	*	*	* i	* i	* i	* i	* i	* i
Computer systems design and related services	5415	18 i	15 i	4 i	* i	* i	* i	16 i	12 i	4 i	1 i	1 i	* i
Scientific R&D services	5417	2	1	1	3	1	2	8	2	5	8	2	6
Other professional, scientific, and technical services	other 54	1	1	*	* i	* i	* i	1	*	* i	* i	* i	* i
Health care services	621–623	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	*	*	* i	1	1	*	1 i	* i	* i	* i	* i	* i
All companies	21–23, 31–33, 42–81	271	222	49 i	43	27	16	76 i	52 i	24 i	51	25	26
Small companies (number of domestic employees)[a]													
5–499	–	29 i	24 i	6 i	3 i	2 i	1 i	8 i	6 i	2 i	5 i	3 i	2 i

TABLE 32. Foreign R&D employment, by occupation, sex, industry, and company size: 2008

(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
5–99	–	11 i	9 i	2 i	1 i	1 i	* i	4 i	3 i	1 i	1 i	1 i	1 i
5–49	–	6 i	5 i	1 i	1 i	* i	* i	3 i	2 i	1 i	1 i	* i	* i
5–24	–	2 i	1 i	* i	* i	* i	* i	1 i	1 i	* i	* i	* i	* i
25–49	–	5 i	4 i	1 i	* i	* i	* i	2 i	1 i	* i	1 i	* i	* i
50–99	–	4 i	4 i	1 i	* i	* i	* i	1 i	1 i	* i	1 i	* i	* i
100–249	–	11 i	9 i	2 i	1 i	1 i	* i	3 i	2 i	1 i	2 i	1 i	1 i
250–499	–	8	6	1 i	1 i	* i	* i	1 i	1 i	* i	1 i	* i	* i
Medium and large companies (number of domestic employees)													
500–999	–	9	8	2	1	1	*	2	2	1 i	1 i	1 i	1 i
1,000–4,999	–	59	48	11	7	5	2	12	8	4	9	5	5
5,000–9,999	–	34	28	7	5 i	3 i	2 i	15	9 i	6	11	4	6
10,000–24,999	–	52 i	43 i	10 i	10	6	4	18 i	13 i	5 i	12 i	5 i	7
25,000 or more	–	87	72	15	17	10	7	19	14	6	13	8 i	6 i

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 33. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry: 2006–08
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,545,403	190,902	1,272,333	140,799	1,329,601	70,709	1,400,332	107,226	1,363,762	136,079	1,328,906	56,207	1,412,198	47,595	1,421,891	106,607	1,364,143
Manufacturing industries	31–33	126,472	36,071	83,568	27,055	93,077	22,672	97,376	12,540	107,260	27,777	91,717	22,019	97,761	8,327	111,294	15,895	103,857
Food	311	9,168	2,076	6,379	1,599	6,858	1,427	7,030	471	7,941	1,544	6,909	1,191	7,314	529	7,870	643	7,806
Beverage and tobacco products	312	1,240	331	825	206	950	155	1,001	73	1,082	187	932	112	1,006	76	1,042	103	1,008
Textiles, apparel, and leather products	313–316	5,954	1,400	4,254	1,023	4,662	809	4,876	435	5,256	953	4,705	654	5,036	329	5,362	599	5,059
Wood products	321	6,067	1,076	4,807	564	5,327	372	5,519	313	5,576	987	4,896	773	5,109	151	5,737	350	5,541
Paper	322	1,696	336	1,305	241	1,399	241	1,400	121	1,516	291	1,349	175	1,465	151	1,488	206	1,432
Printing and related support activities	323	10,953	2,428	8,106	1,675	8,966	916	9,724	1,420	9,221	2,203	8,331	1,676	8,864	643	9,990	1,385	9,256
Petroleum and coal products	324	536	127	376	121	384	119	386	35	469	104	398	47	458	29	476	89	413
Chemicals	325	6,017	2,775	2,797	2,518	3,056	2,034	3,542	1,073	4,470	2,065	3,468	1,348	4,194	1,051	4,482	1,247	4,293
Basic chemicals	3251	735	271	410	207	474	205	477	77	604	243	437	210	471	107	574	152	529
Resin, synthetic rubber, fibers, and filaments	3252	435	185	183	129	240	127	242	82	286	165	203	132	237	73	294	118	251
Pesticide, fertilizer, and other agricultural chemical	3253	399	92	304	81	315	72	324	21	374	48	348	36	359	15	380	37	359
Pharmaceuticals and medicines	3254	1,600	841	702	787	757	471	1,075	433	1,096	702	826	348	1,180	453	1,076	528	1,002
Soap, cleaning compound, and toilet preparation	3256	852	475	309	459	323	434	348	180	600	349	434	264	520	154	627	210	571
Paint, coating, adhesive, and other chemical	3255, 3259	1,997	912	890	855	947	725	1,076	280	1,510	558	1,219	359	1,427	248	1,532	203	1,581
Plastics and rubber products	326	6,023	2,045	3,723	1,487	4,282	1,272	4,497	665	5,100	1,687	4,078	1,486	4,277	528	5,237	906	4,860
Nonmetallic mineral products	327	5,440	1,057	4,162	690	4,529	618	4,601	316	4,902	786	4,432	651	4,567	251	4,966	449	4,769
Primary metals	331	2,082	457	1,528	353	1,632	264	1,724	232	1,750	390	1,595	345	1,640	84	1,898	226	1,752
Fabricated metal products	332	26,154	6,556	18,260	4,047	20,979	2,937	22,041	2,249	22,726	5,615	19,200	4,869	20,114	1,353	23,455	2,998	21,879
Machinery	333	12,117	3,839	7,671	3,108	8,443	2,827	8,724	1,328	10,119	2,927	8,578	2,466	9,037	638	10,853	1,727	9,824

TABLE 33. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry: 2006–08
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Agricultural implements	33311	383	128	247	125	250	125	250	18	358	80	294	79	296	7	368	11	364
Semiconductor machinery	333295	244	89	153	87	155	87	155	20	221	78	164	76	166	10	232	14	228
Engine, turbine, and power transmission equipment	3336	338	186	142	182	146	182	146	55	273	114	214	112	216	7	320	52	275
Other machinery	other 333	11,152	3,435	7,129	2,714	7,892	2,433	8,173	1,235	9,266	2,655	7,905	2,199	8,358	614	9,934	1,649	8,958
Computer and electronic products	334	6,719	3,211	2,859	2,826	3,258	2,702	3,397	1,224	4,831	1,996	4,058	1,574	4,485	743	5,318	1,196	4,879
Communications equipment	3342	789	444	284	391	337	387	342	165	564	271	457	201	525	61	667	136	592
Semiconductor and other electronic components	3344	2,477	881	1,359	665	1,587	623	1,642	258	1,990	623	1,613	476	1,765	185	2,062	359	1,896
Navigational, measuring, electromedical, and control instruments	3345	2,341	1,290	748	1,244	794	1,232	807	580	1,439	763	1,270	662	1,370	374	1,655	528	1,506
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	244	149	38	144	43	142	46	71	115	90	96	77	109	50	136	77	109
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	353	184	121	183	123	183	123	79	226	66	239	46	260	34	271	58	247
Other measuring and controlling instruments	other 3345	1,744	957	588	917	628	908	638	429	1,098	607	935	539	1,002	290	1,248	393	1,150
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	1,111	597	468	526	540	460	606	221	838	340	718	235	825	123	934	173	885

TABLE 33. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry: 2006–08
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Electrical equipment, appliances, and components	335	2,676	1,137	1,417	936	1,627	911	1,652	306	2,252	736	1,814	609	1,950	271	2,278	537	2,018
Transportation equipment	336	5,427	1,686	3,298	1,471	3,513	1,340	3,644	558	4,423	1,236	3,745	947	4,035	259	4,721	819	4,162
Automobiles, bodies, trailers, and parts	3361–3363	3,264	920	2,039	771	2,188	711	2,248	253	2,704	709	2,248	625	2,332	105	2,853	446	2,511
Aerospace products and parts	3364	863	286	471	249	509	226	531	142	616	204	554	127	630	57	700	165	593
Aircraft, aircraft engine, and aircraft parts	336411–336413	805	270	467	235	503	212	525	135	603	187	550	112	624	51	685	154	584
Guided missile, space vehicle, and related parts	336414, 336415, 336419	58	16	4	14	6	14	6	7	13	16	4	14	6	6	14	11	9
Other transportation equipment	other 336	1,300	479	788	450	817	403	864	163	1,104	324	943	194	1,073	97	1,169	208	1,058
Furniture and related products	337	7,455	1,525	5,483	1,094	5,979	998	6,025	498	6,548	1,240	5,767	917	6,092	423	6,644	656	6,370
Miscellaneous manufacturing	339	10,749	4,010	6,319	3,097	7,233	2,732	7,594	1,223	9,077	2,830	7,461	2,181	8,119	820	9,474	1,757	8,536
Medical equipment and supplies	3391	4,024	1,718	2,160	1,289	2,589	1,122	2,754	657	3,220	1,412	2,466	1,097	2,780	447	3,427	795	3,082
Other miscellaneous manufacturing	3399	6,725	2,292	4,159	1,808	4,644	1,611	4,841	566	5,858	1,418	4,996	1,085	5,339	373	6,048	962	5,455
Nonmanufacturing industries	21–23, 42–81	1,418,931	154,831	1,188,765	113,744	1,236,523	48,037	1,302,956	94,686	1,256,503	108,302	1,237,190	34,187	1,314,438	39,268	1,310,597	90,712	1,260,286
Mining, extraction, and support activities	21	7,608	145	6,688	103	6,741	74	6,769	72	6,835	120	6,776	60	6,849	57	6,841	88	6,877
Utilities	22	728	162	439	85	515	71	530	77	523	151	451	25	577	27	575	133	468
Construction	23	197,574	12,652	175,794	7,078	183,171	2,815	187,434	5,293	185,005	8,619	179,877	2,044	187,454	2,534	187,262	7,354	182,443
Wholesale trade	42	103,628	15,551	83,137	9,757	89,086	6,731	92,322	5,915	93,269	11,773	87,216	3,892	95,022	4,575	94,677	8,702	90,666
Retail trade	44, 45	194,798	18,715	164,907	11,789	173,086	5,612	179,863	8,569	176,556	14,580	169,591	2,406	182,475	4,458	180,719	12,292	173,429
Electronic shopping and mail-order houses	4541	2,960	991	1,861	874	1,984	499	2,358	464	2,393	910	1,942	601	2,262	147	2,713	627	2,225
Other retail trade	other 44, 45	191,838	17,723	163,046	10,916	171,102	5,113	177,505	8,105	174,163	13,670	167,649	1,806	180,213	4,311	178,007	11,664	171,203
Transportation and warehousing	48, 49	43,231	5,254	36,747	4,175	37,876	824	41,177	4,112	37,939	4,156	37,845	1,281	40,719	2,073	39,928	3,380	38,671
Information	51	23,042	7,407	14,387	6,729	15,122	3,755	17,989	5,539	16,352	4,776	16,941	1,688	20,097	2,395	19,299	3,857	17,899

TABLE 33. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry: 2006–08
(Number)

					Product						Process							
			Companies that introduced a new or significantly improved product or process		Companies that introduced new or significantly improved goods or services		New goods		New services		Companies that introduced any new or significantly improved process		New manufacturing or production methods		New logistics, delivery, or distribution methods		New support activities	
Industry	NAICS code	Compan-ies[a]	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Publishing	511	9,567	3,882	5,267	3,462	5,682	2,468	6,632	2,597	6,591	2,753	6,381	961	8,151	1,138	8,003	2,157	6,978
Newspaper, periodical, book, and directory publishers	5111	5,798	846	4,711	635	4,923	203	5,356	599	5,059	590	5,066	222	5,412	288	5,369	366	5,291
Software publishers	5112	3,769	3,036	556	2,827	759	2,265	1,277	1,998	1,532	2,163	1,315	738	2,740	850	2,634	1,791	1,687
Telecommunications	517	2,848	806	1,849	785	1,870	339	2,315	717	1,936	309	2,344	57	2,594	196	2,458	251	2,403
Internet service providers, Web search portals, and data processing services	518	3,520	1,599	1,740	1,555	1,785	593	2,730	1,441	1,897	1,049	2,238	382	2,940	480	2,817	1,002	2,300
Other information	other 51	7,108	1,120	5,531	926	5,785	355	6,311	784	5,928	665	5,979	288	6,411	580	6,022	447	6,218
Finance and insurance	52	55,835	6,016	44,273	4,239	46,103	567	50,274	4,189	46,153	4,147	46,641	770	50,071	1,331	49,259	3,891	46,898
Real estate and rental and leasing	53	48,964	4,648	42,609	3,293	44,214	2,739	44,768	2,408	45,099	3,044	44,213	834	46,673	780	46,476	2,987	44,520
Professional, scientific, and technical services	54	173,858	29,939	138,452	23,275	145,353	10,022	158,178	20,767	147,789	20,444	147,457	7,571	159,890	7,968	159,904	16,972	151,298
Architectural, engineering, and related services	5413	32,174	5,547	25,654	3,974	27,341	1,278	29,988	3,592	27,715	4,311	26,647	1,770	29,202	1,402	29,770	3,616	27,542
Computer systems design and related services	5415	19,355	7,468	10,821	6,716	11,689	3,765	14,511	5,738	12,615	4,815	13,237	1,566	16,526	1,427	16,629	4,461	13,760
Scientific R&D services	5417	3,066	1,212	1,611	1,008	1,821	711	2,118	645	2,183	770	2,054	434	2,395	205	2,623	456	2,367
Other professional, scientific, and technical services	other 54	119,263	15,712	100,365	11,576	104,502	4,268	111,561	10,792	105,275	10,549	105,519	3,801	111,767	4,935	110,882	8,438	107,629
Health care services	621–623	183,741	22,081	152,038	17,805	157,617	4,915	170,257	16,746	158,675	14,757	159,361	6,119	169,053	5,818	169,351	12,151	162,719
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	385,925	32,261	329,294	25,417	337,640	9,913	353,395	21,000	342,308	21,735	340,820	7,498	355,558	7,252	356,306	18,906	344,399

NAICS = 2002 North American Industry Classification System.

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 34. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each industry classification: 2006–08

(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,545,403	12.4	82.3	9.1	86.0	4.6	90.6	6.9	88.2	8.8	86.0	3.6	91.4	3.1	92.0	6.9	88.3
Manufacturing industries	31–33	126,472	28.5	66.1	21.4	73.6	17.9	77.0	9.9	84.8	22.0	72.5	17.4	77.3	6.6	88.0	12.6	82.1
Food	311	9,168	22.6	69.6	17.4	74.8	15.6	76.7	5.1	86.6	16.8	75.4	13.0	79.8	5.8	85.8	7.0	85.1
Beverage and tobacco products	312	1,240	26.7	66.5	16.6	76.6	12.5	80.7	5.9	87.2	15.1	75.1	9.0	81.1	6.1	84.0	8.3	81.2
Textiles, apparel, and leather products	313–316	5,954	23.5	71.4	17.2	78.3	13.6	81.9	7.3	88.3	16.0	79.0	11.0	84.6	5.5	90.1	10.1	85.0
Wood products	321	6,067	17.7	79.2	9.3	87.8	6.1	91.0	5.2	91.9	16.3	80.7	12.7	84.2	2.5	94.6	5.8	91.3
Paper	322	1,696	19.8	76.9	14.2	82.5	14.2	82.5	7.1	89.4	17.2	79.5	10.3	86.4	8.9	87.7	12.1	84.4
Printing and related support activities	323	10,953	22.2	74.0	15.3	81.9	8.4	88.8	13.0	84.2	20.1	76.1	15.3	80.9	5.9	91.2	12.6	84.5
Petroleum and coal products	324	536	23.7	70.2	22.5	71.7	22.2	72.1	6.5	87.6	19.5	74.4	8.7	85.6	5.3	88.9	16.7	77.2
Chemicals	325	6,017	46.1	46.5	41.9	50.8	33.8	58.9	17.8	74.3	34.3	57.6	22.4	69.7	17.5	74.5	20.7	71.3
Basic chemicals	3251	735	36.8	55.8	28.1	64.5	27.9	64.9	10.4	82.2	33.1	59.5	28.5	64.1	14.6	78.1	20.7	72.0
Resin, synthetic rubber, fibers, and filaments	3252	435	42.5	42.1	29.6	55.2	29.1	55.7	18.9	65.7	37.9	46.7	30.3	54.5	16.9	67.7	27.1	57.7
Pesticide, fertilizer, and other agricultural chemical	3253	399	23.1	76.1	20.3	78.9	18.0	81.3	5.4	93.6	12.0	87.3	8.9	90.0	3.9	95.1	9.2	90.0
Pharmaceuticals and medicines	3254	1,600	52.6	43.9	49.2	47.3	29.4	67.2	27.1	68.5	43.9	51.6	21.8	73.8	28.3	67.3	33.0	62.6
Soap, cleaning compound, and toilet preparation	3256	852	55.8	36.2	53.9	37.9	51.0	40.9	21.1	70.4	41.0	51.0	30.9	61.0	18.1	73.6	24.6	67.0
Paint, coating, adhesive, and other chemical	3255, 3259	1,997	45.7	44.6	42.8	47.4	36.3	53.9	14.0	75.6	27.9	61.1	18.0	71.5	12.4	76.7	10.2	79.2
Plastics and rubber products	326	6,023	34.0	61.8	24.7	71.1	21.1	74.7	11.0	84.7	28.0	67.7	24.7	71.0	8.8	87.0	15.0	80.7
Nonmetallic mineral products	327	5,440	19.4	76.5	12.7	83.3	11.4	84.6	5.8	90.1	14.4	81.5	12.0	84.0	4.6	91.3	8.3	87.7
Primary metals	331	2,082	22.0	73.4	17.0	78.4	12.7	82.8	11.2	84.0	18.7	76.6	16.6	78.8	4.0	91.2	10.9	84.2
Fabricated metal products	332	26,154	25.1	69.8	15.5	80.2	11.2	84.3	8.6	86.9	21.5	73.4	18.6	76.9	5.2	89.7	11.5	83.7
Machinery	333	12,117	31.7	63.3	25.6	69.7	23.3	72.0	11.0	83.5	24.2	70.8	20.4	74.6	5.3	89.6	14.3	81.1
Agricultural implements	33311	383	33.5	64.6	32.7	65.4	32.7	65.4	4.6	93.5	20.9	76.9	20.7	77.4	1.8	96.0	2.9	95.0
Semiconductor machinery	333295	244	36.5	62.7	35.6	63.5	35.6	63.5	8.3	90.8	31.9	67.3	31.1	68.1	4.1	95.1	5.7	93.4
Engine, turbine, and power transmission equipment	3336	338	55.0	41.8	53.7	43.1	53.7	43.1	16.2	80.6	33.6	63.2	33.0	63.9	2.1	94.5	15.5	81.3
Other machinery	other 333	11,152	30.8	63.9	24.3	70.8	21.8	73.3	11.1	83.1	23.8	70.9	19.7	75.0	5.5	89.1	14.8	80.3
Computer and electronic products	334	6,719	47.8	42.6	42.1	48.5	40.2	50.6	18.2	71.9	29.7	60.4	23.4	66.8	11.1	79.2	17.8	72.6
Communications equipment	3342	789	56.3	36.0	49.6	42.8	49.1	43.3	20.9	71.5	34.3	58.0	25.5	66.6	7.7	84.6	17.3	75.1
Semiconductor and other electronic components	3344	2,477	35.5	54.9	26.8	64.0	25.1	66.3	10.4	80.3	25.1	65.1	19.2	71.2	7.5	83.2	14.5	76.5
Navigational, measuring, electromedical, and control instruments	3345	2,341	55.1	31.9	53.1	33.9	52.6	34.5	24.8	61.5	32.6	54.3	28.3	58.5	16.0	70.7	22.6	64.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	244	61.2	15.5	58.9	17.8	58.1	19.0	29.2	47.1	36.9	39.4	31.6	44.7	20.6	55.7	31.5	44.8

TABLE 34. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each industry classification: 2006–08
(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	353	52.0	34.3	51.7	34.7	51.7	34.7	22.4	63.9	18.8	67.6	12.9	73.5	9.6	76.7	16.5	69.9
Other measuring and controlling instruments	other 3345	1,744	54.9	33.7	52.6	36.0	52.0	36.6	24.6	63.0	34.8	53.6	30.9	57.4	16.6	71.6	22.6	65.9
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	1,111	53.7	42.1	47.4	48.6	41.4	54.5	19.9	75.4	30.6	64.6	21.1	74.2	11.1	84.1	15.6	79.6
Electrical equipment, appliances, and components	335	2,676	42.5	53.0	35.0	60.8	34.1	61.7	11.4	84.2	27.5	67.8	22.8	72.9	10.1	85.1	20.1	75.4
Transportation equipment	336	5,427	31.1	60.8	27.1	64.7	24.7	67.1	10.3	81.5	22.8	69.0	17.4	74.3	4.8	87.0	15.1	76.7
Automobiles, bodies, trailers, and parts	3361–3363	3,264	28.2	62.5	23.6	67.0	21.8	68.9	7.8	82.9	21.7	68.9	19.2	71.4	3.2	87.4	13.7	76.9
Aerospace products and parts	3364	863	33.2	54.6	28.9	58.9	26.2	61.5	16.5	71.3	23.6	64.2	14.7	73.0	6.6	81.0	19.1	68.7
Aircraft, aircraft engine, and aircraft parts	336411–336413	805	33.6	58.1	29.2	62.5	26.3	65.2	16.8	74.9	23.3	68.3	14.0	77.5	6.4	85.1	19.1	72.5
Guided missile, space vehicle, and related parts	336414, 336415, 336419	58	28.0	6.8	24.6	10.3	24.6	10.3	12.6	22.3	28.0	6.8	24.6	10.3	10.3	24.6	19.5	15.4
Other transportation equipment	other 336	1,300	36.9	60.6	34.7	62.8	31.0	66.5	12.5	84.9	24.9	72.6	15.0	82.5	7.5	89.9	16.0	81.4
Furniture and related products	337	7,455	20.5	73.5	14.7	80.2	13.4	80.8	6.7	87.8	16.6	77.4	12.3	81.7	5.7	89.1	8.8	85.4
Miscellaneous manufacturing	339	10,749	37.3	58.8	28.8	67.3	25.4	70.7	11.4	84.4	26.3	69.4	20.3	75.5	7.6	88.1	16.3	79.4
Medical equipment and supplies	3391	4,024	42.7	53.7	32.0	64.3	27.9	68.4	16.3	80.0	35.1	61.3	27.2	69.1	11.1	85.1	19.8	76.6
Other miscellaneous manufacturing	3399	6,725	34.1	61.8	26.9	69.1	24.0	72.0	8.4	87.1	21.1	74.3	16.1	79.4	5.5	89.9	14.3	81.1
Nonmanufacturing industries	21–23, 42–81	1,418,931	10.9	83.8	8.0	87.1	3.4	91.8	6.7	88.6	7.6	87.2	2.4	92.6	2.8	92.4	6.4	88.8
Mining, extraction, and support activities	21	7,608	1.9	87.9	1.4	88.6	1.0	89.0	0.9	89.8	1.6	89.1	0.8	90.0	0.7	89.9	1.2	90.4
Utilities	22	728	22.3	60.2	11.6	70.7	9.7	72.8	10.5	71.8	20.8	61.9	3.4	79.3	3.6	79.0	18.3	64.2
Construction	23	197,574	6.4	89.0	3.6	92.7	1.4	94.9	2.7	93.6	4.4	91.0	1.0	94.9	1.3	94.8	3.7	92.3
Wholesale trade	42	103,628	15.0	80.2	9.4	86.0	6.5	89.1	5.7	90.0	11.4	84.2	3.8	91.7	4.4	91.4	8.4	87.5
Retail trade	44, 45	194,798	9.6	84.7	6.1	88.9	2.9	92.3	4.4	90.6	7.5	87.1	1.2	93.7	2.3	92.8	6.3	89.0
Electronic shopping and mail-order houses	4541	2,960	33.5	62.9	29.5	67.0	16.9	79.7	15.7	80.8	30.8	65.6	20.3	76.4	5.0	91.6	21.2	75.2
Other retail trade	other 44, 45	191,838	9.2	85.0	5.7	89.2	2.7	92.5	4.2	90.8	7.1	87.4	0.9	93.9	2.2	92.8	6.1	89.2
Transportation and warehousing	48, 49	43,231	12.2	85.0	9.7	87.6	1.9	95.2	9.5	87.8	9.6	87.5	3.0	94.2	4.8	92.4	7.8	89.5
Information	51	23,042	32.1	62.4	29.2	65.6	16.3	78.1	24.0	71.0	20.7	73.5	7.3	87.2	10.4	83.8	16.7	77.7
Publishing	511	9,567	40.6	55.1	36.2	59.4	25.8	69.3	27.1	68.9	28.8	66.7	10.0	85.2	11.9	83.6	22.5	72.9
Newspaper, periodical, book, and directory publishers	5111	5,798	14.6	81.3	11.0	84.9	3.5	92.4	10.3	87.3	10.2	87.4	3.8	93.3	5.0	92.6	6.3	91.3
Software publishers	5112	3,769	80.6	14.7	75.0	20.1	60.1	33.9	53.0	40.6	57.4	34.9	19.6	72.7	22.6	69.9	47.5	44.8
Telecommunications	517	2,848	28.3	64.9	27.6	65.7	11.9	81.3	25.2	68.0	10.9	82.3	2.0	91.1	6.9	86.3	8.8	84.4
Internet service providers, Web search portals, and data processing services	518	3,520	45.4	49.4	44.2	50.7	16.8	77.6	40.9	53.9	29.8	63.6	10.8	83.5	13.6	80.0	28.5	65.3
Other information	other 51	7,108	15.8	77.8	13.0	81.4	5.0	88.8	11.0	83.4	9.4	84.1	4.1	90.2	8.2	84.7	6.3	87.5

TABLE 34. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each industry classification: 2006–08

(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Finance and insurance	52	55,835	10.8	79.3	7.6	82.6	1.0	90.0	7.5	82.7	7.4	83.5	1.4	89.7	2.4	88.2	7.0	84.0
Real estate and rental and leasing	53	48,964	9.5	87.0	6.7	90.3	5.6	91.4	4.9	92.1	6.2	90.3	1.7	95.3	1.6	94.9	6.1	90.9
Professional, scientific, and technical services	54	173,858	17.2	79.6	13.4	83.6	5.8	91.0	11.9	85.0	11.8	84.8	4.4	92.0	4.6	92.0	9.8	87.0
Architectural, engineering, and related services	5413	32,174	17.2	79.7	12.4	85.0	4.0	93.2	11.2	86.1	13.4	82.8	5.5	90.8	4.4	92.5	11.2	85.6
Computer systems design and related services	5415	19,355	38.6	55.9	34.7	60.4	19.5	75.0	29.6	65.2	24.9	68.4	8.1	85.4	7.4	85.9	23.1	71.1
Scientific R&D services	5417	3,066	39.5	52.6	32.9	59.4	23.2	69.1	21.0	71.2	25.1	67.0	14.1	78.1	6.7	85.6	14.9	77.2
Other professional, scientific, and technical services	other 54	119,263	13.2	84.2	9.7	87.6	3.6	93.5	9.0	88.3	8.8	88.5	3.2	93.7	4.1	93.0	7.1	90.2
Health care services	621–623	183,741	12.0	82.7	9.7	85.8	2.7	92.7	9.1	86.4	8.0	86.7	3.3	92.0	3.2	92.2	6.6	88.6
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	385,925	8.4	85.3	6.6	87.5	2.6	91.6	5.4	88.7	5.6	88.3	1.9	92.1	1.9	92.3	4.9	89.2

NAICS = 2002 North American Industry Classification System.

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 35. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by size of R&D program: 2006–08
(Thousands of companies)

Company type	Companies	New or significantly improved product or process		New or significantly improved product(s)						New or significantly improved process(es)							
				Any good/service		Goods		Services		Any process		Manufacturing/ production methods		Logistics/delivery/ distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All companies[a]	1,545.4	190.9	1,272.3	140.8	1,329.6	70.7	1,400.3	107.2	1,363.8	136.1	1,328.9	56.2	1,412.2	47.6	1,421.9	106.6	1,364.1
With R&D activity[b]	46.0	33.8	10.6	30.6	13.9	23.9	20.5	17.5	26.8	23.6	20.4	15.7	28.3	9.1	34.9	16.4	27.8
< $10 million	44.0	32.3	10.2	29.2	13.5	22.6	19.9	16.6	25.8	22.4	19.7	14.8	27.4	8.4	33.8	15.4	26.9
≥ $10 but < $50 million	1.3	1.0	0.3	0.9	0.3	0.9	0.4	0.6	0.7	0.7	0.5	0.6	0.7	0.4	0.9	0.6	0.7
≥ $50 but < $100 million	0.3	0.2	0.0	0.2	0.0	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1
≥ $100 million	0.4	0.3	0.1	0.3	0.0	0.3	0.1	0.2	0.2	0.3	0.1	0.2	0.1	0.2	0.2	0.2	0.1
Without R&D activity	1,499.4	157.1	1,261.7	110.2	1,315.7	46.8	1,379.9	89.7	1,337.0	112.5	1,308.5	40.5	1,383.9	38.5	1,387.0	90.2	1,336.4

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

[b] Dollar ranges determined by total worldwide R&D expense plus total worldwide R&D cost funded by others.

NOTES: Survey asked companies to identify innovations introduced in 2006–08. Figures are preliminary and may later be revised.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 36. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each R&D program size classification: 2006–08

(Percent)

Company type	Companies (thousands)	New or significantly improved product or process		New or significantly improved product(s)						New or significantly improved process(es)							
				Any good/ service		Goods		Services		Any process		Manufacturing/ production methods		Logistics/delivery/ distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All companies[a]	1,545.4	12.4	82.3	9.1	86.0	4.5	90.6	6.9	88.2	8.8	86.0	3.6	91.4	3.1	92.0	6.9	88.3
With R&D activity[b]	46.0	73.5	23.0	66.5	30.2	52.0	44.4	38.0	58.2	51.2	44.3	34.2	61.4	19.7	75.9	35.6	60.4
< $10 million	44.0	73.4	23.2	66.2	30.6	51.3	45.2	37.6	58.7	50.8	44.8	33.5	62.1	19.0	76.7	35.0	61.0
≥ $10 but < $50 million	1.3	74.3	22.3	69.3	24.8	63.5	30.7	41.8	51.7	55.5	38.3	43.6	50.2	29.8	63.7	42.6	51.2
≥ $50 but < $100 million	0.3	83.7	10.8	76.9	17.6	71.1	23.8	51.0	42.7	68.5	25.6	57.2	36.5	42.9	50.9	55.6	38.5
≥ $100 million	0.4	85.9	9.6	81.0	14.5	77.2	18.3	55.7	37.5	71.5	21.8	60.2	33.0	53.9	39.3	61.7	31.3
Without R&D activity	1,499.4	10.5	84.1	7.3	87.8	3.1	92.0	6.0	89.2	7.5	87.3	2.7	92.3	2.6	92.5	6.0	89.1

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

[b] Dollar ranges determined by total worldwide R&D expense plus total worldwide R&D cost funded by others.

NOTES: Survey asked companies to identify innovations introduced in 2006–08. Sum of Yes and No percentages may not add to 100% due to item nonresponse to some innovation question items. Figures are preliminary and may later be revised.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 37. U.S. patent applications and patents issued, by industry and company size: 2008
(Number)

Industry and company size	NAICS code	Patent applications	Patents issued[a]
All industries	21–23, 31–33, 42–81	136,751	65,879
Manufacturing industries	31–33	95,106	47,880
Food	311	453	165
Beverage and tobacco products	312	513	206
Textiles, apparel, and leather products	313–316	620	283
Wood products	321	144	62
Paper	322	1,073	659
Printing and related support activities	323	89	28
Petroleum and coal products	324	763	391
Chemicals	325	17,819	7,357
Basic chemicals	3251	4,017	1,169
Resin, synthetic rubber, fibers, and filaments	3252	647	383
Pesticide, fertilizer, and other agricultural chemical	3253	1,251	343
Pharmaceuticals and medicines	3254	8,481	3,621
Soap, cleaning compound, and toilet preparation	3256	1,573	863
Paint, coating, adhesive, and other chemical	3255, 3259	1,850	977
Plastics and rubber products	326	1,550	1,191
Nonmetallic mineral products	327	1,259	500
Primary metals	331	267	101
Fabricated metal products	332	2,191	643
Machinery	333	6,569	3,598
Agricultural implements	33311	575	281
Semiconductor machinery	333295	1,063	525
Engine, turbine, and power transmission equipment	3336	635	165
Other machinery	other 333	4,297	2,626
Computer and electronic products	334	40,845	22,135
Communications equipment	3342	2,858	2,798
Semiconductor and other electronic components	3344	12,197	10,000
Navigational, measuring, electromedical, and control instruments	3345	20,062	5,078
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,293	2,754
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	D	D
Other measuring and controlling instruments	other 3345	D	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	5,728	4,258
Electrical equipment, appliances, and components	335	3,987	2,110
Transportation equipment	336	8,610	4,875
Automobiles, bodies, trailers, and parts	3361–3363	3,367	2,321
Aerospace products and parts	3364	5,049	2,486
Aircraft, aircraft engine, and aircraft parts	336411–336413	4,578	2,211
Guided missile, space vehicle, and related parts	336414, 336415, 336419	471	275
Military armored vehicle, tank, and tank components	336992	D	D
Other transportation equipment	other 336	D	D
Furniture and related products	337	821	446
Miscellaneous manufacturing	339	7,533	3,130
Medical equipment and supplies	3391	5,303	2,061
Other miscellaneous manufacturing	3399	2,230	1,069
Nonmanufacturing industries	21–23, 42–81	41,645	17,999
Mining, extraction, and support activities	21	1,847	691
Utilities	22	105	21
Construction	23	144	97
Wholesale trade	42	3,074	2,489
Retail trade	44, 45	99	58
Electronic shopping and mail-order houses	4541	D	D
Other retail trade	other 44, 45	D	D
Transportation and warehousing	48, 49	65	78

TABLE 37. U.S. patent applications and patents issued, by industry and company size: 2008
(Number)

Industry and company size	NAICS code	Patent applications	Patents issued[a]
Information	51	21,618	9,243
Publishing	511	17,653	7,844
Newspaper, periodical, book, and directory publishers	5111	51	16
Software publishers	5112	17,602	7,828
Telecommunications	517	1,254	667
Internet service providers, Web search portals, and data processing services	518	2,262	591
Other information	other 51	448	141
Finance and insurance	52	848	171
Real estate and rental and leasing	53	386	494
Professional, scientific, and technical services	54	10,518	4,442
Architectural, engineering, and related services	5413	475	968
Computer systems design and related services	5415	1,639	1,173
Scientific R&D services	5417	7,072	2,037
Other professional, scientific, and technical services	other 54	1,332	265
Health care services	621–623	1,655	68
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1,285	144
All companies	21–23, 31–33, 42–81	136,751	65,879
Small companies (number of domestic employees)[b]			
5–499	–	34,611	13,147
5–99	–	21,738	8,451
5–49	–	17,130	6,715
5–24	–	9,174	3,881
25–49	–	7,955	2,833
50–99	–	4,609	1,736
100–249	–	7,377	2,436
250–499	–	5,496	2,260
Medium and large companies (number of domestic employees)			
500–999	–	5,069	2,580
1,000–4,999	–	18,229	11,867
5,000–9,999	–	8,905	4,088
10,000–24,999	–	18,877	12,533
25,000 or more	–	51,060	21,664

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

NAICS = 2002 North American Industry Classification System.

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

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 38. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2	3	96	26	15	60	1	2	97
Manufacturing industries	31–33	7	6	86	31	20	49	3	4	94
Food	311	3	4	93	6	18	75	2	2	96
Beverage and tobacco products	312	1	4	95	5	14	81	D	3	D
Textiles, apparel, and leather products	313–316	4	5	90	28	31	41	1	2	97
Wood products	321	1	2	97	12	8	80	0	1	98
Paper	322	2	7	91	27	27	46	1	5	94
Printing and related support activities	323	1	2	97	3	11	86	1	1	98
Petroleum and coal products	324	4	12	84	20	10	70	2	12	86
Chemicals	325	22	15	64	38	21	41	6	8	87
Basic chemicals	3251	20	18	62	46	29	26	1	10	89
Resin, synthetic rubber, fibers, and filaments	3252	8	19	73	19	43	37	1	4	94
Pesticide, fertilizer, and other agricultural chemical	3253	16	3	81	71	14	16	0	D	D
Pharmaceuticals and medicines	3254	49	14	37	58	15	27	D	D	86
Soap, cleaning compound, and toilet preparation	3256	17	8	75	35	11	53	10	7	84
Paint, coating, adhesive, and other chemical	3255, 3259	11	17	72	15	24	61	8	10	82
Plastics and rubber products	326	9	9	82	24	14	62	5	7	88
Nonmetallic mineral products	327	3	6	91	20	37	43	1	3	96
Primary metals	331	4	4	92	20	12	68	2	3	95
Fabricated metal products	332	3	6	91	19	18	63	2	5	94
Machinery	333	14	6	81	39	13	48	7	4	90
Agricultural implements	33311	17	17	66	24	22	53	D	D	76
Semiconductor machinery	333295	96	2	2	97	2	2	D	D	D
Engine, turbine, and power transmission equipment	3336	20	4	76	35	8	57	D	D	D
Other machinery	other 333	12	5	83	36	13	51	6	3	90
Computer and electronic products	334	25	12	63	44	21	34	8	4	88
Communications equipment	3342	35	17	48	39	26	35	D	D	70
Semiconductor and other electronic components	3344	17	5	77	53	14	34	1	1	97
Navigational, measuring, electromedical, and control instruments	3345	34	16	51	50	20	29	15	1	75
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	61	1	9	78	13	8	D	D	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	40	21	38	36	36	28	D	0	D
Other measuring and controlling instruments	other 3345	28	12	60	48	17	35	9	8	83
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	14	15	71	25	29	46	3	1	96
Electrical equipment, appliances, and components	335	18	12	70	43	20	37	3	7	89
Transportation equipment	336	7	7	86	28	23	49	1	3	96
Automobiles, bodies, trailers, and parts	3361–3363	7	6	87	34	24	42	2	3	96
Aerospace products and parts	3364	9	9	82	22	22	56	1	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	9	5	86	24	15	61	D	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	1	1	1	1	1	1	D	D	D
Military armored vehicle, tank, and tank components	336992	D	D	87	D	D	D	D	D	D
Other transportation equipment	other 336	8	10	82	24	21	55	D	5	D

TABLE 38. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Furniture and related products	337	3	3	94	30	18	52	1	2	97
Miscellaneous manufacturing	339	11	11	78	34	30	37	4	5	91
Medical equipment and supplies	3391	19	16	66	37	34	29	10	8	82
Other miscellaneous manufacturing	3399	7	8	84	31	26	43	1	4	95
Nonmanufacturing industries	21–23, 42–81	1	2	96	22	10	69	1	2	97
Mining, extraction, and support activities	21	1	2	97	17	8	75	1	1	97
Utilities	22	7	12	80	15	65	20	6	2	92
Construction	23	0	2	97	1	1	1	0	2	97
Wholesale trade	42	3	4	94	31	20	49	2	3	94
Retail trade	44, 45	1	2	98	D	D	D	1	2	98
Electronic shopping and mail-order houses	4541	1	3	96	D	D	D	1	3	96
Other retail trade	other 44, 45	1	2	98	0	D	D	1	2	98
Transportation and warehousing	48, 49	1	1	98	47	1	51	1	1	99
Information	51	5	5	90	21	11	68	1	4	95
Publishing	511	6	5	90	18	11	71	1	2	97
Newspaper, periodical, book, and directory publishers	5111	0	1	99	D	D	87	D	1	D
Software publishers	5112	14	11	75	18	11	71	3	11	87
Telecommunications	517	6	6	88	52	4	43	1	6	93
Internet service providers, Web search portals, and data processing services	518	7	8	84	21	10	70	2	8	91
Other information	other 51	1	4	94	12	33	54	1	3	96
Finance and insurance	52	2	1	98	26	14	60	2	1	98
Real estate and rental and leasing	53	2	1	97	D	D	38	D	D	D
Professional, scientific, and technical services	54	2	2	95	23	13	64	1	2	97
Architectural, engineering, and related services	5413	2	3	95	26	20	54	1	2	97
Computer systems design and related services	5415	6	9	85	18	17	65	3	6	91
Scientific R&D services	5417	37	6	57	47	6	46	21	5	74
Other professional, scientific, and technical services	other 54	1	1	98	13	9	78	1	1	99
Health care services	621–623	1	2	97	24	3	74	1	2	97
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1	3	96	14	1	85	1	3	96

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

NAICS = 2002 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 39. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2	3	95	15	18	67	1	3	95
Manufacturing industries	31–33	6	9	85	21	25	54	3	6	91
Food	311	3	4	93	13	13	75	2	3	96
Beverage and tobacco products	312	3	5	93	6	11	83	2	4	93
Textiles, apparel, and leather products	313–316	8	11	81	41	45	14	3	6	91
Wood products	321	1	6	93	5	31	64	1	5	94
Paper	322	3	8	88	13	35	52	3	6	91
Printing and related support activities	323	3	4	93	7	25	69	3	3	94
Petroleum and coal products	324	4	3	92	6	13	81	4	2	94
Chemicals	325	11	15	75	17	20	63	5	9	86
Basic chemicals	3251	10	13	78	22	17	61	D	9	D
Resin, synthetic rubber, fibers, and filaments	3252	5	19	77	8	39	52	3	6	91
Pesticide, fertilizer, and other agricultural chemical	3253	3	2	95	13	8	79	D	0	D
Pharmaceuticals and medicines	3254	9	31	60	11	32	57	D	D	74
Soap, cleaning compound, and toilet preparation	3256	13	14	73	29	16	55	6	14	80
Paint, coating, adhesive, and other chemical	3255, 3259	13	7	80	18	8	74	9	6	85
Plastics and rubber products	326	8	14	78	28	27	45	2	10	87
Nonmetallic mineral products	327	2	10	88	11	38	51	1	7	92
Primary metals	331	3	9	88	13	13	74	2	8	90
Fabricated metal products	332	3	7	90	15	19	65	2	5	93
Machinery	333	8	11	81	21	22	58	5	8	87
Agricultural implements	33311	18	19	63	29	26	45	D	D	77
Semiconductor machinery	333295	5	31	64	5	28	66	D	D	D
Engine, turbine, and power transmission equipment	3336	4	12	84	7	16	77	D	D	89
Other machinery	other 333	8	10	82	22	21	57	5	8	87
Computer and electronic products	334	13	15	72	23	24	53	5	7	88
Communications equipment	3342	26	19	55	24	30	46	D	D	71
Semiconductor and other electronic components	3344	7	15	77	20	27	53	1	10	89
Navigational, measuring, electromedical, and control instruments	3345	16	15	69	28	22	50	3	6	91
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	21	31	49	23	41	36	D	1	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	13	6	80	20	11	69	D	0	D
Other measuring and controlling instruments	other 3345	16	14	69	31	21	47	3	8	90
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	10	12	78	17	17	66	3	7	89
Electrical equipment, appliances, and components	335	14	15	71	28	25	47	5	9	85
Transportation equipment	336	8	7	85	26	16	58	3	4	93
Automobiles, bodies, trailers, and parts	3361–3363	8	7	86	33	13	55	3	5	91
Aerospace products and parts	3364	9	9	82	21	23	56	1	1	98
Aircraft, aircraft engine, and aircraft parts	336411–336413	9	7	85	24	18	59	1	1	99
Guided missile, space vehicle, and related parts	336414, 336415, 336419	1	1	1	D	1	1	D	D	D
Military armored vehicle, tank, and tank components	336992	D	D	87	D	D	D	D	D	D
Other transportation equipment	other 336	9	7	84	22	15	64	4	3	93
Furniture and related products	337	5	6	89	39	42	20	2	4	93

TABLE 39. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	11	14	75	26	35	39	6	7	86
Medical equipment and supplies	3391	16	16	69	26	34	40	11	8	82
Other miscellaneous manufacturing	3399	9	13	78	25	37	39	4	7	89
Nonmanufacturing industries	21–23, 42–81	2	3	95	10	13	78	1	3	96
Mining, extraction, and support activities	21	2	2	96	9	9	82	2	2	96
Utilities	22	1	9	90	5	21	75	1	7	93
Construction	23	0	3	97	1	1	1	0	3	97
Wholesale trade	42	4	7	89	30	31	39	4	7	89
Retail trade	44, 45	1	4	95	D	1	D	1	4	95
Electronic shopping and mail-order houses	4541	2	15	83	0	29	71	2	15	83
Other retail trade	other 44, 45	1	4	95	D	D	D	1	4	95
Transportation and warehousing	48, 49	0	1	99	D	D	50	D	1	D
Information	51	2	8	89	7	19	73	1	6	93
Publishing	511	3	7	90	9	13	78	1	4	94
Newspaper, periodical, book, and directory publishers	5111	1	5	94	D	D	87	1	5	94
Software publishers	5112	7	10	83	9	13	78	1	3	96
Telecommunications	517	2	10	88	9	44	47	1	6	93
Internet service providers, Web search portals, and data processing services	518	3	14	84	4	24	72	2	9	89
Other information	other 51	1	6	93	8	35	57	1	5	94
Finance and insurance	52	2	1	97	16	16	68	2	1	97
Real estate and rental and leasing	53	1	0	99	D	D	88	1	D	D
Professional, scientific, and technical services	54	2	4	94	11	13	76	2	3	95
Architectural, engineering, and related services	5413	4	8	89	22	20	58	3	7	90
Computer systems design and related services	5415	4	9	87	7	22	71	3	6	91
Scientific R&D services	5417	11	7	82	12	7	82	10	8	82
Other professional, scientific, and technical services	other 54	1	2	97	11	3	86	1	2	97
Health care services	621–623	1	1	98	0	3	97	1	1	98
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2	2	96	14	2	85	2	3	96

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

NAICS = 2002 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 40. Importance of trademarks for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	9	84	33	27	40	5	9	86
Manufacturing industries	31–33	13	14	72	36	29	35	9	11	80
Food	311	21	16	63	46	24	30	17	15	68
Beverage and tobacco products	312	33	17	50	39	0	61	33	19	49
Textiles, apparel, and leather products	313–316	15	14	71	51	23	26	10	13	77
Wood products	321	6	11	84	10	78	12	6	7	87
Paper	322	7	16	77	33	28	39	5	15	80
Printing and related support activities	323	8	14	78	30	10	60	7	14	79
Petroleum and coal products	324	15	16	69	62	22	16	8	15	77
Chemicals	325	31	31	39	43	26	31	18	35	47
Basic chemicals	3251	23	41	36	46	32	22	6	48	47
Resin, synthetic rubber, fibers, and filaments	3252	13	30	57	26	49	25	6	19	75
Pesticide, fertilizer, and other agricultural chemical	3253	29	I	29	86	11	3	14	I	36
Pharmaceuticals and medicines	3254	37	32	31	41	31	28	15	39	45
Soap, cleaning compound, and toilet preparation	3256	41	27	32	61	19	20	33	30	37
Paint, coating, adhesive, and other chemical	3255, 3259	29	25	45	40	19	42	20	31	49
Plastics and rubber products	326	15	14	71	34	26	41	10	10	80
Nonmetallic mineral products	327	9	12	79	32	57	11	7	8	85
Primary metals	331	6	18	76	24	24	52	3	17	79
Fabricated metal products	332	5	9	86	22	20	58	4	7	89
Machinery	333	17	13	71	34	26	40	12	9	79
Agricultural implements	33311	34	13	53	27	26	47	39	I	58
Semiconductor machinery	333295	7	65	29	7	64	30	D	D	D
Engine, turbine, and power transmission equipment	3336	10	16	74	11	31	59	9	5	87
Other machinery	other 333	16	12	72	38	22	39	11	9	80
Computer and electronic products	334	22	23	55	38	32	29	8	15	76
Communications equipment	3342	33	26	41	36	40	25	29	2	69
Semiconductor and other electronic components	3344	11	13	76	27	33	40	3	4	93
Navigational, measuring, electromedical, and control instruments	3345	27	31	42	42	30	27	10	32	58
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	29	35	I	35	46	20	D	D	I
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	29	43	28	47	16	37	D	D	D
Other measuring and controlling instruments	other 3345	26	28	46	43	31	27	11	25	64
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	28	26	46	48	28	24	8	23	69
Electrical equipment, appliances, and components	335	21	24	56	43	33	24	7	18	75
Transportation equipment	336	15	10	75	37	34	29	9	3	88
Automobiles, bodies, trailers, and parts	3361–3363	15	7	78	41	31	28	11	3	87
Aerospace products and parts	3364	9	19	71	22	49	29	1	1	97
Aircraft, aircraft engine, and aircraft parts	336411–336413	8	18	73	21	51	28	1	1	98
Guided missile, space vehicle, and related parts	336414, 336415, 336419	I	I	I	D	I	I	D	D	D
Military armored vehicle, tank, and tank components	336992	D	D	87	D	D	D	D	D	D
Other transportation equipment	other 336	18	12	70	43	26	30	7	6	88
Furniture and related products	337	7	9	84	41	25	33	5	8	87

TABLE 40. Importance of trademarks for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	18	22	60	38	36	26	12	17	71
Medical equipment and supplies	3391	24	24	53	41	39	20	16	17	67
Other miscellaneous manufacturing	3399	15	20	64	35	34	31	10	17	73
Nonmanufacturing industries	21–23, 42–81	6	9	86	30	26	44	5	8	86
Mining, extraction, and support activities	21	2	5	93	12	21	68	2	4	93
Utilities	22	16	14	70	18	61	20	15	5	79
Construction	23	2	6	92	I	I	I	2	6	92
Wholesale trade	42	10	15	75	54	21	25	10	15	76
Retail trade	44, 45	5	9	86	1	31	68	5	9	86
Electronic shopping and mail-order houses	4541	21	23	56	D	64	D	21	22	57
Other retail trade	other 44, 45	5	9	86	D	D	70	5	9	86
Transportation and warehousing	48, 49	3	4	93	51	47	1	2	4	94
Information	51	22	21	57	52	30	18	15	19	66
Publishing	511	33	21	45	60	22	18	23	21	57
Newspaper, periodical, book, and directory publishers	5111	21	19	60	D	64	D	21	18	60
Software publishers	5112	53	25	22	60	22	18	32	34	35
Telecommunications	517	13	16	71	57	31	12	9	14	77
Internet service providers, Web search portals, and data processing services	518	21	25	55	37	42	22	14	17	69
Other information	other 51	11	22	68	25	55	20	10	21	69
Finance and insurance	52	5	10	86	D	19	D	5	9	86
Real estate and rental and leasing	53	6	5	89	D	37	D	5	4	90
Professional, scientific, and technical services	54	7	11	82	27	30	44	5	10	85
Architectural, engineering, and related services	5413	4	10	86	19	27	54	3	10	87
Computer systems design and related services	5415	17	23	60	32	36	31	12	20	68
Scientific R&D services	5417	23	23	54	27	28	46	17	16	67
Other professional, scientific, and technical services	other 54	5	9	86	21	22	57	5	8	87
Health care services	621–623	2	4	94	12	26	62	2	4	94
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	7	10	83	17	12	71	7	10	83

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

NAICS = 2002 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 41. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	5	7	88	25	25	49	4	6	89
Manufacturing industries	31–33	8	12	80	22	28	50	5	9	86
Food	311	11	8	81	29	14	57	8	7	85
Beverage and tobacco products	312	8	14	78	8	14	78	8	14	78
Textiles, apparel, and leather products	313–316	10	11	80	25	32	43	8	8	85
Wood products	321	2	8	91	5	48	48	2	6	93
Paper	322	6	16	78	14	23	63	5	15	80
Printing and related support activities	323	9	13	77	42	9	49	8	13	79
Petroleum and coal products	324	10	15	75	40	25	36	6	13	81
Chemicals	325	13	26	61	19	31	51	7	21	72
Basic chemicals	3251	15	29	56	28	32	40	5	27	68
Resin, synthetic rubber, fibers, and filaments	3252	8	21	71	14	47	39	4	5	91
Pesticide, fertilizer, and other agricultural chemical	3253	6	19	76	19	64	18	D	6	D
Pharmaceuticals and medicines	3254	15	36	49	17	34	49	6	47	47
Soap, cleaning compound, and toilet preparation	3256	12	28	60	29	29	41	5	27	67
Paint, coating, adhesive, and other chemical	3255, 3259	13	20	67	15	22	62	10	18	72
Plastics and rubber products	326	8	13	79	19	28	53	4	9	87
Nonmetallic mineral products	327	5	8	87	9	19	72	4	7	88
Primary metals	331	7	12	81	10	17	73	7	11	82
Fabricated metal products	332	4	8	89	10	21	69	3	6	91
Machinery	333	11	9	81	26	22	53	7	5	89
Agricultural implements	33311	5	13	82	10	16	74	D	D	89
Semiconductor machinery	333295	59	10	31	61	7	32	D	D	D
Engine, turbine, and power transmission equipment	3336	1	15	83	3	33	64	D	D	D
Other machinery	other 333	10	8	81	25	23	52	7	5	88
Computer and electronic products	334	16	22	62	27	30	43	7	15	77
Communications equipment	3342	29	21	50	30	32	38	29	1	70
Semiconductor and other electronic components	3344	6	16	78	18	34	48	1	7	91
Navigational, measuring, electromedical, and control instruments	3345	21	30	49	32	32	37	8	29	63
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	21	33	46	25	42	33	D	D	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	14	56	29	22	39	39	D	D	D
Other measuring and controlling instruments	other 3345	22	24	54	36	27	37	9	21	69
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	19	19	62	27	17	56	11	20	69
Electrical equipment, appliances, and components	335	14	22	65	27	35	38	6	14	80
Transportation equipment	336	6	12	82	17	40	43	3	4	94
Automobiles, bodies, trailers, and parts	3361–3363	6	9	85	21	39	40	3	4	93
Aerospace products and parts	3364	6	19	75	15	47	39	1	1	98
Aircraft, aircraft engine, and aircraft parts	336411–336413	5	18	77	13	50	37	1	1	98
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	1	1	D	1	1	D	D	D
Military armored vehicle, tank, and tank components	336992	D	D	87	D	D	D	D	D	D
Other transportation equipment	other 336	5	15	80	14	34	52	2	6	92
Furniture and related products	337	6	7	87	33	27	40	4	6	90

TABLE 41. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	11	19	70	21	40	38	7	12	80
Medical equipment and supplies	3391	16	19	65	23	41	37	13	9	78
Other miscellaneous manufacturing	3399	8	19	73	20	40	39	4	14	82
Nonmanufacturing industries	21–23, 42–81	5	7	89	28	23	49	4	6	90
Mining, extraction, and support activities	21	2	4	94	8	13	79	2	4	94
Utilities	22	13	6	81	6	22	73	14	3	83
Construction	23	1	4	95	1	1	1	1	4	95
Wholesale trade	42	6	10	84	32	29	40	6	10	85
Retail trade	44, 45	3	7	90	3	28	68	3	6	90
Electronic shopping and mail-order houses	4541	19	21	61	68	D	D	18	21	61
Other retail trade	other 44, 45	3	6	90	D	D	70	3	6	90
Transportation and warehousing	48, 49	3	3	94	48	47	5	2	3	95
Information	51	23	22	55	49	27	24	17	21	61
Publishing	511	36	25	39	58	27	14	27	23	49
Newspaper, periodical, book, and directory publishers	5111	26	25	49	36	64	0	26	24	50
Software publishers	5112	52	25	23	59	27	15	34	19	47
Telecommunications	517	10	16	73	51	33	16	6	15	79
Internet service providers, Web search portals, and data processing services	518	15	20	65	25	25	50	10	18	72
Other information	other 51	16	23	61	48	29	23	15	23	62
Finance and insurance	52	2	5	92	52	31	17	2	5	92
Real estate and rental and leasing	53	5	3	92	55	7	38	4	3	93
Professional, scientific, and technical services	54	8	10	82	29	27	44	7	9	84
Architectural, engineering, and related services	5413	10	12	78	22	22	56	10	12	79
Computer systems design and related services	5415	20	22	57	32	37	32	17	18	64
Scientific R&D services	5417	14	21	65	13	25	61	16	14	70
Other professional, scientific, and technical services	other 54	6	7	87	37	18	45	5	7	88
Health care services	621–623	2	4	94	12	26	62	2	3	95
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	5	7	88	15	1	84	5	7	88

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

NAICS = 2002 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 42. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	8	85	45	22	33	5	8	87
Manufacturing industries	31–33	17	14	69	50	24	26	10	12	78
Food	311	22	20	59	56	20	25	16	20	64
Beverage and tobacco products	312	11	20	69	31	7	61	9	22	70
Textiles, apparel, and leather products	313–316	13	15	72	41	37	22	9	12	78
Wood products	321	5	14	81	20	67	13	5	11	84
Paper	322	14	12	75	51	18	31	11	11	78
Printing and related support activities	323	8	10	82	38	11	50	7	10	83
Petroleum and coal products	324	20	13	66	80	12	8	11	14	75
Chemicals	325	50	17	33	68	13	19	33	20	47
Basic chemicals	3251	53	20	27	82	10	8	31	27	41
Resin, synthetic rubber, fibers, and filaments	3252	23	9	69	42	12	46	11	6	83
Pesticide, fertilizer, and other agricultural chemical	3253	23	16	62	41	48	11	17	7	76
Pharmaceuticals and medicines	3254	57	19	24	67	14	19	9	46	46
Soap, cleaning compound, and toilet preparation	3256	52	14	35	76	13	11	42	14	44
Paint, coating, adhesive, and other chemical	3255, 3259	54	17	30	67	11	22	41	22	37
Plastics and rubber products	326	23	11	66	60	16	24	13	9	77
Nonmetallic mineral products	327	14	8	78	62	21	17	10	7	83
Primary metals	331	16	15	70	34	16	51	14	14	72
Fabricated metal products	332	9	11	79	34	25	40	7	9	84
Machinery	333	21	16	62	47	24	29	14	14	72
Agricultural implements	33311	18	10	71	18	21	61	D	D	80
Semiconductor machinery	333295	D	D	2	D	D	2	D	D	D
Engine, turbine, and power transmission equipment	3336	26	39	35	18	59	23	32	24	44
Other machinery	other 333	20	16	64	47	24	29	14	14	72
Computer and electronic products	334	36	18	46	58	25	17	17	12	71
Communications equipment	3342	48	14	38	59	21	20	30	1	69
Semiconductor and other electronic components	3344	25	15	60	57	27	15	10	9	81
Navigational, measuring, electromedical, and control instruments	3345	47	20	33	63	24	13	28	17	55
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	58	14	1	74	16	10	D	D	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	51	41	8	52	43	6	D	D	D
Other measuring and controlling instruments	other 3345	44	17	39	64	20	15	25	14	61
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	28	22	50	46	28	27	10	17	74
Electrical equipment, appliances, and components	335	25	23	52	51	27	22	10	21	69
Transportation equipment	336	19	12	69	48	27	25	10	8	82
Automobiles, bodies, trailers, and parts	3361–3363	17	13	70	42	36	23	12	9	79
Aerospace products and parts	3364	32	9	59	74	18	8	6	3	91
Aircraft, aircraft engine, and aircraft parts	336411–336413	28	10	62	70	22	8	6	3	91
Guided missile, space vehicle, and related parts	336414, 336415, 336419	1	1	1	1	1	1	D	D	D
Military armored vehicle, tank, and tank components	336992	18	D	D	D	D	0	D	D	D
Other transportation equipment	other 336	15	12	73	34	23	44	7	7	86
Furniture and related products	337	8	12	80	36	27	36	6	11	83

TABLE 42. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	18	18	64	40	35	25	11	13	76
Medical equipment and supplies	3391	22	16	62	42	28	30	13	11	76
Other miscellaneous manufacturing	3399	16	20	64	39	41	20	10	14	76
Nonmanufacturing industries	21–23, 42–81	5	8	87	41	20	39	5	8	88
Mining, extraction, and support activities	21	4	8	88	23	11	67	4	8	89
Utilities	22	13	21	66	19	61	19	12	13	75
Construction	23	2	7	92	1	1	1	2	7	92
Wholesale trade	42	10	13	78	43	22	34	9	13	78
Retail trade	44, 45	4	8	89	4	1	95	4	8	89
Electronic shopping and mail-order houses	4541	18	11	71	D	14	D	17	11	72
Other retail trade	other 44, 45	3	8	89	D	D	D	3	8	89
Transportation and warehousing	48, 49	5	5	90	50	48	2	4	5	91
Information	51	18	19	64	55	25	20	9	17	74
Publishing	511	26	15	59	64	17	19	10	15	75
Newspaper, periodical, book, and directory publishers	5111	5	14	82	11	10	79	5	14	82
Software publishers	5112	59	18	23	65	17	18	43	20	37
Telecommunications	517	12	16	72	77	10	13	5	16	79
Internet service providers, Web search portals, and data processing services	518	21	30	50	28	50	22	17	21	62
Other information	other 51	8	18	74	47	21	32	7	18	75
Finance and insurance	52	5	9	86	65	22	13	5	9	86
Real estate and rental and leasing	53	4	4	92	D	2	D	3	4	93
Professional, scientific, and technical services	54	8	9	82	41	22	36	6	9	85
Architectural, engineering, and related services	5413	5	11	83	40	36	24	4	10	86
Computer systems design and related services	5415	22	21	57	41	25	34	17	20	63
Scientific R&D services	5417	43	11	46	54	13	33	24	8	67
Other professional, scientific, and technical services	other 54	6	7	88	34	20	46	5	7	89
Health care services	621–623	2	4	94	46	3	51	2	4	94
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	6	8	86	29	24	48	6	8	86

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

NAICS = 2002 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 43. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2	98	4	6	90	1	2	98
Manufacturing industries	31–33	2	3	95	5	7	88	1	2	97
Food	311	1	4	96	1	12	87	1	2	97
Beverage and tobacco products	312	0	2	98	0	D	D	0	2	98
Textiles, apparel, and leather products	313–316	1	2	97	0	7	92	1	2	97
Wood products	321	D	1	D	D	1	D	0	1	99
Paper	322	2	2	96	D	5	D	D	2	D
Printing and related support activities	323	1	2	97	D	D	D	1	2	97
Petroleum and coal products	324	3	10	87	0	0	100	3	12	85
Chemicals	325	2	5	93	2	6	92	2	4	94
Basic chemicals	3251	1	7	93	D	5	D	D	8	D
Resin, synthetic rubber, fibers, and filaments	3252	1	2	97	3	3	94	D	D	D
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	D	0	D	0	D	D
Pharmaceuticals and medicines	3254	1	9	90	1	11	88	D	D	D
Soap, cleaning compound, and toilet preparation	3256	2	4	94	5	D	D	D	D	D
Paint, coating, adhesive, and other chemical	3255, 3259	3	3	94	3	3	94	4	3	94
Plastics and rubber products	326	2	1	97	3	3	94	1	0	98
Nonmetallic mineral products	327	0	3	97	1	12	87	D	3	D
Primary metals	331	2	3	96	3	2	95	D	3	D
Fabricated metal products	332	1	2	96	3	1	96	1	3	96
Machinery	333	3	3	94	8	6	86	2	2	96
Agricultural implements	33311	1	1	98	2	3	95	0	0	100
Semiconductor machinery	333295	78	3	18	82	3	14	D	D	D
Engine, turbine, and power transmission equipment	3336	0	1	99	0	3	97	0	0	100
Other machinery	other 333	2	3	95	3	7	90	2	2	96
Computer and electronic products	334	12	7	81	19	10	71	5	5	90
Communications equipment	3342	18	8	74	11	13	75	D	0	D
Semiconductor and other electronic components	3344	13	7	80	33	11	55	4	5	91
Navigational, measuring, electromedical, and control instruments	3345	11	8	81	19	9	71	D	7	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2	6	91	3	5	92	1	D	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	8	14	78	12	24	64	D	0	D
Other measuring and controlling instruments	other 3345	12	7	81	25	6	68	D	D	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	5	4	91	5	5	89	4	3	93
Electrical equipment, appliances, and components	335	3	5	92	5	8	87	1	4	95
Transportation equipment	336	2	1	97	1	3	96	2	1	98
Automobiles, bodies, trailers, and parts	3361–3363	2	1	97	1	3	95	3	D	D
Aerospace products and parts	3364	0	1	97	1	1	94	0	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	0	1	99	1	2	97	0	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	1	D	D	1	D	D	D
Military armored vehicle, tank, and tank components	336992	D	0	D	D	0	D	D	D	D
Other transportation equipment	other 336	D	2	D	D	2	D	D	2	D
Furniture and related products	337	0	3	97	3	5	92	D	3	D

TABLE 43. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2008
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	1	5	94	1	12	87	1	2	97
Medical equipment and supplies	3391	2	5	93	1	10	89	2	3	95
Other miscellaneous manufacturing	3399	0	4	95	1	14	85	0	2	98
Nonmanufacturing industries	21–23, 42–81	1	2	98	3	6	91	1	1	98
Mining, extraction, and support activities	21	D	0	D	0	9	91	D	0	D
Utilities	22	1	6	94	D	8	D	D	5	D
Construction	23	0	2	98	D	1	1	0	2	98
Wholesale trade	42	1	3	96	7	3	89	1	3	96
Retail trade	44, 45	0	1	98	D	1	D	0	1	98
Electronic shopping and mail-order houses	4541	1	3	96	D	D	75	1	3	96
Other retail trade	other 44, 45	0	1	98	0	D	D	0	1	98
Transportation and warehousing	48, 49	0	2	98	0	47	53	0	1	99
Information	51	1	3	96	3	2	95	0	3	96
Publishing	511	1	1	98	3	2	95	0	1	99
Newspaper, periodical, book, and directory publishers	5111	D	D	D	0	0	100	D	D	D
Software publishers	5112	3	2	96	4	2	95	D	D	D
Telecommunications	517	1	6	93	5	4	91	1	6	93
Internet service providers, Web search portals, and data processing services	518	1	3	97	1	2	97	D	3	D
Other information	other 51	0	5	95	2	4	94	D	5	D
Finance and insurance	52	1	0	99	D	D	89	1	D	D
Real estate and rental and leasing	53	1	D	D	D	D	D	D	0	D
Professional, scientific, and technical services	54	1	2	97	5	8	87	0	2	98
Architectural, engineering, and related services	5413	0	3	97	4	14	82	0	2	98
Computer systems design and related services	5415	1	6	93	4	12	84	0	4	96
Scientific R&D services	5417	2	3	95	1	2	97	5	3	92
Other professional, scientific, and technical services	other 54	1	1	98	9	4	87	0	1	99
Health care services	621–623	0	1	99	0	2	98	0	1	99
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1	2	98	2	0	98	1	2	98

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

NAICS = 2002 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

TABLE 44. Domestic R&D paid for by the company and others and performed by the company with defense applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
All industries	21–23, 31–33, 42–81	41,500	9,718	31,782
Manufacturing industries	31–33	35,329	7,315	28,014
Food	311	D	*	D
Beverage and tobacco products	312	0	0	0
Textiles, apparel, and leather products	313–316	38	34	5
Wood products	321	*	*	0
Paper	322	D	8	D
Printing and related support activities	323	1	1	0
Petroleum and coal products	324	1	1	0
Chemicals	325	332	235	97
Basic chemicals	3251	64	49	15
Resin, synthetic rubber, fibers, and filaments	3252	13	10	3
Pesticide, fertilizer, and other agricultural chemical	3253	2	1	1
Pharmaceuticals and medicines	3254	178	115	63
Soap, cleaning compound, and toilet preparation	3256	10	4	6
Paint, coating, adhesive, and other chemical	3255, 3259	66	56	10
Plastics and rubber products	326	80	78	1
Nonmetallic mineral products	327	58	40	18
Primary metals	331	58	51	7
Fabricated metal products	332	305	296	9
Machinery	333	166	120	46
Agricultural implements	33311	D	D	0
Semiconductor machinery	333295	25	17	8
Engine, turbine, and power transmission equipment	3336	13	9	4
Other machinery	other 333	D	D	34
Computer and electronic products	334	7,879	3,425	4,454
Communications equipment	3342	1,290	722	568
Semiconductor and other electronic components	3344	1,023	888	135
Navigational, measuring, electromedical, and control instruments	3345	4,959	1,271	3,688
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	801	85	716
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,913	1,043	2,870
Other measuring and controlling instruments	other 3345	245	144	102
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	607	544	63
Electrical equipment, appliances, and components	335	334	249	86
Transportation equipment	336	25,895	2,658	23,237
Automobiles, bodies, trailers, and parts	3361–3363	169	118	52
Aerospace products and parts	3364	25,686	2,509	23,177
Aircraft, aircraft engine, and aircraft parts	336411–336413	20,841	2,208	18,633
Guided missile, space vehicle, and related parts	336414, 336415, 336419	4,845	301	4,544
Military armored vehicle, tank, and tank components	336992	31	24	7
Other transportation equipment	other 336	8	7	1
Furniture and related products	337	*	*	0
Miscellaneous manufacturing	339	167	119	48
Medical equipment and supplies	3391	63	44	19
Other miscellaneous manufacturing	3399	104	75	29
Nonmanufacturing industries	21–23, 42–81	6,171	2,403	3,768
Mining, extraction, and support activities	21	1	1	0
Utilities	22	1	1	*
Construction	23	12	12	0
Wholesale trade	42	59	22	37
Retail trade	44, 45	*	0	*
Electronic shopping and mail-order houses	4541	*	0	*
Other retail trade	other 44, 45	0	0	0
Transportation and warehousing	48, 49	4	4	0
Information	51	823	716	107

TABLE 44. Domestic R&D paid for by the company and others and performed by the company with defense applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
Publishing	511	711	640	71
Newspaper, periodical, book, and directory publishers	5111	*	*	0
Software publishers	5112	711	640	71
Telecommunications	517	99	64	35
Internet service providers, Web search portals, and data processing services	518	11	10	1
Other information	other 51	1	1	0
Finance and insurance	52	1	1	0
Real estate and rental and leasing	53	*	*	0
Professional, scientific, and technical services	54	5,214	1,625	3,589
Architectural, engineering, and related services	5413	1,417	433	984
Computer systems design and related services	5415	970	499	472
Scientific R&D services	5417	1,923	462	1,461
Other professional, scientific, and technical services	other 54	903	231	672
Health care services	621–623	8	6	2
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	50	16	34
All companies	21–23, 31–33, 42–81	41,500	9,718	31,782
Small companies (number of domestic employees)[a]				
5–499	–	6,259	2,698	3,561
5–99	–	4,081	1,802	2,279
5–49	–	3,043	1,233	1,810
5–24	–	1,656	681	974
25–49	–	1,388	552	836
50–99	–	1,038	569	469
100–249	–	1,121	591	529
250–499	–	1,057	304	753
Medium and large companies (number of domestic employees)				
500–999	–	1,202	617	586
1,000–4,999	–	3,308	1,663	1,645
5,000–9,999	–	1,293	370	923
10,000–24,999	–	3,429	1,122	2,307
25,000 or more	–	26,010	3,249	22,761

* = amount < $500,000; D = data withheld to avoid disclosing operations of individual companies.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 45. Domestic R&D paid for by the company and others and performed by the company with medical and health applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
All industries	21–23, 31–33, 42–81	76,103	66,404	9,698
Manufacturing industries	31–33	60,334	56,156	4,178
Food	311	89	89	1
Beverage and tobacco products	312	24	24	*
Textiles, apparel, and leather products	313–316	31	31	*
Wood products	321	*	*	0
Paper	322	205	202	3
Printing and related support activities	323	41	4	37
Petroleum and coal products	324	*	*	0
Chemicals	325	47,691	44,743	2,948
Basic chemicals	3251	134	126	7
Resin, synthetic rubber, fibers, and filaments	3252	22	21	*
Pesticide, fertilizer, and other agricultural chemical	3253	13	13	0
Pharmaceuticals and medicines	3254	47,309	44,369	2,940
Soap, cleaning compound, and toilet preparation	3256	192	192	1
Paint, coating, adhesive, and other chemical	3255, 3259	21	21	*
Plastics and rubber products	326	216	206	10
Nonmetallic mineral products	327	50	48	2
Primary metals	331	9	9	*
Fabricated metal products	332	142	123	18
Machinery	333	204	193	11
Agricultural implements	33311	*	*	0
Semiconductor machinery	333295	5	4	1
Engine, turbine, and power transmission equipment	3336	28	28	0
Other machinery	other 333	170	160	10
Computer and electronic products	334	5,372	4,383	989
Communications equipment	3342	142	100	42
Semiconductor and other electronic components	3344	507	477	30
Navigational, measuring, electromedical, and control instruments	3345	4,527	3,628	899
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,034	3,139	895
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	39	38	*
Other measuring and controlling instruments	other 3345	455	450	4
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	196	178	18
Electrical equipment, appliances, and components	335	155	150	5
Transportation equipment	336	941	896	45
Automobiles, bodies, trailers, and parts	3361–3363	49	6	43
Aerospace products and parts	3364	890	888	2
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	D	2
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	0
Military armored vehicle, tank, and tank components	336992	2	2	0
Other transportation equipment	other 336	*	*	*
Furniture and related products	337	43	43	0
Miscellaneous manufacturing	339	5,121	5,012	109
Medical equipment and supplies	3391	5,057	4,953	104
Other miscellaneous manufacturing	3399	64	59	5
Nonmanufacturing industries	21–23, 42–81	15,769	10,249	5,520
Mining, extraction, and support activities	21	*	*	0
Utilities	22	2	2	0
Construction	23	6	6	0
Wholesale trade	42	299	255	44
Retail trade	44, 45	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0
Other retail trade	other 44, 45	0	0	0
Transportation and warehousing	48, 49	*	*	0
Information	51	2,032	1,976	57

TABLE 45. Domestic R&D paid for by the company and others and performed by the company with medical and health applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
Publishing	511	1,929	1,919	11
Newspaper, periodical, book, and directory publishers	5111	48	48	0
Software publishers	5112	1,882	1,871	11
Telecommunications	517	3	2	*
Internet service providers, Web search portals, and data processing services	518	47	47	0
Other information	other 51	53	7	46
Finance and insurance	52	1	1	0
Real estate and rental and leasing	53	29 i	29 i	0
Professional, scientific, and technical services	54	12,106	6,963	5,143
Architectural, engineering, and related services	5413	288	66	221
Computer systems design and related services	5415	1,422	1,065	357
Scientific R&D services	5417	10,125	5,623	4,502
Other professional, scientific, and technical services	other 54	270	209	62
Health care services	621–623	1,273	1,015	257
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	21	2	19
All companies	21–23, 31–33, 42–81	76,103	66,404	9,698
Small companies (number of domestic employees)[a]				
5–499	–	16,947	13,305	3,642
5–99	–	9,770	7,038	2,732
5–49	–	6,164	4,445	1,718
5–24	–	3,555	2,504	1,050
25–49	–	2,609	1,941	668
50–99	–	3,605	2,592	1,013
100–249	–	4,871	4,383	488
250–499	–	2,306	1,884	422
Medium and large companies (number of domestic employees)				
500–999	–	3,798	3,171	626
1,000–4,999	–	11,016	8,892	2,124
5,000–9,999	–	6,230	4,590	1,639
10,000–24,999	–	19,028	17,559	1,469
25,000 or more	–	19,084	18,887	197

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 46. Domestic R&D paid for by the company and others and performed by the company with energy applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
All industries	21–23, 31–33, 42–81	18,188	16,107	2,081
Manufacturing industries	31–33	14,065	12,539	1,527
Food	311	37	30	6
Beverage and tobacco products	312	3	3	0
Textiles, apparel, and leather products	313–316	19	19	*
Wood products	321	15	12	3
Paper	322	44	41	3
Printing and related support activities	323	4	4	0
Petroleum and coal products	324	D	762	D
Chemicals	325	657	595	62
Basic chemicals	3251	413	390	23
Resin, synthetic rubber, fibers, and filaments	3252	73	58	15
Pesticide, fertilizer, and other agricultural chemical	3253	D	12	D
Pharmaceuticals and medicines	3254	D	18	D
Soap, cleaning compound, and toilet preparation	3256	26	26	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	91	D
Plastics and rubber products	326	91	90	1
Nonmetallic mineral products	327	112	106	6
Primary metals	331	83	77	6
Fabricated metal products	332	274	264	11
Machinery	333	1,196	1,121	75
Agricultural implements	33311	D	D	*
Semiconductor machinery	333295	112	87	24
Engine, turbine, and power transmission equipment	3336	188	164	23
Other machinery	other 333	D	D	28
Computer and electronic products	334	5,002	4,337	665
Communications equipment	3342	153	152	1
Semiconductor and other electronic components	3344	3,108	2,996	111
Navigational, measuring, electromedical, and control instruments	3345	1,409	872	538
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	278	210	67
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	659	247	411
Other measuring and controlling instruments	other 3345	473	414	59
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	332	317	15
Electrical equipment, appliances, and components	335	1,026	963	63
Transportation equipment	336	4,574	3,979	595
Automobiles, bodies, trailers, and parts	3361–3363	3,085	3,024	61
Aerospace products and parts	3364	1,464	931	533
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,343	916	427
Guided missile, space vehicle, and related parts	336414, 336415, 336419	121	15	106
Military armored vehicle, tank, and tank components	336992	*	*	*
Other transportation equipment	other 336	24	24	*
Furniture and related products	337	7	7	0
Miscellaneous manufacturing	339	D	129	D
Medical equipment and supplies	3391	12	12	0
Other miscellaneous manufacturing	3399	D	118	D
Nonmanufacturing industries	21–23, 42–81	4,123	3,568	554
Mining, extraction, and support activities	21	1,201	1,187	13
Utilities	22	173	157	16
Construction	23	25	25	0
Wholesale trade	42	32	22	10
Retail trade	44, 45	1	1	1
Electronic shopping and mail-order houses	4541	0	0	0
Other retail trade	other 44, 45	1	1	1
Transportation and warehousing	48, 49	9	8	*
Information	51	833	824	9
Publishing	511	575	567	8
Newspaper, periodical, book, and directory publishers	5111	1	1	0

TABLE 46. Domestic R&D paid for by the company and others and performed by the company with energy applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
Software publishers	5112	574	566	8
Telecommunications	517	2	2	*
Internet service providers, Web search portals, and data processing services	518	235	235	*
Other information	other 51	21	21	0
Finance and insurance	52	* i	* i	0
Real estate and rental and leasing	53	2	2	0
Professional, scientific, and technical services	54	1,811	1,334	476
Architectural, engineering, and related services	5413	491	401	89
Computer systems design and related services	5415	702	456	246
Scientific R&D services	5417	515	399	116
Other professional, scientific, and technical services	other 54	103	78	25
Health care services	621–623	0	0	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	37	7	30
All companies	21–23, 31–33, 42–81	18,188	16,107	2,081
Small companies (number of domestic employees)[a]				
5–499	–	4,073	3,469	604
5–99	–	2,323	1,883	439
5–49	–	1,659	1,371	288
5–24	–	918	706	212
25–49	–	741	665	76
50–99	–	663	513	150
100–249	–	976	894	82
250–499	–	774	691	83
Medium and large companies (number of domestic employees)				
500–999	–	810	755	55
1,000–4,999	–	2,994	2,703	291
5,000–9,999	–	1,117	1,057	60
10,000–24,999	–	2,704	2,601	103
25,000 or more	–	6,490	5,521	969

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 47. Domestic R&D paid for by the company and others and performed by the company with environmental protection applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
All industries	21–23, 31–33, 42–81	8,198	6,923	1,274
Manufacturing industries	31–33	6,812	6,197	614
Food	311	21	21	*
Beverage and tobacco products	312	4	4	0
Textiles, apparel, and leather products	313–316	37	36	1
Wood products	321	10	10	0
Paper	322	41	41	*
Printing and related support activities	323	18	18	0
Petroleum and coal products	324	D	227	D
Chemicals	325	660	646	14
Basic chemicals	3251	157	151	6
Resin, synthetic rubber, fibers, and filaments	3252	50	50	*
Pesticide, fertilizer, and other agricultural chemical	3253	24	24	0
Pharmaceuticals and medicines	3254	D	48	D
Soap, cleaning compound, and toilet preparation	3256	233	232	*
Paint, coating, adhesive, and other chemical	3255, 3259	D	141	D
Plastics and rubber products	326	131	118	12
Nonmetallic mineral products	327	151	136	15
Primary metals	331	19	19	*
Fabricated metal products	332	132	131	1
Machinery	333	1,765	1,762	3
Agricultural implements	33311	39	39	0
Semiconductor machinery	333295	3	3	*
Engine, turbine, and power transmission equipment	3336	388	388	0
Other machinery	other 333	1,335	1,332	3
Computer and electronic products	334	1,085	1,057	29
Communications equipment	3342	118	118	0
Semiconductor and other electronic components	3344	200	194	6
Navigational, measuring, electromedical, and control instruments	3345	571	557	13
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	350	339	11
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	80	80	*
Other measuring and controlling instruments	other 3345	140	138	2
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	197	188	9
Electrical equipment, appliances, and components	335	344	342	2
Transportation equipment	336	2,053	1,534	519
Automobiles, bodies, trailers, and parts	3361–3363	1,102	1,076	26
Aerospace products and parts	3364	918	432	486
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	427	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	4	D
Military armored vehicle, tank, and tank components	336992	*	*	*
Other transportation equipment	other 336	32	26	6
Furniture and related products	337	32	32	0
Miscellaneous manufacturing	339	D	64	D
Medical equipment and supplies	3391	9	8	*
Other miscellaneous manufacturing	3399	D	55	D
Nonmanufacturing industries	21–23, 42–81	1,386	726	660
Mining, extraction, and support activities	21	46	42	4
Utilities	22	76	64	12
Construction	23	14	14	0
Wholesale trade	42	46	19	27
Retail trade	44, 45	2	1	1
Electronic shopping and mail-order houses	4541	1	0	1
Other retail trade	other 44, 45	1	1	*
Transportation and warehousing	48, 49	2	2	*
Information	51	76	65	11

TABLE 47. Domestic R&D paid for by the company and others and performed by the company with environmental protection applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
Publishing	511	66	54	11
Newspaper, periodical, book, and directory publishers	5111	1	1	0
Software publishers	5112	65	54	11
Telecommunications	517	*	*	0
Internet service providers, Web search portals, and data processing services	518	4	4	0
Other information	other 51	6	6	0
Finance and insurance	52	* i	* i	0
Real estate and rental and leasing	53	0	*	0
Professional, scientific, and technical services	54	1,101	506	595
Architectural, engineering, and related services	5413	205	129	76
Computer systems design and related services	5415	275	179	95
Scientific R&D services	5417	558	168	390
Other professional, scientific, and technical services	other 54	63	29	34
Health care services	621–623	*	*	*
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	22	13	9
All companies	21–23, 31–33, 42–81	8,198	6,923	1,274
Small companies (number of domestic employees)[a]				
5–499	–	1,934	1,340	594
5–99	–	1,279	726	553
5–49	–	969	492	476
5–24	–	445	278	167
25–49	–	524	214	310
50–99	–	310	233	77
100–249	–	487	455	32
250–499	–	168	159	9
Medium and large companies (number of domestic employees)				
500–999	–	215	201	14
1,000–4,999	–	1,046	990	56
5,000–9,999	–	563	517	47
10,000–24,999	–	1,838	1,794	44
25,000 or more	–	2,601	2,081	520

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

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 48. Domestic R&D paid for by the company and others and performed by the company with agricultural applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
All industries	21–23, 31–33, 42–81	4,249	3,869	379
Manufacturing industries	31–33	3,333	3,159	174
Food	311	206	200	6
Beverage and tobacco products	312	D	71	D
Textiles, apparel, and leather products	313–316	20	20	0
Wood products	321	14	14	0
Paper	322	2	2	0
Printing and related support activities	323	*	*	0
Petroleum and coal products	324	25	25	0
Chemicals	325	D	1,271	D
Basic chemicals	3251	194	194	*
Resin, synthetic rubber, fibers, and filaments	3252	8	8	*
Pesticide, fertilizer, and other agricultural chemical	3253	D	849	D
Pharmaceuticals and medicines	3254	D	193	D
Soap, cleaning compound, and toilet preparation	3256	9	9	0
Paint, coating, adhesive, and other chemical	3255, 3259	19	19	0
Plastics and rubber products	326	82	57	25
Nonmetallic mineral products	327	4	4	0
Primary metals	331	6	5	1
Fabricated metal products	332	43	42	1
Machinery	333	910	908	3
Agricultural implements	33311	780	778	2
Semiconductor machinery	333295	*	*	*
Engine, turbine, and power transmission equipment	3336	10	10	*
Other machinery	other 333	121	120	*
Computer and electronic products	334	415	404	11
Communications equipment	3342	3	3	0
Semiconductor and other electronic components	3344	28	28	*
Navigational, measuring, electromedical, and control instruments	3345	381	371	10
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	198	198	*
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	17	6	10
Other measuring and controlling instruments	other 3345	166	166	*
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	3	3	*
Electrical equipment, appliances, and components	335	66	66	0
Transportation equipment	336	25	25	0
Automobiles, bodies, trailers, and parts	3361–3363	15	15	0
Aerospace products and parts	3364	6	6	0
Aircraft, aircraft engine, and aircraft parts	336411–336413	6	6	0
Guided missile, space vehicle, and related parts	336414, 336415, 336419	0	0	0
Military armored vehicle, tank, and tank components	336992	0	0	0
Other transportation equipment	other 336	4	4	0
Furniture and related products	337	*	*	0
Miscellaneous manufacturing	339	42	42	*
Medical equipment and supplies	3391	8	8	*
Other miscellaneous manufacturing	3399	34	34	*
Nonmanufacturing industries	21–23, 42–81	915	710	205
Mining, extraction, and support activities	21	2	2	0
Utilities	22	*	*	0
Construction	23	4	4	0
Wholesale trade	42	164	137	27
Retail trade	44, 45	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0
Other retail trade	other 44, 45	0	0	0
Transportation and warehousing	48, 49	1	1	0
Information	51	96	96	*

TABLE 48. Domestic R&D paid for by the company and others and performed by the company with agricultural applications, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funded by company	Funded by others
Publishing	511	87	87	*
Newspaper, periodical, book, and directory publishers	5111	1	1	0
Software publishers	5112	86	86	*
Telecommunications	517	*	*	0
Internet service providers, Web search portals, and data processing services	518	9	9	0
Other information	other 51	0	0	0
Finance and insurance	52	0	0	0
Real estate and rental and leasing	53	76	76	0
Professional, scientific, and technical services	54	571	393	178
Architectural, engineering, and related services	5413	26	3	23
Computer systems design and related services	5415	283	167	116
Scientific R&D services	5417	207	170	37
Other professional, scientific, and technical services	other 54	55	54	1
Health care services	621–623	0	0	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1	1	*
All companies	21–23, 31–33, 42–81	4,249	3,869	379
Small companies (number of domestic employees)[a]				
5–499	–	1,398	1,173	224
5–99	–	1,024	829	195
5–49	–	705	554	151
5–24	–	494	369	125
25–49	–	211	185	25
50–99	–	319	275	45
100–249	–	222	202	19
250–499	–	152	142	10
Medium and large companies (number of domestic employees)				
500–999	–	118	113	5
1,000–4,999	–	737	654	83
5,000–9,999	–	D	285	D
10,000–24,999	–	D	1,041	D
25,000 or more	–	D	603	D

* = amount < $500,000; D = data withheld to avoid disclosing operations of individual companies.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 49. Domestic R&D paid for and performed by the company that was focused on software technology, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Software products	Software embedded in other projects or products
All industries	21–23, 31–33, 42–81	64,382	44,635	19,747
Manufacturing industries	31–33	19,266	9,103	10,163
Food	311	16	7	10
Beverage and tobacco products	312	6	3	3
Textiles, apparel, and leather products	313–316	14	6	8
Wood products	321	2	2	1
Paper	322	D	D	8
Printing and related support activities	323	24	15	9
Petroleum and coal products	324	49	*	49
Chemicals	325	540	201	339
Basic chemicals	3251	11	4	6
Resin, synthetic rubber, fibers, and filaments	3252	2	1	1
Pesticide, fertilizer, and other agricultural chemical	3253	4	2	2
Pharmaceuticals and medicines	3254	349	168	181
Soap, cleaning compound, and toilet preparation	3256	*	*	*
Paint, coating, adhesive, and other chemical	3255, 3259	175	26	149
Plastics and rubber products	326	13	7	6
Nonmetallic mineral products	327	38	3	35
Primary metals	331	5	1	4
Fabricated metal products	332	141	78	63
Machinery	333	769	289	480
Agricultural implements	33311	21	1	21
Semiconductor machinery	333295	86	23	63
Engine, turbine, and power transmission equipment	3336	65	3	62
Other machinery	other 333	597	262	335
Computer and electronic products	334	15,127	7,493	7,634
Communications equipment	3342	3,390	1,261	2,129
Semiconductor and other electronic components	3344	5,942	3,501	2,441
Navigational, measuring, electromedical, and control instruments	3345	3,125	1,111	2,014
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,251	569	682
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	1,070	212	858
Other measuring and controlling instruments	other 3345	804	330	474
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	2,670	1,621	1,049
Electrical equipment, appliances, and components	335	354	142	212
Transportation equipment	336	1,100	282	818
Automobiles, bodies, trailers, and parts	3361–3363	281	19	261
Aerospace products and parts	3364	812	260	552
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	D	471
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	81
Military armored vehicle, tank, and tank components	336992	2	*	2
Other transportation equipment	other 336	6	2	4
Furniture and related products	337	38	24	13
Miscellaneous manufacturing	339	D	D	471
Medical equipment and supplies	3391	579	208	370
Other miscellaneous manufacturing	3399	D	D	101
Nonmanufacturing industries	21–23, 42–81	45,116	35,532	9,584
Mining, extraction, and support activities	21	119	84	35
Utilities	22	18	8	10
Construction	23	16	7	9
Wholesale trade	42	132	55	77
Retail trade	44, 45	38	24	13
Electronic shopping and mail-order houses	4541	20	20	*
Other retail trade	other 44, 45	17	4	13
Transportation and warehousing	48, 49	65	47	18
Information	51	33,495	27,535	5,960

TABLE 49. Domestic R&D paid for and performed by the company that was focused on software technology, by industry and company size: 2008
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Software products	Software embedded in other projects or products
Publishing	511	25,972	21,998	3,974
Newspaper, periodical, book, and directory publishers	5111	178	151	27
Software publishers	5112	25,794	21,847	3,947
Telecommunications	517	1,068	231	837
Internet service providers, Web search portals, and data processing services	518	6,159	5,160	999
Other information	other 51	297	147	150
Finance and insurance	52	904	511	393
Real estate and rental and leasing	53	19	4	14
Professional, scientific, and technical services	54	9,856	6,959	2,897
Architectural, engineering, and related services	5413	161	58	103
Computer systems design and related services	5415	7,665	5,916	1,749
Scientific R&D services	5417	1,469	621	847
Other professional, scientific, and technical services	other 54	561	363	198
Health care services	621–623	10	3	6
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	445	294	151
All companies	21–23, 31–33, 42–81	64,382	44,635	19,747
Small companies (number of domestic employees)[a]				
5–499	–	16,538	11,125	5,413
5–99	–	8,298	5,791	2,507
5–49	–	5,957	4,006	1,951
5–24	–	3,313	2,168	1,145
25–49	–	2,644	1,838	806
50–99	–	2,341	1,785	557
100–249	–	5,283	3,163	2,120
250–499	–	2,958	2,172	786
Medium and large companies (number of domestic employees)				
500–999	–	2,877	1,656	1,220
1,000–4,999	–	11,475	8,495	2,980
5,000–9,999	–	6,594	5,895	699
10,000–24,999	–	8,120	5,340	2,781
25,000 or more	–	18,777	12,123	6,654

* = amount < $500,000; D = data withheld to avoid disclosing operations of individual companies.

NAICS = 2002 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) does not include companies with fewer than five domestic employees. After 2008 BRDIS sample was selected and surveyed, an error was identified that resulted in excluding 226,884 single-establishment companies with five paid employees from sample frame. Most excluded establishments were classified in industries with low R&D intensities, such as construction, retail trade, and service sectors. Based on available information for these small single-establishment companies, their contribution to 2008 R&D estimates is estimated to be negligible.

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 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, 2008.

TABLE 50. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2009

Question	Survey item	Aggregate amount
Company and financial information (US$millions)		
1.7	Worldwide net sales and operating revenues	10,139,109
1.8	Net sales and operating revenues from domestic operations	7,407,583
2.13(1) + 3.10(1)	Total domestic R&D performance	282,393
2.4	Worldwide R&D expense	312,444
2.8a	Domestic R&D incurred	251,938
2.8b	Foreign R&D incurred	60,506
2.11a(1)	Salaries, wages, and fringe benefits	131,330
2.11b(1)	Stock-based compensation	8,346
2.11c(1)	Temporary staffing	8,895
2.11d(1)	Expensed equipment	2,603
2.11e(1)	Materials and supplies	13,980
2.11f(1)	Lease and rental payments	2,953
2.11g(1)	Depreciation and amortization	11,112
2.11h(1)	Payments to business partners for collaborative R&D	5,449
2.11i(1)	Purchased R&D services	21,569
2.11j(1)	All other purchased services except R&D	3,323
2.11k(1)	Allocated costs	7,380
2.11l(1)	All other costs	34,998
2.12(1)	Domestic R&D performed by others	27,018
2.12(2)	Foreign R&D performed by others	9,241
2.12(3)	Worldwide R&D performed by others	36,259
2.13(1)	Domestic R&D performance	224,920
2.13(2)	Foreign R&D performance	51,265
2.13(3)	Worldwide R&D performance	276,185
	Location of foreign performance	
2.15a	Puerto Rico	111
2.15b	Canada	3,349
2.15c	China	2,765
2.15d	France	2,160
2.15e	Germany	6,818
2.15f	India	3,129
2.15g	Ireland	989
2.15h	Israel	2,253
2.15i	Italy	828
2.15j	Japan	2,552
2.15k	Russia	246
2.15l	Singapore	738
2.15m	South Korea	731
2.15n	Sweden	1,095
2.15o	United Kingdom	5,365
2.15p	Other foreign countries	13,098
2.15	Undistributed (foreign)	5,038
2.19	Performed at largest domestic location	143,165
2.21	Paid for by foreign operations or subsidiaries	3,816
	Performed by others	
2.23a	Companies in United States	22,368
2.23b	Companies outside United States	7,226
2.23c	U.S. federal government	212
2.23d	U.S. state and local governments	14
2.23e	Foreign governments	6
2.23f	Universities and colleges in United States	1,116
2.23g	Universities and colleges outside United States	234
2.23h	All other organizations	235
2.23	Undistributed (from Form BRDI-1A only)	4,849
	Projected worldwide R&D expense for 2010	
2.24(1)	Domestic R&D incurred	264,857
2.24(2)	Foreign R&D incurred	62,326

TABLE 50. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2009

Question	Survey item	Aggregate amount
2.24(3)	Worldwide R&D expense	327,181
2.25	Projected R&D services and projected payments for collaborative R&D	21,574
2.26	Total domestic capital expenditures	393,980
2.27	Domestic capital expenditures for R&D	28,335
2.28a	Structures	2,385
2.28b	Equipment	11,896
2.28c	Capitalized software	3,878
2.28d	All other expenditures	1,735
2.28	Undistributed (from Form BRDI-1A only)	8,441
	R&D expense paid for by others	
3.1i	Worldwide	76,426
3.5a	Domestic R&D expense	71,589
3.5b	Foreign R&D expense	4,837
3.8a(1)	Salaries, wages, and fringe benefits	32,522
3.8b(1)	Stock-based compensation	578
3.8c(1)	Temporary staffing	1,186
3.8d(1)	Expensed equipment	412
3.8e(1)	Materials and supplies	6,362
3.8f(1)	Lease and rental payments	924
3.8g(1)	Depreciation and amortization	1,025
3.8h(1)	Payments to business partners for collaborative R&D	1,308
3.8i(1)	Purchased R&D services	12,808
3.8j(1)	All other purchased services except R&D	404
3.8k(1)	Allocated costs	2,577
3.8l(1)	All other costs	11,482
3.9(1)	Domestic R&D performed by others	14,116
3.9(2)	Foreign R&D performed by others	1,189
3.9(3)	Worldwide R&D performed by others	15,305
3.10(1)	Domestic R&D performance	57,473
3.10(2)	Foreign R&D performance	3,648
3.10(3)	Worldwide R&D performance	61,121
	Location of foreign performance	
3.12a	Puerto Rico	13
3.12b	Canada	409
3.12c	China	40
3.12d	France	254
3.12e	Germany	294
3.12f	India	78
3.12g	Ireland	48
3.12h	Israel	40
3.12i	Italy	76
3.12j	Japan	153
3.12k	Russia	28
3.12l	Singapore	103
3.12m	South Korea	28
3.12n	Sweden	44
3.12o	United Kingdom	605
3.12p	Other foreign countries	1,079
3.12q	Undistributed (foreign)	356
	R&D performed in United States	
3.14a	Funded by contracts	39,423
3.14b	Funded by grants	6,304
3.14	Undistributed (from Form BRDI-1A only)	11,746
3.15a	Funded by companies in United States	9,567
3.15b	Companies outside United States	7,647
3.15c	U.S. federal government	39,573
3.15d	U.S. state and local governments	195
3.15e	Foreign governments	59

TABLE 50. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2009

Question	Survey item	Aggregate amount
3.15f	Other organizations in United States	363
3.15g	Other organizations outside United States	68
3.17a	Aerospace companies	978
3.17b	Computer or software product companies	607
3.17c	Electronic product companies	1,237
3.17d	Motor vehicle companies	446
3.17e	Petrochemical companies	111
3.17f	Pharmaceutical companies	6,206
3.17g	Other types of companies	2,876
3.17	Undistributed (from Form BRDI-1A only)	4,753
3.19a	Department of Defense	28,179
3.19b	Department of Energy	987
3.19c	National Aeronautics and Space Administration	2,104
3.19d	National Institutes of Health	916
3.19e	Other U.S. federal agencies	7,387
	Projected R&D paid for by others in 2010	
3.22	Total worldwide	68,867
3.23	Performed by company in United States	54,390
3.24	Funded by U.S. federal government	32,535
	R&D performed in United States	
4.17b	Basic research	12,206
4.17a	Applied research	29,769
4.16b	Development	182,945
4.18	Defense applications	8,297
4.19	Health or medical applications	63,452
4.20	Energy applications	16,482
4.21	Environmental protection applications	6,615
4.22	Agricultural applications	3,082
4.23	Software products	48,402
4.24	Software embedded in other projects	15,875
4.25	Processes	33,044
4.26	Medical clinical trials	18,073
4.27	Production of prototypes	13,663
4.28	Operation of pilot plants	2,551
4.29	Biotechnology	19,482
4.30	Nanotechnology	11,601
4.31	Social sciences	522
	Performed by others	
4.34b	Basic research projects	2,172
4.34a	Applied research projects	3,625
4.33b	Development projects	25,609
4.33	Undistributed (from Form BRDI-1A only)	4,853
	Paid for by others, performed in United States	
4.42b	Basic research	2,578
4.42a	Applied research	11,286
4.41b	Development	43,609
4.43	Medical clinical trials	6,363
4.44	Production of prototypes	2,697
4.45	Defense applications	26,602
4.46	Health or medical applications	14,866
4.47	Energy applications	2,260
4.48	Environmental protection applications	1,225
4.49	Agricultural applications	529
	Federally funded	
4.53b	Basic research	1,340
4.53a	Applied research	7,797
4.52b	Development	30,435
4.54	Production of prototypes	5,112

TABLE 50. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2009

Question	Survey item	Aggregate amount
Employees (thousands)		
5.1	Worldwide	27,094
	R&D employees	
5.2	Total	1,879
5.3e(1)	Female	463
5.3e(2)	Male	1,416
5.3a(1)	Female engineers	173
5.3a(2)	Male engineers	923
5.3a(3)	All engineers	1,097
5.3b(1)	Female scientists	90
5.3b(2)	Male scientists	146
5.3b(3)	All scientists	236
5.3c(1)	Female technicians	87
5.3c(2)	Male technicians	230
5.3c(3)	All technicians	318
5.3d(1)	Female support staff	112
5.3d(2)	Male support staff	116
5.3d(3)	All support staff	228
	R&D scientists and engineers	
5.5a	PhD degree holders	155
5.5b	Other higher education degree holders	976
5.5c	All other scientists and engineers	202
5.6	Domestic	17,788
	R&D employees	
5.7	Total	1,424
5.8e(1)	Female	347
5.8e(2)	Male	1,077
5.8a(1)	Female engineers	122
5.8a(2)	Male engineers	685
5.8a(3)	All engineers	807
5.8b(1)	Female scientists	73
5.8b(2)	Male scientists	119
5.8b(3)	All scientists	192
5.8c(1)	Female technicians	67
5.8c(2)	Male technicians	180
5.8c(3)	All technicians	247
5.8d(1)	Female support staff	86
5.8d(2)	Male support staff	92
5.8d(3)	All support staff	179
	R&D scientists and engineers	
5.10a	PhD degree holders	128
5.10b	Other higher education degree holders	739
5.10c	All other scientists and engineers	132

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2009.

TABLE 51. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	10,139,109	7,407,583	2,731,525
Manufacturing industries	31–33	6,115,198	4,295,464	1,819,734
Food	311	712,713	564,138	148,575
Beverage and tobacco products	312	204,112	73,959	130,153
Textiles, apparel, and leather products	313–316	46,689	40,123	6,565
Wood products	321	35,398	31,823	3,575
Paper	322	122,720	89,002	33,718
Printing and related support activities	323	36,457	33,585	2,872
Petroleum and coal products	324	226,024	173,897	52,127
Chemicals	325	1,185,492	812,609	372,882
Basic chemicals	3251	236,669	156,889	79,780
Resin, synthetic rubber, fibers, and filaments	3252	152,016	129,073	22,943
Pesticide, fertilizer, and other agricultural chemical	3253	42,823	33,188	9,636
Pharmaceuticals and medicines	3254	482,729	339,730	142,999
Soap, cleaning compound, and toilet preparation	3256	179,184	89,055	90,129
Paint, coating, adhesive, and other chemical	3255, 3259	92,071	64,675	27,396
Plastics and rubber products	326	199,237	137,452	61,785
Nonmetallic mineral products	327	71,642	64,994	6,648
Primary metals	331	130,260	105,756	24,504
Fabricated metal products	332	129,546	107,370	22,175
Machinery	333	372,916	226,828	146,087
Agricultural implement	33311	51,060	32,626	18,434
Semiconductor machinery	333295	11,540	5,290	6,250
Engine, turbine, and power transmission equipment	3336	27,275	19,181	8,094
Other machinery	other 333	283,041	169,731	113,310
Computer and electronic products	334	864,920	531,674	333,246
Communications equipment	3342	133,834	89,059	44,775
Semiconductor and other electronic components	3344	182,612	111,377	71,235
Navigational, measuring, electromedical, and control instruments	3345	247,361	174,466	72,895
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	76,694	55,085	21,609
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	100,234	75,181	25,053
Other measuring and controlling devices	other 3345	70,433	44,200	26,233
Computer and peripheral equipment and other computer and electronic products	other 334	301,113	156,772	144,341
Electrical equipment, appliances, and components	335	154,676	98,048	56,627
Transportation equipment	336	1,141,199	813,827	327,372
Automobiles, bodies, trailers, and parts	3361–3363	650,322	442,988	207,334
Aerospace products and parts	3364	436,193	331,630	104,563
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	275,667	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	55,963	D
Military armored vehicle, tank, and tank components	336992	1,508	1,431	77
Other transportation equipment	other 336	53,176	37,778	15,398
Furniture and related products	337	38,112	33,198	4,914
Miscellaneous manufacturing	339	443,085	357,180	85,905
Medical equipment and supplies	3391	348,396	284,694	63,702
Other miscellaneous manufacturing	3399	94,690	72,486	22,204
Nonmanufacturing industries	21–23, 42–81	4,023,910	3,112,119	911,791
Mining, extraction, and support activities	21	755,293	356,330	398,963
Utilities	22	301,211	296,094	5,117
Construction	23	29,426	26,225	3,200
Wholesale trade	42	95,406	78,529	16,876
Retail trade	44, 45	103,833	84,346	19,488
Electronic shopping and mail-order houses	4541	D	18,350	D
Other retail trade	other 44, 45	D	65,995	D
Transportation and warehousing	48, 49	136,401	113,344	23,057

TABLE 51. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
Information	51	932,949	742,392	190,558
Publishing	511	416,995	274,051	142,944
Newspaper, periodical, book, and directory publishers	5111	18,538	11,920	6,618
Software publishers	5112	398,457	262,131	136,326
Telecommunications	517	360,045	349,909	10,136
Data processing, hosting, and related services	518	48,014	36,191	11,823
Other information	other 51	107,896	82,241	25,655
Finance and insurance	52	836,554	746,432	90,122
Real estate and rental and leasing	53	14,445	13,372	1,073
Professional, scientific, and technical services	54	602,277	455,129	147,148
Architectural, engineering, and related services	5413	99,048	70,838	28,211
Computer systems design and related services	5415	258,964 i	185,287 i	73,676 i
Scientific R&D services	5417	104,284	95,430	8,854
Biotechnology R&D	541711	27,959	24,595	3,364 i
Physical, engineering, and life sciences (except biotechnology) R&D	541712	75,193	69,705	5,488
Social sciences and humanities R&D	541720	1,132	1,130	1
Other professional, scientific, and technical services	other 54	139,981	103,573	36,407
Health care services	621–623	45,707	45,200	507
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	170,409	154,726	15,682
All companies	–	10,139,109	7,407,583	2,731,525
Small companies (number of domestic employees)[a]				
5–499	–	1,038,607	868,230	170,376
5–99	–	396,826	373,963	22,862
5–49	–	248,770	235,322	13,448
5–24	–	122,477	114,141	8,337
25–49	–	126,293	121,182	5,111
50–99	–	148,055	138,641	9,415
100–249	–	351,382	230,213	121,169
250–499	–	290,399	264,054	26,345
Medium and large companies (number of domestic employees)				
500–999	–	325,535	266,201	59,334
1,000–4,999	–	1,309,120	984,010	325,110
5,000–9,999	–	883,715	636,559	247,156
10,000–24,999	–	2,189,541	1,637,652	551,889
25,000 or more	–	4,392,590	3,014,931	1,377,659

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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. Foreign sales are amount of sales that originated from foreign operations.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 52. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2009
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
All business activities	21100–81390	10,139,109	7,407,583	2,731,525
Oil and gas extraction	21100	153,042	61,197	91,844
Coal mining	21210	12,778	D	D
Metal ore mining	21220	D	D	D
Nonmetallic mineral mining and quarrying	21230	9,407	6,776	2,631
Support activities for solid mineral operations	21310	3	3	0
Support activities for oil and gas operations	21320	45,259	22,957	22,303
Electric power generation, transmission, and distribution	22110	280,949	257,641	23,308 i
Natural gas distribution	22120	32,086	D	D
Water, sewage, and other systems	22130	4,778	4,668	110
Construction of buildings	23600	9,076	6,675	2,401
Heavy and civil engineering construction	23700	20,177	12,433	7,744
Specialty trade contractors	23800	12,991	7,966	5,025
Food	31100	554,733	452,914	101,820
Beverage	31210	129,424	78,735	50,689
Tobacco	31220	134,972	32,421	102,552
Textile mill products	31300	27,810	20,537	7,273
Textile product mills	31400	1,300	1,242	58
Apparel	31500	12,298	11,488	811
Leather and allied products	31600	7,493	6,319	1,174
Wood products	32100	26,897	25,247	1,650
Paper	32200	115,708	85,047	30,661
Printing and related support activities	32300	37,223	32,677	4,546
Petroleum and coal products	32400	602,414	346,065	256,349
Basic chemicals	32510	179,034	103,424	75,609
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	93,477	60,201	33,276
Pesticide, fertilizer, and other agricultural chemical	32530	73,159	49,409	23,750
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	430,703	287,352	143,351
In-vitro diagnostic substances	32542	16,919	9,725	7,195
Soap, cleaning compound, and toilet preparation	32591	151,871	71,593	80,278
Paint, adhesive, and other chemical	32592	104,184	62,180	42,004
Plastics and rubber products	32600	159,876	112,787	47,090
Clay and glass products	32710	27,913	19,041	8,872
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	36,856	32,873	3,983
Iron and steel mills, ferroalloy, and steel product from purchased steel	33110	68,809	58,773	10,036
Nonferrous metals production and processing	33130	47,203	31,596	15,607
Ferrous and nonferrous foundries	33150	7,224	6,215	1,009
Fabricated metal products	33200	131,471	101,410	30,061
Farm machinery and equipment	33311	40,409	24,969	15,440
Construction machinery	33312	23,340	13,228	10,113
Mining machinery and equipment	33313	43,372	20,856	22,516
Oil and gas field machinery and equipment	33314	26,156	12,529	13,626
Semiconductor machinery	33321	10,540	4,757	5,783
Industrial machinery, except semiconductor machinery	33322	21,895	15,687	6,208
Photographic and photocopying equipment	33331	6,999	5,028	1,971
Commercial, service industry, temperature control, and air-flow control machinery	33332	49,729	32,794	16,936
Engine, turbine, and power transmission equipment	33360	47,092	30,223	16,869
Metalworking and other general purpose machinery	33390	67,055	42,035	25,020
Computers and peripheral equipment	33410	265,324	130,911	134,413
Telephone apparatus	33421	65,604	35,182	30,422

TABLE 52. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2009
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Radio and television broadcasting and wireless communications equipment	33422	68,515	47,937	20,578
Communication equipment, except broadcasting, wireless, and telephone apparatus	33429	13,353	8,649	4,704
Audio and video equipment	33430	15,157	11,026	4,131
Semiconductor and other electronic components	33440	196,419	116,436	79,984
Electromedical, electrotherapeutic, and irradiation apparatus	33451	20,231	14,342	5,889
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	63,297	50,633	12,664
Measuring and control instruments (not listed elsewhere)	33459	61,520	34,155	27,365
Manufacturing and reproducing magnetic and optical media	33460	6,020	4,909	1,111
Electrical equipment, appliances, and components	33500	130,583	85,971	44,612
Motor vehicles	33610	399,285	274,734	124,551
Motor vehicle body and trailer	33620	15,757	14,018	1,739
Motor vehicle parts	33630	126,804	77,418	49,386
Aircraft	33641	75,973	69,012	6,961
Aircraft engine and engine parts	33642	37,088	24,733	12,355
Other aircraft parts and auxiliary equipment	33643	36,725	26,632	10,093
Guided missile, space vehicle, and related parts	33644	51,322	44,282	7,040
Railroad rolling stock	33651	3,640	2,763	877
Ship and boat building	33660	37,451	D	D
Motorcycle, bicycle, and parts	33691	6,674	6,267	408
Military armored vehicle, tank, and tank components	33692	10,131	9,667	464
All other transportation equipment	33699	6,327	5,389	938
Furniture and related products	33700	35,962	31,150	4,811
Medical equipment and supplies	33910	151,167	96,681	54,487
Miscellaneous manufacturing (not listed elsewhere)	33990	113,125	83,357	29,769
Merchant wholesalers, durable goods	42300	307,400	191,788	115,612
Merchant wholesalers, nondurable goods	42400	270,359	237,014	33,345
Wholesale electronic markets and agents and brokers	42500	7,851	D i	D i
Motor vehicle and parts dealers	44100	15,691	11,200	4,491
Electronics and appliance stores	44300	78	53	25
Food and beverage stores	44500	2,283	2,283	0
Clothing and clothing accessories stores	44800	1,886	1,505	381
General merchandise stores	45200	61,756	60,830	926
Electronic shopping and mail-order houses	45410	42,190	24,068	18,123
Nonstore retailers, except electronic shopping and mail-order houses	45490	1,050	D	D
Retail trade stores, including gasoline stations (not listed elsewhere)	45990	30,630	D	D
Air transportation	48100	34,728	23,968	10,760
Rail transportation	48200	36,276	D	D
Water transportation	48300	3,089	D	D
Truck transportation	48400	16,681	16,193	488
Transit and ground passenger transportation	48500	1,271	1,271	0
Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas	48610	21,332	D	D
Pipeline transportation of natural gas	48620	D	D	D
Scenic and sightseeing transportation	48700	16	16	0
Support activities for transportation	48800	13,152	9,660	3,492
Couriers and messengers	49200	D	D	D
Warehousing and storage	49300	1,540	1,297	244
Newspaper, periodical, book, and directory publishers (except Internet)	51110	24,710	16,476	8,234
Software publishers (except Internet)	51120	196,932	118,073	78,859
Motion picture and sound recording (except Internet)	51200	20,814	14,331	6,483
Radio and television broadcasting (except Internet)	51510	19,543	16,028	3,515
Cable and other subscription programming (except Internet)	51520	20,278	18,162	2,116

TABLE 52. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2009
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Cable and other program distribution	51711	61,669	59,491	2,178
Broadband Internet service providers (e.g., cable, DSL)	51712	327	294	33
Wired telecommunications carriers (except cable and broadband Internet)	51713	125,845	D	D
Wireless telecommunications carriers (except satellite)	51720	155,186	154,445	741
Satellite telecommunications	51740	12,909 i	6,836 i	6,074 i
Internet service providers using client-supplied telecommunications connections (e.g., dial-up, ISPs)	51791	1,385	1,168	217
Telecommunications services (not listed elsewhere)	51792	7,699	6,681	1,018
Data processing, hosting, and related services	51800	35,561	28,866	6,696
Internet publishing and broadcasting and Web search portals	51913	31,296	21,279	10,017
Information services (not listed elsewhere)	51919	11,793	7,550	4,243
Monetary authorities-central bank	52100	D	D	0
Depository credit intermediation	52210	138,137	123,556	14,581
Nondepository credit intermediation	52220	165,373	144,731	20,642
Activities related to credit intermediation	52230	47,019	36,526	10,493
Securities, commodity contracts, and other financial investments and related activities	52300	133,785	85,026	48,759
Insurance carriers	52410	290,639	279,469	11,170
Agencies, brokerages, and other insurance-related activities	52420	7,510	6,924	586
Funds, trusts, and other financial vehicles	52500	15,748	D	D
Real estate	53100	7,899	D	D
Automotive equipment rental and leasing	53210	11,382	D	D
Consumer goods and general rental centers	53220	9,989	7,873	2,116
Commercial and industrial machinery and equipment rental and leasing	53240	14,696	8,180	6,516
Lessors of nonfinancial intangible assets	53300	1,488	1,192	295
Legal services	54110	D	D	0
Accounting, tax preparation, bookkeeping, and payroll services	54120	3,921 i	3,087 i	834 i
Architectural, engineering, and related services	54130	82,401	71,025	11,376
Specialized design services	54140	6,451	D	D
Computer systems design and related services	54150	203,709	127,689	76,020
Management, scientific, and technical consulting services	54160	56,346	33,776	22,570
R&D services in social sciences and humanities	54172	1,034	1,030	4
R&D services in biotechnology	54173	21,670	18,320	3,349 i
R&D services in physical, engineering, and life sciences (except biotechnology)	54174	20,476	16,458	4,018
Advertising and related services	54180	49,974	D	D
Professional, scientific, and technical services (not listed elsewhere)	54190	26,953	24,896	2,057
Management of companies and enterprises	55100	2,333	2,309	23
Business support services	56140	12,866	9,151	3,715
Travel arrangement and reservation services	56150	4,070	2,601	1,469
Investigation, security, and services to buildings and dwellings	56160	5,636	3,566	2,070
Office administrative, facilities, employment, and other support services	56190	117,902	115,030	2,872 i
Waste collection, treatment, and disposal	56210	4,926	4,908	18
Remediation and other waste management services	56290	1,347	D	D
Educational services	61100	308	302	5
Offices of physicians	62110	24,321	24,320	* i
Offices of dentists and other health practitioners	62120	170	D	D
Medical and diagnostic laboratories	62150	15,313	14,452	862
Home health care services	62160	739	738	1
Outpatient care centers and other ambulatory health care services	62190	7,256	7,165	91
General medical and surgical hospitals	62210	3,001	3,001	0
Psychiatric, substance abuse, and specialty hospitals	62220	D	D	0
Nursing and residential care facilities	62300	D	D	0

TABLE 52. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2009
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Social assistance (except child day care services)	62400	283	D	D
Performing arts, spectator sports, and related industries	71100	1,325	1,325	0
Amusement, gambling, and recreation industries	71300	18,585	15,276	3,308
Traveler accommodation services	72100	D	D	0
Food services and drinking places	72200	30,914	20,995	9,919
Automotive repair and maintenance	81110	2,682	2,638	44
Repair and maintenance, except automotive	81190	9,412	5,049	4,363
Personal care, death care, laundry, and other personal services	81200	5,635	2,354	3,280
Religious, grantmaking, social advocacy, civic, and social organizations	81310	0	0	0
Business, professional, labor, political, and similar organizations	81390	112	105	6
Less: intersegment eliminations	-	236,778	110,233	126,544
Undistributed	-	1,000,354	852,827	147,527

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

DSL = digital subscriber line; ISP = internet service provider.

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2007 North American Industry Classification System industry definitions.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2009.

TABLE 53. Worldwide R&D paid for by the company and performed by the company and others, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
All industries	21–23, 31–33, 42–81	312,444	276,185	36,259
Manufacturing industries	31–33	227,113	198,105	29,007
Food	311	5,220	4,841	379
Beverage and tobacco products	312	1,074	930	144
Textiles, apparel, and leather products	313–316	524	503	21
Wood products	321	599	498	102
Paper	322	1,543	1,482	61
Printing and related support activities	323	210	200	10
Petroleum and coal products	324	702	D	D
Chemicals	325	77,493	59,339	18,155
Basic chemicals	3251	2,851	2,745	105
Resin, synthetic rubber, fibers, and filaments	3252	1,241	1,145	96
Pesticide, fertilizer, and other agricultural chemical	3253	1,572	D i	D i
Pharmaceuticals and medicines	3254	65,759	48,504	17,255
Soap, cleaning compound, and toilet preparation	3256	3,612	3,249	364
Paint, coating, adhesive, and other chemical	3255, 3259	2,458	D	D
Plastics and rubber products	326	3,139	2,922	217
Nonmetallic mineral products	327	1,405 i	1,203 i	202
Primary metals	331	758	693	65
Fabricated metal products	332	2,118	2,054	64
Machinery	333	11,298	10,659	638
Agricultural implements	33311	1,639	1,346	293
Semiconductor machinery	333295	2,130	2,105	26
Engine, turbine, and power transmission equipment	3336	760	712	48
Other machinery	other 333	6,768	6,496	272
Computer and electronic products	334	64,609	61,963	2,645
Communications equipment	3342	15,861	14,967	894
Semiconductor and other electronic components	3344	25,990	25,411	579
Navigational, measuring, electromedical, and control instruments	3345	12,793	12,207	587
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	5,347	5,037 i	310 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	4,051	3,884	167
Other measuring and controlling instruments	other 3345	3,395	3,286	109
Computer and peripheral equipment and other computer and electronic products	other 334	9,965	9,379	586
Electrical equipment, appliances, and components	335	4,497	4,304	192
Transportation equipment	336	34,636	31,785	2,850
Automobiles, bodies, trailers, and parts	3361–3363	18,613	16,859	1,753
Aerospace products and parts	3364	15,011	13,931	1,079
Aircraft, aircraft engine, and aircraft parts	336411–336413	13,726	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	1,285	D	D
Military armored vehicle, tank, and tank components	336992	32	31	*
Other transportation equipment	other 336	980	963 i	17
Furniture and related products	337	527	431	96
Miscellaneous manufacturing	339	16,761	D	D
Medical equipment and supplies	3391	14,222	11,403	2,819
Other miscellaneous manufacturing	3399	2,540	D	D
Nonmanufacturing industries	21–23, 42–81	85,332	78,080	7,252
Mining, extraction, and support activities	21	2,907	2,720	187
Utilities	22	506	226	281
Construction	23	132	113	18
Wholesale trade	42	1,070 i	910 i	160 i
Retail trade	44, 45	1,026	1,015	11
Electronic shopping and mail-order houses	4541	974	967	8
Other retail trade	other 44, 45	52	49	3
Transportation and warehousing	48, 49	175	153	22
Information	51	42,206	39,874	2,332
Publishing	511	34,150	32,803	1,347
Newspaper, periodical, book, and directory publishers	5111	740	730	9
Software publishers	5112	33,411	32,073	1,338

TABLE 53. Worldwide R&D paid for by the company and performed by the company and others, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
Telecommunications	517	2,307	1,500	808 i
Data processing, hosting, and related services	518	3,076	2,956	120
Other information	other 51	2,672	2,615	57
Finance and insurance	52	2,507	2,426	81
Real estate and rental and leasing	53	288	264	24
Professional, scientific, and technical services	54	33,494	29,445	4,050
Architectural, engineering, and related services	5413	1,413	1,340	73
Computer systems design and related services	5415	13,167	12,704	463
Scientific R&D services	5417	11,987	8,664	3,324
Biotechnology R&D	541711	8,393	5,615	2,777
Physical, engineering, and life sciences (except biotechnology) R&D	541712	3,387	2,989	398
Social sciences and humanities R&D	541720	207	59	148
Other professional, scientific, and technical services	other 54	6,927	6,737	190
Health care services	621–623	382	357	25
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	638	577	62
All companies	–	312,444	276,185	36,259
Small companies (number of domestic employees)[a]				
5–499	–	54,856	48,271	6,586
5–99	–	30,941	26,880	4,061
5–49	–	21,267	18,243	3,024
5–24	–	11,837	9,919	1,918
25–49	–	9,429	8,324	1,105
50–99	–	9,674	8,637	1,037
100–249	–	13,511	12,030	1,481
250–499	–	10,404	9,361	1,044
Medium and large companies (number of domestic employees)				
500–999	–	11,475	10,428	1,047
1,000–4,999	–	54,946	48,325	6,621
5,000–9,999	–	23,339	21,577	1,762
10,000–24,999	–	62,869	52,435	10,434
25,000 or more	–	104,958	95,149	9,809

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 54. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2009

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
All business activities	21100–81390	312,444	224,920
Oil and gas extraction	21100	1,220	980
Coal mining	21210	D	D
Metal ore mining	21220	42	29
Nonmetallic mineral mining and quarrying	21230	18	13
Support activities for solid mineral operations	21310	0	0
Support activities for oil and gas operations	21320	988	881
Electric power generation, transmission, and distribution	22110	1,565	878
Natural gas distribution	22120	28	11
Water, sewage, and other systems	22130	14	11
Construction of buildings	23600	93	79
Heavy and civil engineering construction	23700	58	33
Specialty trade contractors	23800	47	46
Food	31100	4,200	3,341
Beverage	31210	564	350
Tobacco	31220	792	D
Textile mill products	31300	288	221
Textile product mills	31400	38	10
Apparel	31500	172	124
Leather and allied products	31600	111	108
Wood products	32100	577	474
Paper	32200	1,142	826
Printing and related support activities	32300	243	224
Petroleum and coal products	32400	1,051	800
Basic chemicals	32510	2,958	2,134
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	1,460	1,022
Pesticide, fertilizer, and other agricultural chemical	32530	1,991	1,206 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	66,899	39,850
In-vitro diagnostic substances	32542	1,158	869
Soap, cleaning compound, and toilet preparations	32591	2,882	2,051
Paint, adhesive, and other chemical	32592	2,316	1,881
Plastics and rubber products	32600	2,859	2,180
Clay and glass products	32710	313	275
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	558	306
Iron and steel mills, ferroalloy, and steel product from purchased steel	33110	257	231
Nonferrous metals production and processing	33130	340	241
Ferrous and nonferrous foundries	33150	177	155
Fabricated metal products	33200	2,430	2,007
Farm machinery and equipment	33311	1,331	805
Construction machinery	33312	658	440
Mining machinery and equipment	33313	1,406	1,081
Oil and gas field machinery and equipment	33314	239	178
Semiconductor machinery	33321	1,975	1,688
Industrial machinery, except semiconductor machinery	33322	861	718
Photographic and photocopying equipment	33331	801	610
Commercial, service industry, temperature control, and air-flow control machinery	33332	964	671
Engine, turbine, and power transmission equipment	33360	1,597	1,285
Metalworking and other general purpose machinery	33390	1,632	1,252
Computers and peripheral equipment	33410	12,827	10,032
Telephone apparatus	33421	7,646	6,039
Radio and television broadcasting and wireless communications equipment	33422	5,552	3,944
Communication equipment, except broadcasting, wireless, and telephone apparatus	33429	1,359	1,020
Audio and video equipment	33430	978	634

TABLE 54. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2009

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
Semiconductor and other electronic components	33440	26,075	18,771
Electromedical, electrotherapeutic, and irradiation apparatus	33451	1,702	1,423
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	3,127	2,399
Measuring and control instruments (not listed elsewhere)	33459	3,044	2,191
Manufacturing and reproducing magnetic and optical media	33460	226	164
Electrical equipment, appliances, and components	33500	4,330	3,064
Motor vehicles	33610	13,165	7,098
Motor vehicle body and trailer	33620	92	79
Motor vehicle parts	33630	4,177	2,809
Aircraft	33641	7,391	7,203
Aircraft engine and engine parts	33642	1,766	975
Other aircraft parts and auxiliary equipment	33643	1,135	881
Guided missile, space vehicle, and related parts	33644	1,176	1,033
Railroad rolling stock	33651	83	64
Ship and boat building	33660	617 i	606 i
Motorcycle, bicycle, and parts	33691	193	188
Military armored vehicle, tank, and tank components	33692	227	197
All other transportation equipment	33699	135	126
Furniture and related products	33700	497	372
Medical equipment and supplies	33910	10,619	7,467
Miscellaneous manufacturing (not listed elsewhere)	33990	2,791	2,371
Merchant wholesalers, durable goods	42300	720	543
Merchant wholesalers, nondurable goods	42400	282	234 i
Wholesale electronic markets and agents and brokers	42500	32 i	26 i
Motor vehicle and parts dealers	44100	3	2
Electronics and appliance stores	44300	10	10
Food and beverage stores	44500	5	4
Clothing and clothing accessories stores	44800	6	4
General merchandise stores	45200	5	2
Electronic shopping and mail-order houses	45410	659	588
Nonstore retailers, except electronic shopping and mail-order houses	45490	15	9
Retail trade stores, including gasoline stations (not listed elsewhere)	45990	10	9
Air transportation	48100	31	31
Rail transportation	48200	185	169
Water transportation	48300	*	*
Truck transportation	48400	19	19
Transit and ground passenger transportation	48500	2	2
Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas	48610	4	3
Pipeline transportation of natural gas	48620	25	25
Scenic and sightseeing transportation	48700	0	0
Support activities for transportation	48800	53	44
Couriers and messengers	49200	14	4
Warehousing and storage	49300	17	15
Newspaper, periodical, book, and directory publishers (except Internet)	51110	750	693
Software publishers (except Internet)	51120	26,542	20,875
Motion picture and sound recording (except Internet)	51200	137	126
Radio and television broadcasting (except Internet)	51510	72	68 i
Cable and other subscription programming (except Internet)	51520	158	117
Cable and other program distribution	51711	281	133
Broadband Internet service providers (e.g., cable, DSL)	51712	51	51
Wired telecommunications carriers (except cable and broadband Internet)	51713	D	D
Wireless telecommunications carriers (except satellite)	51720	188	85
Satellite telecommunications	51740	108	90

TABLE 54. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2009

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
Internet service providers using client-supplied telecommunications connections (e.g., dial-up, ISPs)	51791	27	23
Telecommunications services (not listed elsewhere)	51792	308	234
Data processing, hosting, and related services	51800	2,906	2,534
Internet publishing and broadcasting and Web search portals	51913	3,856	3,269
Information services (not listed elsewhere)	51919	533	439
Monetary authorities-central bank	52100	D	D
Depository credit intermediation	52210	328	180
Nondepository credit intermediation	52220	40	35
Activities related to credit intermediation	52230	413	349
Securities, commodity contracts, and other financial investments and related activities	52300	576	422
Insurance carriers	52410	714	617
Agencies, brokerages, and other insurance-related activities	52420	96	57
Funds, trusts, and other financial vehicles	52500	108	D
Real estate	53100	32	24
Automotive equipment rental and leasing	53210	21	9
Consumer goods and general rental centers	53220	300	259
Commercial and industrial machinery and equipment rental and leasing	53240	21	14
Lessors of nonfinancial intangible assets	53300	15	15
Legal services	54110	2	1
Accounting, tax preparation, bookkeeping, and payroll services	54120	D	D
Architectural, engineering, and related services	54130	1,119	978
Specialized design services	54140	76	75
Computer systems design and related services	54150	12,006	10,276
Management, scientific, and technical consulting services	54160	2,223	1,940
R&D services in social sciences and humanities	54172	103	54
R&D services in biotechnology	54173	8,263	5,432
R&D services in physical, engineering, and life sciences (except biotechnology)	54174	4,168	2,913
Advertising and related services	54180	3,163	2,902
Professional, scientific, and technical services (not listed elsewhere)	54190	1,157	965
Management of companies and enterprises	55100	40	23
Business support services	56140	217	180
Travel arrangement and reservation services	56150	31	10
Investigation, security, and services to buildings and dwellings	56160	46	21
Office administrative, facilities, employment, and other support services	56190	264	185
Waste collection, treatment, and disposal	56210	15	12
Remediation and other waste management services	56290	0	0
Educational services	61100	8	7
Offices of physicians	62110	36	30
Offices of dentists and other health practitioners	62120	9	8
Medical and diagnostic laboratories	62150	235	216
Home health care services	62160	4	3
Outpatient care centers and other ambulatory health care services	62190	34	33
General medical and surgical hospitals	62210	62 i	61 i
Psychiatric, substance abuse, and specialty hospitals	62220	0	0
Nursing and residential care facilities	62300	0	0
Social assistance (except child day care services)	62400	D	D
Performing arts, spectator sports, and related industries	71100	41	40
Amusement, gambling, and recreation industries	71300	174	125
Traveler accommodation services	72100	0	0
Food services and drinking places	72200	49	40
Automotive repair and maintenance	81110	16	16
Repair and maintenance, except automotive	81190	104	42
Personal care, death care, laundry, and other personal services	81200	35	29

TABLE 54. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2009

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D	Domestic R&D
Religious, grantmaking, social advocacy, civic, and social organizations	81310	*	*
Business, professional, labor, political, and similar organizations	81390	3	*
Undistributed	-	14,716	10,808

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

DSL = digital subscriber line; ISP = internet service provider.

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2007 North American Industry Classification System industry definitions.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2009.

TABLE 55. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2009
(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)	Allocated costs	Other
All industries	21–23, 31–33, 42–81	224,920	131,330	8,346	8,895	2,603	13,980	2,953	11,112	3,323	7,380	34,998
Manufacturing industries	31–33	158,225	87,488	4,377	5,185	1,930	12,068	1,746	8,187	2,621	5,806	28,818
Food	311	D	2,909 i	27 i	55	9 i	236 i	22 i	182	45	53	D
Beverage and tobacco products	312	475	254	* i	3	2	64	1	23	3	5	120
Textiles, apparel, and leather products	313–316	420	274	* i	14	3	32 i	4	17	1	1	73
Wood products	321	495	242	1 i	9	5 i	144 i	15 i	15 i	2 i	* i	62 i
Paper	322	1,223	781	30	23	15	77	5	61	23	97	112
Printing and related support activities	323	194	117	* i	5	* i	24 i	2 i	17 i	0	* i	27 i
Petroleum and coal products	324	D	175	1	D	4	30	12	12	37	2	D
Chemicals	325	49,876	24,770	1,303	2,313	289	3,585	612	3,171	1,365	2,870	9,597
Basic chemicals	3251	1,921	1,231	5	49 i	19	120	31	96	22	D	D
Resin, synthetic rubber, fibers, and filaments	3252	886	522	D i	24	3	D	16	D	4	47	D
Pesticide, fertilizer, and other agricultural chemical	3253	920 i	283	D i	D	*	D i	D	D	D	D	D i
Pharmaceuticals and medicines	3254	41,751	20,161	1,278	2,124	248	3,143	534	2,725	1,287	2,548	7,702
Soap, cleaning compound, and toilet preparation	3256	2,338	1,354	D	D	1	148	D	107	D	176	D
Paint, coating, adhesive, and other chemical	3255, 3259	2,060	1,219	7	68	18	104	9	102	17	52	463
Plastics and rubber products	326	2,329	1,460	19	41	12	190	23	111	73	13	386
Nonmetallic mineral products	327	1,077 i	627 i	4 i	157 i	47 i	68 i	5 i	68 i	38 i	*	65 i
Primary metals	331	593	348	7	20	1	109	2	21	1	5	79
Fabricated metal products	332	1,931	1,349	10 i	19	20 i	174 i	22 i	67 i	14 i	22 i	235 i
Machinery	333	8,782	5,353	126	359	163	772	74	357	132	256	1,190
Agricultural implements	33311	1,003	707	0	23	89	124	10	17	*	*	33
Semiconductor machinery	333295	1,823	804	104	45	17	215	19	164	69	157	230
Engine, turbine, and power transmission equipment	3336	636	387	2	D	30	50	3	34	34	2	D
Other machinery	other 333	5,319	3,455	20	D	27	383	41	141	29	97	D
Computer and electronic products	334	48,865	29,928	2,570	1,066	723	3,586	484	2,806	436	1,474	5,792
Communications equipment	3342	11,871	7,138	607	184	181	571	57	744	275	318	1,797
Semiconductor and other electronic components	3344	19,420	11,496	1,392	353	186	1,481	270	1,306	62	562	2,311
Navigational, measuring, electromedical, and control instruments	3345	9,944	6,173	179 i	252	79	1,007 i	90	394	75 i	406 i	1,288 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,356 i	2,557	91 i	110	19	439 i	43	206	35 i	191 i	666 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,138	1,949	32	67	35	363	15	75	20	170	413
Other measuring and controlling instruments	other 3345	2,449	1,668	56 i	75	25 i	205 i	33 i	113 i	21 i	45 i	208 i

TABLE 55. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2009
(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)	Allocated costs	Other
Computer and peripheral equipment and other computer and electronic products	other 334	7,629	5,120	392	276	277	527	66	362	24	188	397
Electrical equipment, appliances, and components	335	3,105	2,223	28	101	23	135	30	87	48	-2	433
Transportation equipment	336	24,223	10,976	19 i	635	501	2,132	349	709	129	416	8,357
Automobiles, bodies, trailers, and parts	3361–3363	10,853	6,140	1 i	491	D	775	305	473	85 i	146 i	D
Aerospace products and parts	3364	12,384	4,136	18 i	123	108	1,202	40	197	42	270	6,247
Aircraft, aircraft engine, and aircraft parts	336411–336413	11,248	3,287	18 i	117	106	1,048	39	D	D	240	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	1,136	849	0	6	2	154	2	D	D	29	D
Military armored vehicle, tank, and tank components	336992	D	11	*	D	*	8	* i	1	* i	* i	D i
Other transportation equipment	other 336	D i	689 i	* i	D	D	147 i	3	38	2	0 i	D i
Furniture and related products	337	393	243	* i	D	10 i	73 i	3 i	9 i	7 i	-3 i	D i
Miscellaneous manufacturing	339	9,749	5,460	231	346	104	636	80	455	265	598	1,575
Medical equipment and supplies	3391	7,584	4,097	195	265	73	543	56	387	251	582	1,137
Other miscellaneous manufacturing	3399	2,164	1,363	36	81	31	93	24	68	14	16	438
Nonmanufacturing industries	21–23, 42–81	66,695	43,842	3,969	3,711	673	1,912	1,207	2,925	702	1,574	6,180
Mining, extraction, and support activities	21	2,473	1,134	13	155	7	158	48	81	14	93	769
Utilities	22	212	91	1	13	4 i	29	1 i	28	1 i	0	44 i
Construction	23	110	80	2 i	2	3 i	8 i	1 i	3 i	* i	0	9 i
Wholesale trade	42	D i	545 i	5 i	20 i	27 i	16 i	14 i	23 i	5 i	* i	D i
Retail trade	44, 45	D	433	123	D	*	2 i	7	61	*	106	D
Electronic shopping and mail-order houses	4541	D	402	122	D	D	D	D	61	0	106	D
Other retail trade	other 44, 45	45	30	1 i	D	D i	D i	D i	* i	*	1 i	8 i
Transportation and warehousing	48, 49	152	101	0	11	8 i	17 i	1 i	2	0	0	13 i
Information	51	32,995	22,722	1,843	1,559	265	422	387	1,377	269	1,382	2,769
Publishing	511	26,412	17,979	1,516	1,265	156	372	341	808	232	1,320	2,423
Newspaper, periodical, book, and directory publishers	5111	683	489	* i	53	4 i	18 i	*	* i	*	15 i	103
Software publishers	5112	25,729	17,490	1,516	1,212	152	354	341	808	232	1,304	2,320
Telecommunications	517	1,414	945	24 i	92 i	65 i	7	5 i	139 i	6 i	40 i	91 i
Data processing, hosting, and related services	518	2,675	2,178	44	123	26 i	11 i	27	137	14	6	108
Other information	other 51	2,494	1,619	260	79	17	32 i	14	292	17	17	147
Finance and insurance	52	1,904	1,063	19	579	30	8	41 i	32	7	20	106 i
Real estate and rental and leasing	53	264	141	* i	31	2 i	11 i	1 i	3 i	14 i	0	61 i
Professional, scientific, and technical services	54	26,031	16,979	1,929	1,170	321 i	1,208 i	688 i	1,282 i	387 i	-55	2,122 i
Architectural, engineering, and related services	5413	1,223	894	15 i	46	11 i	82 i	28 i	17 i	*	37 i	93 i

TABLE 55. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2009
(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)	Allocated costs	Other
Computer systems design and related services	5415	10,742	8,226	562 i	540	137 i	302 i	320 i	534 i	205 i	-595	511 i
Scientific R&D services	5417	7,981	4,024	403	398	137	625 i	301 i	353	152	297 i	1,291 i
Biotechnology R&D	541711	5,461	2,605	351	203	126	353	264 i	225	95	168	1,071 i
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,469	1,382	48 i	192	11 i	272 i	35 i	127 i	57 i	126 i	220 i
Social sciences and humanities R&D	541720	51	37	4 i	4	* i	* i	2 i	1 i	0	3 i	0
Other professional, scientific, and technical services	other 54	6,085	3,834	949	186	36	199 i	40 i	378 i	30 i	206	226
Health care services	621–623	347	217	20	18	1	18 i	8 i	11	3 i	13 i	36 i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	511	335	14 i	D	6 i	14 i	11 i	22 i	1 i	15	D i
All companies	–	224,920	131,330	8,346	8,895	2,603	13,980	2,953	11,112	3,323	7,380	34,998
Small companies (number of domestic employees)[a]												
5–499	–	44,258	28,403	1,567 i	1,923	464 i	2,731 i	889 i	1,966 i	613 i	1,114 i	4,587 i
5–99	–	25,427	16,865	825 i	1,315	262 i	1,460 i	493 i	1,096 i	329 i	450 i	2,331 i
5–49	–	17,135	11,029	553 i	990	177 i	1,064 i	346 i	788 i	239 i	314 i	1,637 i
5–24	–	9,257	5,866	289 i	658	93 i	642 i	181 i	431 i	118 i	135 i	845 i
25–49	–	7,877	5,162	264 i	332	84 i	422 i	165 i	357 i	121 i	179 i	792 i
50–99	–	8,292	5,836	272 i	326	85 i	396 i	148 i	309 i	90 i	137 i	694 i
100–249	–	10,459	6,446	388	349	105 i	692 i	212	451 i	172 i	380 i	1,264 i
250–499	–	8,372	5,092	354	260	97	579 i	183	419 i	113 i	284	992
Medium and large companies (number of domestic employees)												
500–999	–	8,577	5,324	324	316	107	610	121	407	145	310	914
1,000–4,999	–	38,383	22,558	1,729	1,065	469	2,465	531	1,780	590	1,564	5,632
5,000–9,999	–	17,585	10,151	621	564	199	1,103	222	1,109	226	994	2,397
10,000–24,999	–	42,191	24,883	2,012	1,005	395	2,781	468	2,350	628	1,613	6,056
25,000 or more	–	73,927	40,010	2,093	4,021	969	4,291	723	3,501	1,121	1,786	15,412

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 56. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	224,920	12,206	29,769	182,945
Manufacturing industries	31–33	158,225	9,356	21,673	127,196
Food	311	4,030	251	1,282	2,497
Beverage and tobacco products	312	475	35	61	379
Textiles, apparel, and leather products	313–316	420	26	51	342
Wood products	321	495	20 i	107 i	369 i
Printing and related support activities	323	194	10	28	156
Chemicals	325	49,876	4,348	8,500	37,028
Pharmaceuticals and medicines	3254	41,751	3,948	6,842	30,961
Other chemicals	other 325	8,125	401	1,658	6,067
Plastics and rubber products	326	2,329	184	572	1,573
Nonmetallic mineral products	327	1,077 i	122 i	101 i	855 i
Primary metals	331	593	27	119	447
Fabricated metal products	332	1,931	54	228	1,649
Machinery	333	8,782	326	1,041	7,415
Computer and electronic products	334	48,865	2,616	5,005	41,243
Semiconductor and other electronic components	3344	19,420	309	2,121	16,990
Navigational, measuring, electromedical, and control instruments	3345	9,944	509	1,284	8,151
Other computer and electronic products	other 334	19,501	1,798	1,600	16,102
Electrical equipment, appliances, and components	335	3,105	82	503	2,520
Transportation equipment	336	24,223	790	2,175	21,258
Aerospace products and parts	3364	12,384	253	1,023	11,108
Other transportation equipment	other 336	11,840	537	1,153	10,150 i
Furniture and related products	337	393	14	44	336
Miscellaneous manufacturing	322, 324, 339	11,436	451	1,856	9,128
Nonmanufacturing industries	21–23, 42–81	66,695	2,850	8,096	55,749
Information	51	32,995	1,509	2,386	29,100
Publishing	511	26,412	1,295	1,796	23,320
Telecommunications	517	1,414	37	290 i	1,088 i
Data processing, hosting, and related services	518	2,675	84	161	2,430
Other information	other 51	2,494	92	140	2,262
Professional, scientific, and technical services	54	26,031	1,040	4,354	20,637
Architectural, engineering, and related services	5413	1,223	21	140	1,063
Computer systems design and related services	5415	10,742	266	1,178	9,297
Scientific R&D services	5417	7,981	660	2,793	4,528
Biotechnology R&D	541711	5,461	493	2,091	2,878
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,469	163	679	1,627
Social sciences and humanities R&D	541720	51	5	23	23
Other professional, scientific, and technical services	other 54	6,085	93	243	5,749
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	7,669	302	1,356	6,012
All companies (number of employees)[a]	–	224,920	12,206	29,769	182,945
Small companies (number of employees)[a]					
5–499	–	44,258	1,827	6,711	35,719
5–99	–	25,427	1,016	3,948	20,463
5–49	–	17,135	721	2,731	13,683
5–24	–	9,257	398	1,528	7,332
25–49	–	7,877	324	1,203	6,350
50–99	–	8,292	295	1,217	6,780
100–249	–	10,459	442	1,475	8,542
250–499	–	8,372	368	1,289	6,714
Medium and large companies (number of employees)					
500–999	–	8,577	521	1,257	6,799
1,000–4,999	–	38,383	1,612	5,339	31,432

TABLE 56. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	17,585	757	2,317	14,511
10,000–24,999	–	42,191	4,023	6,112	32,055
25,000 or more	–	73,927	3,466	8,033	62,428

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 57. Domestic R&D paid for and performed by the company, by state: 2009

(Millions of U.S. dollars)

State	Amount
All states	224,920
Alabama	609
Alaska	47
Arizona	2,830
Arkansas	217
California	53,569
Colorado	3,370
Connecticut	9,128
Delaware	1,343
District of Columbia	207 e
Florida	2,923
Georgia	3,065
Hawaii	180
Idaho	746
Illinois	8,363
Indiana	4,449
Iowa	1,525
Kansas	1,258
Kentucky	886
Louisiana	291
Maine	494
Maryland	2,488
Massachusetts	12,215
Michigan	10,607
Minnesota	6,133
Mississippi	180
Missouri	3,136
Montana	123
Nebraska	493
Nevada	510
New Hampshire	772
New Jersey	16,069
New Mexico	257
New York	8,036
North Carolina	4,672
North Dakota	216
Ohio	5,215
Oklahoma	429
Oregon	3,890
Pennsylvania	8,951
Rhode Island	397
South Carolina	1,075
South Dakota	104
Tennessee	1,274
Texas	12,020
Utah	1,250
Vermont	391
Virginia	3,093
Washington	15,968
West Virginia	247

TABLE 57. Domestic R&D paid for and performed by the company, by state: 2009

(Millions of U.S. dollars)

State	Amount
Wisconsin	3,063
Wyoming	35 e
Undistributed[a]	6,111

e = more than 50% of value is modeled from hybrid estimator.

[a] Includes data reported on Form BRDI-1 that were not allocated to specific state. Data reported on Form BRDI-1A were allocated to the state in the address on the company's survey form, which is usually the company's headquarters.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2009.

TABLE 58. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
All industries	21–23, 31–33, 42–81	76,426	61,121	15,305
Manufacturing industries	31–33	49,474 i	37,975 i	11,499 i
Food	311	172	169	3
Beverage and tobacco products	312	2	2	0
Textiles, apparel, and leather products	313–316	9	8	1
Wood products	321	18	17	1
Paper	322	27	25	2
Printing and related support activities	323	1	1	*
Petroleum and coal products	324	D	D	7
Chemicals	325	5,925	3,778	2,147
Basic chemicals	3251	141	134	7
Resin, synthetic rubber, fibers, and filaments	3252	24	24 i	1
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D
Pharmaceuticals and medicines	3254	5,602	3,495	2,107
Soap, cleaning compound, and toilet preparation	3256	4	3	1
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	D
Plastics and rubber products	326	172	143	29
Nonmetallic mineral products	327	26	24	2
Primary metals	331	249	244	5
Fabricated metal products	332	118	110	8
Machinery	333	453	376	77
Agricultural implements	33311	D	9	D
Semiconductor machinery	333295	31	29	2
Engine, turbine, and power transmission equipment	3336	D	119	D
Other machinery	other 333	D	220	D
Computer and electronic products	334	8,245	7,824	421
Communications equipment	3342	1,810	1,664	146 i
Semiconductor and other electronic components	3344	651	630	21
Navigational, measuring, electromedical, and control instruments	3345	5,228	4,983	245
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,286 i	1,264 i	22
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,836	3,618	218
Other measuring and controlling instruments	other 3345	106	100	5
Computer and peripheral equipment and other computer and electronic products	other 334	556	547	9
Electrical equipment, appliances, and components	335	263	230	33
Transportation equipment	336	33,270 i	24,530 i	8,740 i
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D
Aerospace products and parts	3364	30,593 i	22,468 i	8,124 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	D i	D i	D i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	D
Military armored vehicle, tank, and tank components	336992	2	2	*
Other transportation equipment	other 336	D i	D i	D i
Furniture and related products	337	4	3	1
Miscellaneous manufacturing	339	D	D	21
Medical equipment and supplies	3391	136	122	15
Other miscellaneous manufacturing	3399	D	D	6
Nonmanufacturing industries	21–23, 42–81	26,952	23,146	3,806
Mining, extraction, and support activities	21	D	278	D
Utilities	22	47	33	13
Construction	23	5	5	*
Wholesale trade	42	D	172	D i
Retail trade	44, 45	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0
Other retail trade	other 44, 45	0	0	0
Transportation and warehousing	48, 49	29 i	26 i	3

TABLE 58. Worldwide R&D paid for by others and performed by the company and others, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
Information	51	860	843	17
Publishing	511	709	696	13
Newspaper, periodical, book, and directory publishers	5111	2	*	2
Software publishers	5112	707	696	12
Telecommunications	517	85	83	2
Data processing, hosting, and related services	518	63	61	1
Other information	other 51	3	3	*
Finance and insurance	52	8	8	0
Real estate and rental and leasing	53	0	0	0
Professional, scientific, and technical services	54	25,116	21,456	3,660
Architectural, engineering, and related services	5413	2,582	2,071	511 i
Computer systems design and related services	5415	2,134	1,880	254
Scientific R&D services	5417	13,494	11,580	1,914
Biotechnology R&D	541711	4,167	3,356	811
Physical, engineering, and life sciences (except biotechnology) R&D	541712	8,512	7,559	953
Social sciences and humanities R&D	541720	815	665	150
Other professional, scientific, and technical services	other 54	6,905	5,925	981
Health care services	621–623	286	190	96
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	138	134	4
All companies	–	76,426	61,121	15,305
Small companies (number of domestic employees)[a]				
5–499	–	17,606	14,695	2,911
5–99	–	11,471	9,545	1,926
5–49	–	5,295	4,394	901
5–24	–	3,101	2,571	530
25–49	–	2,194	1,823	371
50–99	–	6,176	5,150	1,025
100–249	–	2,866	2,302	564
250–499	–	3,268	2,848	420
Medium and large companies (number of domestic employees)				
500–999	–	2,085	1,676	409
1,000–4,999	–	7,739	6,292	1,447
5,000–9,999	–	6,877	6,065	813
10,000–24,999	–	10,946	9,380	1,567
25,000 or more	–	31,172 i	23,013 i	8,159 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 59. Worldwide R&D paid for by others and performed by the company, by location of R&D performance, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	61,121	57,473	3,648
Manufacturing industries	31–33	37,975 i	36,920 i	1,056
Food	311	169	D	D
Beverage and tobacco products	312	2	2	0
Textiles, apparel, and leather products	313–316	8	8	*
Wood products	321	17	17	0
Paper	322	25	25	0
Printing and related support activities	323	1	1	0
Petroleum and coal products	324	D	D	D
Chemicals	325	3,778	3,452	326
Basic chemicals	3251	134	120	14
Resin, synthetic rubber, fibers, and filaments	3252	24 i	23	1
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	0
Pharmaceuticals and medicines	3254	3,495	3,185	310
Soap, cleaning compound, and toilet preparation	3256	3	3	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	2
Plastics and rubber products	326	143	139	4
Nonmetallic mineral products	327	24	23	1
Primary metals	331	244	244	*
Fabricated metal products	332	110	109	*
Machinery	333	376	356	20
Agricultural implements	33311	9	7	2
Semiconductor machinery	333295	29	24	5 i
Engine, turbine, and power transmission equipment	3336	119	112	7
Other machinery	other 333	220	214	6
Computer and electronic products	334	7,824	7,571	253
Communications equipment	3342	1,664	1,628	36 i
Semiconductor and other electronic components	3344	630	563	68
Navigational, measuring, electromedical, and control instruments	3345	4,983	4,915	68
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,264 i	1,259 i	5
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,618	3,562	56
Other measuring and controlling instruments	other 3345	100	94	6
Computer and peripheral equipment and other computer and electronic products	other 334	547	466	81
Electrical equipment, appliances, and components	335	230	228	2
Transportation equipment	336	24,530 i	24,114 i	416
Automobiles, bodies, trailers, and parts	3361–3363	D	D	118
Aerospace products and parts	3364	22,468 i	22,170 i	298
Aircraft, aircraft engine, and aircraft parts	336411–336413	D i	15,402 i	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	6,768	D
Military armored vehicle, tank, and tank components	336992	2	2	0
Other transportation equipment	other 336	D i	D i	*
Furniture and related products	337	3	3	*
Miscellaneous manufacturing	339	D	321	D
Medical equipment and supplies	3391	122	114	8
Other miscellaneous manufacturing	3399	D	207	D
Nonmanufacturing industries	21–23, 42–81	23,146	20,553	2,592
Mining, extraction, and support activities	21	278	D	D
Utilities	22	33	33	0
Construction	23	5	5	0
Wholesale trade	42	172	D	D i
Retail trade	44, 45	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0
Other retail trade	other 44, 45	0	0	0
Transportation and warehousing	48, 49	26 i	26 i	0
Information	51	843	811	32
Publishing	511	696	666	30
Newspaper, periodical, book, and directory publishers	5111	*	*	0
Software publishers	5112	696	666	30

TABLE 59. Worldwide R&D paid for by others and performed by the company, by location of R&D performance, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
Telecommunications	517	83	82	1
Data processing, hosting, and related services	518	61	60	1
Other information	other 51	3	3	0
Finance and insurance	52	8	8	1
Real estate and rental and leasing	53	0	0	0
Professional, scientific, and technical services	54	21,456	18,915	2,541
Architectural, engineering, and related services	5413	2,071	2,058	14
Computer systems design and related services	5415	1,880	1,818	63
Scientific R&D services	5417	11,580	9,289	2,291
Biotechnology R&D	541711	3,356	2,798	559
Physical, engineering, and life sciences (except biotechnology) R&D	541712	7,559	5,828	1,731
Social sciences and humanities R&D	541720	665	663	1
Other professional, scientific, and technical services	other 54	5,925	5,751	174
Health care services	621–623	190	190	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	134	134	0
All companies	–	61,121	57,473	3,648
Small companies (number of domestic employees)[a]				
5–499	–	14,695	14,461	234
5–99	–	9,545	9,342	203
5–49	–	4,394	4,351	43
5–24	–	2,571	2,537	34
25–49	–	1,823	1,815	8
50–99	–	5,150	4,991	160
100–249	–	2,302	2,287	15
250–499	–	2,848	2,832	16
Medium and large companies (number of domestic employees)				
500–999	–	1,676	1,542	134
1,000–4,999	–	6,292	5,625	668
5,000–9,999	–	6,065	4,279	1,786
10,000–24,999	–	9,380	8,847	533
25,000 or more	–	23,013 i	22,719 i	294

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 60. Worldwide R&D paid for by others and performed by the company and others, by business activity: 2009
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
All business activities	21100–81390	76,426
Oil and gas extraction	21100	D
Coal mining	21210	0
Metal ore mining	21220	0
Nonmetallic mineral mining and quarrying	21230	1 i
Support activities for solid mineral operations	21310	0
Support activities for oil and gas operations	21320	D
Electric power generation, transmission, and distribution	22110	112
Natural gas distribution	22120	0
Water, sewage, and other systems	22130	1 i
Construction of buildings	23600	* i
Heavy and civil engineering construction	23700	0
Specialty trade contractors	23800	5 i
Food	31100	136 i
Beverage	31210	* i
Tobacco	31220	2
Textile mill products	31300	2 i
Textile product mills	31400	3 i
Apparel	31500	D
Leather and allied products	31600	* i
Wood products	32100	2 i
Paper	32200	14 i
Printing and related support activities	32300	* i
Petroleum and coal products	32400	D
Basic chemicals	32510	146
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	25
Pesticide, fertilizer, and other agricultural chemical	32530	D
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	5,194
In-vitro diagnostic substances	32542	32 i
Soap, cleaning compound, and toilet preparation	32591	4 i
Paint, adhesive, and other chemical	32592	46 i
Plastics and rubber products	32600	149
Clay and glass products	32710	5 i
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	23 i
Iron and steel mills, ferroalloy, and steel product from purchased steel	33110	225
Nonferrous metals production and processing	33130	3 i
Ferrous and nonferrous foundries	33150	7
Fabricated metal products	33200	63 i
Farm machinery and equipment	33311	D i
Construction machinery	33312	6 i
Mining machinery and equipment	33313	14
Oil and gas field machinery and equipment	33314	2
Semiconductor machinery	33321	13 i
Industrial machinery, except semiconductor machinery	33322	66 i
Photographic and photocopying equipment	33331	1 i
Commercial, service industry, temperature control, and air-flow control machinery	33332	61
Engine, turbine, and power transmission equipment	33360	158
Metalworking and other general purpose machinery	33390	139
Computers and peripheral equipment	33410	337
Telephone apparatus	33421	91 i
Radio and television broadcasting and wireless communications equipment	33422	1,519 i
Communication equipment, except broadcasting, wireless, and telephone apparatus	33429	197
Audio and video equipment	33430	D i
Semiconductor and other electronic components	33440	670
Electromedical, electrotherapeutic and irradiation apparatus	33451	116 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	3,242
Measuring and control instruments (not listed elsewhere)	33459	88 i
Manufacturing and reproducing magnetic and optical media	33460	D

TABLE 60. Worldwide R&D paid for by others and performed by the company and others, by business activity: 2009
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
Electrical equipment, appliances, and components	33500	181 i
Motor vehicles	33610	370
Motor vehicle body and trailer	33620	D
Motor vehicle parts	33630	279
Aircraft	33641	18,878 i
Aircraft engine and engine parts	33642	978 i
Other aircraft parts and auxiliary equipment	33643	892
Guided missile, space vehicle, and related parts	33644	7,864
Railroad rolling stock	33651	2
Ship and boat building	33660	D
Motorcycle, bicycle, and parts	33691	* i
Military armored vehicle, tank, and tank components	33692	D
All other transportation equipment	33699	15 i
Furniture and related products	33700	3 i
Medical equipment and supplies	33910	75
Miscellaneous manufacturing (not listed elsewhere)	33990	218
Merchant wholesalers, durable goods	42300	52 i
Merchant wholesalers, nondurable goods	42400	6 i
Wholesale electronic markets and agents and brokers	42500	69
Motor vehicle and parts dealers	44100	0
Electronics and appliance stores	44300	0
Food and beverage stores	44500	0
Clothing and clothing accessories stores	44800	0
General merchandise stores	45200	0
Electronic shopping and mail-order houses	45410	0
Nonstore retailers, except electronic shopping and mail-order houses	45490	0
Retail trade stores, including gasoline stations (not listed elsewhere)	45990	0
Air transportation	48100	1 i
Rail transportation	48200	D
Water transportation	48300	0
Truck transportation	48400	0
Transit and ground passenger transportation	48500	0
Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas	48610	0
Pipeline transportation of natural gas	48620	0
Scenic and sightseeing transportation	48700	0
Support activities for transportation	48800	7
Couriers and messengers	49200	0
Warehousing and storage	49300	D
Newspaper, periodical, book, and directory publishers (except Internet)	51110	1 i
Software publishers (except Internet)	51120	389 i
Motion picture and sound recording (except Internet)	51200	0
Radio and television broadcasting (except Internet)	51510	0
Cable and other subscription programming (except Internet)	51520	0
Cable and other program distribution	51711	0
Broadband Internet service providers (e.g., cable, DSL)	51712	0
Wired telecommunications carriers (except cable and broadband Internet)	51713	* i
Wireless telecommunications carriers (except satellite)	51720	2 i
Satellite telecommunications	51740	D
Internet service providers using client-supplied telecommunications connections (e.g., dial-up, ISPs)	51791	0
Telecommunications services (not listed elsewhere)	51792	44
Data processing, hosting, and related services	51800	52 i
Internet publishing and broadcasting and Web search portals	51913	0
Information services (not listed elsewhere)	51919	8
Monetary authorities-central bank	52100	0
Depository credit intermediation	52210	0
Nondepository credit intermediation	52220	D
Activities related to credit intermediation	52230	0

TABLE 60. Worldwide R&D paid for by others and performed by the company and others, by business activity: 2009
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
Securities, commodity contracts, and other financial investments and related activities	52300	0
Insurance carriers	52410	2 i
Agencies, brokerages, and other insurance-related activities	52420	6
Funds, trusts, and other financial vehicles	52500	0
Real estate	53100	0
Automotive equipment rental and leasing	53210	0
Consumer goods and general rental centers	53220	0
Commercial and industrial machinery and equipment rental and leasing	53240	2
Lessors of nonfinancial intangible assets	53300	0
Legal services	54110	0
Accounting, tax preparation, bookkeeping, and payroll services	54120	0
Architectural, engineering, and related services	54130	2,245 i
Specialized design services	54140	212
Computer systems design and related services	54150	1,515 i
Management, scientific, and technical consulting services	54160	5,713 i
R&D services in social sciences and humanities	54172	752
R&D services in biotechnology	54173	3,992
R&D services in physical, engineering, and life sciences (except biotechnology)	54174	8,704
Advertising and related services	54180	3 i
Professional, scientific, and technical services (not listed elsewhere)	54190	646
Management of companies and enterprises	55100	1
Business support services	56140	*
Travel arrangement and reservation services	56150	0
Investigation, security, and services to buildings and dwellings	56160	13 i
Office administrative, facilities, employment, and other support services	56190	131 i
Waste collection, treatment, and disposal	56210	* i
Remediation and other waste management services	56290	0
Educational services	61100	D i
Offices of physicians	62110	209 i
Offices of dentists and other health practitioners	62120	0
Medical and diagnostic laboratories	62150	D
Home health care services	62160	1
Outpatient care centers and other ambulatory health care services	62190	1 i
General medical and surgical hospitals	62210	7
Psychiatric, substance abuse, and specialty hospitals	62220	0
Nursing and residential care facilities	62300	0
Social assistance (except child day care services)	62400	0
Performing arts, spectator sports, and related industries	71100	0
Amusement, gambling, and recreation industries	71300	0
Traveler accommodation services	72100	0
Food services and drinking places	72200	* i
Automotive repair and maintenance	81110	0
Repair and maintenance, except automotive	81190	0
Personal care, death care, laundry, and other personal services	81200	1 i
Religious, grantmaking, social advocacy, civic, and social organizations	81310	0
Business, professional, labor, political, and similar organizations	81390	0
Undistributed	-	4,496

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

DSL = digital subscriber line; ISP = internet service provider.

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2007 North American Industry Classification System industry definitions.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2009.

TABLE 61. Worldwide, domestic, and foreign R&D paid for and performed by the company, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	276,185	224,920	51,265
Manufacturing industries	31–33	198,105	158,225	39,881
Food	311	4,841	D	D
Beverage and tobacco products	312	930	475	455
Textiles, apparel, and leather products	313–316	503	420	83
Wood products	321	498	495	2
Paper	322	1,482	1,223	259
Printing and related support activities	323	200	194	6
Petroleum and coal products	324	D	D	D
Chemicals	325	59,339	49,876	9,463
Basic chemicals	3251	2,745	1,921	824
Resin, synthetic rubber, fibers, and filaments	3252	1,145	886	259
Pesticide, fertilizer, and other agricultural chemical	3253	D i	920 i	D i
Pharmaceuticals and medicines	3254	48,504	41,751	6,753
Soap, cleaning compound, and toilet preparation	3256	3,249	2,338	911
Paint, coating, adhesive, and other chemical	3255, 3259	D	2,060	D
Plastics and rubber products	326	2,922	2,329	592
Nonmetallic mineral products	327	1,203 i	1,077 i	125 i
Primary metals	331	693	593	100
Fabricated metal products	332	2,054	1,931	123
Machinery	333	10,659	8,782	1,878
Agricultural implements	33311	1,346	1,003	343
Semiconductor machinery	333295	2,105	1,823	281
Engine, turbine, and power transmission equipment	3336	712	636	76
Other machinery	other 333	6,496	5,319	1,177
Computer and electronic products	334	61,963	48,865	13,099
Communications equipment	3342	14,967	11,871	3,096
Semiconductor and other electronic components	3344	25,411	19,420	5,990
Navigational, measuring, electromedical, and control instruments	3345	12,207	9,944	2,263
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	5,037 i	4,356 i	681 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,884	3,138	746
Other measuring and controlling instruments	other 3345	3,286	2,449	837
Computer and peripheral equipment and other computer and electronic products	other 334	9,379	7,629	1,750
Electrical equipment, appliances, and components	335	4,304	3,105	1,199
Transportation equipment	336	31,785	24,223	7,562
Automobiles, bodies, trailers, and parts	3361–3363	16,859	10,853	6,007
Aerospace products and parts	3364	13,931	12,384	1,548
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	11,248	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	1,136	D
Military armored vehicle, tank, and tank components	336992	31	D	D
Other transportation equipment	other 336	963 i	D i	D
Furniture and related products	337	431	393	38
Miscellaneous manufacturing	339	D	9,749	D
Medical equipment and supplies	3391	11,403	7,584	3,818
Other miscellaneous manufacturing	3399	D	2,164	D
Nonmanufacturing industries	21–23, 42–81	78,080	66,695	11,385
Mining, extraction, and support activities	21	2,720	2,473	247
Utilities	22	226	212	13
Construction	23	113	110	4
Wholesale trade	42	910 i	D i	D i
Retail trade	44, 45	1,015	D	D
Electronic shopping and mail-order houses	4541	967	D	D
Other retail trade	other 44, 45	49	45	3 i

TABLE 61. Worldwide, domestic, and foreign R&D paid for and performed by the company, by industry and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Domestic	Foreign
Transportation and warehousing	48, 49	153	152	1
Information	51	39,874	32,995	6,879
Publishing	511	32,803	26,412	6,391
Newspaper, periodical, book, and directory publishers	5111	730	683	47
Software publishers	5112	32,073	25,729	6,344
Telecommunications	517	1,500	1,414	85
Data processing, hosting, and related services	518	2,956	2,675	281
Other information	other 51	2,615	2,494	122
Finance and insurance	52	2,426	1,904	522
Real estate and rental and leasing	53	264	264	*
Professional, scientific, and technical services	54	29,445	26,031	3,414
Architectural, engineering, and related services	5413	1,340	1,223	117
Computer systems design and related services	5415	12,704	10,742	1,962
Scientific R&D services	5417	8,664	7,981	683
Biotechnology R&D	541711	5,615	5,461	154
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,989	2,469	520
Social sciences and humanities R&D	541720	59	51	8
Other professional, scientific, and technical services	other 54	6,737	6,085	652
Health care services	621–23	357	347	10
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	577	511	66
All companies	–	276,185	224,920	51,265
Small companies (number of domestic employees)[a]				
5–499	–	48,271	44,258	4,013
5–99	–	26,880	25,427	1,453
5–49	–	18,243	17,135	1,108
5–24	–	9,919	9,257	661
25–49	–	8,324	7,877	447
50–99	–	8,637	8,292	345
100–249	–	12,030	10,459	1,571
250–499	–	9,361	8,372	989
Medium and large companies (number of domestic employees)				
500–999	–	10,428	8,577	1,851
1,000–4,999	–	48,325	38,383	9,942
5,000–9,999	–	21,577	17,585	3,993
10,000–24,999	–	52,435	42,191	10,244
25,000 or more	–	95,149	73,927	21,222

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 62. R&D paid for by the company and others and performed by the company outside of the United States, by source of funds, industry, and company size: 2009

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funding source: U.S. unit or foreign subsidiary	Funding source: Foreign parent or other company
All industries	21–23, 31–33, 42–81	54,914	51,265	3,648
Manufacturing industries	31–33	40,936	39,881	1,056
Food	311	817	D	D
Beverage and tobacco products	312	455	455	0
Textiles, apparel, and leather products	313–316	83	83	*
Wood products	321	2	2	0
Paper	322	259	259	0
Printing and related support activities	323	6	6	0
Petroleum and coal products	324	61	D	D
Chemicals	325	9,788	9,463	326
Basic chemicals	3251	838	824	14
Resin, synthetic rubber, fibers, and filaments	3252	260	259	1
Pesticide, fertilizer, and other agricultural chemical	3253	D i	D i	0
Pharmaceuticals and medicines	3254	7,063	6,753	310
Soap, cleaning compound, and toilet preparation	3256	911	911	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	2
Plastics and rubber products	326	597	592	4
Nonmetallic mineral products	327	126 i	125 i	1
Primary metals	331	100	100	*
Fabricated metal products	332	124	123	*
Machinery	333	1,897	1,878	20
Agricultural implements	33311	345	343	2
Semiconductor machinery	333295	287	281	5 i
Engine, turbine, and power transmission equipment	3336	83	76	7
Other machinery	other 333	1,183	1,177	6
Computer and electronic products	334	13,351	13,099	253
Communications equipment	3342	3,132	3,096	36 i
Semiconductor and other electronic components	3344	6,058	5,990	68
Navigational, measuring, electromedical, and control instruments	3345	2,331	2,263	68
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	686 i	681 i	5
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	802	746	56
Other measuring and controlling instruments	other 3345	843	837	6
Computer and peripheral equipment and other computer and electronic products	other 334	1,831	1,750	81
Electrical equipment, appliances, and components	335	1,201	1,199	2
Transportation equipment	336	7,978	7,562	416
Automobiles, bodies, trailers, and parts	3361–3363	6,124	6,007	118
Aerospace products and parts	3364	1,846	1,548	298
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,761	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	85	D	D
Military armored vehicle, tank, and tank components	336992	D	D	0
Other transportation equipment	other 336	D	D	*
Furniture and related products	337	38	38	*
Miscellaneous manufacturing	339	4,051	D	D
Medical equipment and supplies	3391	3,826	3,818	8
Other miscellaneous manufacturing	3399	225	D	D
Nonmanufacturing industries	21–23, 42–81	13,977	11,385	2,592
Mining, extraction, and support activities	21	D	247	D
Utilities	22	13	13	0
Construction	23	4	4	0
Wholesale trade	42	D i	D i	D i
Retail trade	44, 45	D	D	0

TABLE 62. R&D paid for by the company and others and performed by the company outside of the United States, by source of funds, industry, and company size: 2009

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Funding source: U.S. unit or foreign subsidiary	Funding source: Foreign parent or other company
Electronic shopping and mail-order houses	4541	D	D	0
Other retail trade	other 44, 45	3 i	3 i	0
Transportation and warehousing	48, 49	1	1	0
Information	51	6,911	6,879	32
Publishing	511	6,422	6,391	30
Newspaper, periodical, book, and directory publishers	5111	47	47	0
Software publishers	5112	6,374	6,344	30
Telecommunications	517	86	85	1
Data processing, hosting, and related services	518	282	281	1
Other information	other 51	122	122	0
Finance and insurance	52	523	522	1
Real estate and rental and leasing	53	*	*	0
Professional, scientific, and technical services	54	5,955	3,414	2,541
Architectural, engineering, and related services	5413	130	117	14
Computer systems design and related services	5415	2,025	1,962	63
Scientific R&D services	5417	2,974	683	2,291
Biotechnology R&D	541711	713	154	559
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,251	520	1,731
Social sciences and humanities R&D	541720	9	8	1
Other professional, scientific, and technical services	other 54	826	652	174
Health care services	621–623	10	10	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	66	66	0
All companies	–	54,914	51,265	3,648
Small companies (number of domestic employees)[a]				
5–499	–	4,246	4,013	234
5–99	–	1,656	1,453	203
5–49	–	1,151	1,108	43
5–24	–	696	661	34
25–49	–	455	447	8
50–99	–	505	345	160
100–249	–	1,586	1,571	15
250–499	–	1,005	989	16
Medium and large companies (number of domestic employees)				
500–999	–	1,985	1,851	134
1,000–4,999	–	10,610	9,942	668
5,000–9,999	–	5,778	3,993	1,786
10,000–24,999	–	10,777	10,244	533
25,000 or more	–	21,517	21,222	294

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 63. Domestic R&D paid for by the company and others and performed by the company, by character of work, industry, and company size: 2009

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	282,393	14,784	41,055	226,554
Manufacturing industries	31–33	195,144	10,045	24,882	160,217
Food	311	4,192	252	1,316	2,624
Beverage and tobacco products	312	477	35	61	381
Textiles, apparel, and leather products	313-316	428	27	52	349
Wood products	321	512	20 i	107 i	386 i
Printing and related support activities	323	195	10	28	157
Chemicals	325	53,328	4,472	8,902	39,955
Pharmaceuticals and medicines	3254	44,936	4,057	7,149	33,730
Other chemicals	other 325	8,392	415	1,753	6,225
Plastics and rubber products	326	2,468	198	581	1,689
Nonmetallic mineral products	327	1,100 i	127 i	103 i	870 i
Primary metals	331	837	27	121	689
Fabricated metal products	332	2,040	54	238	1,748
Machinery	333	9,138	351	1,136	7,651
Computer and electronic products	334	56,436	3,007	5,914	47,515
Semiconductor and other electronic components	3344	19,983	319	2,165	17,499
Navigational, measuring, electromedical, and control instruments	3345	14,859	843	1,918	12,098
Other computer and electronic products	other 334	21,595	1,846	1,830	17,919
Electrical equipment, appliances, and components	335	3,334	87	541	2,706
Transportation equipment	336	48,337	890	3,811 i	43,636 i
Aerospace products and parts	3364	34,554	339	2,498 i	31,717 i
Other transportation	other 336	13,783	551	1,313	11,919 i
Furniture and related products	337	396	14	44	339
Miscellaneous manufacturing	322, 324, 339	11,925	476	1,926	9,523
Nonmanufacturing industries	21–23, 42–81	87,248	4,738	16,174	66,336
Information	51	33,806	1,535	2,513	29,757
Publishing	511	27,077	1,322	1,920	23,835
Telecommunications	517	1,496	37	290 i	1,169 i
Data processing, hosting, and related services	518	2,735	85	162	2,489
Other information	other 51	2,497	92	141	2,264
Professional, scientific, and technical services	54	44,946	2,864	12,198	29,884
Architectural, engineering, and related services	5413	3,281	61	408	2,811
Computer systems design and related services	5415	12,560	319	1,284	10,957
Scientific research and development services	5417	17,270	2,248	5,586	9,435
Biotechnology R&D	541711	8,259	1,128	2,631	4,500
Physical, engineering, and life sciences (except biotechnology) R&D	541712	8,297	497	2,911	4,888
Social sciences and humanities R&D	541720	714	623	44	47
Other professional, scientific, and technical services	other 54	11,836	236 i	4,919	6,680
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	8,497	339	1,462	6,696
All companies	–	282,393	14,784	41,055	226,554
Small companies (number of domestic employees)[a]					
5–499	–	58,719	2,632	13,165	42,922
5–99	–	34,769	1,549	8,281	24,938
5–49	–	21,486	1,071	3,648	16,768
5–24	–	11,794	612	2,073	9,109
25–49	–	9,692	459	1,575	7,658
50–99	–	13,282	478	4,633	8,171
100–249	–	12,747	594	2,052	10,100
250–499	–	11,204	489	2,832 i	7,883
Medium and large companies (number of domestic employees)					
500–999	–	10,119	846	1,699	7,575
1,000–4,999	–	44,008	2,253	6,062	35,692

TABLE 63. Domestic R&D paid for by the company and others and performed by the company, by character of work, industry, and company size: 2009

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	21,864	1,006	3,386	17,472
10,000–24,999	–	51,037	4,271	7,257	39,509
25,000 or more	–	96,645	3,775	9,487	83,383

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 64. Domestic R&D paid for by the company and others and performed by companies in business for less than 5 years, by character of work, industry, and company size: 2009
(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	8,222	298	1,218	6,706
Manufacturing industries	31–33	4,034	70	498	3,466
Food	311	235	1	9	225
Beverage and tobacco products	312	3	* i	*	3 i
Textiles, apparel, and leather products	313–316	16	1 i	*	15
Wood products	321	36	5 i	29 i	2
Printing and related	323	7	*	*	7
Chemicals	325	974 i	8 i	107	859 i
Pharmaceuticals and medicines	3254	776 i	3	9 i	764 i
Other chemicals	other 325	197	5 i	98	95
Plastics and rubber products	326	59	2	3	55
Nonmetallic mineral products	327	71	*	1	71 i
Primary metals	331	10	0	3	7
Fabricated metal products	332	270	4 i	16 i	250 i
Machinery	333	220	7 i	49	164 i
Computer and electronic products	334	1,371	17	148	1,206
Semiconductor and other electronic components	3344	893	9 i	111 i	773 i
Navigational, measuring, electromedical, and control instruments	3345	268	5	30	233
Other computer and electronic products	other 334	210	2	7	200
Electrical equipment, appliances, and components	335	154	11	21	121
Transportation equipment	336	108	1 i	5 i	102 i
Aerospace products and parts	3364	7	*	*	7
Other transportation	other 336	101	1 i	5 i	95 i
Furniture and related products	337	55	* i	1	55
Miscellaneous manufacturing	322, 324, 339	444	13	107	325
Nonmanufacturing industries	21–23, 42–81	4,187	227	719	3,241
Information	51	1,006	51	121	834
Publishing	511	633	39	108	487
Telecommunications	517	39	1	1	37
Data processing, hosting, and related services	518	141	6	7	128
Other information	other 51	192	5	5	182
Professional, scientific, and technical services	54	2,973	173	579	2,222
Architectural, engineering, and related services	5413	240	4 i	26 i	210 i
Computer systems design and related services	5415	796	10	80	706
Scientific R&D services	5417	1,573	146	436	991
Biotechnology R&D	541711	1,042	108	261	672
Physical, engineering, and life sciences (except biotechnology) R&D	541712	526	32	175	318
Social sciences and humanities R&D	541720	6	5	0	1
Other professional, scientific, and technical services	other 54	363	13	36	315
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	208	3 i	20	185
All companies (number of employees)[a]	–	8,222	298	1,218	6,706
Small companies (number of employees)[a]					
5–499	–	8,061	298	1,216	6,548
5–99	–	5,777	253	1,077	4,447
5–49	–	4,754	201	929	3,624
5–24	–	3,319	101	558	2,660
25–49	–	1,434	99	371	964
50–99	–	1,023	53	147	823 i
100–249	–	1,760 i	37	101	1,622 i
250–499	–	525	8	38	479
Medium and large companies (number of employees)					
500–999	–	D	*	1	D
1,000–4,999	–	D	0	1	D

TABLE 64. Domestic R&D paid for by the company and others and performed by companies in business for less than 5 years, by character of work, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
5,000–9,999	–	0	0	0	0
10,000–24,999	–	0	0	0	0
25,000 or more	–	0	0	0	0

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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. For 2008, companies were asked if they had been in business for less than 5 years only if sum of domestic R&D performance paid for by the company and domestic R&D performance paid for by others was positive. Companies were not asked if they had been in business for less than 5 years if they reported only R&D performance paid for by others. This was omitted in first cycle of the survey. For 2009, second cycle of survey, all companies that reported domestic R&D performance paid for by the company or domestic R&D performance paid for by others were asked this question. Statistics are representative of companies located in 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, 2009.

TABLE 65. Domestic R&D paid for by others and performed by the company, by source of funds and state: 2009

(Millions of U.S. dollars)

State	Total	Federal	Nonfederal
All states	57,473	39,573 i	17,900
Alabama	953 e	879 e	74
Alaska	24	14	10
Arizona	1,852 i	1,656 e	196
Arkansas	492	D	D
California	11,370	8,029 i	3,341
Colorado	590	432 i	158
Connecticut	1,510	1,238	273
Delaware	703	D	D
District of Columbia	465 e	439 i	27 e
Florida	1,406	1,134 i	272
Georgia	840 i	612 i	228
Hawaii	60	38	22
Idaho	269	23 e	246
Illinois	825 e	505 e	320
Indiana	771	301 i	471
Iowa	418	275	143
Kansas	358	46 e	311
Kentucky	100 e	53 e	47 i
Louisiana	125 e	104 e	22 e
Maine	36 e	30 e	7 e
Maryland	2,004	1,525	478
Massachusetts	2,207	1,352 i	855
Michigan	1,392	546 i	846
Minnesota	747 i	506 i	241
Mississippi	80	67	13 e
Missouri	D	D	171
Montana	21 e	16 e	6 e
Nebraska	109	34 e	75
Nevada	109 e	90 e	19 e
New Hampshire	D	D	96
New Jersey	2,335	456 e	1,879
New Mexico	366 i	341 i	25
New York	2,883	2,344 i	540
North Carolina	859	279	580
North Dakota	15 e	8 e	7
Ohio	1,596	1,134 i	462
Oklahoma	80 e	54 e	26 e
Oregon	190	93 e	97
Pennsylvania	1,038	397 e	641
Rhode Island	63	53 i	10 e
South Carolina	179	135	44
South Dakota	39	24 i	15
Tennessee	213	112 e	101
Texas	3,287	2,044 i	1,244
Utah	833	764	70
Vermont	27 e	21	6 e
Virginia	3,066 i	2,777 i	289
Washington	503	252 e	250
West Virginia	102	94	8

TABLE 65. Domestic R&D paid for by others and performed by the company, by source of funds and state: 2009

(Millions of U.S. dollars)

State	Total	Federal	Nonfederal
Wisconsin	553	156 e	396
Wyoming	12 e	8 e	4
Undistributed[a]	1,859 i	D	D

D = data withheld to avoid disclosing operations of individual companies; i = value > 50% of estimate is combination of imputation and reweighting to account for nonresponse; e = more than 50% of value is modeled from hybrid estimator.

[a] Includes data reported on Form BRDI-1 that were not allocated to specific state. Data reported on Form BRDI-1A were allocated to state in address on the company's survey form, which is usually the company's headquarters.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2009.

TABLE 66. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2009
(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, in United States	All other, outside United States
All industries	21–23, 31–33, 42–81	57,473	9,567	7,647	39,573 i	195	59	363	68
Manufacturing industries	31–33	36,920 i	3,345	4,532	28,825 i	55	38	73	52
Food	311	D	101	D	D	D	0	4	0
Beverage and tobacco products	312	2	*	2	*	0	0	0	0
Textiles, apparel, and leather products	313–316	8	3	* i	4	* i	0	* i	0
Wood products	321	17	11	6	0	*	0	0	0
Paper	322	25	12	D	D	D	0	*	0
Printing and related support activities	323	1	*	0	1	*	0	* i	0
Petroleum and coal products	324	D	D	D	D	D	0	0	0
Chemicals	325	3,452	1,263	1,961	207	9	* i	8	4
Basic chemicals	3251	120	9	46	59	7	0	*	0
Resin, synthetic rubber, fibers, and filaments	3252	23	2	18	1	*	0	1	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	0	D	D	D	0	0	0
Pharmaceuticals and medicines	3254	3,185	1,247	1,813	113	1	* i	6	4
Soap, cleaning compound, and toilet preparation	3256	3	3	* i	0	0	0	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	3	D	D	D	0	1	0
Plastics and rubber products	326	139	110	2	27	*	0	1	0
Nonmetallic mineral products	327	23	D	D i	18 i	*	0	*	0
Primary metals	331	244	5	226	11	2 i	0	0	0
Fabricated metal products	332	109	70	14	19	D	D i	D i	D
Machinery	333	356	133	67	150	1	2	D	D
Agricultural implements	33311	7	2	1	1	0	2	0	0
Semiconductor machinery	333295	24	4	D	D	0	0	D	0
Engine, turbine, and power transmission equipment	3336	112	D i	8	D	*	0	0	0
Other machinery	other 333	214	D	D	D	*	*	D	D
Computer and electronic products	334	7,571	738	1,578	5,210 i	D	D	D	D
Communications equipment	3342	1,628	93	766	768 i	0	0	0	0
Semiconductor and other electronic components	3344	563	173	275	83	26	0	5	0
Navigational, measuring, electromedical, and control instruments	3345	4,915	382	197	4,325 i	D	D	D	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,259 i	D	117	D i	*	0	* i	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,562	312	70	3,171 i	D	D	D	0
Other measuring and controlling instruments	other 3345	94	D	9	D	0	0	D	D
Computer and peripheral equipment and other computer and electronic products	other 334	466	89	340	33	0	0	3	0
Electrical equipment, appliances, and components	335	228	55	66	70	D	D	36	0
Transportation equipment	336	24,114 i	757	251	23,023 i	D	27	D	D
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D	D	D	D	D	D
Aerospace products and parts	3364	22,170 i	596	D	21,524 i	2	D	D	0
Aircraft, aircraft engine, and aircraft parts	336411–336413	15,402 i	D	19	D i	2	D	0	0

TABLE 66. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2009
(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, in United States	All other, outside United States
Guided missile, space vehicle, and related parts	336414, 336415, 336419	6,768	D	D	D	0	D	D	0
Military armored vehicle, tank, and tank components	336992	2	0	0	2	0	0	0	0
Other transportation equipment	other 336	D i	D	D	D i	D	0	D	0
Furniture and related products	337	3	3	*	0	0	0	*	0
Miscellaneous manufacturing	339	321	78	175	62	D	*	4	D
Medical equipment and supplies	3391	114	33	56	21	1	0	4	*
Other miscellaneous manufacturing	3399	207	45	119	41	D	*	1	D
Nonmanufacturing industries	21–23, 42–81	20,553	6,223	3,115	10,749	140	21	290	16
Mining, extraction, and support activities	21	D	D	D	D	0	0	D i	0
Utilities	22	33	5	0	27	*	0	1	0
Construction	23	5	5	0	*	0	0	0	0
Wholesale trade	42	D	50	104 i	6 i	D	1	* i	*
Retail trade	44, 45	0	0	0	0	0	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0	0	0	0	0	0
Other retail trade	other 44, 45	0	0	0	0	0	0	0	0
Transportation and warehousing	48, 49	26 i	*	*	26 i	0	*	*	0
Information	51	811	349	233	194	25	*	1	8
Publishing	511	666	267	191	176	24	0	*	8
Newspaper, periodical, book, and directory publishers	5111	*	0	*	0	0	0	0	0
Software publishers	5112	666	267	191	176	24	0	*	8
Telecommunications	517	82	70	7	5	1	*	0	0
Data processing, hosting, and related services	518	60	12	35	12	1	0	0	0
Other information	other 51	3	1	0	1	0	0	1	0
Finance and insurance	52	8	6	0	1 i	0	0	0	0
Real estate and rental and leasing	53	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	18,915	5,531	2,505	10,461	114	19	277	8
Architectural, engineering, and related services	5413	2,058	420	166	1,421	30	12	9	0
Computer systems design and related services	5415	1,818	449	122	1,240	0	0	4	3
Scientific R&D services	5417	9,289	4,397	2,110	2,657	31	7	82	5
Biotechnology R&D	541711	2,798	1,760	692	327	5	1	12	1
Physical, engineering, and life sciences (except biotechnology) R&D	541712	5,828	2,590	1,418	1,788	8	6	15	3
Social sciences and humanities R&D	541720	663	47	0	543	19	0	55	1
Other professional, scientific, and technical services	other 54	5,751	265	108	5,143	53	*	182	0
Health care services	621–623	190	154	D i	D	* i	*	D	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	134	D	D	D	D	0	0	0
All companies	–	57,473	9,567	7,647	39,573 i	195	59	363	68
Small companies (number of domestic employees)[a]									
5–499	–	14,461	3,340	1,870	8,834	96	17	289	16
5–99	–	9,342	1,830	688	6,467	65	15	262	16
5–49	–	4,351	1,419	290	2,312	55	13	251	12

TABLE 66. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2009
(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, in United States	All other, outside United States
5–24	–	2,537	1,013	155	1,281	36	13	36	4
25–49	–	1,815	406	135	1,032	19	*	215	8
50–99	–	4,991	411	398	4,155	10	2	11	4
100–249	–	2,287	844	699	691	28	1	24	* i
250–499	–	2,832	666	483	1,677 i	3 i	* i	3	1
Medium and large companies (number of domestic employees)									
500–999	–	1,542	475	551	473	D i	D	31	D
1,000–4,999	–	5,625	1,368	2,547	1,612	D	6	32	D
5,000–9,999	–	4,279	2,591	673	1,005 i	D	D	1	D
10,000–24,999	–	8,847	1,021	1,870	5,889 i	D	D	4	0
25,000 or more	–	22,719 i	773	136	21,759 i	D	D	7	D

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 67. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2009
(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)	Allocated Costs	Other
All industries	21–23, 31–33, 42–81	57,473	32,522	578 i	1,186	412 i	6,362 i	924 i	1,025	404	2,577 i	11,482 i
Manufacturing industries	31–33	36,920 i	21,064 i	88	484	183	4,676 i	129	504	271	1,199	8,322 i
Food	311	D	129	*	2	1	6	* i	*	1	0	D
Beverage and tobacco products	312	2	D i	0	* i	* i	D i	* i	* i	D i	0	D i
Textiles, apparel, and leather products	313–316	8	5	0	0	* i	1 i	* i	* i	0	0	1 i
Wood products	321	17	D	0	2	0	*	0	0	0	D	*
Paper	322	25	D	* i	*	0	1 i	0	1 i	* i	D i	2 i
Printing and related support activities	323	1	1	* i	0	* i	* i	* i	* i	* i	* i	* i
Petroleum and coal products	324	D	D	D	5	6	D	0	0	D	D	D
Chemicals	325	3,452	1,969	74	69	13	205	25	133	120	143	703
Basic chemicals	3251	120	76	0	2	*	D	1	D	D	7	D
Resin, synthetic rubber, fibers, and filaments	3252	23	D	D i	*	D	D	D	D	D	* i	2
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	2	D	D	D	D	D	0	D
Pharmaceuticals and medicines	3254	3,185	1,811	74	65	10	172	23	122	102	136	671
Soap, cleaning compound, and toilet preparation	3256	3	D	0	0	0	D i	0	D i	D i	* i	D i
Paint, coating, adhesive, and other chemical	3255, 3259	D	32	0	*	2 i	8 i	0	0	4 i	0	D i
Plastics and rubber products	326	139	94	0	1	1 i	13 i	1 i	1 i	D i	D i	18
Nonmetallic mineral products	327	23	16	* i	0	* i	3 i	1 i	1 i	* i	* i	1 i
Primary metals	331	244	122	* i	* i	* i	119	* i	* i	0	0	2 i
Fabricated metal products	332	109	75	* i	1	3 i	12 i	1 i	7 i	* i	* i	10 i
Machinery	333	356	226	1	23	13	41	1 i	10	10	19	13
Agricultural implements	33311	7	2	0	0	2	2	0	* i	* i	* i	* i
Semiconductor machinery	333295	24	11	*	1	1 i	5 i	*	1 i	1 i	2 i	1 i
Engine, turbine, and power transmission equipment	3336	112	62	*	D	8	D	*	D	8	* i	2
Other machinery	other 333	214	151	*	D	1	D	* i	D i	1 i	17	10
Computer and electronic products	334	7,571	3,741	12 i	275	96	1,171	55	255	96	510	1,360
Communications equipment	3342	1,628	711	0	19	4	154 i	D	42 i	42 i	182 i	D i
Semiconductor and other electronic components	3344	563	345	D	12	11	31	5	73	1	D	D
Navigational, measuring, electromedical, and control instruments	3345	4,915	2,391	6 i	241	79	955	41 i	107	49	270	776
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,259 i	597 i	6 i	16 i	35 i	207 i	26 i	41 i	6 i	74 i	251 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,562	1,737	*	225	43	742	15	65	43	194	498
Other measuring and controlling instruments	other 3345	94	57	0	1	* i	6 i	* i	1 i	* i	2	28 i

TABLE 67. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2009
(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)	Allocated Costs	Other
Computer and peripheral equipment and other computer and electronic products	other 334	466	294	D i	3	3 i	30	D	33	4	D	D
Electrical equipment, appliances, and components	335	228	136	D	7	* i	D i	7 i	6 i	D i	D i	9 i
Transportation equipment	336	24,114 i	14,284 i	*	80	42	3,024 i	32	75	20	481	6,075 i
Automobiles, bodies, trailers, and parts	3361–3363	D	D	*	D	D	D	D	D	D	D	D
Aerospace products and parts	3364	22,170 i	13,097 i	* i	53	38	2,818 i	18	48	5	465	5,627 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	15,402 i	9,205 i	* i	D	D	1,935 i	16	48	5	223	D i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	6,768	3,893	* i	D	D	883	2	* i	*	242	D
Military armored vehicle, tank, and tank components	336992	2	1	0	*	0	1 i	0	0	0	* i	* i
Other transportation equipment	other 336	D i	D i	0	D	D i	D i	D i	D i	D i	D i	D i
Furniture and related products	337	3	2	0	*	0	0	0	0	0	0	1 i
Miscellaneous manufacturing	339	321	174	*	20	8	29	8	15	1	2 i	65 i
Medical equipment and supplies	3391	114	68	*	2	*	7	1 i	5	*	* i	30 i
Other miscellaneous manufacturing	3399	207	106	*	18	8	22	7	10	1	2	35
Nonmanufacturing industries	21–23, 42–81	20,553	11,457	490 i	703	229 i	1,686 i	795 i	521	133	1,378 i	3,160 i
Mining, extraction, and support activities	21	D	D	D	D	D	D	D	7	D	5	D
Utilities	22	33	D	D	*	D	D	D i	0	D	0	D
Construction	23	5	1	0	*	0	*	0	0	0	0	3 i
Wholesale trade	42	D	109	0	6	2 i	2 i	4 i	4 i	D i	0	D i
Retail trade	44, 45	0	0	0	0	0	0	0	0	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0	0	0	0	0	0	0	0	0
Other retail trade	other 44, 45	0	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48, 49	26 i	3	0	16 i	0	* i	0	0	0	0	7 i
Information	51	811	648	* i	D	D	D	D	13	D	4	48
Publishing	511	666	524	* i	32	10	22	15	12	*	4	47
Newspaper, periodical, book, and directory publishers	5111	*	*	0	0	* i	* i	* i	* i	0	* i	* i
Software publishers	5112	666	523	* i	32	10	22	15	12	*	4	47
Telecommunications	517	82	63	0	D	D	D	D	1	D	0	0
Data processing, hosting, and related services	518	60	58	0	D	0	D i	* i	* i	* i	* i	1 i
Other information	other 51	3	3	* i	*	* i	* i	* i	* i	0	* i	* i
Finance and insurance	52	8	7	0	* i	0	0	0	0	0	0	1 i
Real estate and rental and leasing	53	0	0	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	18,915	10,439	487 i	532	188 i	1,617 i	761 i	497	115 i	1,368 i	2,912 i
Architectural, engineering, and related services	5413	2,058	1,164	397 i	91	64 i	148 i	44 i	16 i	2 i	58 i	74 i

TABLE 67. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2009
(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)	Allocated Costs	Other
Computer systems design and related services	5415	1,818	1,126	5 i	84	2 i	71 i	28 i	22 i	19 i	267 i	194 i
Scientific R&D services	5417	9,289	5,480	81	238	38	873	262	387	83	225	1,620
Biotechnology R&D	541711	2,798	1,515	51	80	15	405	68	154	14	66	430
Physical, engineering, and life sciences (except biotechnology) R&D	541712	5,828	3,519	26 i	143	16 i	458	164	227	69	159	1,047
Social sciences and humanities R&D	541720	663	446	5	15	7	10	31	6	0	0	143
Other professional, scientific, and technical services	other 54	5,751	2,668	4 i	118	85 i	524 i	427 i	72 i	11 i	818 i	1,024 i
Health care services	621–623	190	93	* i	1	*	4 i	1	*	*	*	90
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	134	D	* i	D	D i	1 i	D	1 i	0	0	D
All companies	–	57,473	32,522	578 i	1,186	412 i	6,362 i	924 i	1,025	404	2,577 i	11,482 i
Small companies (number of domestic employees)[a]												
5–499	–	14,461	8,098	55 i	514	178 i	1,186 i	643 i	331 i	122 i	1,177 i	2,157 i
5–99	–	9,342	4,887	29 i	263	109 i	809 i	469 i	205 i	68 i	895 i	1,607 i
5–49	–	4,351	2,684	14 i	94	37 i	397 i	88 i	108 i	38 i	295 i	598 i
5–24	–	2,537	1,641	8 i	68	20 i	204 i	41 i	62 i	17 i	137 i	338 i
25–49	–	1,815	1,042	6 i	26	17 i	193 i	46 i	46 i	20 i	158 i	260 i
50–99	–	4,991	2,204	16	169	73 i	413 i	381 i	96 i	31	600 i	1,009 i
100–249	–	2,287	1,497	15	95	47	202 i	48	53 i	26 i	118	187 i
250–499	–	2,832	1,713	10	156	22 i	174	127 i	74	27	164 i	364 i
Medium and large companies (number of domestic employees)												
500–999	–	1,542	964	25	61	13	133	20	38	10	53	224
1,000–4,999	–	5,625	3,201	25	150	41	402	105	203	57	317	1,126
5,000–9,999	–	4,279	2,256	412 i	213	47 i	415	72	184	27	94	560
10,000–24,999	–	8,847	4,172	60	119	74	1,552	61	191	153	690	1,774
25,000 or more	–	22,719 i	13,831 i	1 i	129 i	60	2,676 i	24	77	35	245	5,641 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 68. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	57,473	2,578	11,286	43,609 i
Manufacturing industries	31–33	36,920 i	689	3,208 i	33,022 i
Food	311	162	1	34	128 i
Beverage and tobacco products	312	2	0	0	2
Textiles, apparel, and leather products	313–316	8	*	1 i	6
Wood products	321	17	*	*	17
Printing and related support activities	323	1	*	*	1
Chemicals	325	3,452	124	402	2,927
Pharmaceuticals and medicines	3254	3,185	110	306	2,769
Other chemicals	other 325	267	14	95	158
Plastics and rubber products	326	139	13	9 i	116
Nonmetallic mineral products	327	23	5 i	3 i	15 i
Primary metals	331	244	*	2	241 i
Fabricated metal products	332	109	*	11	99 i
Machinery	333	356	26	95 i	236
Computer and electronic products	334	7,571	391	908	6,272
Semiconductor and other electronic components	3344	563	10	44	508
Navigational, measuring, electromedical, and control instruments	3345	4,915	334	634	3,947
Other computer and electronic products	other 334	2,094	48 i	230	1,816
Electrical equipment, appliances, and components	335	228	5	38	186
Transportation equipment	336	24,114 i	100 i	1,636 i	22,378 i
Aerospace products and parts	3364	22,170 i	86 i	1,475 i	20,609 i
Other transportation equipment	other 336	1,944 i	14	161 i	1,768 i
Furniture and related products	337	3	0	* i	3 i
Miscellaneous manufacturing	322, 324, 339	489	24 i	70	395
Nonmanufacturing industries	21–23, 42–81	20,553	1,888	8,078	10,587
Information	51	811	27	127	657
Publishing	511	666	26	125	515
Telecommunications	517	82	*	1	81
Data processing, hosting, and related services	518	60	*	1	59
Other information	other 51	3	0	1	2
Professional, scientific, and technical services	54	18,915	1,824	7,844	9,247
Architectural, engineering, and related services	5413	2,058	41	269	1,748 i
Computer systems design and related services	5415	1,818	52	106	1,660
Scientific R&D services	5417	9,289	1,588	2,794	4,907
Biotechnology R&D	541711	2,798	635	540	1,623
Physical, engineering, and life sciences (except biotechnology) R&D	541712	5,828	335	2,232	3,261
Social sciences and humanities R&D	541720	663	619	21	23
Other professional, scientific, and technical services	other 54	5,751	143 i	4,676	931 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	827	37 i	107 i	684 i
All companies	–	57,473	2,578	11,286	43,609 i
Small companies (number of domestic employees)[a]					
5–499	–	14,461	805	6,454	7,203
5–99	–	9,342	533 i	4,333	4,476
5–49	–	4,351	350 i	917 i	3,085
5–24	–	2,537	214	546 i	1,777
25–49	–	1,815	135 i	371	1,308
50–99	–	4,991	183	3,417	1,391
100–249	–	2,287	152	578	1,558
250–499	–	2,832	120	1,543 i	1,169
Medium and large companies (number of domestic employees)					
500–999	–	1,542	324	442	776
1,000–4,999	–	5,625	641	724	4,260

TABLE 68. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	4,279	250	1,069	2,961
10,000–24,999	–	8,847	248 i	1,145	7,454
25,000 or more	–	22,719 i	309	1,454 i	20,955 i

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 69. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work: Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	39,573 i	1,340	7,797 i	30,435 i
Manufacturing industries	31–33	28,825 i	388 i	2,284 i	26,152 i
Food	311	D	0	D	D
Beverage and tobacco products	312	*	0	0	*
Textiles, apparel, and leather products	313–316	4	* i	* i	3 i
Wood products	321	0	0	0	0
Printing and related support activities	323	1	0	* i	* i
Chemicals	325	207	7	31	169 i
Pharmaceuticals and medicines	3254	113	1	10	102 i
Other chemicals	other 325	93	6	21	67 i
Plastics and rubber products	326	27	1 i	4	22
Nonmetallic mineral products	327	18 i	5 i	2 i	11 i
Primary metals	331	11	*	1 i	9
Fabricated metal products	332	19	* i	3 i	16 i
Machinery	333	150	23 i	77 i	49
Computer and electronic products	334	5,210 i	265 i	635 i	4,310 i
Semiconductor and other electronic components	3344	83	6	22 i	55 i
Navigational, measuring, electromedical, and control instruments	3345	4,325 i	258 i	609 i	3,457 i
Other computer and electronic products	other 334	801 i	1	3 i	797 i
Electrical equipment, appliances, and components	335	70	2 i	18	51 i
Transportation equipment	336	23,023 i	82 i	1,492 i	21,449 i
Aerospace products and parts	3364	21,524 i	D i	D i	D i
Other transportation equipment	other 336	1,499 i	D i	D i	D i
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	322, 324, 339	D	3 i	D	D i
Nonmanufacturing industries	21–23, 42–81	10,749	952	5,513 i	4,283 i
Information	51	194	12 i	32 i	150
Publishing	511	176	12 i	31 i	133
Telecommunications	517	5	0	D	D
Data processing, hosting, and related services	518	12	0	*	12 i
Other information	other 51	1	0	D i	D i
Professional, scientific, and technical services	54	10,461	939	5,471 i	4,054 i
Architectural, engineering, and related services	5413	1,421	36	174 i	1,212 i
Computer systems design and related services	5415	1,240	45	85 i	1,110 i
Scientific R&D services	5417	2,657	763	787	1,108 i
Biotechnology R&D	541711	327	78 i	120 i	129 i
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,788	174	650	964
Social sciences and humanities R&D	541720	543	510	17	15
Other professional, scientific, and technical services	other 54	5,143	95	4,426 i	625 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	93	1 i	10 i	79 i
All companies	–	39,573 i	1,340	7,797 i	30,435 i
Small companies (number of domestic employees)[a]					
5–499	–	8,834	371 i	5,143 i	3,320 i
5–99	–	6,467	231 i	3,739 i	2,494 i
5–49	–	2,312	131 i	466 i	1,712 i
5–24	–	1,281	96 i	284 i	898 i
25–49	–	1,032	35 i	182 i	814 i
50–99	–	4,155	100 i	3,273 i	782 i
100–249	–	691	89 i	186 i	415 i
250–499	–	1,677 i	51	1,217 i	411
Medium and large companies (number of domestic employees)					
500–999	–	473	77	159	237
1,000–4,999	–	1,612	512	267	833

TABLE 69. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Character of work		
			Basic research	Applied research	Development
5,000–9,999	–	1,005 i	2 i	36 i	967 i
10,000–24,999	–	5,889 i	237 i	844 i	4,809 i
25,000 or more	–	21,759 i	141 i	1,348 i	20,270 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 70. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
All industries	21–23, 31–33, 42–81	39,573 i	28,179 i	987	2,104	916	7,387
Manufacturing industries	31–33	28,825 i	23,783 i	682 i	1,613	393 i	2,353 i
Food	311	D	D	D	0	0	0
Beverage and tobacco products	312	*	0	0	0	0	*
Textiles, apparel, and leather products	313–316	4	3	0	0	0	1
Wood products	321	0	0	0	0	0	0
Paper	322	D	1	D	0	2	D
Printing and related support activities	323	1	0	0	0	1	0
Petroleum and coal products	324	D	D	D	0	0	D
Chemicals	325	207	51	30	*	106	20
Basic chemicals	3251	59	27	27	0	1	3 i
Resin, synthetic rubber, fibers, and filaments	3252	1	1	*	0	0	1
Pesticide, fertilizer, and other agricultural chemical	3253	D	0	D	0	0	0
Pharmaceuticals and medicines	3254	113	15	0	*	84	14
Soap, cleaning compound, and toilet preparation	3256	0	0	0	0	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	9	D	0	20	2 i
Plastics and rubber products	326	27	16	6	*	2 i	3 i
Nonmetallic mineral products	327	18 i	11 i	5 i	2 i	*	*
Primary metals	331	11	9	1	*	0	1
Fabricated metal products	332	19	18	1	*	0	*
Machinery	333	150	44	92	2 i	4	8
Agricultural implements	33311	1	*	1	0	0	0
Semiconductor machinery	333295	D	9	D i	1 i	*	*
Engine, turbine, and power transmission equipment	3336	D	D	D	0	0	0
Other machinery	other 333	D	D	D	1	4	7
Computer and electronic products	334	5,210 i	2,990 i	323 i	316 i	266 i	1,315 i
Communications equipment	3342	768 i	D i	0	D i	0	D i
Semiconductor and other electronic components	3344	83	D	21	D	1	5
Navigational, measuring, electromedical, and control instruments	3345	4,325 i	2,229 i	301 i	304 i	265 i	1,226 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	D i	D i	D i	0	D i	D i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,171 i	1,948 i	D i	291 i	*	D i
Other measuring and controlling instruments	other 3345	D	D	D	13	D	D
Computer and peripheral equipment and other computer and electronic products	other 334	33	D	0	0	1	D
Electrical equipment, appliances, and components	335	70	31	19	1	2	18
Transportation equipment	336	23,023 i	20,562 i	178 i	1,293	7	983
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D	0	0	D
Aerospace products and parts	3364	21,524 i	D i	D i	1,293	7	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	D i	14,297 i	D i	D	7	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	0	D	0	D
Military armored vehicle, tank, and tank components	336992	2	2	0	0	0	0
Other transportation equipment	other 336	D i	D i	0	0	0	*
Furniture and related products	337	0	0	0	0	0	0

TABLE 70. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
Miscellaneous manufacturing	339	62	44	9	*	4	4
Medical equipment and supplies	3391	21	18	0	0	2	1
Other miscellaneous manufacturing	3399	41	26	9	*	2	3
Nonmanufacturing industries	21–23, 42–81	10,749	4,396	305	490	523	5,035
Mining, extraction, and support activities	21	D	0	D	0	0	D
Utilities	22	27	0	27	0	0	0
Construction	23	*	0	0	0	*	0
Wholesale trade	42	6 i	3	0	0	0	3 i
Retail trade	44, 45	0	0	0	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0	0	0	0
Other retail trade	other 44, 45	0	0	0	0	0	0
Transportation and warehousing	48, 49	26 i	D i	D	0	0	*
Information	51	194	137	D	D	D	D
Publishing	511	176	125	D	2	1	D
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0	0
Software publishers	5112	176	125	D	2	1	D
Telecommunications	517	5	1	0	D	0	D
Data processing, hosting, and related services	518	12	12	0	0	0	*
Other information	other 51	1	0	0	0	*	1
Finance and insurance	52	1 i	0	0	0	0	1 i
Real estate and rental and leasing	53	0	0	0	0	0	0
Professional, scientific, and technical services	54	10,461	4,228	D	D	D	4,972
Architectural, engineering, and related services	5413	1,421	1,225	77	23	0	96
Computer systems design and related services	5415	1,240	1,097	0	49	20	74
Scientific R&D services	5417	2,657	1,394	149	119	445	549
Biotechnology R&D	541711	327	77	30	2	197	21
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,788	1,286	120	115	107	160
Social sciences and humanities R&D	541720	543	31	*	2	142	367
Other professional, scientific, and technical services	other 54	5,143	512 i	D	D i	D	4,252
Health care services	621–623	D	D	0	D	D	D
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	*	0	0	5	D
All companies	–	39,573 i	28,179 i	987	2,104	916	7,387
Small companies (number of domestic employees)[a]							
5–499	–	8,834	3,296	227	252	452	4,607
5–99	–	6,467	2,343	166	150	338	3,469
5–49	–	2,312	1,562	125	101	252	273
5–24	–	1,281	743	61	86	161	230
25–49	–	1,032	819	64	14	91	43
50–99	–	4,155	781	41	49	86	3,197
100–249	–	691	450	49	68	78	44
250–499	–	1,677 i	503	12	33 i	35	1,094 i
Medium and large companies (number of domestic employees)							
500–999	–	473	251	1	D	D	55

TABLE 70. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
1,000–4,999	–	1,612	853	70	D	D	424
5,000–9,999	–	1,005 i	767 i	55 i	123	1 i	59 i
10,000–24,999	–	5,889 i	3,076 i	380 i	D	D i	1,205 i
25,000 or more	–	21,759 i	19,937 i	253	522 i	10	1,038

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

DOD = Department of Defense; DOE = Department of Energy; NAICS = 2007 North American Industry Classification System; NASA = National Aeronautics and Space Administration; NIH = National Institutes of Health.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2009.

TABLE 71. 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: 2009

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign-located companies: Companies foreign subsidiaries[a]	Foreign-located companies: Parents and independent companies	Foreign governments	All other
All industries	21–23, 31–33, 42–81	11,590	3,816	7,647	59	68
Manufacturing industries	31–33	7,832	3,209	4,532	38	52
Food	311	243	D	D	0	0
Beverage and tobacco products	312	3	1	2	0	0
Textiles, apparel, and leather products	313–316	* i	0	* i	0	0
Wood products	321	6	0	6	0	0
Paper	322	D	D	D	0	0
Printing and related support activities	323	0	0	0	0	0
Petroleum and coal products	324	D	D	D	0	0
Chemicals	325	2,386	421	1,961	* i	4
Basic chemicals	3251	158	113	46	0	0
Resin, synthetic rubber, fibers, and filaments	3252	D	D	18	0	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	0	0
Pharmaceuticals and medicines	3254	1,930	112	1,813	* i	4
Soap, cleaning compound, and toilet preparation	3256	D	D	* i	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	205	D	D	0	0
Plastics and rubber products	326	2	0	2	0	0
Nonmetallic mineral products	327	D i	0	D i	0	0
Primary metals	331	226	0	226	0	0
Fabricated metal products	332	D	D	14	D i	D
Machinery	333	274	D	67	2	D
Agricultural implements	33311	D	D	1	2	0
Semiconductor machinery	333295	D	D	D	0	0
Engine, turbine, and power transmission equipment	3336	8	*	8	0	0
Other machinery	other 333	D	D	D	*	D
Computer and electronic products	334	2,103	D	1,578	D	D
Communications equipment	3342	827	60	766	0	0
Semiconductor and other electronic components	3344	529	254	275	0	0
Navigational, measuring, electromedical, and control instruments	3345	348	D	197	D	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	D	D	117	0	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	159	D	70	D	0
Other measuring and controlling instruments	other 3345	D	D	9	0	D
Computer and peripheral equipment and other computer and electronic products	other 334	399	59	340	0	0
Electrical equipment, appliances, and components	335	271	D	66	D	0
Transportation equipment	336	440	D	251	27	D
Automobiles, bodies, trailers, and parts	3361–3363	345	D	D	D	D
Aerospace products and parts	3364	D	D	D	D	0
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	D	19	D	0
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	D	D	0
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0
Other transportation equipment	other 336	D	0	D	0	0
Furniture and related products	337	*	0	*	0	0
Miscellaneous manufacturing	339	D	D	175	*	D
Medical equipment and supplies	3391	1,472	1,416	56	0	*
Other miscellaneous manufacturing	3399	D	D	119	*	D
Nonmanufacturing industries	21–23, 42–81	3,758	606	3,115	21	16
Mining, extraction, and support activities	21	D	D	D	0	0
Utilities	22	0	0	0	0	0
Construction	23	0	0	0	0	0
Wholesale trade	42	106 i	0	104 i	1	*
Retail trade	44, 45	0	0	0	0	0
Electronic shopping and mail-order houses	4541	0	0	0	0	0
Other retail trade	other 44, 45	0	0	0	0	0

TABLE 71. 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: 2009

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign-located companies: Companies foreign subsidiaries[a]	Foreign-located companies: Parents and independent companies	Foreign governments	All other
Transportation and warehousing	48, 49	*	0	*	*	0
Information	51	412	171	233	*	8
Publishing	511	239	40	191	0	8
Newspaper, periodical, book, and directory publishers	5111	*	0	*	0	0
Software publishers	5112	238	40	191	0	8
Telecommunications	517	7	*	7	*	0
Data processing, hosting, and related services	518	35	0	35	0	0
Other information	other 51	131	131	0	0	0
Finance and insurance	52	2	2	0	0	0
Real estate and rental and leasing	53	0	0	0	0	0
Professional, scientific, and technical services	54	2,663	131	2,505	19	8
Architectural, engineering, and related services	5413	178	0	166	12	0
Computer systems design and related services	5415	146	21	122	0	3
Scientific R&D services	5417	2,231	110	2,110	7	5
Biotechnology R&D	541711	D	D	692	1	1
Physical, engineering, and life sciences (except biotechnology) R&D	541712	D	D	1,418	6	3
Social sciences and humanities R&D	541720	1	0	0	0	1
Other professional, scientific, and technical services	other 54	108	0	108	*	0
Health care services	621–623	D i	0	D i	*	0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	D	D	D	0	0
All companies	–	11,590	3,816	7,647	59	68
Small companies (number of domestic employees)[b]						
5–499	–	2,152	249	1,870	17	16
5–99	–	765	47	688	15	16
5–49	–	325	10	290	13	12
5–24	–	173	1	155	13	4
25–49	–	152	9	135	*	8
50–99	–	440	37	398	2	4
100–249	–	818	117	699	1	* i
250–499	–	569	85	483	* i	1
Medium and large companies (number of domestic employees)						
500–999	–	650	D	551	D	D
1,000–4,999	–	3,471	D	2,547	6	D
5,000–9,999	–	1,022	D	673	D	D
10,000–24,999	–	2,942	D	1,870	D	0
25,000 or more	–	1,353	D	136	D	D

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

NAICS = 2007 North American Industry Classification System.

[a] Subsidiaries estimates only include adjustment to weight for unit nonresponse; remaining details include weight adjustment and item-level imputation. See technical notes document for details on methodology implemented.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 72. Worldwide R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	U.S. companies	Foreign companies	U.S. federal government	State governments	Foreign governments	U.S. universities or colleges	Foreign universities or colleges	All other	Undistributed[a]
All industries	21–23, 31–33, 42–81	36,259	22,368	7,226	212	14	6	1,116	234	235	4,849
Manufacturing industries	31–33	29,007	18,931	6,486	D	13	6	874	206	219	D
Food	311	379	166	56	*	2	0	D	2	D	–
Beverage and tobacco products	312	144	34	D	D	0	0	1	*	*	–
Textiles, apparel, and leather products	313–316	21	6	*	0	0	0	*	0	0	–
Wood products	321	102	2	1	0	0	0	0	0	0	–
Paper	322	61	D	D	0	0	0	D	2	0	–
Printing and related support activities	323	10	*	0	0	0	0	0	0	0	–
Petroleum and coal products	324	D	D	13	*	0	*	D	1	0	–
Chemicals	325	18,155	12,918	3,871	D	3	1	587	133	156	–
Basic chemicals	3251	105	36	21	*	0	1	6	D	D	–
Resin, synthetic rubber, fibers, and filaments	3252	96	17	D	*	0	0	1	1	0	–
Pesticide, fertilizer, and other agricultural chemical	3253	D i	161 i	D	0	0	0	25 i	D	D i	–
Pharmaceuticals and medicines	3254	17,255	12,408	3,660	D	3	* i	549	123	152	–
Soap, cleaning compound, and toilet preparation	3256	364	264	78	0	0	0	3 i	D i	0	–
Paint, coating, adhesive, and other chemical	3255, 3259	D	31	51	0	0	0	3	1	D	–
Plastics and rubber products	326	217	87	52	0	0	0	8	3	0	–
Nonmetallic mineral products	327	202	10	1	*	0	0	0	0	0	–
Primary metals	331	65	20	7	*	0	*	2	2	*	–
Fabricated metal products	332	64	12	3 i	0	0	0	0	0	0	–
Machinery	333	638	237	203	D	0	*	8	*	1	–
Agricultural implements	33311	293	D	136	5	0	0	1	0	0	–
Semiconductor machinery	333295	26	16	5	0	0	0	1	0	0	–
Engine, turbine, and power transmission equipment	3336	48	1	*	D	0	0	*	0	0	–
Other machinery	other 333	272	D	62	* i	0	*	6	*	1	–
Computer and electronic products	334	2,645	1,827	418	5	4	4	41 i	27 i	D i	–
Communications equipment	3342	894	718	124	4	4	4	4	4	0	–
Semiconductor and other electronic components	3344	579	375	119	*	0	0	*	*	0	–
Navigational, measuring, electromedical, and control instruments	3345	587	262	121	1	0	*	32 i	22 i	D i	–
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	310 i	139	65	0	0	0	D i	D i	D i	–
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	167	98	39	*	0	*	D	D i	*	–
Other measuring and controlling instruments	other 3345	109	24	16	*	0	0	*	*	0	–
Computer and peripheral equipment and other computer and electronic products	other 334	586	471 i	55 i	0	0	0	5 i	1 i	0	–
Electrical equipment, appliances, and components	335	192	74	23	24	1	0	2	0	0	–
Transportation equipment	336	2,850	1,607	1,038	8	3	*	D	23	D i	–
Automobiles, bodies, trailers, and parts	3361–3363	1,753	815	822	D	3	*	D	D	*	–
Aerospace products and parts	3364	1,079	785	215	D	*	*	26	D	D i	–
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	717	D	D	*	*	D	D	0	–
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	67	D	D	0	0	D	0	D i	–

TABLE 72. Worldwide R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	U.S. companies	Foreign companies	U.S. federal government	State governments	Foreign governments	U.S. universities or colleges	Foreign universities or colleges	All other	Undistributed[a]
Military armored vehicle, tank, and tank components	336992	*	0	0	0	0	0	0	0	0	–
Other transportation equipment	other 336	17	6	1	0	0	0	*	*	0	–
Furniture and related products	337	96	3	0	0	0	0	0	0	0	–
Miscellaneous manufacturing	339	D	1,803	789	*	0	0	73	13	38	–
Medical equipment and supplies	3391	2,819	1,750	756	*	0	0	72	13	38	–
Other miscellaneous manufacturing	3399	D	54	33	*	0	0	2	0	0	–
Nonmanufacturing industries	21–23, 42–81	7,252	3,437	740	D	1	*	242 i	28	16	D
Mining, extraction, and support activities	21	187	102	37	D	0	0	21	4	D	–
Utilities	22	281	113	9	D	0	0	D	0	D	–
Construction	23	18	D	0	0	0	0	0	0	0	–
Wholesale trade	42	160 i	31 i	31 i	0	0	0	0	0	0	–
Retail trade	44, 45	11	*	2	0	0	0	*	0	0	–
Electronic shopping and mail-order houses	4541	8	*	2	0	0	0	0	0	0	–
Other retail trade	other 44, 45	3	0	0	0	0	0	*	0	0	–
Transportation and warehousing	48, 49	22	14	0	0	0	0	0	0	0	–
Information	51	2,332	1,664	310	0	0	0	D i	0	*	–
Publishing	511	1,347	816	301	0	0	0	4	0	0	–
Newspaper, periodical, book, and directory publishers	5111	9	3	1	0	0	0	0	0	0	–
Software publishers	5112	1,338	813	300	0	0	0	4	0	0	–
Telecommunications	517	808 i	D i	1	0	0	0	D i	0	*	–
Data processing, hosting, and related services	518	120	81	3	0	0	0	*	0	0	–
Other information	other 51	57	D	5	0	0	0	D	0	0	–
Finance and insurance	52	81	57	16	0	0	0	*	*	*	–
Real estate and rental and leasing	53	24	5	0	0	0	0	0	0	0	–
Professional, scientific, and technical services	54	4,050	1,434	318	D	1	*	163 i	24	D	–
Architectural, engineering, and related services	5413	73	14	8	D	0	0	2	*	*	–
Computer systems design and related services	5415	463	54	33	D	0	0	*	0	0	–
Scientific R&D services	5417	3,324	1,360	277	D	*	*	159 i	23	D	–
Biotechnology R&D	541711	2,777	1,255	253	D	0	*	152 i	23	D	–
Physical, engineering, and life sciences (except biotechnology) R&D	541712	398	D	14	0	*	0	6	1	0	–
Social sciences and humanities R&D	541720	148	D	9	0	0	0	0	0	0	–
Other professional, scientific, and technical services	other 54	190	5	* i	D	1	0	2	*	* i	–
Health care services	621–623	25	11	3	0	0	0	4	0	0	–
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	62	D	14	0	0	0	0	0	0	–
All companies	–	36,259	22,368	7,226	212	14	6	1,116	234	235	4,849
Small companies (number of domestic employees)[a]											
5–499	–	6,586	1,809	561	1	1 i	*	115	33	D i	–
5–99	–	4,061	575	166	1	0	*	37	29	D	–
5–49	–	3,024	251	74	*	0	*	11	2	2	–
5–24	–	1,918	66	13	*	0	0	3	* i	* i	–
25–49	–	1,105	185	60	*	0	*	8	2	2	–
50–99	–	1,037	325	92	*	0	0	27	27	D	–

TABLE 72. Worldwide R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	U.S. companies	Foreign companies	U.S. federal government	State governments	Foreign governments	U.S. universities or colleges	Foreign universities or colleges	All other	Undistributed[a]
100–249	–	1,481	714	223	* i	1 i	* i	25	2	5	–
250–499	–	1,044	520	172	*	0	*	53	2	D i	–
Medium and large companies (number of domestic employees)											
500–999	–	1,047	689	185	2	* i	0	18	6	0	–
1,000–4,999	–	6,621	4,466	1,691	D	D	1	109	13	71	–
5,000–9,999	–	1,762	1,179	275	23	3	D	173 i	14	D	–
10,000–24,999	–	10,434	7,306	2,159	D	2	D	465	53	D i	–
25,000 or more	–	9,809	6,919	2,356	124	D	4	235	116	41 i	–

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

NAICS = 2007 North American Industry Classification System.

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

NOTES: NAICS 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 United States that performed or funded R&D. Detailed data were not collected on BRDI-1A questionnaire

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 73. Capital expenditures for domestic R&D paid for by the company and others and performed by the company, by type, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
All industries	21–23, 31–33, 42–81	28,335	2,385	11,896	3,878	1,735	8,441
Manufacturing industries	31–33	13,028	1,715	6,059	1,262	974	3,017
Food	311	354	30	101	5	D	D
Beverage and tobacco products	312	70	2	8	*	*	60
Textiles, apparel, and leather products	313–316	40	2 i	9 i	* i	1 i	28
Wood products	321	29 i	0	7	0	0	23
Paper	322	50	2	D	1	1	D
Printing and related support activities	323	34	0	2	*	*	31
Petroleum and coal products	324	107	1	D	*	D	D
Chemicals	325	3,213	973	1,486	200	127	428
Basic chemicals	3251	148	D	79	1	D	D
Resin, synthetic rubber, fibers, and filaments	3252	67	8	39	2	3	15
Pesticide, fertilizer, and other agricultural chemical	3253	115	D	8	2	44	D
Pharmaceuticals and medicines	3254	2,561	885	1,247	190	61	178
Soap, cleaning compound, and toilet preparation	3256	112	7	73	4	7	21
Paint, coating, adhesive, and other chemical	3255, 3259	212	8	40	*	1	163
Plastics and rubber products	326	232	17	92	2	3	118
Nonmetallic mineral products	327	138	2	22 i	* i	*	114
Primary metals	331	58	2	21	*	*	35
Fabricated metal products	332	164	6	23	6	4	125
Machinery	333	1,355	63	424	45	40	783
Agricultural implements	33311	40	10	10	3	4	14
Semiconductor machinery	333295	94	6	75	3	5	4
Engine, turbine, and power transmission equipment	3336	546	D	32	1	1	D
Other machinery	other 333	675	D	307 i	39 i	30	D
Computer and electronic products	334	3,944	182 i	2,513	660 i	318	272
Communications equipment	3342	834	3	604	153 i	28	46
Semiconductor and other electronic components	3344	1,979 i	125 i	1,163 i	364 i	207 i	119
Navigational, measuring, electromedical, and control instruments	3345	481	25	232	126	40	57
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	184	4	58	72	34	15
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	156	4	121	20	3	8
Other measuring and controlling instruments	other 3345	141	17	52	34	3	34
Computer and peripheral equipment and other computer and electronic products	other 334	650	28	514	16	42	50
Electrical equipment, appliances, and components	335	400	12	103	6	57	222
Transportation equipment	336	1,658	276	734	256	234	159
Automobiles, bodies, trailers, and parts	3361–3363	681	D	278	D	D i	D
Aerospace products and parts	3364	663	56	308	91	171	36
Aircraft, aircraft engine, and aircraft parts	336411–336413	556	47	223	91	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	106	9	85	1	D	D
Military armored vehicle, tank, and tank components	336992	4	1	1	D	*	D
Other transportation equipment	other 336	311	D i	147 i	D i	D i	D
Furniture and related products	337	42	2 i	10	0	3	28

TABLE 73. Capital expenditures for domestic R&D paid for by the company and others and performed by the company, by type, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
Miscellaneous manufacturing	339	1,140	144	454	82	129	331
Medical equipment and supplies	3391	911	139	416	69	118	169
Other miscellaneous manufacturing	3399	228	6	37	13	12	161
Nonmanufacturing industries	21–23, 42–81	15,308	669	5,837	2,616	761	5,424
Mining, extraction, and support activities	21	111	D i	36	14	15	D
Utilities	22	89	2	18	*	35	34
Construction	23	10	D	1	*	4	D
Wholesale trade	42	73 i	1 i	4 i	* i	5 i	63
Retail trade	44, 45	1,194 i	0	* i	1 i	0	1,193
Electronic shopping and mail-order houses	4541	16	0	* i	1 i	0	15
Other retail trade	other 44, 45	1,178 i	0	*	0	0	1,178
Transportation and warehousing	48, 49	102	2 i	27	52	2	19
Information	51	5,366	396	948	1,589	137	2,296
Publishing	511	2,386	319	712	648	117	590
Newspaper, periodical, book, and directory publishers	5111	114	0	99	5	1	9
Software publishers	5112	2,272	319	613	643	117	581
Telecommunications	517	786	1	13	D	2	D
Data processing, hosting, and related services	518	1,590 i	3	31	199	1	1,356
Other information	other 51	604	74	192	D	16	D
Finance and insurance	52	454	1	25	160	*	266
Real estate and rental and leasing	53	68 i	0	2	0	0	66
Professional, scientific, and technical services	54	7,603	232	4,763	790	546	1,271
Architectural, engineering, and related services	5413	156	2	13	3	5	134
Computer systems design and related services	5415	1,277	80	190	303	199	504
Scientific R&D services	5417	5,952	150	4,553	483	342	424
Biotechnology R&D	541711	5,401	133	4,486	D	D	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	537	18	65	D	D	D
Social sciences and humanities R&D	541720	14	0	2	*	0	12
Other professional, scientific, and technical services	other 54	218 i	* i	7 i	1 i	* i	210
Health care services	621–623	30	2	7	*	*	21
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	209	D i	5	9	15	D
All companies	–	28,335	2,385	11,896	3,878	1,735	8,441
Small companies (number of domestic employees)[b]							
5–499	–	11,466	218	4,656	559	63	5,970
5–99	–	4,224	19	77	17	17	4,094
5–49	–	3,399	8	30	3	11	3,346
5–24	–	1,445	1 i	6 i	* i	* i	1,438
25–49	–	1,954 i	7	24	3	11	1,908
50–99	–	825	11	47	14	6	748
100–249	–	5,626	171	4,254	483	30	688
250–499	–	1,617	28	325	59	16	1,189
Medium and large companies (number of domestic employees)							
500–999	–	1,066	84	296	87	150	449

TABLE 73. Capital expenditures for domestic R&D paid for by the company and others and performed by the company, by type, industry, and company size: 2009
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
1,000–4,999	–	3,661	611	1,649	473	591	337
5,000–9,999	–	2,171	200	1,208	481	113	170
10,000–24,999	–	2,803	519	1,303	514	277	190
25,000 or more	–	7,169	753	2,784	1,764	542	1,325

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

NAICS = 2007 North American Industry Classification System.

[a] Detailed data for capital expenditures for domestic R&D detailed data were not collected on Form BRDI-1A (the questionnaire sent to smaller firms). Form BRDI-1A total capital expenditure data are included in undistributed column.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2009.

TABLE 74. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2009

Industry and company size	NAICS code	Employment (thousands of employees)					
		Total			R&D		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	27,094	17,788	9,306	1,879	1,424	454
Manufacturing industries	31–33	16,679	9,882	6,798	1,137	850	287
Food	311	2,015	1,435	580	30	24	7
Beverage and tobacco products	312	339	112	227	4	2	2
Textiles, apparel, and leather products	313–316	269	175	94	6	5	1
Wood products	321	157	124	32	4	4	*
Paper	322	349	216	133	12	8	4
Printing and related support activities	323	184	170	14	4	3	*
Petroleum and coal products	324	185	85	101	3	2	1
Chemicals	325	2,286	1,287	999	201	157	44
Basic chemicals	3251	399	220	179	17	12	5
Resin, synthetic rubber, fibers, and filaments	3252	239	162	76 i	8	7	2
Pesticide, fertilizer, and other agricultural chemical	3253	75	49	25	6	5	2
Pharmaceuticals and medicines	3254	910	538	372	136	110	26
Soap, cleaning compound, and toilet preparation	3256	411	159	253	16	11	6
Paint, coating, adhesive, and other chemical	3255, 3259	251	159	93	17	13	4
Plastics and rubber products	326	667	459	208	30	22	8
Nonmetallic mineral products	327	263	204	59	6	5	*
Primary metals	331	367	256	112	7	7	1
Fabricated metal products	332	596	480	116	34	33	1
Machinery	333	1,388	799	589	82	65	18
Agricultural implements	33311	141	83	58	10	7	3
Semiconductor machinery	333295	39	24	15	8	6	2
Engine, turbine, and power transmission equipment	3336	120	74	46	7	5	1
Other machinery	other 333	1,089	618	471	57	46	11
Computer and electronic products	334	2,697	1,268	1,429	371	260	111
Communications equipment	3342	370	213	158	94	63	31
Semiconductor and other electronic components	3344	735	279	456	121	76	45
Navigational, measuring, electromedical, and control instruments	3345	980	565	415	101	83	18
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	285	159	126	25	22	3 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	353	228 i	126 i	48	41	7
Other measuring and controlling instruments	other 3345	341	178	163	27	20	7
Computer and peripheral equipment and other computer and electronic products	other 334	611	211	400	55	38	18
Electrical equipment, appliances, and components	335	739	320	419	45	25	21
Transportation equipment	336	3,055	1,748	1,307	220	167	53
Automobiles, bodies, trailers, and parts	3361–3363	1,722	753	969	87	55	32
Aerospace products and parts	3364	1,174	862	313	110	89	20
Aircraft, aircraft engine, and aircraft parts	336411–336413	949	663	286	100	81	19
Guided missile, space vehicle, and related parts	336414, 336415, 336419	225	198	27	9	8	1
Military armored vehicle, tank, and tank components	336992	3	3	1 i	*	*	*
Other transportation equipment	other 336	156	130 i	25 i	23 i	22 i	1 i
Furniture and related products	337	211	172	39	5	5	*

TABLE 74. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2009

Industry and company size	NAICS code	Employment (thousands of employees)					
		Total			R&D		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Miscellaneous manufacturing	339	912	572	341	72	57	15
Medical equipment and supplies	3391	601	352	249	50	38	12
Other miscellaneous manufacturing	3399	311	219	92	22	19	3
Nonmanufacturing industries	21–23, 42–81	10,415	7,906	2,509	742	574	167
Mining, extraction, and support activities	21	444	235	210	11	9	2
Utilities	22	398	391	7	2	2	*
Construction	23	83	71	12	5	4	1
Wholesale trade	42	242	163	79	8 i	7 i	1 i
Retail trade	44, 45	383	371	11	5	3 i	1 i
Electronic shopping and mail-order houses	4541	45	38	7	4	3 i	1 i
Other retail trade	other 44, 45	338	334	4	*	*	*
Transportation and warehousing	48, 49	920	849	72	2	2	*
Information	51	2,499	1,795	704	295	206	89
Publishing	511	1,128	542	587	221	140	80
Newspaper, periodical, book, and directory publishers	5111	58	49	9	4	4	*
Software publishers	5112	1,071	493	578	217	137	80
Telecommunications	517	840	835	5	28 i	27 i	1
Data processing, hosting, and related services	518	210	155	55	27	23	4
Other information	other 51	320	262 i	58	18	15	3
Finance and insurance	52	1,399	1,115	284	27	22	4
Real estate and rental and leasing	53	54	48	6	1	1	*
Professional, scientific, and technical services	54	2,439	1,721	718	374	307	67
Architectural, engineering, and related services	5413	328	240	89	40	39	1
Computer systems design and related services	5415	1,090	756	333 i	154	117	37
Scientific R&D services	5417	284	234	50	107	85	21
Biotechnology R&D	541711	121	105	16 i	43	36	7
Physical, engineering, and life sciences (except biotechnology) R&D	541712	153	120	33	59	45	14
Social sciences and humanities R&D	541720	11	9 i	2	5	5 i	*
Other professional, scientific, and technical services	other 54	737	491	245	72	65	7
Health care services	621–623	271	266	5	6	6	*
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1,283	882	401	7	6	1
All companies	–	27,094	17,788	9,306	1,879	1,424	454
Small companies (number of domestic employees)[a]							
5–499	–	3,832	3,045	787	504	459	45
5–99	–	1,803	1,471	332	314	295	19
5–49	–	1,099	869	231	208	197	12
5–24	–	585	429	156	122	116	6
25–49	–	515	440	75	86	81	6
50–99	–	703	602	101	106	99	7
100–249	–	1,112	853	259	105	91	14
250–499	–	918	721	197	84	72	12
Medium and large companies (number of domestic employees)							
500–999	–	1,083	795	288	83	64	20

TABLE 74. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2009

Industry and company size	NAICS code	Employment (thousands of employees)					
		Total			R&D		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
1,000–4,999	–	3,856	2,349	1,507	297	204	94
5,000–9,999	–	2,608	1,603	1,005	168	112	56
10,000–24,999	–	4,411	2,679	1,733	292	212	81
25,000 or more	–	11,302	7,316	3,986	533	374	160

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 75. 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: 2009

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	337,306	282,393	54,914	1,879	1,424	454	179.6	198.3	120.9
Manufacturing industries	31–33	236,081	195,144	40,936	1,137	850	287	207.7	229.6	142.6
Food	311	5,009	4,192	817	30	24	7	164.7	177.6	120.1
Beverage and tobacco products	312	933	477	455	4	2	2	240.8	236.6	245.4
Textiles, apparel, and leather products	313–316	511	428	83	6	5	1	86.8	88.3	80.0
Wood products	321	515	512	2	4	4	*	137.8	138.4	70.2
Paper	322	1,508	1,249	259	12	8	4	126.7	153.1	69.2
Printing and related support activities	323	201	195	6	4	3	*	57.4	56.9	80.8
Petroleum and coal products	324	668	606	61	3	2	1	199.5	312.8	43.5
Chemicals	325	63,117	53,328	9,788	201	157	44	314.6	340.7	222.1
Basic chemicals	3251	2,879	2,042	838	17	12	5	173.4	172.6	175.4
Resin, synthetic rubber, fibers, and filaments	3252	1,169	909	260	8	7	2	143.8	137.8	169.7
Pesticide, fertilizer, and other agricultural chemical	3253	1,403 i	D i	D i	6	5	2	218.7	D	D
Pharmaceuticals and medicines	3254	51,999	44,936	7,063	136	110	26	382.3	409.9	267.7
Soap, cleaning compound, and toilet preparation	3256	3,251	2,341	911	16	11	6	199.1	218.7	161.9
Paint, coating, adhesive, and other chemical	3255, 3259	2,415	D	D	17	13	4	141.0	D	D
Plastics and rubber products	326	3,065	2,468	597	30	22	8	102.9	113.5	74.3
Nonmetallic mineral products	327	1,227 i	1,100 i	126 i	6	5	*	206.8	200.9	277.3
Primary metals	331	937	837	100	7	7	1	126.0	124.1	144.2
Fabricated metal products	332	2,164	2,040	124	34	33	1	63.1	61.4	116.6
Machinery	333	11,035	9,138	1,897	82	65	18	134.0	141.0	108.3
Agricultural implements	33311	1,355	1,010	345	10	7	3	135.8	144.9	114.7
Semiconductor machinery	333295	2,134	1,847	287	8	6	2	258.1	309.4	124.8
Engine, turbine, and power transmission equipment	3336	831	748	83	7	5	1	120.3	137.8	56.2
Other machinery	other 333	6,716	5,533	1,183	57	46	11	117.5	119.1	110.2
Computer and electronic products	334	69,787	56,436	13,351	371	260	111	188.0	217.2	120.0
Communications equipment	3342	16,631	13,499	3,132	94	63	31	177.6	214.7	101.8
Semiconductor and other electronic components	3344	26,041	19,983	6,058	121	76	45	214.5	261.4	134.7
Navigational, measuring, electromedical, and control instruments	3345	17,190	14,859	2,331	101	83	18	170.6	179.1	130.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	6,301 i	5,615 i	686 i	25	22	3 i	249.3	256.0	205.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	7,502	6,700	802	48	41	7	155.2	163.6	108.6
Other measuring and controlling instruments	other 3345	3,386	2,543	843	27	20	7	124.6	126.6	119.0
Computer and peripheral equipment and other computer and electronic products	other 334	9,926	8,095	1,831	55	38	18	179.5	215.6	103.1
Electrical equipment, appliances, and components	335	4,535	3,334	1,201	45	25	21	99.8	134.1	58.4
Transportation equipment	336	56,315	48,337	7,978	220	167	53	256.1	289.9	150.2
Automobiles, bodies, trailers, and parts	3361–3363	D	D	6,124	87	55	32	D	D	191.2
Aerospace products and parts	3364	36,400	34,554	1,846	110	89	20	332.3	387.4	90.7
Aircraft, aircraft engine, and aircraft parts	336411–336413	28,411	26,650 i	1,761	100	81	19	283.1	329.4	90.5
Guided missile, space vehicle, and related parts	336414, 336415, 336419	7,989	7,904	85	9	8	1	871.5	955.7	95.3

TABLE 75. 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: 2009

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Military armored vehicle, tank, and tank components	336992	33	D	D	*	*	*	192.5	D	D
Other transportation equipment	other 336	D i	2,386 i	D	23 i	22 i	1 i	D	106.1	D
Furniture and related products	337	434	396	38	5	5	*	79.1	73.9	302.0
Miscellaneous manufacturing	339	14,121	10,070	4,051	72	57	15	196.5	177.4	268.6
Medical equipment and supplies	3391	11,524	7,698	3,826	50	38	12	232.2	204.4	319.5
Other miscellaneous manufacturing	3399	2,596	2,371	225	22	19	3	116.9	124.1	72.4
Nonmanufacturing industries	21–23, 42–81	101,226	87,248	13,977	742	574	167	136.5	151.9	83.5
Mining, extraction, and support activities	21	2,998	D	D	11	9	2	273.2	D	D
Utilities	22	259	246	13	2	2	*	118.0	115.6	195.9
Construction	23	118	115	4	5	4	1	25.0	28.9	4.7
Wholesale trade	42	1,082 i	D i	D i	8 i	7 i	1 i	132.9	D	D
Retail trade	44, 45	1,015	D	D	5	3 i	1 i	216.8	D	D
Electronic shopping and mail-order houses	4541	967	D	D	4	3 i	1 i	223.6	D	D
Other retail trade	other 44, 45	49	45	3 i	*	*	*	135.5	134.4	153.3
Transportation and warehousing	48, 49	179	178	1	2	2	*	77.9	77.7	108.7
Information	51	40,717	33,806	6,911	295	206	89	138.3	164.4	77.8
Publishing	511	33,499	27,077	6,422	221	140	80	151.7	192.9	79.9
Newspaper, periodical, book, and directory publishers	5111	730	683	47	4	4	*	182.5	185.5	147.4
Software publishers	5112	32,769	26,394	6,374	217	137	80	151.1	193.0	79.6
Telecommunications	517	1,582	1,496	86	28 i	27 i	1	55.9	54.8	84.6
Data processing, hosting, and related services	518	3,017	2,735	282	27	23	4	110.7	119.1	65.5
Other information	other 51	2,619	2,497	122	18	15	3	144.6	166.1	39.5
Finance and insurance	52	2,434	1,911	523	27	22	4	91.0	85.7	118.1
Real estate and rental and leasing	53	264	264	*	1	1	*	274.5	279.2	7.1
Professional, scientific, and technical services	54	50,901	44,946	5,955	374	307	67	136.2	146.5	89.0
Architectural, engineering, and related services	5413	3,411	3,281	130	40	39	1	84.5	84.4	88.2
Computer systems design and related services	5415	14,585	12,560	2,025	154	117	37	94.4	107.3	54.1
Scientific R&D services	5417	20,243	17,270	2,974	107	85	21	190.0	202.2	141.0
Biotechnology R&D	541711	8,972	8,259	713	43	36	7	209.0	230.8	99.8
Physical, engineering, and life sciences (except biotechnology) R&D	541712	10,548	8,297	2,251	59	45	14	180.1	184.7	164.9
Social sciences and humanities R&D	541720	724	714	9	5	5 i	*	143.8	150.9	31.3
Other professional, scientific, and technical services	other 54	12,661	11,836	826	72	65	7	175.3	181.0	120.3
Health care services	621–623	547	537	10	6	6	*	91.3	91.0	111.9
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	710	645	66	7	6	1	102.4	111.0	58.2

TABLE 75. 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: 2009

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All companies	–	337,306	282,393	54,914	1,879	1,424	454	179.6	198.3	120.9
Small companies (number of domestic employees)[a]										
5–499	–	62,965	58,719	4,246	504	459	45	125.0	127.9	94.9
5–99	–	36,425	34,769	1,656	314	295	19	116.0	117.7	89.2
5–49	–	22,637	21,486	1,151	208	197	12	108.6	109.2	98.7
5–24	–	12,490	11,794	696	122	116	6	102.3	101.7	113.3
25–49	–	10,147	9,692	455	86	81	6	117.7	120.1	82.5
50–99	–	13,787	13,282	505	106	99	7	130.6	134.6	73.0
100–249	–	14,332	12,747	1,586	105	91	14	136.0	139.3	114.1
250–499	–	12,209	11,204	1,005	84	72	12	144.5	155.2	81.8
Medium and large companies (number of domestic employees)										
500–999	–	12,104	10,119	1,985	83	64	20	145.0	158.6	101.0
1,000–4,999	–	54,617	44,008	10,610	297	204	94	183.6	215.8	113.4
5,000–9,999	–	27,642	21,864	5,778	168	112	56	164.1	195.0	102.6
10,000–24,999	–	61,815	51,037	10,777	292	212	81	211.6	241.2	133.8
25,000 or more	–	118,162	96,645	21,517	533	374	160	221.6	258.6	134.9

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 76. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
All industries	21–23, 31–33, 42–81	27,094	1,879	6.9	17,788	1,424	8.0	9,306	454	4.9
Manufacturing industries	31–33	16,679	1,137	6.8	9,882	850	8.6	6,798	287	4.2
Food	311	2,015	30	1.5	1,435	24	1.6	580	7	1.2
Beverage and tobacco products	312	339	4	1.1	112	2	1.8	227	2	0.8
Textiles, apparel, and leather products	313–316	269	6	2.2	175	5	2.8	94	1	1.1
Wood products	321	157	4	2.4	124	4	3.0	32	*	*
Paper	322	349	12	3.4	216	8	3.8	133	4	2.8
Printing and related support activities	323	184	4	1.9	170	3	2.0	14	*	0.6
Petroleum and coal products	324	185	3	1.8	85	2	2.3	101	1	1.4
Chemicals	325	2,286	201	8.8	1,287	157	12.2	999	44	4.4
Basic chemicals	3251	399	17	4.2	220	12	5.4	179	5	2.7
Resin, synthetic rubber, fibers, and filaments	3252	239	8	3.4	162	7	4.1	76 i	2	2.0
Pesticide, fertilizer, and other agricultural chemical	3253	75	6	8.6	49	5	9.5	25	2	6.7
Pharmaceuticals and medicines	3254	910	136	15.0	538	110	20.4	372	26	7.1
Soap, cleaning compound, and toilet preparation	3256	411	16	4.0	159	11	6.7	253	6	2.2
Paint, coating, adhesive, and other chemical	3255, 3259	251	17	6.8	159	13	8.3	93	4	4.4
Plastics and rubber products	326	667	30	4.5	459	22	4.7	208	8	3.9
Nonmetallic mineral products	327	263	6	2.3	204	5	2.7	59	*	0.8
Primary metals	331	367	7	2.0	256	7	2.6	112	1	0.6
Fabricated metal products	332	596	34	5.8	480	33	6.9	116	1	0.9
Machinery	333	1,388	82	5.9	799	65	8.1	589	18	3.0
Agricultural implements	33311	141	10	7.1	83	7	8.4	58	3	5.2
Semiconductor machinery	333295	39	8	21.3	24	6	24.8	15	2	15.5
Engine, turbine, and power transmission equipment	3336	120	7	5.8	74	5	7.3	46	1	3.2
Other machinery	other 333	1,089	57	5.3	618	46	7.5	471	11	2.3
Computer and electronic products	334	2,697	371	13.8	1,268	260	20.5	1,429	111	7.8
Communications equipment	3342	370	94	25.3	213	63	29.6	158	31	19.5
Semiconductor and other electronic components	3344	735	121	16.5	279	76	27.4	456	45	9.9
Navigational, measuring, electromedical, and control instruments	3345	980	101	10.3	565	83	14.7	415	18	4.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	285	25	8.9	159	22	13.8	126	3 i	2.7
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	353	48	13.7	228 i	41	18.0	126 i	7	5.9
Other measuring and controlling instruments	other 3345	341	27	8.0	178	20	11.3	163	7	4.3
Computer and peripheral equipment and other computer and electronic products	other 334	611	55	9.1	211	38	17.8	400	18	4.4
Electrical equipment, appliances, and components	335	739	45	6.2	320	25	7.8	419	21	4.9
Transportation equipment	336	3,055	220	7.2	1,748	167	9.5	1,307	53	4.1
Automobiles, bodies, trailers, and parts	3361–3363	1,722	87	5.1	753	55	7.3	969	32	3.3
Aerospace products and parts	3364	1,174	110	9.3	862	89	10.4	313	20	6.5

TABLE 76. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
Aircraft, aircraft engine, and aircraft parts	336411–336413	949	100	10.6	663	81	12.2	286	19	6.8
Guided missile, space vehicle, and related parts	336414, 336415, 336419	225	9	4.1	198	8	4.2	27	1	3.3
Military armored vehicle, tank, and tank components	336992	3	*	5.4	3	*	6.7	1 i	*	*
Other transportation equipment	other 336	156	23 i	14.9	130 i	22 i	17.2	25 i	1 i	3.0
Furniture and related products	337	211	5	2.6	172	5	3.1	39	*	*
Miscellaneous manufacturing	339	912	72	7.9	572	57	9.9	341	15	4.4
Medical equipment and supplies	3391	601	50	8.3	352	38	10.7	249	12	4.8
Other miscellaneous manufacturing	3399	311	22	7.1	219	19	8.7	92	3	3.4
Nonmanufacturing industries	21–23, 42–81	10,415	742	7.1	7,906	574	7.3	2,509	167	6.7
Mining, extraction, and support activities	21	444	11	2.5	235	9	3.6	210	2	1.2
Utilities	22	398	2	0.6	391	2	0.5	7	*	0.9
Construction	23	83	5	5.8	71	4	5.6	12	1	6.6
Wholesale trade	42	242	8 i	3.4	163	7 i	4.2	79	1 i	1.7
Retail trade	44, 45	383	5	1.2	371	3 i	0.9	11	1 i	11.5
Electronic shopping and mail-order houses	4541	45	4	9.6	38	3 i	8.1	7	1 i	17.4
Other retail trade	other 44, 45	338	*	*	334	*	*	4	*	0.5
Transportation and warehousing	48, 49	920	2	*	849	2	*	72	*	*
Information	51	2,499	295	11.8	1,795	206	11.5	704	89	12.6
Publishing	511	1,128	221	19.6	542	140	25.9	587	80	13.7
Newspaper, periodical, book, and directory publishers	5111	58	4	6.9	49	4	7.5	9	*	3.6
Software publishers	5112	1,071	217	20.3	493	137	27.7	578	80	13.9
Telecommunications	517	840	28 i	3.4	835	27 i	3.3	5	1	19.2
Data processing, hosting, and related services	518	210	27	13.0	155	23	14.8	55	4	7.9
Other information	other 51	320	18	5.7	262 i	15	5.7	58	3	5.4
Finance and insurance	52	1,399	27	1.9	1,115	22	2.0	284	4	1.6
Real estate and rental and leasing	53	54	1	1.8	48	1	2.0	6	*	*
Professional, scientific, and technical services	54	2,439	374	15.3	1,721	307	17.8	718	67	9.3
Architectural, engineering, and related services	5413	328	40	12.3	240	39	16.2	89	1	1.7
Computer systems design and related services	5415	1,090	154	14.2	756	117	15.5	333 i	37	11.2
Scientific R&D services	5417	284	107	37.5	234	85	36.5	50	21	41.9
Biotechnology R&D	541711	121	43	35.6	105	36	34.1	16 i	7	45.7
Physical, engineering, and life sciences (except biotechnology) R&D	541712	153	59	38.3	120	45	37.3	33	14	41.6
Social sciences and humanities R&D	541720	11	5	47.7	9 i	5 i	54.7	2	*	15.7
Other professional, scientific, and technical services	other 54	737	72	9.8	491	65	13.3	245	7	2.8
Health care services	621–623	271	6	2.2	266	6	2.2	5	*	1.9
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1,283	7	0.5	882	6	0.7	401	1	*
All companies	–	27,094	1,879	6.9	17,788	1,424	8.0	9,306	454	4.9
Small companies (number of domestic employees)[a]										
5–499	–	3,832	504	13.2	3,045	459	15.1	787	45	5.7

TABLE 76. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
5–99	–	1,803	314	17.4	1,471	295	20.1	332	19	5.6
5–49	–	1,099	208	19.0	869	197	22.6	231	12	5.1
5–24	–	585	122	20.9	429	116	27.1	156	6	3.9
25–49	–	515	86	16.8	440	81	18.3	75	6	7.4
50–99	–	703	106	15.0	602	99	16.4	101	7	6.8
100–249	–	1,112	105	9.5	853	91	10.7	259	14	5.4
250–499	–	918	84	9.2	721	72	10.0	197	12	6.3
Medium and large companies (number of domestic employees)										
500–999	–	1,083	83	7.7	795	64	8.0	288	20	6.8
1,000–4,999	–	3,856	297	7.7	2,349	204	8.7	1,507	94	6.2
5,000–9,999	–	2,608	168	6.5	1,603	112	7.0	1,005	56	5.6
10,000–24,999	–	4,411	292	6.6	2,679	212	7.9	1,733	81	4.7
25,000 or more	–	11,302	533	4.7	7,316	374	5.1	3,986	160	4.0

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 77. Worldwide R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All industries	21–23, 31–33, 42–81	1,097	923	173	236	146	90	318	230	87	228	116	112
Manufacturing industries	31–33	660	573	88	154	96	58	175	132	43	147	78	70
Food	311	6	4 i	2	10	6	4	7	4	3	7	4	3
Beverage and tobacco products	312	2 i	1 i	*	1	*	*	1 i	* i	* i	1 i	*	* i
Textiles, apparel, and leather products	313–316	2	1	*	*	* i	*	2	1	1	2	1	1
Wood products	321	1	1	*	*	*	*	1	*	*	1	1	*
Paper	322	5	4	1	4	3	1	2	2	1	1	1	*
Printing and related support activities	323	1	1	*	*	*	*	1	1	*	1	1	*
Petroleum and coal products	324	1	1	*	*	*	*	1	1	*	1	1	*
Chemicals	325	29	22	7	95	54	40	39	23	16	39	14	25
Basic chemicals	3251	4	3	1	6	5	1	5	4	1	2	1	1
Resin, synthetic rubber, fibers, and filaments	3252	2 i	2 i	* i	2	2	*	3	2	1	1	*	*
Pesticide, fertilizer, and other agricultural chemical	3253	*	*	*	3	2	1	2	1	1	1	*	1
Pharmaceuticals and medicines	3254	11	8	3	70	38	33	23	12	11	32	11	21
Soap, cleaning compound, and toilet preparation	3256	6	4	2	7	3	3	2	1	1	2	*	1
Paint, coating, adhesive, and other chemical	3255, 3259	6	5	1	6	4	1	4	3	1	2	1	1
Plastics and rubber products	326	13	12	1	5	4	1	8	6	1	5	3	2
Nonmetallic mineral products	327	2	2	*	1	1	*	2	1	*	2	1	*
Primary metals	331	3	3	*	*	*	*	2	2	*	2	2	*
Fabricated metal products	332	16	15	1	1	1	*	10	9	1	8	6	2
Machinery	333	60	54	5	2	2	*	13	13	1	7	5	2
Agricultural implements	33311	8	8	1	*	*	*	1	1	*	1	1	*
Semiconductor machinery	333295	6	6	1	*	*	*	1	1	*	1	*	*
Engine, turbine, and power transmission equipment	3336	4	4	*	*	*	*	2	1	*	1	1	*
Other machinery	other 333	41	37	4	1	1	* i	10	9	1	5	3	2
Computer and electronic products	334	292	252	40	12	9	3 i	38	30	8	29	14	15 i
Communications equipment	3342	80	69	11	* i	* i	* i	6 i	5 i	1 i	7	4	3
Semiconductor and other electronic components	3344	98	85	13	3	3	*	13	10	2	8	4	3
Navigational, measuring, electromedical, and control instruments	3345	67	58	9	7	5	2 i	16 i	12 i	4	11 i	4	7 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	16	14	2	2 i	1 i	1 i	4 i	3 i	1 i	3 i	1 i	2 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	33	29	4	1	1	*	8 i	6 i	1	6 i	2	4 i
Other measuring and controlling instruments	other 3345	18	15	2	3	2	1	4	3	1	2	1	1
Computer and peripheral equipment and other computer and electronic products	other 334	47	40	7 i	2	2 i	* i	3	2	1	4	2	2
Electrical equipment, appliances, and components	335	29 i	26 i	3 i	4 i	3 i	1 i	9 i	8 i	1 i	4 i	2 i	2 i
Transportation equipment	336	168	147	20	7	5	1	23 i	20 i	3 i	22 i	15 i	8 i
Automobiles, bodies, trailers, and parts	3361–3363	70	61 i	9 i	3 i	2 i	* i	10 i	8 i	1 i	5	3	1
Aerospace products and parts	3364	86	76	10	4	3	1	9	8	1	11 i	7 i	4 i

TABLE 77. Worldwide R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Aircraft, aircraft engine, and aircraft parts	336411–336413	78	68	10	3	2	1	8	7	1	11 i	7 i	4 i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	8	7	1	*	*	*	*	*	*	*	*	*
Military armored vehicle, tank, and tank components	336992	*	*	*	*	*	0	*	*	*	*	*	*
Other transportation equipment	other 336	12 i	10 i	2 i	* i	* i	* i	5 i	4 i	1 i	6 i	4 i	2 i
Furniture and related products	337	3	2	*	*	*	*	1	1	*	1	1	*
Miscellaneous manufacturing	339	30	25	5	13 i	7 i	6 i	14	10	5	15	7	8
Medical equipment and supplies	3391	18	15	3	11 i	6 i	5 i	9	6	3 i	11	5	7 i
Other miscellaneous manufacturing	3399	11	10	1	2	1	*	6	4	2	4	2	1
Nonmanufacturing industries	21–23, 42–81	436	350	86	82	50	31	143	99	44	81	39	42
Mining, extraction, and support activities	21	7	6	1	1	1	*	2	1	*	1	1	1
Utilities	22	1	1	*	*	*	*	1	1	*	*	*	*
Construction	23	4 i	4 i	* i	*	*	*	*	*	*	*	*	*
Wholesale trade	42	3 i	3 i	1 i	1 i	1 i	* i	2 i	1 i	1 i	1 i	1 i	1 i
Retail trade	44, 45	4	3 i	1 i	* i	*	* i	*	*	*	*	*	*
Electronic shopping and mail-order houses	4541	4	3 i	1 i	*	*	*	*	*	*	*	*	*
Other retail trade	other 44, 45	*	*	*	* i	* i	* i	*	*	*	*	*	* i
Transportation and warehousing	48, 49	1	1	*	*	*	*	1	1	*	*	*	*
Information	51	233	183	50	9	7	2	29	22	7	23	16	7
Publishing	511	179	140	39	7	6	1	15	11	3	20	14	6
Newspaper, periodical, book, and directory publishers	5111	*	*	*	*	*	*	*	*	*	3	3	1
Software publishers	5112	179	140	39	7	6	1	14	11	3	16	11	5
Telecommunications	517	25 i	21 i	4 i	* i	* i	* i	2 i	1 i	* i	1 i	1 i	1 i
Data processing, hosting, and related services	518	20 i	16 i	5 i	1	1	*	5 i	3 i	2 i	1	1	*
Other information	other 51	9	7	2	*	*	*	8	6	2	1	1	1
Finance and insurance	52	13 i	10 i	4	1 i	* i	* i	11	6	5	2 i	1 i	1
Real estate and rental and leasing	53	1	1	*	*	*	*	*	*	*	*	*	*
Professional, scientific, and technical services	54	166	137	29	65	38	27	94	65	29	49	19	30
Architectural, engineering, and related services	5413	26	22	4	2	2	1	9	7	2	4	2	2
Computer systems design and related services	5415	91	76	15	6	5	2	49	39	10	8	4	4
Scientific R&D services	5417	21	16	5	33	18	15	27	11	15	25	8	17
Biotechnology R&D	541711	6	3	3	21	12	10	8	4	4	8	3	5
Physical, engineering, and life sciences (except biotechnology) R&D	541712	15	13	2	10	6	4	17	7	10	16	4	12
Social sciences and humanities R&D	541720	1 i	1 i	* i	2	1 i	1	1 i	* i	1	1 i	* i	1 i
Other professional, scientific, and technical services	other 54	28	23	5	23 i	14 i	10 i	10	7	2	11	5	7
Health care services	621–623	* i	* i	* i	2	1	1	1	* i	1	2 i	1	1 i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2	2	* i	2	1	1	2 i	1	1 i	1	*	1

TABLE 77. Worldwide R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All companies	–	1,097	923	173	236	146	90	318	230	87	228	116	112
Small companies (number of domestic employees)[a]													
5–499	–	257	225	32	70	45	25	109	85	25	68	38	29
5–99	–	157	139	18	47	30	17	68	54	15	41	23	18
5–49	–	103	92	10	27	18	9	49	38	11	30	17	13
5–24	–	62	56	6	14	10	4	28	21	7	18	10	8
25–49	–	41	36	5	13	8	5	21	17	4	12	7	5
50–99	–	54	47	8	21 i	12 i	8 i	19	15	4	11	7	5
100–249	–	55	47	7	10	7	3	25	19	6	15	10	6
250–499	–	46	39	6	12	8	5	16	12	4	11	5	6
Medium and large companies (number of domestic employees)													
500–999	–	46	39	7	12	8	4	17	12	5	10	5	5
1,000–4,999	–	183	152	31	35	22	13	44	30	14	35	18	17
5,000–9,999	–	91	74	17	17	10	7	32	21	11	29	13	16
10,000–24,999	–	165	141	24	51	30	22	40	30	10	35	14	21
25,000 or more	–	355	292	62	51	32	19	76	54	22	52 i	27 i	24 i

* = amount < 500 employees; i = more than 50% of value imputed.

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 78. Worldwide, domestic, and foreign R&D scientists and engineers and their managers, by highest academic degree, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Worldwide				Domestic				Foreign			
		Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education
All industries	21–23, 31–33, 42–81	1,332	155	976	202	999	128	739	132	333	27 i	237	70 i
Manufacturing industries	31–33	815	98	592	126	596	78	434	84	219	19 i	158	41 i
Food	311	16	3	10	3 i	11	2	7	2	5	* i	3 i	1 i
Beverage and tobacco products	312	2	*	2	*	1	*	1	*	1 i	*	1 i	* i
Textiles, apparel, and leather products	313–316	2	* i	2	*	2	*	1	*	* i	* i	* i	*
Wood products	321	2	*	1	1	2	*	1 i	1	* i	0	* i	* i
Paper	322	9	1	4	4	6	1	3	2	3	*	1	2
Printing and related support activities	323	1	*	1	*	1	*	1	*	* i	0	* i	* i
Petroleum and coal products	324	1	*	1	*	1	*	1	*	*	*	*	*
Chemicals	325	123	33	70	20	98	28	56	13	26	5	14	7
Basic chemicals	3251	10	3	5	1	7	2	4	1	3	1	1	1
Resin, synthetic rubber, fibers, and filaments	3252	4	1 i	3 i	*	3	1 i	D i	D	1 i	* i	D i	D i
Pesticide, fertilizer, and other agricultural chemical	3253	4	1	1	2 i	3	*	D	D	1	*	D i	D i
Pharmaceuticals and medicines	3254	82	23	44	14	67	20	37	10	14	3	7	5
Soap, cleaning compound, and toilet preparation	3256	13	2	10	*	8	2	6	*	4	1	4	*
Paint, coating, adhesive, and other chemical	3255, 3259	11	3	6	2	8	3	5	1	3	1	1	1
Plastics and rubber products	326	17	3	13	2	12	2	8	1	6	1	5	*
Nonmetallic mineral products	327	3	*	2	*	2	*	2	*	*	* i	* i	* i
Primary metals	331	3	*	2	*	3	*	2	*	*	*	*	* i
Fabricated metal products	332	16	*	11	5	16	*	10	5	1 i	*	1 i	* i
Machinery	333	61	6	47	8	47	5	37	5	15	1 i	10	3
Agricultural implements	33311	8	*	7	1	5	*	5	*	3	*	2	1
Semiconductor machinery	333295	7	1 i	4	1	5	1	3	1	2	* i	1 i	* i
Engine, turbine, and power transmission equipment	3336	4	*	4	*	3	*	3	*	1	*	1	*
Other machinery	other 333	42	4	33	6	33	3	26	4	9	1	6	2
Computer and electronic products	334	304	23 i	236	45 i	212	17	167	28	92	6 i	69	17 i
Communications equipment	3342	81	4 i	68 i	9 i	54	3 i	45	6 i	27	1 i	23 i	3 i
Semiconductor and other electronic components	3344	101	9	76	16 i	64	7	49	8	37	2 i	27	8 i
Navigational, measuring, electromedical, and control instruments	3345	74	7 i	57	10 i	61	5	49	7	12	1 i	8	3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	18	2 i	14 i	3 i	16	2	12	2	2 i	* i	2 i	* i

TABLE 78. Worldwide, domestic, and foreign R&D scientists and engineers and their managers, by highest academic degree, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Worldwide				Domestic				Foreign			
		Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	35	2	28	4	30	2	25	3	5	*	3	1
Other measuring and controlling instruments	other 3345	21	3	15	3	15	2	12	2 i	5	1	3	1 i
Computer and peripheral equipment and other computer and electronic products	other 334	49	4	34 i	11 i	34	3	24 i	7 i	15	1 i	11 i	4 i
Electrical equipment, appliances, and components	335	32 i	4 i	23 i	5 i	17	2	13	2	15 i	2 i	10 i	4 i
Transportation equipment	336	174	17 i	136	22	128	14 i	97	16	46	2	39	5
Automobiles, bodies, trailers, and parts	3361–3363	73	3	63 i	7	44	2	38	4	28 i	1 i	25 i	2 i
Aerospace products and parts	3364	90	9	68	12	72	8 i	55	9	17	1	13	3
Aircraft, aircraft engine, and aircraft parts	336411–336413	81	9	61	11	65	7 i	49	8	17	1	12	3
Guided missile, space vehicle, and related parts	336414, 336415, 336419	8	1	7	1	8	1	6	1	1	* i	1 i	* i
Military armored vehicle, tank, and tank components	336992	*	*	*	0	*	*	*	0	0	0	0	0
Other transportation equipment	other 336	12 i	4 i	5 i	3 i	12 i	4 i	5 i	3 i	* i	* i	* i	* i
Furniture and related products	337	3	* i	2	1	3	*	2	1	* i	* i	* i	* i
Miscellaneous manufacturing	339	43	6 i	28	8	35	5 i	23	7	8 i	1 i	5 i	2 i
Medical equipment and supplies	3391	30	5 i	19	5	24	4 i	15	4	6 i	1 i	4 i	1
Other miscellaneous manufacturing	3399	13	1	9	3	11	1	8	2	2	*	1	1
Nonmanufacturing industries	21–23, 42–81	518	57	384	77	403	50	305	48	115	7 i	79	29 i
Mining, extraction, and support activities	21	8	2	5	1	7	2	4	1	2	* i	1 i	*
Utilities	22	1	*	1	*	1	*	1	*	*	*	* i	0
Construction	23	4 i	* i	4 i	* i	3	* i	3 i	* i	1 i	* i	1 i	* i
Wholesale trade	42	4 i	1 i	3 i	* i	3 i	* i	3 i	* i	1 i	* i	1 i	* i
Retail trade	44, 45	4	*	4 i	*	3 i	*	3 i	*	1 i	* i	1 i	* i
Electronic shopping and mail-order houses	4541	4	*	4 i	*	3 i	*	3 i	*	1 i	0	1 i	0
Other retail trade	other 44, 45	*	*	*	* i	*	*	*	*	* i	* i	0	* i
Transportation and warehousing	48, 49	1	* i	*	1	1 i	* i	* i	1 i	* i	* i	* i	* i
Information	51	242	15	188	39	167	11	135	21	75	4 i	53	18
Publishing	511	187	13	141	32	117	9	92	15	70	4	49	17
Newspaper, periodical, book, and directory publishers	5111	*	*	*	*	*	*	*	*	*	0	*	0
Software publishers	5112	186	13	141	32	117	9	92	15	70	4	49	17

TABLE 78. Worldwide, domestic, and foreign R&D scientists and engineers and their managers, by highest academic degree, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Worldwide				Domestic				Foreign			
		Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education
Telecommunications	517	25 i	1 i	22 i	2 i	25 i	1 i	21 i	2 i	1	* i	1 i	* i
Data processing, hosting, and related services	518	21 i	1 i	18 i	3 i	17	1	15	2	4	* i	3	* i
Other information	other 51	9	*	7	2	8	*	7	1	1	* i	* i	1
Finance and insurance	52	14 i	1	11 i	1 i	10 i	1	8 i	2 i	4 i	*	4 i	* i
Real estate and rental and leasing	53	1	* i	1 i	* i	1	* i	1 i	* i	* i	0	* i	* i
Professional, scientific, and technical services	54	231	37	161	32 i	201	35	144	22	30	3 i	18	10 i
Architectural, engineering, and related services	5413	28	3	24	2	27	2	23	2	1	* i	1 i	* i
Computer systems design and related services	5415	97	7	71	18 i	79	7	60	13 i	18	1 i	12	6 i
Scientific R&D services	5417	55	17	31	7	48	15	28	5	6	1 i	3	2 i
Biotechnology R&D	541711	27	9	14	3	23	9	12	2	4	1 i	2	1
Physical, engineering, and life sciences (except biotechnology) R&D	541712	25	7	15	4	23	6	14	3	2 i	* i	1	1 i
Social sciences and humanities R&D	541720	3 i	1 i	2	* i	3	1 i	2	* i	* i	* i	* i	* i
Other professional, scientific, and technical services	other 54	51	11 i	35	5	46	10	33	3	5	*	2	2 i
Health care services	621–623	3	1	2	* i	3	1	2	* i	* i	*	* i	* i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	4	*	3	1	3	*	2	1	1	* i	*	*
All companies	–	1,332	155	976	202	999	128	739	132	333	27 i	237	70 i
Small companies (number of domestic employees)[b]													
5–499	–	327	45	248	34	296	42	226	28	31 i	3 i	22 i	6 i
5–99	–	204	31	150	23	192	30	143	19	12 i	1 i	7 i	4 i
5–49	–	129	20	94	15	122	19	90	13	7 i	1 i	4 i	2 i
5–24	–	76	12	56	8	72	11	54	7	4 i	* i	2 i	1 i
25–49	–	53	8	38	7	50	8	36	6	3 i	* i	2 i	1 i
50–99	–	75	11 i	56	8	70	11	53	6	5 i	* i	3 i	2 i
100–249	–	65	7	52	7	56	6	45	5	9 i	1 i	7 i	1 i
250–499	–	58	7	46	5	48	7	38	3	10	1	8	1 i
Medium and large companies (number of domestic employees)													
500–999	–	57	7	39	11	42	6	29	7	16	2 i	10	4 i
1,000–4,999	–	218	22	158	37	147	17	107	23	71	5	51	14 i

TABLE 78. Worldwide, domestic, and foreign R&D scientists and engineers and their managers, by highest academic degree, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Worldwide				Domestic				Foreign			
		Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education	Total	Doctorate[a]	Other college degree	Other education
5,000–9,999	–	108	12	73	24	72	8	49	14	36	3	24	9
10,000–24,999	–	217	24	154	39 i	158	20	112	25	59 i	4 i	41 i	14 i
25,000 or more	–	405	44 i	304	57 i	285	34	215	35	121	10 i	89	22

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

NAICS = 2007 North American Industry Classification System.

[a] Includes EngD, ScD; excludes MD, JD, and EdD.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 79. Domestic R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All industries	21–23, 31–33, 42–81	807	685	122	192	119	73	247	180	67	179	92	86
Manufacturing industries	31–33	477	417	60	119	74	45	138	105	33	116	63	53
Food	311	4	3	1	7	4	3	6	3	3	6	4	3
Beverage and tobacco products	312	1	*	*	1	*	*	*	*	*	*	*	*
Textiles, apparel, and leather products	313–316	1	1	*	*	*	*	2	1	1	1	1	1
Wood products	321	1	1	*	*	*	*	1	*	*	1	1	*
Paper	322	3	D	D	3	D	D	1	1	*	1	D	D
Printing and related support activities	323	1	1	*	*	*	*	1	1	*	1	1	*
Petroleum and coal products	324	1	D	D	*	D	D	1	*	*	*	D	D
Chemicals	325	21	16	5	77	44	33	30	18	13	29	10	18
Basic chemicals	3251	3	2	*	5	4	1	3	2	1	1	1	1
Resin, synthetic rubber, fibers, and filaments	3252	1	1	*	2	2	*	3	D	D	1	*	*
Pesticide, fertilizer, and other agricultural chemical	3253	*	*	*	3	2	1	1	D	D	1	*	*
Pharmaceuticals and medicines	3254	9	7	2	58	31	27	19	9	9	24	8	16
Soap, cleaning compound, and toilet preparation	3256	4	2	1	5	2	2	1	1	1	1	*	1
Paint, coating, adhesive, and other chemical	3255, 3259	4	3	1	5	4	1	3	3	1	1	1	1
Plastics and rubber products	326	9	8	1	3	2	1	6	5	1	4	3	1
Nonmetallic mineral products	327	2	2	*	1	1	*	1	1	*	2	1	*
Primary metals	331	2	2	*	*	*	*	2	2	*	2	2	*
Fabricated metal products	332	15	14	1	1	1	*	10	9	1	8	6	2
Machinery	333	45	42	4	1	1	*	12	11	1	6	4	2
Agricultural implements	33311	5	5	*	*	*	*	1	1	*	1	1	*
Semiconductor machinery	333295	5	4	*	*	*	*	1	1	*	*	*	*
Engine, turbine, and power transmission equipment	3336	3	3	*	*	*	*	1	1	*	1	*	*
Other machinery	other 333	32	30	3	1	1	*	9	8	*	4	3	1
Computer and electronic products	334	203	176	27	9	7	2 i	28	22	6	20	9	10
Communications equipment	3342	53	46	7	* i	* i	* i	5 i	4 i	1	5	3	2
Semiconductor and other electronic components	3344	61	54	8	3	2	*	8	7	2	4	2	2
Navigational, measuring, electromedical, and control instruments	3345	56	49	7	5	4	1 i	13	10	3	9 i	3	6 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	14	12	2	2 i	1 i	1 i	3	2	1 i	2 i	1 i	1 i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	28	25	4	1	1	*	7	5	1	5 i	1	4 i
Other measuring and controlling instruments	other 3345	13	12	1	2	1	1	3	2	1	2	1	1
Computer and peripheral equipment and other computer and electronic products	other 334	33	28	5	1	1 i	* i	2	1	*	2	1	1
Electrical equipment, appliances, and components	335	16	15	1	1	1	*	5	5	1	2	1	1
Transportation equipment	336	123	109	15	5	4	1	18	16	2	20 i	13 i	7 i
Automobiles, bodies, trailers, and parts	3361–3363	42	37	5	2	2	*	7	6	1	4	3	1

TABLE 79. Domestic R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Aerospace products and parts	3364	69	61	8	3	2	1	7	6	1	10 i	6 i	4 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	62	55	7	2	2	*	6	5	1	10 i	6 i	4 i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	7	7	1	*	*	*	*	*	*	*	*	*
Military armored vehicle, tank, and tank components	336992	*	*	*	*	*	0	*	*	*	*	*	*
Other transportation equipment	other 336	12 i	10 i	1 i	* i	* i	* i	5 i	4 i	1 i	6 i	4 i	2 i
Furniture and related products	337	3	2	*	*	*	*	1	1	*	1	1	*
Miscellaneous manufacturing	339	25	22	4	9 i	5 i	4 i	12	8	4	11	5	5
Medical equipment and supplies	3391	16	13	3	8 i	4 i	3 i	7	4	2	7	3	4
Other miscellaneous manufacturing	3399	10	9	1	1	1	*	5	3	1	3	2	1
Nonmanufacturing industries	21–23, 42–81	330	269	62	73	45	28	109	75	34	63	29	34
Mining, extraction, and support activities	21	5	5	1	1	1	*	1	1	*	1	*	*
Utilities	22	1	1	*	*	*	*	1	1	*	*	*	*
Construction	23	3	3 i	* i	*	*	*	*	*	*	*	*	*
Wholesale trade	42	3 i	2 i	* i	1 i	* i	* i	2 i	1 i	1 i	1 i	1 i	* i
Retail trade	44, 45	3 i	2 i	1 i	*	*	*	*	*	*	*	*	*
Electronic shopping and mail-order houses	4541	3 i	2 i	1 i	*	*	*	*	*	*	*	*	*
Other retail trade	other 44, 45	*	*	*	*	*	*	*	*	*	*	*	*
Transportation and warehousing	48, 49	1 i	1 i	* i	*	*	*	1	1	*	*	*	*
Information	51	161	127	34	6	5	1	24	18	6	15	10	5
Publishing	511	112	88	24	5	4	1	12	9	3	12	8	4
Newspaper, periodical, book, and directory publishers	5111	*	*	*	*	*	*	*	*	*	3	2	1
Software publishers	5112	112	87	24	5	4	1	11	9	3	9	6	3
Telecommunications	517	24 i	20 i	4 i	* i	* i	* i	2 i	1 i	* i	1 i	1 i	1 i
Data processing, hosting, and related services	518	17	13	4 i	1	*	*	5	3	2	1	1	*
Other information	other 51	8	6	1	*	*	*	6	4	1	1	1	1
Finance and insurance	52	10 i	7 i	2 i	1 i	* i	* i	10	6	4	2 i	1 i	1 i
Real estate and rental and leasing	53	1	1	*	*	*	*	*	*	*	*	*	*
Professional, scientific, and technical services	54	140	117	23	60	36	24	67	47	20	39	15	24
Architectural, engineering, and related services	5413	25	21	3	2	2	*	8	7	2	4	2	2
Computer systems design and related services	5415	73	62	11	6	4	2	31	25	6	7	3	3
Scientific R&D services	5417	19	15	4	29	17	13	19	9	10	18	6	12
Biotechnology R&D	541711	4	2	2	19	10	8	7	3	4	6	2	4
Physical, engineering, and life sciences (except biotechnology) R&D	541712	14	12	2	9	6	3	11	6	5	11	3	8
Social sciences and humanities R&D	541720	1 i	1 i	* i	2	1 i	1	1 i	* i	1	1 i	* i	1 i
Other professional, scientific, and technical services	other 54	23	19	4	23	14	9	9	6	3	10	4	6
Health care services	621–623	*	*	*	2	1	1	1	*	1	2	1	1
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2	2	*	1	1	1	2	1	1 i	1	*	1

TABLE 79. Domestic R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All companies	–	807	685	122	192	119	73	247	180	67	179	92	86
Small companies (number of domestic employees)[a]													
5–499	–	229	203	26	67	43	24	100	78	23	62	35	27
5–99	–	146	131	15	46	29	17	64	50	14	39	22	17
5–49	–	97	88	9	26	17	8	46	36	11	28	15	13
5–24	–	59	54	5	13	10	4	27	20	7	17	9	8
25–49	–	38	34	4	12	8	5	20	15	4	11	7	5
50–99	–	50	43	6	20	12	8	18	15	4	11	6	4
100–249	–	47	41	6	9	6	3	22	17	5	14	9	5
250–499	–	36	31	5	12	7	5 i	14	11	4	10	5	5
Medium and large companies (number of domestic employees)													
500–999	–	32	28	5	10	6	3	14	10	4	8	4	4
1,000–4,999	–	120	100	20	28	17	10	32	22	10	25	13	12
5,000–9,999	–	58	48	11	13	8	5	20	14	6	20	10	10
10,000–24,999	–	117	99	17	41	24	17	29	22	8	25	10	15
25,000 or more	–	251	208 i	43	34	21	12	51	35	16	39 i	21 i	18 i

* = amount < 500 employees; D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of value imputed.

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 80. Domestic full-time equivalent R&D scientists and engineers, total and federally funded, by industry and company size: 2009
(Thousands)

Industry and company size	NAICS code	Total	Federally funded
All industries	21–23, 31–33, 42–81	874	76
Manufacturing industries	31–33	525	35 i
Food	311	9 i	*
Beverage and tobacco products	312	1	*
Textiles, apparel, and leather products	313–316	1	*
Wood products	321	1	0
Paper	322	6	* i
Printing and related support activities	323	1	*
Petroleum and coal products	324	3 i	*
Chemicals	325	94	1
Basic chemicals	3251	6	*
Resin, synthetic rubber, fibers, and filaments	3252	3 i	*
Pesticide, fertilizer, and other agricultural chemical	3253	3 i	*
Pharmaceuticals and medicines	3254	66	1
Soap, cleaning compound, and toilet preparation	3256	8	*
Paint, coating, adhesive, and other chemical	3255, 3259	7	*
Plastics and rubber products	326	11	*
Nonmetallic mineral products	327	2	*
Primary metals	331	2	*
Fabricated metal products	332	12	*
Machinery	333	42	*
Agricultural implements	33311	5	* i
Semiconductor machinery	333295	5	* i
Engine, turbine, and power transmission equipment	3336	3	*
Other machinery	other 333	29	*
Computer and electronic products	334	192	10 i
Communications equipment	3342	51 i	4 i
Semiconductor and other electronic components	3344	60	1
Navigational, measuring, electromedical, and control instruments	3345	48	5
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	12	*
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	22	4
Other measuring and controlling instruments	other 3345	15 i	1
Computer and peripheral equipment and other computer and electronic products	other 334	32	1
Electrical equipment, appliances, and components	335	16	1
Transportation equipment	336	98	21 i
Automobiles, bodies, trailers, and parts	3361–3363	40	*
Aerospace products and parts	3364	46	19 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	39	13
Guided missile, space vehicle, and related parts	336414, 336415, 336419	8	5 i
Military armored vehicle, tank, and tank components	336992	* i	* i
Other transportation equipment	other 336	11 i	3 i
Furniture and related products	337	2	0
Miscellaneous manufacturing	339	32	*
Medical equipment and supplies	3391	23	*
Other miscellaneous manufacturing	3399	10	*
Nonmanufacturing industries	21–23, 42–81	349	41
Mining, extraction, and support activities	21	5	*
Utilities	22	1	*
Construction	23	3	0
Wholesale trade	42	4 i	* i
Retail trade	44, 45	3 i	0
Electronic shopping and mail-order houses	4541	3 i	0
Other retail trade	other 44, 45	*	0
Transportation and warehousing	48, 49	1	*
Information	51	162	1

TABLE 80. Domestic full-time equivalent R&D scientists and engineers, total and federally funded, by industry and company size: 2009
(Thousands)

Industry and company size	NAICS code	Total	Federally funded
Publishing	511	111	1
Newspaper, periodical, book, and directory publishers	5111	*	0
Software publishers	5112	111	1
Telecommunications	517	24 i	*
Data processing, hosting, and related services	518	15	*
Other information	other 51	12	*
Finance and insurance	52	11 i	0
Real estate and rental and leasing	53	1	0
Professional, scientific, and technical services	54	154	39
Architectural, engineering, and related services	5413	20	6
Computer systems design and related services	5415	63	6
Scientific R&D services	5417	38	10
Biotechnology R&D	541711	17	2
Physical, engineering, and life sciences (except biotechnology) R&D	541712	20	7
Social sciences and humanities R&D	541720	1 i	1 i
Other professional, scientific, and technical services	other 54	32	18
Health care services	621–623	2	1 i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2	*
All companies	–	874	76
Small companies (number of domestic employees)[a]			
5–499	–	256	38
5–99	–	164	27
5–49	–	101	12
5–24	–	63	7
25–49	–	39	4
50–99	–	63	15
100–249	–	50	4
250–499	–	42	7 i
Medium and large companies (number of domestic employees)			
500–999	–	36	2
1,000–4,999	–	132	4
5,000–9,999	–	62	4 i
10,000–24,999	–	136	16 i
25,000 or more	–	252	12 i

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 81. Foreign R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All industries	21–23, 31–33, 42–81	289	238	52	44	27	17	71	51	21	50	24	26
Manufacturing industries	31–33	183	156	27	35	22	14	37	27	10	31	14	17
Food	311	2 i	1 i	1 i	3	2	1	2	1	1	* i	* i	* i
Beverage and tobacco products	312	1 i	1 i	* i	* i	* i	* i	1 i	* i	* i	* i	* i	* i
Textiles, apparel, and leather products	313–316	*	*	* i	* i	* i	* i	*	* i	*	*	* i	*
Wood products	321	* i	* i	0	* i	* i	* i	* i	* i	* i	* i	* i	* i
Paper	322	2	D	D	1	D	D	1	1	*	*	D	D
Printing and related support activities	323	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Petroleum and coal products	324	*	D	D	*	D	D	*	*	*	1	D	D
Chemicals	325	8	6	2	18	10	8	8	5	3	10	4	7
Basic chemicals	3251	1	1	*	2	1	*	2	1	1	*	*	*
Resin, synthetic rubber, fibers, and filaments	3252	1 i	1 i	* i	* i	* i	*	1	D i	D	* i	* i	* i
Pesticide, fertilizer, and other agricultural chemical	3253	*	*	*	1	*	*	1	D	D	*	*	*
Pharmaceuticals and medicines	3254	2 i	1 i	1	12	6	6	4	2	2	8	3	5
Soap, cleaning compound, and toilet preparation	3256	2	1	1	2	1	1	*	*	*	1	*	*
Paint, coating, adhesive, and other chemical	3255, 3259	2	2	*	1	1	*	1	1	*	*	*	*
Plastics and rubber products	326	4	4	*	2	1	*	2	1	*	1	*	*
Nonmetallic mineral products	327	*	*	*	*	*	*	*	*	*	* i	* i	*
Primary metals	331	*	*	*	*	*	*	*	* i	*	*	*	*
Fabricated metal products	332	1 i	1 i	*	*	* i	*	* i	* i	* i	* i	* i	* i
Machinery	333	14	13	2	* i	* i	* i	2	2	*	1	1	*
Agricultural implements	33311	3	3	*	*	*	*	*	*	*	*	*	*
Semiconductor machinery	333295	2	2	*	* i	* i	*	*	*	*	*	*	*
Engine, turbine, and power transmission equipment	3336	1	1	*	*	*	*	*	*	*	*	*	*
Other machinery	other 333	9	8	1	* i	* i	* i	1	1	*	1	*	*
Computer and electronic products	334	89	76	13	3	2 i	1 i	10	8	2	9	5	4
Communications equipment	3342	27	23	4	* i	* i	* i	2 i	1 i	* i	2 i	1	1 i
Semiconductor and other electronic components	3344	37	31	5	*	*	*	5	4	1	3	2	1
Navigational, measuring, electromedical, and control instruments	3345	11	9	2	2 i	1 i	1 i	3 i	2 i	1	3 i	1	1 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2 i	1 i	* i	1 i	* i	* i	* i	* i	* i	1 i	* i	* i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	5	4	1	*	*	*	1 i	1 i	*	1 i	1	1 i
Other measuring and controlling instruments	other 3345	4	3	1	1	1	*	1	1	*	1	*	*
Computer and peripheral equipment and other computer and electronic products	other 334	14	12 i	3 i	1	1 i	* i	1	1	*	2	1	1
Electrical equipment, appliances, and components	335	13 i	11 i	2 i	2 i	2 i	1 i	4 i	3 i	* i	2 i	1 i	1 i
Transportation equipment	336	44	39	6	2	2 i	*	5 i	4 i	1	2	1 i	1
Automobiles, bodies, trailers, and parts	3361–3363	27 i	24 i	3 i	1 i	1 i	* i	2 i	2 i	* i	1 i	1 i	* i
Aerospace products and parts	3364	17	14	2	1	1	*	2	2 i	*	1	*	*

TABLE 81. Foreign R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Aircraft, aircraft engine, and aircraft parts	336411–336413	16	14	2	1	1	*	2	2 i	*	*	*	*
Guided missile, space vehicle, and related parts	336414, 336415, 336419	1	1	*	*	*	*	*	*	*	*	*	*
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0	0	0	0	0	0	0	0
Other transportation equipment	other 336	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Furniture and related products	337	* i	* i	*	* i	* i	* i	* i	* i	* i	*	*	*
Miscellaneous manufacturing	339	4	3	1	4 i	2 i	2 i	3 i	2	1 i	4 i	1	3 i
Medical equipment and supplies	3391	3	2	1	4 i	2 i	2 i	2 i	1 i	1 i	4 i	1	2 i
Other miscellaneous manufacturing	3399	2	1	1	*	*	*	1	1	*	*	*	*
Nonmanufacturing industries	21–23, 42–81	106	82	24	9	5	4 i	34	23	11	18	10	9
Mining, extraction, and support activities	21	1	1	*	*	*	*	*	*	*	*	*	*
Utilities	22	*	* i	0	*	*	0	* i	* i	*	* i	0	* i
Construction	23	1 i	1 i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Wholesale trade	42	1 i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Retail trade	44, 45	1 i	1 i	* i	* i	* i	0	* i	* i	0	* i	* i	0
Electronic shopping and mail-order houses	4541	1 i	1 i	* i	0	0	0	0	0	0	0	0	0
Other retail trade	other 44, 45	* i	* i	* i	* i	* i	0	* i	* i	0	* i	* i	0
Transportation and warehousing	48, 49	* i	* i	* i	0	0	0	0	0	0	* i	0	* i
Information	51	72	56	16	3	2	*	6	4	1	8	6	2
Publishing	511	67	52	15	3	2	*	3	2	1	8	6	2
Newspaper, periodical, book, and directory publishers	5111	*	*	*	0	0	0	*	*	*	*	*	*
Software publishers	5112	67	52	15	3	2	*	3	2	1	7	6	2
Telecommunications	517	1	1	*	* i	* i	* i	*	* i	* i	* i	* i	* i
Data processing, hosting, and related services	518	3	3	1	* i	* i	* i	1 i	* i	* i	* i	* i	* i
Other information	other 51	1	1	*	*	*	*	2	2	*	*	*	*
Finance and insurance	52	4 i	2 i	1	* i	* i	* i	1 i	* i	1 i	* i	* i	* i
Real estate and rental and leasing	53	* i	* i	* i	* i	* i	0	* i	* i	* i	* i	* i	0
Professional, scientific, and technical services	54	25	19	6	5 i	2 i	3 i	27	18	9	10	3	6
Architectural, engineering, and related services	5413	1 i	1 i	*	*	*	* i	* i	* i	* i	* i	*	* i
Computer systems design and related services	5415	17	14 i	4	1	*	*	18	14	3	2 i	1 i	1
Scientific R&D services	5417	2	1	1	4 i	1 i	3 i	8	2	6	7	2	5
Biotechnology R&D	541711	2	1	1	3	1	1	1 i	1 i	1	2	1	1
Physical, engineering, and life sciences (except biotechnology) R&D	541712	*	*	*	1 i	* i	1 i	7	2	5	5	1	4
Social sciences and humanities R&D	541720	* i	* i	* i	* i	* i	* i	* i	* i	0	* i	* i	0
Other professional, scientific, and technical services	other 54	5	3	1 i	* i	* i	* i	1	1 i	* i	1	1	*
Health care services	621–623	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i	* i
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	* i	*	* i	1	*	*	* i	* i	* i	* i	* i	* i

TABLE 81. Foreign R&D employment, by occupation, sex, industry, and company size: 2009
(Thousands of employees)

Industry and company size	NAICS code	Engineers and their managers			Scientists and their managers			Technicians and technologists			Support staff (clerical and others)		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All companies	–	289	238	52	44	27	17	71	51	21	50	24	26
Small companies (number of domestic employees)[a]													
5–499	–	28 i	22 i	6 i	3 i	2 i	1 i	9 i	7 i	2 i	5 i	3 i	2 i
5–99	–	11 i	8 i	3 i	1 i	1 i	1 i	4 i	3 i	1 i	3 i	2 i	1 i
5–49	–	6 i	4 i	1 i	1 i	* i	1 i	3 i	3 i	* i	2 i	1 i	1 i
5–24	–	3 i	2 i	1 i	* i	* i	* i	2 i	1 i	* i	1 i	1 i	* i
25–49	–	3 i	2 i	* i	* i	* i	* i	1 i	1 i	* i	1 i	* i	* i
50–99	–	5 i	3 i	1 i	* i	* i	* i	1 i	1 i	* i	1 i	* i	* i
100–249	–	8 i	6 i	2 i	1 i	1 i	* i	3 i	2 i	1 i	2 i	1 i	1 i
250–499	–	9	8	1	1 i	1 i	* i	1 i	1 i	* i	1 i	* i	1 i
Medium and large companies (number of domestic employees)													
500–999	–	13	11	2	2 i	2 i	1 i	3 i	2 i	1 i	1 i	1 i	1 i
1,000–4,999	–	63	52	11	8	5	3	12	8	4	11	5	5
5,000–9,999	–	33	27	6	4	2	2	11	7	5	9	3	5
10,000–24,999	–	48 i	42 i	7	11	6	5	11	9 i	2	11	5	6
25,000 or more	–	104	84	20	17	10	6	26	19	7	13	7	6 i

* = amount < 500 employees; D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of value imputed.

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2009.

TABLE 82. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry and company size: 2007–09
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,350,374	220,626	1,084,486	157,989	1,157,181	78,761	1,237,645	122,212	1,191,882	160,330	1,143,787	59,588	1,252,086	55,777	1,255,552	125,545	1,183,918
Manufacturing industries	31–33	115,854	35,122	77,048	25,999	86,570	21,858	90,838	11,957	100,204	26,605	85,136	20,577	91,379	6,721	105,298	15,390	96,662
Food	311	8,912	2,340	6,470	1,720	7,090	1,549	7,309	489	8,250	1,541	7,226	1,010	7,762	449	8,340	1,022	7,764
Beverage and tobacco products	312	1,388	417	960	303	1,079	293	1,089	110	1,272	319	1,057	252	1,129	197	1,181	199	1,182
Textiles, apparel, and leather products	313–316	4,839	1,071	3,626	915	3,793	831	3,877	350	4,335	650	4,023	496	4,192	260	4,400	438	4,205
Wood products	321	5,844	885	4,831	524	5,269	454	5,339	249	5,507	754	4,946	595	5,135	233	5,548	331	5,429
Paper	322	1,477	377	1,084	239	1,227	178	1,289	109	1,350	335	1,126	219	1,247	91	1,374	161	1,299
Printing and related support activities	323	10,017	3,000	6,751	2,074	7,635	1,186	8,522	1,803	7,907	2,481	7,187	1,942	7,720	569	9,076	1,239	8,412
Petroleum and coal products	324	540	142	388	72	458	68	461	19	503	108	422	95	426	28	491	44	485
Chemicals	325	5,159	2,326	2,724	1,869	3,200	1,708	3,373	678	4,354	1,561	3,453	1,267	3,783	430	4,545	1,107	3,923
Basic chemicals	3251	1,080	372	703	338	737	317	758	123	951	257	817	231	843	111	963	190	884
Resin, synthetic rubber, fibers, and filaments	3252	269	138	129	125	141	122	145	41	220	92	175	77	189	35	225	48	213
Pesticide, fertilizer, and other agricultural chemical	3253	219	76	125	69	137	62	151	27	178	55	146	46	167	23	183	29	180
Pharmaceuticals and medicines	3254	975	354	586	303	639	300	642	65	874	264	672	162	775	72	866	177	763
Soap, cleaning compound, and toilet preparation	3256	795	360	418	299	485	275	514	149	633	238	541	194	591	72	711	136	646
Paint, coating, adhesive, and other chemical	3255, 3259	1,821	1,026	763	735	1,060	632	1,163	273	1,497	656	1,101	557	1,218	117	1,598	528	1,238
Plastics and rubber products	326	5,304	1,873	3,290	1,442	3,721	1,358	3,805	462	4,629	1,388	3,704	1,100	3,993	352	4,734	808	4,276
Nonmetallic mineral products	327	4,832	1,141	3,610	885	3,865	702	4,049	617	4,131	917	3,825	693	4,047	231	4,509	451	4,291
Primary metals	331	1,911	369	1,473	231	1,645	164	1,712	97	1,777	306	1,537	266	1,611	60	1,815	181	1,661
Fabricated metal products	332	25,002	5,954	18,004	3,499	20,487	2,219	21,815	2,133	21,810	5,319	18,601	4,429	19,519	1,047	22,920	2,809	21,163
Machinery	333	10,614	3,940	6,143	2,849	7,261	2,663	7,462	1,109	8,984	2,759	7,273	2,127	7,810	725	9,455	1,754	8,386

TABLE 82. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry and company size: 2007–09
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product						Process							
					Companies that introduced new or significantly improved goods or services		New goods		New services		Companies that introduced any new or significantly improved process		New manufacturing or production methods		New logistics, delivery, or distribution methods		New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Agricultural implements	33311	737	275	443	155	563	152	566	32	685	212	505	176	541	76	641	173	541
Semiconductor machinery	333295	119	79	37	73	44	72	45	25	91	41	74	38	78	6	111	13	103
Engine, turbine, and power transmission equipment	3336	410	112	296	85	323	81	327	46	361	88	320	75	332	18	389	72	336
Other machinery	other 333	9,348	3,474	5,368	2,535	6,332	2,359	6,524	1,005	7,848	2,417	6,375	1,837	6,859	625	8,314	1,496	7,406
Computer and electronic products	334	6,121	3,135	2,738	2,897	3,071	2,670	3,297	1,336	4,580	2,192	3,631	1,646	4,266	688	5,131	1,334	4,583
Communications equipment	3342	863	547	309	511	345	484	372	213	639	402	452	206	648	91	761	310	542
Semiconductor and other electronic components	3344	2,240	845	1,190	759	1,376	636	1,498	395	1,722	638	1,371	529	1,578	253	1,764	337	1,779
Navigational, measuring, electromedical, and control instruments	3345	2,140	1,299	814	1,192	915	1,189	918	497	1,591	856	1,238	695	1,392	254	1,832	501	1,592
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	269	115	143	107	153	107	153	40	215	81	173	72	183	25	229	38	216
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	279	179	98	151	125	151	125	55	211	142	124	104	163	46	220	80	186
Other measuring and controlling instruments	other 3345	1,592	1,005	574	934	637	931	640	401	1,164	633	941	520	1,047	183	1,382	383	1,189
Computer and peripheral equipment and other computer and electronic products	other 334	879	445	425	436	435	361	510	231	628	295	569	217	648	90	775	186	671

TABLE 82. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry and company size: 2007–09
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Electrical equipment, appliances, and components	335	2,797	1,223	1,487	1,049	1,664	982	1,724	359	2,324	921	1,768	692	1,994	297	2,381	566	2,118
Transportation equipment	336	5,466	2,057	3,223	1,679	3,603	1,518	3,764	551	4,726	1,351	3,929	1,136	4,145	221	5,057	723	4,556
Automobiles, bodies, trailers, and parts	3361–3363	3,455	1,158	2,192	874	2,478	862	2,491	158	3,193	833	2,516	735	2,614	109	3,242	422	2,927
Aerospace products and parts	3364	1,066	573	489	513	548	378	683	257	804	297	765	256	806	53	1,006	170	892
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,018	547	467	492	523	358	657	241	774	274	740	239	777	49	964	160	853
Guided missile, space vehicle, and related parts	336414, 336415, 336419	48	26	22	22	25	21	26	17	30	23	25	18	29	4	42	9	39
Military armored vehicle, tank, and tank components	336992	21	10	11	8	13	8	13	4	17	8	13	8	13	3	18	4	17
Other transportation equipment	other 336	924	315	531	284	564	270	578	132	712	213	635	137	712	56	791	127	720
Furniture and related products	337	5,956	1,331	4,311	859	4,918	680	5,097	365	5,429	1,057	4,603	729	5,015	263	5,451	577	5,111
Miscellaneous manufacturing	339	9,676	3,541	5,935	2,893	6,583	2,635	6,854	1,120	8,335	2,645	6,825	1,883	7,585	581	8,889	1,646	7,815
Medical equipment and supplies	3391	3,513	1,585	1,788	1,380	1,993	1,284	2,090	554	2,808	1,253	2,114	849	2,517	218	3,149	752	2,615
Other miscellaneous manufacturing	3399	6,162	1,955	4,146	1,513	4,591	1,351	4,764	566	5,527	1,393	4,711	1,034	5,069	363	5,740	894	5,200
Nonmanufacturing industries	21–23, 42–81	1,234,521	185,504	1,007,437	131,990	1,070,611	56,903	1,146,806	110,255	1,091,679	133,725	1,058,650	39,010	1,160,706	49,055	1,150,254	110,155	1,087,257
Mining, extraction, and support activities	21	6,672	530	5,773	313	6,007	68	6,253	300	6,020	331	5,973	145	6,176	122	6,182	227	6,094
Utilities	22	724	77	634	47	663	26	684	27	683	62	649	31	680	17	693	36	674
Construction	23	157,621	14,162	139,648	9,716	145,346	3,045	152,268	8,200	146,864	10,340	143,720	1,900	153,412	2,121	152,939	9,519	145,043
Wholesale trade	42	92,618	19,717	69,879	13,096	77,361	9,968	80,489	6,987	83,364	15,347	74,096	5,341	84,723	6,128	84,119	11,879	78,006
Retail trade	44, 45	182,737	22,589	152,057	15,012	161,458	10,305	166,461	10,782	165,436	16,414	157,733	4,039	171,354	6,727	168,683	12,768	162,400
Electronic shopping and mail-order houses	4541	5,029	1,387	3,453	977	3,937	833	4,077	611	4,304	1,021	3,821	167	4,733	614	4,243	929	3,933

TABLE 82. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry and company size: 2007–09
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Other retail trade	other 44, 45	177,707	21,202	148,604	14,035	157,521	9,472	162,383	10,171	161,133	15,393	153,912	3,873	166,621	6,113	164,440	11,839	158,467
Transportation and warehousing	48, 49	33,523	3,444	29,077	1,730	30,793	369	32,152	1,471	31,050	3,179	29,340	364	32,155	2,362	30,158	1,671	30,849
Information	51	18,511	7,679	10,246	6,428	11,492	3,233	14,581	5,318	12,624	5,271	12,575	1,691	16,090	2,791	14,990	4,208	13,644
Publishing	511	7,380	3,334	3,863	2,620	4,498	1,760	5,358	1,815	5,301	2,118	5,073	723	6,383	1,241	5,871	1,530	5,647
Newspaper, periodical, book, and directory publishers	5111	4,310	1,346	2,853	948	3,166	429	3,684	824	3,288	992	3,207	400	3,705	738	3,376	558	3,617
Software publishers	5112	3,070	1,988	1,009	1,673	1,332	1,331	1,673	991	2,013	1,126	1,866	323	2,678	503	2,495	972	2,030
Telecommunications	517	2,280	990	1,261	838	1,422	261	1,951	811	1,449	663	1,574	69	2,149	464	1,750	555	1,688
Data processing, hosting, and related services	518	2,598	1,227	1,310	1,191	1,346	447	2,070	1,122	1,416	964	1,566	387	2,178	427	2,102	826	1,703
Other information	other 51	6,254	2,128	3,813	1,778	4,225	765	5,202	1,570	4,457	1,526	4,362	511	5,381	659	5,268	1,298	4,606
Finance and insurance	52	46,188	7,640	37,988	4,613	41,016	1,174	44,455	4,357	41,272	6,477	39,151	875	44,754	2,635	42,743	5,764	39,862
Real estate and rental and leasing	53	35,983	3,518	30,916	2,712	31,971	1,523	33,159	2,192	32,236	2,452	31,732	261	34,169	1,011	33,668	2,194	31,989
Professional, scientific, and technical services	54	149,723	29,147	116,973	21,856	124,879	8,159	138,739	19,483	127,173	20,195	125,846	6,276	140,188	7,092	139,585	17,818	128,723
Architectural, engineering, and related services	5413	26,841	4,716	21,611	3,598	22,984	1,244	25,273	3,204	23,351	3,293	23,032	1,318	25,197	1,291	25,098	2,816	23,664
Computer systems design and related services	5415	17,024	7,973	8,665	7,184	9,506	3,846	12,816	6,108	10,481	5,012	11,560	1,500	15,004	2,112	14,443	4,743	11,883
Scientific R&D services	5417	2,978	1,115	1,768	861	2,078	673	2,274	508	2,430	693	2,181	467	2,407	199	2,712	433	2,479
Biotechnology R&D	541711	1,300	320	974	261	1,033	191	1,105	200	1,094	246	1,051	176	1,119	111	1,184	196	1,101
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,335	731	572	559	748	474	840	274	1,033	413	878	286	1,005	65	1,242	225	1,081
Social sciences and humanities R&D	541720	343	64	222	40	297	8	330	35	303	34	252	4	283	23	286	12	297
Other professional, scientific, and technical services	other 54	102,880	15,343	84,929	10,213	90,311	2,396	98,376	9,662	90,911	11,198	89,074	2,991	97,580	3,490	97,332	9,827	90,697

TABLE 82. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by industry and company size: 2007–09
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Health care services	621–623	167,883	31,306	131,420	23,635	140,639	6,359	158,915	22,382	141,893	21,443	141,782	6,409	158,115	8,058	156,416	18,887	145,136
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	342,338	45,695	282,825	32,833	298,988	12,674	318,650	28,756	303,063	32,213	296,054	11,678	318,891	9,991	320,077	25,182	304,837
All companies	–	1,350,374	220,626	1,084,486	157,989	1,157,181	78,761	1,237,645	122,212	1,191,882	160,330	1,143,787	59,588	1,252,086	55,777	1,255,552	125,545	1,183,918
Small companies (number of domestic employees)[a]																		
5–499	–	1,340,610	217,629	1,077,946	155,770	1,149,854	77,261	1,229,593	120,908	1,183,654	157,854	1,136,734	58,543	1,243,596	54,612	1,247,188	123,669	1,176,265
5–99	–	1,286,221	206,075	1,036,498	147,969	1,104,282	72,341	1,180,906	115,631	1,135,590	149,007	1,092,616	54,114	1,194,486	51,760	1,196,833	116,766	1,129,842
5–49	–	1,210,087	191,984	976,228	138,073	1,039,546	66,367	1,112,254	108,815	1,067,770	138,131	1,029,205	49,069	1,124,967	47,608	1,126,624	108,079	1,064,233
5–24	–	1,040,006	158,862	845,680	115,860	896,744	55,763	957,559	91,946	919,568	113,361	890,888	40,014	969,314	41,130	968,622	88,539	919,755
25–49	–	170,081	33,123	130,548	22,213	142,802	10,604	154,695	16,869	148,202	24,769	138,318	9,055	155,652	6,477	158,002	19,540	144,478
50–99	–	76,134	14,091	60,270	9,896	64,736	5,974	68,652	6,816	67,820	10,876	63,411	5,045	69,520	4,153	70,209	8,686	65,609
100–249	–	43,592	9,056	33,708	6,123	36,962	3,852	39,465	4,272	38,783	7,058	35,920	3,647	39,653	2,295	40,871	5,541	37,494
250–499	–	10,797	2,497	7,739	1,678	8,610	1,069	9,222	1,005	9,281	1,790	8,198	782	9,457	556	9,483	1,362	8,929
Medium and large companies (number of domestic employees)																		
500–999	–	4,512	1,082	3,392	904	3,571	588	3,890	501	3,970	851	3,623	445	4,028	396	4,076	647	3,826
1,000–4,999	–	4,316	1,512	2,670	1,014	3,175	649	3,541	627	3,553	1,294	2,882	408	3,774	590	3,590	944	3,234
5,000–9,999	–	451	218	222	141	299	128	312	64	375	173	265	79	359	70	366	151	286
10,000–24,999	–	268	110	133	95	148	81	162	57	186	91	151	63	179	59	182	74	167
25,000 or more	–	217	75	122	66	133	55	146	55	144	66	132	49	150	49	150	60	140

NAICS = 2007 North American Industry Classification System.

[a] Weighted counts for companies that reported on 2009 Business R&D and Innovation Survey whether they did or did not perform or fund R&D. In comparison, total weighted count for companies that did not report these R&D data on survey is 467,100 companies.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 83. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2007–09

(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,350,374	16.3	80.3	11.7	85.7	5.8	91.7	9.1	88.3	11.9	84.7	4.4	92.7	4.1	93.0	9.3	87.7
Manufacturing industries	31–33	115,854	30.3	66.5	22.4	74.7	18.9	78.4	10.3	86.5	23.0	73.5	17.8	78.9	5.8	90.9	13.3	83.4
Food	311	8,912	26.3	72.6	19.3	79.6	17.4	82.0	5.5	92.6	17.3	81.1	11.3	87.1	5.0	93.6	11.5	87.1
Beverage and tobacco products	312	1,388	30.0	69.1	21.9	77.8	21.1	78.5	8.0	91.7	23.0	76.2	18.2	81.4	14.2	85.0	14.4	85.2
Textiles, apparel, and leather products	313–316	4,839	22.1	74.9	18.9	78.4	17.2	80.1	7.2	89.6	13.4	83.1	10.3	86.6	5.4	90.9	9.1	86.9
Wood products	321	5,844	15.1	82.7	9.0	90.2	7.8	91.4	4.3	94.2	12.9	84.6	10.2	87.9	4.0	94.9	5.7	92.9
Paper	322	1,477	25.5	73.4	16.2	83.1	12.0	87.3	7.4	91.4	22.7	76.2	14.8	84.5	6.2	93.1	10.9	88.0
Printing and related support activities	323	10,017	29.9	67.4	20.7	76.2	11.8	85.1	18.0	78.9	24.8	71.7	19.4	77.1	5.7	90.6	12.4	84.0
Petroleum and coal products	324	540	26.4	71.9	13.4	84.8	12.6	85.5	3.6	93.1	19.9	78.1	17.6	78.9	5.1	91.1	8.2	89.9
Chemicals	325	5,159	45.1	52.8	36.2	62.0	33.1	65.4	13.1	84.4	30.3	66.9	24.6	73.3	8.3	88.1	21.5	76.0
Basic chemicals	3251	1,080	34.4	65.1	31.3	68.2	29.4	70.2	11.4	88.1	23.8	75.6	21.4	78.1	10.3	89.1	17.6	81.9
Resin, synthetic rubber, fibers, and filaments	3252	269	51.1	47.8	46.4	52.5	45.2	53.7	15.2	81.6	34.1	64.8	28.6	70.3	13.0	83.4	17.6	79.1
Pesticide, fertilizer, and other agricultural chemical	3253	219	34.9	57.0	31.3	62.6	28.2	69.1	12.5	81.4	25.1	66.8	20.9	76.4	10.5	83.4	13.3	82.0
Pharmaceuticals and medicines	3254	975	36.3	60.1	31.0	65.5	30.7	65.8	6.7	89.6	27.1	68.9	16.7	79.5	7.4	88.7	18.1	78.2
Soap, cleaning compound, and toilet preparation	3256	795	45.3	52.6	37.7	61.0	34.7	64.6	18.8	79.6	29.9	68.1	24.4	74.3	9.1	89.5	17.1	81.3
Paint, coating, adhesive, and other chemical	3255, 3259	1,821	56.3	41.9	40.4	58.2	34.7	63.9	15.0	82.2	36.0	60.5	30.6	66.9	6.4	87.8	29.0	68.0
Plastics and rubber products	326	5,304	35.3	62.0	27.2	70.2	25.6	71.7	8.7	87.3	26.2	69.8	20.7	75.3	6.6	89.3	15.2	80.6
Nonmetallic mineral products	327	4,832	23.6	74.7	18.3	80.0	14.5	83.8	12.8	85.5	19.0	79.2	14.3	83.8	4.8	93.3	9.3	88.8
Primary metals	331	1,911	19.3	77.1	12.1	86.1	8.6	89.6	5.1	93.0	16.0	80.5	13.9	84.3	3.1	95.0	9.5	86.9
Fabricated metal products	332	25,002	23.8	72.0	14.0	81.9	8.9	87.3	8.5	87.2	21.3	74.4	17.7	78.1	4.2	91.7	11.2	84.6
Machinery	333	10,614	37.1	57.9	26.8	68.4	25.1	70.3	10.4	84.7	26.0	68.5	20.0	73.6	6.8	89.1	16.5	79.0
Agricultural implements	33311	737	37.3	60.1	21.1	76.3	20.6	76.8	4.4	92.9	28.8	68.5	23.9	73.3	10.3	87.0	23.5	73.4
Semiconductor machinery	333295	119	66.5	31.0	61.5	36.9	60.6	37.7	21.4	76.9	34.9	62.6	32.4	65.9	5.1	93.3	10.9	86.5
Engine, turbine, and power transmission equipment	3336	410	27.3	72.2	20.7	78.7	19.6	79.8	11.2	87.9	21.5	78.0	18.2	80.9	4.3	94.8	17.6	81.9
Other machinery	other 333	9,348	37.2	57.4	27.1	67.7	25.2	69.8	10.8	84.0	25.9	68.2	19.7	73.4	6.7	88.9	16.0	79.2
Computer and electronic products	334	6,121	51.2	44.7	47.3	50.2	43.6	53.9	21.8	74.8	35.8	59.3	26.9	69.7	11.2	83.8	21.8	74.9
Communications equipment	3342	863	63.4	35.8	59.2	40.0	56.1	43.1	24.6	74.0	46.6	52.4	23.8	75.1	10.5	88.2	35.9	62.8
Semiconductor and other electronic components	3344	2,240	37.7	53.1	33.9	61.4	28.4	66.9	17.7	76.9	28.5	61.2	23.6	70.4	11.3	78.7	15.0	79.4
Navigational, measuring, electromedical, and control instruments	3345	2,140	60.7	38.1	55.7	42.8	55.6	42.9	23.2	74.4	40.0	57.9	32.5	65.1	11.9	85.6	23.4	74.4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	269	42.6	53.0	39.6	56.7	39.6	56.7	14.9	79.9	30.0	64.1	26.6	67.9	9.3	85.2	14.1	80.4

TABLE 83. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2007–09
(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	279	64.1	35.2	54.3	45.0	54.3	45.0	19.8	75.9	51.1	44.6	37.2	58.5	16.6	79.1	28.8	66.9
Other measuring and controlling instruments	other 3345	1,592	63.2	36.0	58.7	40.0	58.5	40.2	25.2	73.2	39.7	59.1	32.7	65.8	11.5	86.8	24.1	74.7
Computer and peripheral equipment and other computer and electronic products	other 334	879	50.6	48.3	49.6	49.5	41.1	58.0	26.3	71.5	33.6	64.8	24.7	73.7	10.2	88.2	21.2	76.3
Electrical equipment, appliances, and components	335	2,797	43.7	53.2	37.5	59.5	35.1	61.6	12.8	83.1	32.9	63.2	24.8	71.3	10.6	85.1	20.3	75.7
Transportation equipment	336	5,466	37.6	59.0	30.7	65.9	27.8	68.9	10.1	86.5	24.7	71.9	20.8	75.8	4.0	92.5	13.2	83.3
Automobiles, bodies, trailers, and parts	3361–3363	3,455	33.5	63.5	25.3	71.7	24.9	72.1	4.6	92.4	24.1	72.8	21.3	75.7	3.2	93.9	12.2	84.7
Aerospace products and parts	3364	1,066	53.7	45.8	48.1	51.4	35.5	64.0	24.1	75.4	27.9	71.7	24.0	75.6	5.0	94.3	15.9	83.6
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,018	53.7	45.8	48.3	51.3	35.1	64.5	23.7	76.0	26.9	72.6	23.4	76.3	4.8	94.7	15.7	83.8
Guided missile, space vehicle, and related parts	336414, 336415, 336419	48	54.0	46.0	45.1	52.3	43.0	54.4	34.6	62.8	47.7	52.3	36.7	60.7	8.4	86.9	19.3	80.7
Military armored vehicle, tank, and tank components	336992	21	47.2	52.8	37.8	62.2	37.8	62.2	18.9	81.1	37.8	62.2	37.8	62.2	14.2	85.8	18.9	81.1
Other transportation equipment	other 336	924	34.1	57.5	30.7	61.0	29.2	62.6	14.3	77.0	23.0	68.7	14.9	77.0	6.1	85.6	13.8	77.9
Furniture and related products	337	5,956	22.3	72.4	14.4	82.6	11.4	85.6	6.1	91.2	17.7	77.3	12.2	84.2	4.4	91.5	9.7	85.8
Miscellaneous manufacturing	339	9,676	36.6	61.3	29.9	68.0	27.2	70.8	11.6	86.1	27.3	70.5	19.5	78.4	6.0	91.9	17.0	80.8
Medical equipment and supplies	3391	3,513	45.1	50.9	39.3	56.7	36.5	59.5	15.8	79.9	35.7	60.2	24.2	71.6	6.2	89.6	21.4	74.4
Other miscellaneous manufacturing	3399	6,162	31.7	67.3	24.6	74.5	21.9	77.3	9.2	89.7	22.6	76.4	16.8	82.3	5.9	93.1	14.5	84.4
Nonmanufacturing industries	21–23, 42–81	1,234,521	15.0	81.6	10.7	86.7	4.6	92.9	8.9	88.4	10.8	85.8	3.2	94.0	4.0	93.2	8.9	88.1
Mining, extraction, and support activities	21	6,672	8.0	86.5	4.7	90.0	1.0	93.7	4.5	90.2	5.0	89.5	2.2	92.6	1.8	92.7	3.4	91.3
Utilities	22	724	10.6	87.5	6.5	91.5	3.6	94.4	3.7	94.3	8.6	89.5	4.3	93.8	2.3	95.7	5.0	93.0
Construction	23	157,621	9.0	88.6	6.2	92.2	1.9	96.6	5.2	93.2	6.6	91.2	1.2	97.3	1.3	97.0	6.0	92.0
Wholesale trade	42	92,618	21.3	75.4	14.1	83.5	10.8	86.9	7.5	90.0	16.6	80.0	5.8	91.5	6.6	90.8	12.8	84.2
Retail trade	44, 45	182,737	12.4	83.2	8.2	88.4	5.6	91.1	5.9	90.5	9.0	86.3	2.2	93.8	3.7	92.3	7.0	88.9
Electronic shopping and mail-order houses	4541	5,029	27.6	68.7	19.4	78.3	16.6	81.1	12.2	85.6	20.3	76.0	3.3	94.1	12.2	84.4	18.5	78.2
Other retail trade	other 44, 45	177,707	11.9	83.6	7.9	88.6	5.3	91.4	5.7	90.7	8.7	86.6	2.2	93.8	3.4	92.5	6.7	89.2
Transportation and warehousing	48, 49	33,523	10.3	86.7	5.2	91.9	1.1	95.9	4.4	92.6	9.5	87.5	1.1	95.9	7.0	90.0	5.0	92.0
Information	51	18,511	41.5	55.4	34.7	62.1	17.5	78.8	28.7	68.2	28.5	67.9	9.1	86.9	15.1	81.0	22.7	73.7
Publishing	511	7,380	45.2	52.3	35.5	61.0	23.9	72.6	24.6	71.8	28.7	68.7	9.8	86.5	16.8	79.6	20.7	76.5
Newspaper, periodical, book, and directory publishers	5111	4,310	31.2	66.2	22.0	73.5	10.0	85.5	19.1	76.3	23.0	74.4	9.3	86.0	17.1	78.3	13.0	83.9

TABLE 83. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2007–09
(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Software publishers	5112	3,070	64.7	32.9	54.5	43.4	43.4	54.5	32.3	65.6	36.7	60.8	10.5	87.2	16.4	81.3	31.6	66.1
Telecommunications	517	2,280	43.4	55.3	36.8	62.4	11.4	85.6	35.6	63.6	29.1	69.0	3.0	94.3	20.4	76.7	24.3	74.0
Data processing, hosting, and related services	518	2,598	47.2	50.4	45.9	51.8	17.2	79.7	43.2	54.5	37.1	60.3	14.9	83.8	16.4	80.9	31.8	65.6
Other information	other 51	6,254	34.0	61.0	28.4	67.6	12.2	83.2	25.1	71.3	24.4	69.8	8.2	86.0	10.5	84.2	20.7	73.7
Finance and insurance	52	46,188	16.5	82.2	10.0	88.8	2.5	96.2	9.4	89.4	14.0	84.8	1.9	96.9	5.7	92.5	12.5	86.3
Real estate and rental and leasing	53	35,983	9.8	85.9	7.5	88.8	4.2	92.2	6.1	89.6	6.8	88.2	0.7	95.0	2.8	93.6	6.1	88.9
Professional, scientific, and technical services	54	149,723	19.5	78.1	14.6	83.4	5.4	92.7	13.0	84.9	13.5	84.1	4.2	93.6	4.7	93.2	11.9	86.0
Architectural, engineering, and related services	5413	26,841	17.6	80.5	13.4	85.6	4.6	94.2	11.9	87.0	12.3	85.8	4.9	93.9	4.8	93.5	10.5	88.2
Computer systems design and related services	5415	17,024	46.8	50.9	42.2	55.8	22.6	75.3	35.9	61.6	29.4	67.9	8.8	88.1	12.4	84.8	27.9	69.8
Scientific R&D services	5417	2,978	37.4	59.4	28.9	69.8	22.6	76.4	17.1	81.6	23.3	73.2	15.7	80.8	6.7	91.1	14.5	83.2
Biotechnology R&D	541711	1,300	24.6	74.9	20.1	79.5	14.7	85.0	15.4	84.2	18.9	80.8	13.5	86.1	8.5	91.1	15.0	84.6
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,335	54.8	42.9	41.9	56.0	35.5	62.9	20.5	77.4	31.0	65.8	21.5	75.3	4.9	93.1	16.9	81.0
Social sciences and humanities R&D	541720	343	18.8	64.6	11.8	86.7	2.4	96.1	10.2	88.3	9.9	73.4	1.3	82.3	6.8	83.3	3.5	86.5
Other professional, scientific, and technical services	other 54	102,880	14.9	82.6	9.9	87.8	2.3	95.6	9.4	88.4	10.9	86.6	2.9	94.8	3.4	94.6	9.6	88.2
Health care services	621–23	167,883	18.6	78.3	14.1	83.8	3.8	94.7	13.3	84.5	12.8	84.5	3.8	94.2	4.8	93.2	11.3	86.5
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	342,338	13.3	82.6	9.6	87.3	3.7	93.1	8.4	88.5	9.4	86.5	3.4	93.2	2.9	93.5	7.4	89.0
All companies	–	1,350,374	16.3	80.3	11.7	85.7	5.8	91.7	9.1	88.3	11.9	84.7	4.4	92.7	4.1	93.0	9.3	87.7
Small companies (number of domestic employees)[a]																		
5–499	–	1,340,610	16.2	80.4	11.6	85.8	5.8	91.7	9.0	88.3	11.8	84.8	4.4	92.8	4.1	93.0	9.2	87.7
5–99	–	1,286,221	16.0	80.6	11.5	85.9	5.6	91.8	9.0	88.3	11.6	84.9	4.2	92.9	4.0	93.1	9.1	87.8
5–49	–	1,210,087	15.9	80.7	11.4	85.9	5.5	91.9	9.0	88.2	11.4	85.1	4.1	93.0	3.9	93.1	8.9	87.9
5–24	–	1,040,006	15.3	81.3	11.1	86.2	5.4	92.1	8.8	88.4	10.9	85.7	3.8	93.2	4.0	93.1	8.5	88.4
25–49	–	170,081	19.5	76.8	13.1	84.0	6.2	91.0	9.9	87.1	14.6	81.3	5.3	91.5	3.8	92.9	11.5	84.9
50–99	–	76,134	18.5	79.2	13.0	85.0	7.8	90.2	9.0	89.1	14.3	83.3	6.6	91.3	5.5	92.2	11.4	86.2
100–249	–	43,592	20.8	77.3	14.0	84.8	8.8	90.5	9.8	89.0	16.2	82.4	8.4	91.0	5.3	93.8	12.7	86.0
250–499	–	10,797	23.1	71.7	15.5	79.7	9.9	85.4	9.3	86.0	16.6	75.9	7.2	87.6	5.2	87.8	12.6	82.7
Medium and large companies (number of domestic employees)																		
500–999	–	4,512	24.0	75.2	20.0	79.2	13.0	86.2	11.1	88.0	18.9	80.3	9.9	89.3	8.8	90.3	14.3	84.8

TABLE 83. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2007–09

(Percent)

					Product						Process							
Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Companies that introduced new or significantly improved goods or services		New goods		New services		Companies that introduced any new or significantly improved process		New manufacturing or production methods		New logistics, delivery, or distribution methods		New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1,000–4,999	–	4,316	35.0	61.9	23.5	73.6	15.0	82.0	14.5	82.3	30.0	66.8	9.5	87.4	13.7	83.2	21.9	74.9
5,000–9,999	–	451	48.3	49.3	31.2	66.3	28.3	69.2	14.2	83.1	38.4	58.7	17.5	79.6	15.5	81.1	33.5	63.4
10,000–24,999	–	268	41.0	49.7	35.4	55.3	30.2	60.5	21.2	69.4	33.9	56.4	23.5	66.8	22.0	67.9	27.6	62.4
25,000 or more	–	217	34.6	56.2	30.4	61.3	25.3	67.3	25.3	66.4	30.4	60.8	22.6	69.1	22.6	69.1	27.6	64.5

NAICS = 2007 North American Industry Classification System.

[a] Weighted counts for companies that reported on 2009 Business R&D and Innovation Survey whether they did or did not perform or fund R&D. In comparison, total weighted count for companies that did not report these R&D data on survey is 467,100 companies.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 84. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes, by size of R&D program: 2007–09
(Number)

Company type	Companies	New or significantly improved product or process		New or significantly improved product(s)						New or significantly improved process(es)							
				Any good/ service		Goods		Services		Any process		Manufacturing/ production methods		Logistics/delivery/ distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All companies[a]	1,350,374	220,626	1,084,486	157,989	1,157,181	78,761	1,237,645	122,212	1,191,882	160,330	1,143,787	59,588	1,252,086	55,777	1,255,552	125,545	1,183,918
With R&D activity[b]	54,747	35,517	18,733	30,484	23,781	22,888	31,202	17,324	36,528	24,104	29,421	15,456	37,938	8,495	45,118	16,542	37,329
< $10 million	52,566	34,342	17,817	29,408	22,765	21,909	30,085	16,773	34,996	23,260	28,184	14,909	36,407	8,013	43,523	15,869	35,920
≥ $10 but < $50 million	1,533	780	729	707	803	638	872	347	1,158	552	950	332	1,166	305	1,198	425	1,080
≥ $50 but < $100 million	270	171	80	157	94	144	108	81	167	124	123	93	156	74	172	104	143
≥ $100 million	378	224	107	212	119	197	136	123	206	167	164	122	209	103	225	144	186
Without R&D activity	1,295,627	185,109	1,065,753	127,505	1,133,400	55,873	1,206,443	104,888	1,155,355	136,226	1,114,366	44,131	1,214,147	47,282	1,210,434	109,003	1,146,590

[a] Weighted counts for companies that reported on 2009 Business R&D and Innovation Survey whether they did or did not perform or fund R&D. In comparison, total weighted count for companies that did not report these R&D data on survey is 467,100 companies.

[b] Dollar ranges determined by total worldwide R&D expense plus total worldwide R&D cost funded by others.

NOTE: Survey asked companies to identify innovations introduced in 2007–09.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 85. R&D-active and non-R&D-active companies in the United States that reported new or significantly improved products or processes and the proportion of companies in each R&D program size classification: 2007–09

(Percent)

Company type	Companies (number)	New or significantly improved product or process		New or significantly improved product(s)						New or significantly improved process(es)							
				Any good/ service		Goods		Services		Any process		Manufacturing/ production methods		Logistics/delivery/ distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All companies[a]	1,350,374	16.3	80.3	11.7	85.7	5.8	91.7	9.1	88.3	11.9	84.7	4.4	92.7	4.1	93.0	9.3	87.7
With R&D activity[b]	54,747	64.9	34.2	55.7	43.4	41.8	57.0	31.6	66.7	44.0	53.7	28.2	69.3	15.5	82.4	30.2	68.2
< $10 million	52,566	65.3	33.9	55.9	43.3	41.7	57.2	31.9	66.6	44.3	53.6	28.4	69.3	15.2	82.8	30.2	68.3
≥ $10 but < $50 million	1,533	50.9	47.5	46.1	52.4	41.6	56.9	22.6	75.5	36.0	61.9	21.6	76.1	19.9	78.2	27.7	70.4
≥ $50 but < $100 million	270	63.2	29.7	58.1	34.9	53.2	40.1	30.0	61.9	45.9	45.6	34.4	57.8	27.4	63.8	38.5	53.0
≥ $100 million	378	59.3	28.3	56.1	31.5	52.1	36.0	32.5	54.5	44.2	43.4	32.3	55.3	27.2	59.5	38.1	49.2
Without R&D activity	1,295,627	14.3	82.3	9.8	87.5	4.3	93.1	8.1	89.2	10.5	86.0	3.4	93.7	3.6	93.4	8.4	88.5

[a] Weighted counts for companies that reported on 2009 Business R&D and Innovation Survey whether they did or did not perform or fund R&D. In comparison, total weighted count for companies that did not report these R&D data on survey is 467,100 companies.

[b] Dollar ranges determined by total worldwide R&D expense plus total worldwide R&D cost funded by others.

NOTES: Survey asked companies to identify innovations introduced in 2007–09. 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, 2009.

TABLE 86. U.S. patent applications and patents issued, by industry and company size: 2009
(Number)

Industry and company size	NAICS code	Patent applications	Patents issued[a]
All industries	21–23, 31–33, 42–81	116,972	60,583
Manufacturing industries	31–33	85,423	43,391
Food	311	2,698	917
Beverage and tobacco products	312	155	91
Textiles, apparel, and leather products	313–316	302	221
Wood products	321	125	78
Paper	322	1,079	707
Printing and related support activities	323	44	40
Petroleum and coal products	324	353	146
Chemicals	325	12,305	6,485
Basic chemicals	3251	1,901	922
Resin, synthetic rubber, fibers, and filaments	3252	598	489
Pesticide, fertilizer, and other agricultural chemical	3253	768	513
Pharmaceuticals and medicines	3254	6,194	2,921
Soap, cleaning compound, and toilet preparation	3256	1,176	802
Paint, coating, adhesive, and other chemical	3255, 3259	1,667	838
Plastics and rubber products	326	2,925	1,508
Nonmetallic mineral products	327	895	371
Primary metals	331	349	208
Fabricated metal products	332	1,678	916
Machinery	333	6,881	3,911
Agricultural implements	33311	479	348
Semiconductor machinery	333295	924	689
Engine, turbine, and power transmission equipment	3336	445	313
Other machinery	other 333	5,033	2,560
Computer and electronic products	334	35,012	16,850
Communications equipment	3342	4,338	2,855
Semiconductor and other electronic components	3344	9,372	7,117
Navigational, measuring, electromedical, and control instruments	3345	16,741	3,146
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,171	728
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	D	D
Other measuring and controlling instruments	other 3345	D	D
Computer and peripheral equipment and other computer and electronic products	other 334	4,561	3,733
Electrical equipment, appliances, and components	335	3,523	1,962
Transportation equipment	336	9,362	4,856
Automobiles, bodies, trailers, and parts	3361–3363	3,620	2,030
Aerospace products and parts	3364	5,565	2,733
Aircraft, aircraft engine, and aircraft parts	336411–336413	4,788	2,375
Guided missile, space vehicle, and related parts	336414, 336415, 336419	777	358
Military armored vehicle, tank, and tank components	336992	17	11
Other transportation equipment	other 336	159	81
Furniture and related products	337	503	394
Miscellaneous manufacturing	339	7,235	3,729
Medical equipment and supplies	3391	4,647	2,620
Other miscellaneous manufacturing	3399	2,587	1,109
Nonmanufacturing industries	21–23, 42–81	31,549	17,192
Mining, extraction, and support activities	21	2,285	1,084
Utilities	22	158	36
Construction	23	42	14
Wholesale trade	42	670	329
Retail trade	44, 45	382	113
Electronic shopping and mail-order houses	4541	344	102
Other retail trade	other 44, 45	38	11
Transportation and warehousing	48, 49	73	42

TABLE 86. U.S. patent applications and patents issued, by industry and company size: 2009
(Number)

Industry and company size	NAICS code	Patent applications	Patents issued[a]
Information	51	13,041	10,263
Publishing	511	9,888	9,094
Newspaper, periodical, book, and directory publishers	5111	37	27
Software publishers	5112	9,851	9,066
Telecommunications	517	1,265	434
Data processing, hosting, and related services	518	567	327
Other information	other 51	1,321	408
Finance and insurance	52	801	318
Real estate and rental and leasing	53	148	92
Professional, scientific, and technical services	54	13,611	4,714
Architectural, engineering, and related services	5413	1,247	393
Computer systems design and related services	5415	3,121	1,121
Scientific R&D services	5417	7,814	2,594
Biotechnology R&D	541711	3,800	1,304
Physical, engineering, and life sciences (except biotechnology) R&D	541712	3,958	1,257
Social sciences and humanities R&D	541720	56	33
Other professional, scientific, and technical services	other 54	1,430	606
Health care services	621–623	187	53
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	151	134
All companies	–	116,972	60,583
Small companies (number of domestic employees)[b]			
5–499	–	29,943	11,870
5–99	–	19,141	6,736
5–49	–	13,938	4,627
5–24	–	8,269	2,854
25–49	–	5,669	1,773
50–99	–	5,204	2,109
100–249	–	6,073	2,668
250–499	–	4,729	2,466
Medium and large companies (number of domestic employees)			
500–999	–	4,013	2,483
1,000–4,999	–	17,632	10,581
5,000–9,999	–	9,003	6,130
10,000–24,999	–	15,117	8,915
25,000 or more	–	41,264	20,605

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

NAICS = 2007 North American Industry Classification System.

[a] 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.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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. Statistics are representative of companies located in 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, 2009.

TABLE 87. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2	2	96	20	14	66	1	2	97
Manufacturing industries	31–33	8	6	86	24	14	62	2	1	98
Food	311	3	3	95	8	6	87	1	2	97
Beverage and tobacco products	312	2	2	96	3	12	85	D	2	97
Textiles, apparel, and leather products	313–316	5	4	91	15	8	78	2	3	95
Wood products	321	1	2	97	11	12	76	D	2	97
Paper	322	4	3	92	23	13	64	1	D	D
Printing and related support activities	323	1	1	98	11	8	81	0	1	95
Petroleum and coal products	324	7	2	90	21	7	72	2	1	D
Chemicals	325	27	7	67	43	7	49	4	1	98
Basic chemicals	3251	28	8	63	47	15	38	8	1	99
Resin, synthetic rubber, fibers, and filaments	3252	17	18	65	27	17	55	1	D	D
Pesticide, fertilizer, and other agricultural chemical	3253	15	9	76	33	10	58	D	5	90
Pharmaceuticals and medicines	3254	52	5	43	64	4	32	1	2	90
Soap, cleaning compound, and toilet preparation	3256	8	6	86	17	7	76	2	D	1
Paint, coating, adhesive, and other chemical	3255, 3259	23	5	72	38	4	58	3	8	D
Plastics and rubber products	326	9	9	82	22	18	60	3	1	86
Nonmetallic mineral products	327	3	5	93	9	13	77	2	5	94
Primary metals	331	2	9	88	16	23	61	0	5	92
Fabricated metal products	332	3	5	91	16	14	70	1	5	92
Machinery	333	12	8	80	24	14	62	6	3	95
Agricultural implements	33311	14	20	67	26	31	42	7	7	92
Semiconductor machinery	333295	62	5	32	76	6	18	D	4	95
Engine, turbine, and power transmission equipment	3336	11	10	79	41	23	36	0	5	89
Other machinery	other 333	11	7	82	22	13	66	6	13	79
Computer and electronic products	334	23	15	62	35	23	42	7	0	D
Communications equipment	3342	16	24	60	22	32	45	0	D	D
Semiconductor and other electronic components	3344	23	8	69	46	16	38	6	5	89
Navigational, measuring, electromedical, and control instruments	3345	25	19	56	32	24	43	9	4	89
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	50	4	47	78	6	16	D	3	97
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	33	15	52	41	17	42	D	3	91
Other measuring and controlling instruments	other 3345	20	22	58	24	28	48	9	7	84
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	25	11	64	38	20	42	D	D	87
Electrical equipment, appliances, and components	335	13	18	68	23	33	44	4	D	87
Transportation equipment	336	12	9	79	27	15	57	4	9	83
Automobiles, bodies, trailers, and parts	3361–3363	9	6	84	20	6	75	5	D	84
Aerospace products and parts	3364	24	19	57	36	28	36	D	5	91
Aircraft, aircraft engine, and aircraft parts	336411–336413	24	18	57	35	28	36	D	5	91

TABLE 87. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Guided missile, space vehicle, and related parts	336414, 336415, 336419	22	32	46	44	23	32	0	7	88
Military armored vehicle, tank, and tank components	336992	D	D	72	D	D	45	0	D	D
Other transportation equipment	other 336	11	6	83	37	19	44	D	D	D
Furniture and related products	337	2	1	97	13	7	80	1	D	D
Miscellaneous manufacturing	339	14	7	79	28	14	57	6	0	100
Medical equipment and supplies	3391	14	9	76	38	18	43	2	1	D
Other miscellaneous manufacturing	3399	13	6	80	23	12	64	8	1	99
Nonmanufacturing industries	21–23, 42–81	1	2	97	16	14	70	1	2	97
Mining, extraction, and support activities	21	1	1	98	56	18	26	1	1	99
Utilities	22	9	4	86	32	36	32	7	1	92
Construction	23	1	2	97	15	20	65	1	2	97
Wholesale trade	42	3	4	93	17	13	70	3	4	93
Retail trade	44, 45	1	1	98	4	4	91	1	1	98
Electronic shopping and mail-order houses	4541	3	1	96	24	33	43	3	1	97
Other retail trade	other 44, 45	1	1	98	3	2	94	1	1	98
Transportation and warehousing	48, 49	1	2	97	1	1	1	D	2	D
Information	51	6	5	89	14	15	72	3	1	96
Publishing	511	5	6	89	12	15	72	1	0	99
Newspaper, periodical, book, and directory publishers	5111	0	0	99	D	D	D	0	0	100
Software publishers	5112	12	15	73	14	18	68	D	4	D
Telecommunications	517	3	4	93	7	9	84	2	2	96
Data processing, hosting, and related services	518	14	9	78	23	13	64	9	7	84
Other information	other 51	5	3	93	13	16	71	3	0	97
Finance and insurance	52	0	1	99	31	12	57	0	1	99
Real estate and rental and leasing	53	1	0	99	38	16	45	D	0	D
Professional, scientific, and technical services	54	4	4	93	18	14	69	1	3	96
Architectural, engineering, and related services	5413	2	4	94	8	16	76	2	2	96
Computer systems design and related services	5415	10	11	79	20	15	65	4	8	87
Scientific R&D services	5417	46	5	49	52	6	42	19	4	76
Biotechnology R&D	541711	61	3	35	63	3	35	D	D	53
Physical, engineering, and life sciences (except biotechnology) R&D	541712	45	8	48	47	8	45	35	6	59
Social sciences and humanities R&D	541720	2	3	95	6	11	84	0	0	100
Other professional, scientific, and technical services	other 54	1	3	96	6	14	79	1	2	97
Health care services	621–623	1	1	98	3	1	96	1	1	98
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1	2	97	3	31	67	1	1	97
All companies	21–23, 31–33, 42–81	2	2	96	20	14	66	1	2	97
Small companies (number of domestic employees)[b]										
5–499	–	2	2	96	19	14	67	1	2	97
5–99	–	2	2	96	18	14	68	1	2	97

TABLE 87. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
5–49	–	2	2	96	17	12	71	1	2	97
5–24	–	2	2	96	15	12	72	1	2	97
25–49	–	3	3	94	22	12	66	1	2	96
50–99	–	2	4	93	21	23	56	1	2	97
100–249	–	3	3	94	24	19	57	1	1	98
250–499	–	6	5	89	34	15	51	2	3	95
Medium and large companies (number of domestic employees)										
500–999	–	12	5	83	38	18	44	6	1	93
1,000–4,999	–	11	8	81	51	16	33	1	6	93
5,000–9,999	–	26	6	67	55	9	36	2	4	94
10,000–24,999	–	45	12	42	73	17	10	5	7	88
25,000 or more	–	35	15	50	72	13	14	D	D	81

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 88. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2	3	95	13	17	70	1	3	96
Manufacturing industries	31–33	7	8	85	16	19	64	3	4	92
Food	311	2	5	92	7	8	85	1	4	95
Beverage and tobacco products	312	4	5	90	7	11	82	4	4	92
Textiles, apparel, and leather products	313–316	7	9	84	11	23	66	6	1	89
Wood products	321	2	3	95	16	14	70	D	2	D
Paper	322	4	13	83	18	21	61	1	11	88
Printing and related support activities	323	3	3	94	6	23	72	3	1	96
Petroleum and coal products	324	6	3	90	18	10	73	D	D	D
Chemicals	325	9	11	81	13	14	73	3	6	91
Basic chemicals	3251	17	12	71	25	17	58	8	7	85
Resin, synthetic rubber, fibers, and filaments	3252	10	21	70	15	22	63	1	D	1
Pesticide, fertilizer, and other agricultural chemical	3253	12	9	79	22	12	65	D	D	D
Pharmaceuticals and medicines	3254	10	15	75	13	18	70	D	1	92
Soap, cleaning compound, and toilet preparation	3256	9	10	81	19	19	63	2	3	95
Paint, coating, adhesive, and other chemical	3255, 3259	3	6	91	4	7	89	D	5	D
Plastics and rubber products	326	10	11	79	25	22	53	3	6	91
Nonmetallic mineral products	327	2	5	93	8	7	85	1	5	94
Primary metals	331	6	6	87	11	17	72	6	5	90
Fabricated metal products	332	4	6	90	15	19	66	3	4	94
Machinery	333	9	11	80	17	22	62	6	6	88
Agricultural implements	33311	11	15	74	19	36	46	6	4	89
Semiconductor machinery	333295	30	31	39	35	32	34	D	D	61
Engine, turbine, and power transmission equipment	3336	10	11	79	34	20	46	D	7	D
Other machinery	other 333	9	11	81	15	20	65	6	6	88
Computer and electronic products	334	15	18	67	21	28	51	7	6	87
Communications equipment	3342	14	19	67	19	24	57	D	7	D
Semiconductor and other electronic components	3344	17	11	72	35	19	46	4	6	91
Navigational, measuring, electromedical, and control instruments	3345	11	25	64	13	34	54	9	4	87
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	21	13	66	28	23	50	D	D	88
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	14	17	68	17	21	62	D	D	89
Other measuring and controlling instruments	other 3345	9	28	63	10	38	53	9	5	86
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	19	18	63	22	30	48	16	7	77
Electrical equipment, appliances, and components	335	13	22	65	20	31	48	7	13	80
Transportation equipment	336	11	14	75	21	24	55	5	9	87
Automobiles, bodies, trailers, and parts	3361–3363	8	14	79	14	24	62	5	9	85
Aerospace products and parts	3364	19	16	65	27	24	49	D	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	20	16	65	28	24	48	D	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	81	D	D	62	0	0	100

TABLE 88. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Military armored vehicle, tank, and tank components	336992	D	D	62	D	D	27	0	0	100
Other transportation equipment	other 336	12	13	75	35	19	46	3	11	86
Furniture and related products	337	2	6	92	10	19	71	1	4	95
Miscellaneous manufacturing	339	12	8	80	20	14	65	8	4	88
Medical equipment and supplies	3391	13	8	79	26	16	58	6	3	90
Other miscellaneous manufacturing	3399	12	8	80	18	13	69	9	5	86
Nonmanufacturing industries	21–23, 42–81	1	3	96	10	13	76	1	3	96
Mining, extraction, and support activities	21	0	1	99	15	7	78	0	1	99
Utilities	22	8	3	89	14	31	56	7	D	D
Construction	23	1	2	97	15	21	63	1	2	97
Wholesale trade	42	4	6	90	11	6	83	4	6	90
Retail trade	44, 45	1	3	96	3	5	92	1	3	96
Electronic shopping and mail-order houses	4541	3	3	94	D	D	49	3	3	94
Other retail trade	other 44, 45	1	3	96	3	2	95	1	3	96
Transportation and warehousing	48, 49	0	4	96	1	1	1	D	4	D
Information	51	5	7	89	8	13	79	3	5	92
Publishing	511	2	7	91	4	11	85	1	5	94
Newspaper, periodical, book, and directory publishers	5111	1	4	95	D	3	D	1	4	95
Software publishers	5112	4	12	84	5	12	83	D	D	89
Telecommunications	517	1	4	95	2	10	88	1	3	97
Data processing, hosting, and related services	518	14	11	75	23	14	63	9	10	81
Other information	other 51	5	6	89	7	19	74	4	4	92
Finance and insurance	52	0	2	98	16	9	75	0	2	98
Real estate and rental and leasing	53	0	2	98	21	16	63	D	2	D
Professional, scientific, and technical services	54	3	4	92	12	13	75	2	3	95
Architectural, engineering, and related services	5413	3	6	91	7	14	78	2	5	93
Computer systems design and related services	5415	9	9	82	17	10	74	4	9	87
Scientific R&D services	5417	12	10	78	12	12	77	11	5	84
Biotechnology R&D	541711	10	11	79	10	11	79	D	D	78
Physical, engineering, and life sciences (except biotechnology) R&D	541712	16	12	72	15	13	72	23	8	69
Social sciences and humanities R&D	541720	D	2	D	D	7	D	0	0	100
Other professional, scientific, and technical services	other 54	2	3	95	10	16	74	2	2	96
Health care services	621–623	0	2	98	1	1	97	D	2	D
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	1	3	97	2	31	67	1	2	97
All companies	21–23, 31–33, 42–81	2	3	95	13	17	70	1	3	96
Small companies (number of domestic employees)[b]										
5–499	–	2	3	95	13	16	71	1	3	96
5–99	–	2	3	95	12	15	72	1	3	96
5–49	–	1	3	95	11	14	75	1	3	96

TABLE 88. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
5–24	–	1	3	96	10	13	77	1	3	96
25–49	–	2	4	94	14	16	70	1	4	95
50–99	–	3	4	93	19	25	57	1	2	96
100–249	–	3	6	90	18	22	60	1	5	94
250–499	–	7	9	85	22	20	58	4	7	90
Medium and large companies (number of domestic employees)										
500–999	–	7	7	86	18	23	59	4	2	93
1,000–4,999	–	7	10	84	23	26	51	3	5	92
5,000–9,999	–	10	15	75	21	24	54	D	6	D
10,000–24,999	–	19	20	62	31	31	38	D	4	D
25,000 or more	–	18	24	58	34	38	29	5	12	83

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 89. Importance of trademarks for R&D-active companies and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	7	8	86	30	27	42	6	7	88
Manufacturing industries	31–33	14	14	72	34	25	41	7	10	83
Food	311	18	19	63	39	22	39	11	17	72
Beverage and tobacco products	312	29	27	44	50	30	20	26	26	48
Textiles, apparel, and leather products	313–316	16	13	71	38	31	31	9	1	83
Wood products	321	4	11	85	12	44	44	3	8	90
Paper	322	13	13	74	33	23	44	9	12	79
Printing and related support activities	323	9	9	81	26	20	54	8	9	83
Petroleum and coal products	324	13	8	79	39	14	47	2	6	92
Chemicals	325	36	23	41	50	22	28	17	24	59
Basic chemicals	3251	32	28	40	49	24	27	14	32	54
Resin, synthetic rubber, fibers, and filaments	3252	38	14	48	51	22	27	1	1	1
Pesticide, fertilizer, and other agricultural chemical	3253	36	7	57	59	12	30	18	2	80
Pharmaceuticals and medicines	3254	53	18	29	59	18	23	33	19	48
Soap, cleaning compound, and toilet preparation	3256	30	21	49	39	26	36	23	18	59
Paint, coating, adhesive, and other chemical	3255, 3259	30	28	42	45	25	30	8	33	59
Plastics and rubber products	326	12	17	71	23	35	42	6	10	84
Nonmetallic mineral products	327	6	10	84	19	27	54	3	8	89
Primary metals	331	14	8	78	23	23	54	13	6	81
Fabricated metal products	332	6	9	84	26	18	56	3	8	89
Machinery	333	17	14	69	34	25	41	10	9	82
Agricultural implements	33311	24	13	63	44	18	38	13	11	77
Semiconductor machinery	333295	49	22	29	57	21	22	D	D	59
Engine, turbine, and power transmission equipment	3336	9	10	81	33	15	52	D	9	D
Other machinery	other 333	17	14	69	32	26	42	10	9	82
Computer and electronic products	334	26	22	52	35	31	33	14	11	75
Communications equipment	3342	20	34	46	27	36	37	D	D	70
Semiconductor and other electronic components	3344	24	17	59	40	27	32	13	9	78
Navigational, measuring, electromedical, and control instruments	3345	26	26	48	31	34	35	16	7	76
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	30	26	44	41	45	14	D	D	84
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	30	24	46	36	29	35	D	D	82
Other measuring and controlling instruments	other 3345	25	26	49	29	33	39	17	9	73
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	36	18	46	50	27	23	23	10	68
Electrical equipment, appliances, and components	335	24	23	53	44	32	24	6	14	80
Transportation equipment	336	12	19	69	24	27	49	6	15	79
Automobiles, bodies, trailers, and parts	3361–3363	12	18	70	26	29	45	7	13	80
Aerospace products and parts	3364	9	19	72	11	26	63	6	5	89
Aircraft, aircraft engine, and aircraft parts	336411–336413	8	19	73	10	26	64	6	5	89
Guided missile, space vehicle, and related parts	336414, 336415, 336419	19	16	64	38	28	33	0	D	D

TABLE 89. Importance of trademarks for R&D-active companies and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Military armored vehicle, tank, and tank components	336992	D	D	52	D	D	27	D	D	D
Other transportation equipment	other 336	17	24	58	50	20	31	4	27	70
Furniture and related products	337	5	7	88	29	15	56	2	6	92
Miscellaneous manufacturing	339	24	15	62	41	23	37	14	10	75
Medical equipment and supplies	3391	21	19	60	36	40	24	13	9	78
Other miscellaneous manufacturing	3399	25	12	63	43	14	43	15	11	73
Nonmanufacturing industries	21–23, 42–81	6	7	87	26	29	44	5	7	88
Mining, extraction, and support activities	21	4	1	95	38	33	29	4	1	95
Utilities	22	10	5	85	35	36	29	7	2	91
Construction	23	3	4	93	25	20	55	3	4	93
Wholesale trade	42	10	12	77	21	38	41	10	12	77
Retail trade	44, 45	6	9	86	7	5	88	6	9	86
Electronic shopping and mail-order houses	4541	20	17	63	D	33	D	20	17	63
Other retail trade	other 44, 45	5	8	86	4	3	93	5	8	86
Transportation and warehousing	48, 49	2	3	95	1	1	1	2	3	95
Information	51	22	23	55	38	34	28	16	19	65
Publishing	511	32	26	42	41	45	14	26	15	58
Newspaper, periodical, book, and directory publishers	5111	24	19	57	12	72	15	25	14	61
Software publishers	5112	45	38	17	46	41	14	40	24	35
Telecommunications	517	7	11	81	15	13	72	5	11	84
Data processing, hosting, and related services	518	33	31	37	53	30	18	22	31	46
Other information	other 51	12	21	68	30	20	50	8	21	71
Finance and insurance	52	7	6	87	56	20	24	7	6	87
Real estate and rental and leasing	53	8	3	89	45	23	32	8	3	89
Professional, scientific, and technical services	54	9	11	80	24	27	49	7	8	85
Architectural, engineering, and related services	5413	7	10	83	13	24	63	6	8	86
Computer systems design and related services	5415	25	24	51	31	39	30	21	16	64
Scientific R&D services	5417	22	23	55	23	24	52	18	18	64
Biotechnology R&D	541711	26	28	46	26	27	47	17	55	28
Physical, engineering, and life sciences (except biotechnology) R&D	541712	22	22	56	20	23	57	32	15	53
Social sciences and humanities R&D	541720	11	13	76	26	13	61	D	D	83
Other professional, scientific, and technical services	other 54	7	8	85	23	16	61	6	7	87
Health care services	621–623	2	4	94	37	2	61	2	4	94
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	6	7	88	5	62	34	6	6	88

TABLE 89. Importance of trademarks for R&D-active companies and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
All companies	21–23, 31–33, 42–81	7	8	86	30	27	42	6	7	88
Small companies (number of domestic employees)[b]										
5–499	–	6	8	86	29	27	44	6	7	88
5–99	–	6	7	87	28	27	45	5	6	88
5–49	–	6	7	87	27	27	47	5	6	89
5–24	–	6	6	88	24	27	49	5	6	89
25–49	–	7	11	82	33	27	40	6	10	85
50–99	–	10	11	79	35	30	35	8	9	83
100–249	–	11	17	72	38	27	35	8	16	76
250–499	–	17	21	63	43	27	30	12	20	68
Medium and large companies (number of domestic employees)										
500–999	–	22	16	62	49	28	23	15	13	73
1,000–4,999	–	26	21	53	58	30	12	18	18	63
5,000–9,999	–	41	18	41	69	1	6	17	12	71
10,000–24,999	–	64	16	21	80	16	4	40	16	44
25,000 or more	–	64	14	22	88	7	5	43	20	37

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 90. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	6	90	23	22	54	4	5	91
Manufacturing industries	31–33	9	11	80	20	23	57	5	7	88
Food	311	8	12	80	18	16	66	4	11	85
Beverage and tobacco products	312	13	10	77	30	21	49	10	8	82
Textiles, apparel, and leather products	313–316	7	11	81	10	23	67	7	1	85
Wood products	321	3	7	90	11	22	68	3	6	92
Paper	322	4	11	85	13	25	62	2	9	89
Printing and related support activities	323	10	10	80	24	20	56	9	9	82
Petroleum and coal products	324	9	5	86	25	10	65	2	3	95
Chemicals	325	17	19	64	27	20	52	4	17	80
Basic chemicals	3251	19	20	61	35	24	41	2	15	82
Resin, synthetic rubber, fibers, and filaments	3252	13	25	62	20	30	50	1	D	1
Pesticide, fertilizer, and other agricultural chemical	3253	17	12	71	28	20	52	D	D	86
Pharmaceuticals and medicines	3254	35	18	47	43	18	39	1	20	73
Soap, cleaning compound, and toilet preparation	3256	14	18	68	25	21	54	6	16	78
Paint, coating, adhesive, and other chemical	3255, 3259	8	19	74	12	19	69	1	18	81
Plastics and rubber products	326	6	13	81	12	29	59	3	6	91
Nonmetallic mineral products	327	5	9	86	10	19	71	4	7	89
Primary metals	331	6	11	83	10	20	70	6	10	85
Fabricated metal products	332	5	6	89	17	13	70	3	5	92
Machinery	333	10	13	77	17	25	58	7	8	86
Agricultural implements	33311	7	19	73	15	37	48	3	10	87
Semiconductor machinery	333295	38	27	35	46	27	28	D	D	65
Engine, turbine, and power transmission equipment	3336	5	10	85	20	14	66	0	8	92
Other machinery	other 333	10	13	77	16	25	59	7	7	86
Computer and electronic products	334	23	20	57	32	29	39	11	10	80
Communications equipment	3342	29	25	46	41	28	32	D	D	81
Semiconductor and other electronic components	3344	18	14	67	33	23	43	8	8	85
Navigational, measuring, electromedical, and control instruments	3345	22	25	53	25	31	43	15	9	76
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	21	25	55	25	43	32	D	D	84
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	25	27	48	31	34	35	D	D	87
Other measuring and controlling instruments	other 3345	22	24	54	24	30	46	16	11	73
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	29	22	48	41	32	26	18	13	69
Electrical equipment, appliances, and components	335	18	21	61	34	30	36	3	12	85
Transportation equipment	336	7	19	74	12	34	54	3	11	86
Automobiles, bodies, trailers, and parts	3361–3363	5	16	79	10	30	60	3	10	87
Aerospace products and parts	3364	8	30	62	10	44	47	5	5	89
Aircraft, aircraft engine, and aircraft parts	336411–336413	8	30	62	9	44	47	5	6	89
Guided missile, space vehicle, and related parts	336414, 336415, 336419	13	14	73	25	23	51	0	D	D

TABLE 90. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Military armored vehicle, tank, and tank components	336992	D	D	84	D	D	D	D	0	D
Other transportation equipment	other 336	10	22	68	31	23	46	2	21	78
Furniture and related products	337	4	3	94	23	11	66	1	2	97
Miscellaneous manufacturing	339	13	12	75	18	23	59	10	7	83
Medical equipment and supplies	3391	9	15	76	11	34	55	8	5	87
Other miscellaneous manufacturing	3399	15	11	74	21	17	61	11	8	81
Nonmanufacturing industries	21–23, 42–81	4	6	90	27	22	51	4	5	91
Mining, extraction, and support activities	21	1	1	98	28	26	46	1	0	99
Utilities	22	8	4	88	25	37	38	7	1	93
Construction	23	2	4	94	13	27	60	2	4	94
Wholesale trade	42	6	8	85	11	44	46	6	8	86
Retail trade	44, 45	3	6	91	5	5	90	3	6	91
Electronic shopping and mail-order houses	4541	17	11	72	D	50	D	17	11	72
Other retail trade	other 44, 45	3	6	91	3	2	95	3	6	91
Transportation and warehousing	48, 49	3	1	96	1	1	1	3	1	96
Information	51	28	18	54	48	21	31	21	17	62
Publishing	511	42	18	40	57	21	22	33	17	49
Newspaper, periodical, book, and directory publishers	5111	36	16	48	75	12	12	33	16	51
Software publishers	5112	51	22	26	54	22	24	38	24	38
Telecommunications	517	7	12	81	13	14	73	6	11	83
Data processing, hosting, and related services	518	29	30	40	45	27	28	22	32	46
Other information	other 51	19	16	65	43	21	36	15	15	70
Finance and insurance	52	6	5	90	30	36	34	6	5	90
Real estate and rental and leasing	53	4	1	95	29	25	46	4	1	95
Professional, scientific, and technical services	54	9	10	80	23	22	55	7	9	84
Architectural, engineering, and related services	5413	11	15	74	19	26	56	10	13	77
Computer systems design and related services	5415	25	24	52	33	33	34	20	18	62
Scientific R&D services	5417	14	23	62	14	23	63	15	26	59
Biotechnology R&D	541711	14	23	63	14	23	63	0	34	66
Physical, engineering, and life sciences (except biotechnology) R&D	541712	13	23	64	13	24	63	14	19	66
Social sciences and humanities R&D	541720	21	26	52	28	13	59	18	32	50
Other professional, scientific, and technical services	other 54	6	7	88	17	8	75	5	7	88
Health care services	621–623	1	3	96	35	2	62	1	3	96
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	3	5	92	3	33	65	3	5	92
All companies	21–23, 31–33, 42–81	4	6	90	23	22	54	4	5	91
Small companies (number of domestic employees)[b]										
5–499	–	4	6	90	23	22	55	4	5	91
5–99	–	4	6	90	23	21	56	4	5	91
5–49	–	4	6	90	23	20	57	3	5	91

TABLE 90. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
5–24	–	4	5	91	23	20	57	3	5	92
25–49	–	5	8	87	22	20	58	4	7	89
50–99	–	6	7	87	24	26	50	5	5	90
100–249	–	7	15	78	22	27	50	5	13	81
250–499	–	12	12	75	27	28	45	10	10	81
Medium and large companies (number of domestic employees)										
500–999	–	13	11	77	28	31	41	8	5	87
1,000–4,999	–	14	20	66	30	44	26	9	14	76
5,000–9,999	–	22	18	60	40	30	1	8	9	84
10,000–24,999	–	35	32	33	44	41	15	22	19	59
25,000 or more	–	38	30	32	52	40	8	27	20	53

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 91. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	8	86	41	23	37	5	7	88
Manufacturing industries	31–33	17	14	68	44	24	32	9	11	80
Food	311	23	18	58	52	24	25	14	17	70
Beverage and tobacco products	312	10	21	69	33	25	42	7	20	73
Textiles, apparel, and leather products	313–316	12	11	77	22	25	52	9	7	84
Wood products	321	5	9	86	26	30	44	3	7	90
Paper	322	11	19	71	43	27	30	4	17	79
Printing and related support activities	323	7	9	83	33	25	43	5	8	87
Petroleum and coal products	324	19	17	64	51	13	36	5	18	76
Chemicals	325	47	17	36	67	14	20	21	20	59
Basic chemicals	3251	46	17	37	69	14	17	21	21	58
Resin, synthetic rubber, fibers, and filaments	3252	43	12	45	58	17	25	1	1	1
Pesticide, fertilizer, and other agricultural chemical	3253	38	7	55	64	12	24	17	4	80
Pharmaceuticals and medicines	3254	66	14	20	73	10	16	39	28	33
Soap, cleaning compound, and toilet preparation	3256	41	25	35	68	18	14	20	30	50
Paint, coating, adhesive, and other chemical	3255, 3259	42	16	42	61	15	24	15	17	68
Plastics and rubber products	326	19	18	63	39	21	40	11	17	72
Nonmetallic mineral products	327	12	13	75	24	27	49	10	11	79
Primary metals	331	20	17	64	33	26	41	18	15	67
Fabricated metal products	332	11	10	80	35	19	47	6	8	85
Machinery	333	20	22	59	39	32	29	11	17	72
Agricultural implements	33311	17	19	64	39	17	44	5	20	75
Semiconductor machinery	333295	70	11	19	79	8	13	D	D	45
Engine, turbine, and power transmission equipment	3336	13	18	69	45	35	20	D	D	87
Other machinery	other 333	20	22	58	38	33	29	11	17	72
Computer and electronic products	334	40	19	40	55	23	22	22	15	63
Communications equipment	3342	44	26	30	55	29	15	17	17	67
Semiconductor and other electronic components	3344	39	16	45	59	20	21	25	12	63
Navigational, measuring, electromedical, and control instruments	3345	42	19	39	54	21	24	15	14	70
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	44	17	39	65	27	9	D	D	80
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	58	10	32	70	12	18	D	D	79
Other measuring and controlling instruments	other 3345	39	21	40	50	22	28	15	18	67
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	36	24	41	48	25	27	24	23	54
Electrical equipment, appliances, and components	335	36	16	48	59	20	21	15	12	74
Transportation equipment	336	21	14	65	39	23	38	12	8	80
Automobiles, bodies, trailers, and parts	3361–3363	17	14	70	28	28	44	12	8	80
Aerospace products and parts	3364	36	15	50	52	19	29	7	7	85
Aircraft, aircraft engine, and aircraft parts	336411–336413	36	14	50	51	19	30	7	6	87
Guided missile, space vehicle, and related parts	336414, 336415, 336419	40	26	34	D	D	17	D	D	50

TABLE 91. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Military armored vehicle, tank, and tank components	336992	33	0	67	34	0	66	32	0	68
Other transportation equipment	other 336	23	12	64	48	13	39	14	12	74
Furniture and related products	337	4	7	89	16	21	62	2	5	93
Miscellaneous manufacturing	339	23	18	59	44	35	21	11	10	79
Medical equipment and supplies	3391	24	18	58	50	32	18	11	11	78
Other miscellaneous manufacturing	3399	22	19	59	41	36	23	12	9	79
Nonmanufacturing industries	21–23, 42–81	5	7	87	38	21	41	5	7	88
Mining, extraction, and support activities	21	6	3	91	48	31	21	6	3	91
Utilities	22	12	4	84	42	31	27	9	1	90
Construction	23	4	5	92	45	24	31	4	5	92
Wholesale trade	42	9	12	79	58	8	35	9	12	79
Retail trade	44, 45	5	8	87	6	5	89	5	8	87
Electronic shopping and mail-order houses	4541	11	15	75	D	49	D	11	14	75
Other retail trade	other 44, 45	5	8	88	4	2	93	5	8	88
Transportation and warehousing	48, 49	3	3	94	1	1	1	3	3	94
Information	51	21	17	62	49	27	24	11	13	76
Publishing	511	27	18	55	52	27	21	13	13	74
Newspaper, periodical, book, and directory publishers	5111	13	13	74	19	45	36	12	10	78
Software publishers	5112	51	27	22	57	25	18	18	40	42
Telecommunications	517	23	12	65	76	13	12	9	11	80
Data processing, hosting, and related services	518	30	25	45	50	31	20	20	22	58
Other information	other 51	11	13	76	24	30	46	8	10	81
Finance and insurance	52	8	12	80	63	14	23	8	12	81
Real estate and rental and leasing	53	1	10	89	43	16	41	1	10	89
Professional, scientific, and technical services	54	10	11	78	37	20	43	7	10	84
Architectural, engineering, and related services	5413	9	13	79	29	26	45	6	11	84
Computer systems design and related services	5415	33	18	49	50	25	25	23	14	63
Scientific R&D services	5417	46	17	37	50	18	32	30	12	58
Biotechnology R&D	541711	50	17	33	49	17	34	D	D	20
Physical, engineering, and life sciences (except biotechnology) R&D	541712	53	18	29	54	20	26	D	D	44
Social sciences and humanities R&D	541720	6	11	83	7	7	86	D	D	82
Other professional, scientific, and technical services	other 54	6	9	85	22	12	66	5	9	86
Health care services	621–623	2	2	96	43	2	56	1	2	96
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	5	7	88	5	32	63	5	7	88
All companies	21–23, 31–33, 42–81	6	8	86	41	23	37	5	7	88
Small companies (number of domestic employees)[b]										
5–499	–	6	8	86	40	23	37	5	7	88
5–99	–	6	8	86	39	23	38	5	7	88
5–49	–	6	7	87	39	22	40	5	7	88
5–24	–	5	7	87	38	21	41	4	7	89

TABLE 91. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
25–49	–	9	9	83	42	22	36	7	8	86
50–99	–	8	11	81	42	28	30	5	10	85
100–249	–	13	14	73	47	21	31	9	13	78
250–499	–	17	8	75	47	26	27	12	5	83
Medium and large companies (number of domestic employees)										
500–999	–	18	17	65	46	31	23	10	14	76
1,000–4,999	–	25	15	60	58	22	20	17	13	71
5,000–9,999	–	35	11	54	67	13	1	9	9	82
10,000–24,999	–	59	15	26	80	16	4	29	13	58
25,000 or more	–	54	13	33	81	14	5	30	13	57

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 92. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2	98	3	6	91	1	1	98
Manufacturing industries	31–33	2	3	95	4	6	90	1	2	97
Food	311	1	2	97	2	1	97	D	2	D
Beverage and tobacco products	312	0	1	99	0	7	93	0	0	100
Textiles, apparel, and leather products	313–316	2	2	96	D	1	D	3	1	95
Wood products	321	D	2	D	0	8	92	D	2	D
Paper	322	1	2	97	1	4	94	D	D	D
Printing and related support activities	323	0	2	97	2	14	84	0	2	98
Petroleum and coal products	324	5	D	D	D	D	84	D	D	D
Chemicals	325	1	3	96	1	4	95	0	3	96
Basic chemicals	3251	1	3	96	2	2	96	0	4	96
Resin, synthetic rubber, fibers, and filaments	3252	2	2	96	2	3	95	D	1	1
Pesticide, fertilizer, and other agricultural chemical	3253	3	D	D	3	D	D	D	0	D
Pharmaceuticals and medicines	3254	1	1	98	1	1	97	0	0	100
Soap, cleaning compound, and toilet preparation	3256	1	6	93	2	4	94	1	8	91
Paint, coating, adhesive, and other chemical	3255, 3259	0	5	95	0	7	93	0	2	98
Plastics and rubber products	326	1	3	96	2	6	92	D	2	D
Nonmetallic mineral products	327	2	3	96	1	5	94	2	2	96
Primary metals	331	4	4	92	2	4	95	5	4	91
Fabricated metal products	332	2	3	95	5	3	91	1	3	95
Machinery	333	1	2	97	2	4	94	0	2	98
Agricultural implements	33311	1	3	96	D	2	D	D	3	D
Semiconductor machinery	333295	23	12	64	27	15	58	D	0	D
Engine, turbine, and power transmission equipment	3336	1	5	94	5	3	91	0	D	D
Other machinery	other 333	1	2	97	1	4	95	0	1	99
Computer and electronic products	334	11	12	77	13	19	68	7	4	89
Communications equipment	3342	4	13	83	5	18	77	0	D	D
Semiconductor and other electronic components	3344	19	14	67	33	27	39	9	4	87
Navigational, measuring, electromedical, and control instruments	3345	3	13	84	4	16	80	2	6	92
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2	5	93	3	9	88	0	0	100
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	8	13	79	8	16	76	D	D	89
Other measuring and controlling instruments	other 3345	3	14	83	3	17	80	2	8	90
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	12	5	83	11	9	80	D	D	85
Electrical equipment, appliances, and components	335	3	8	89	7	14	80	D	3	D
Transportation equipment	336	1	1	98	1	2	96	1	0	98
Automobiles, bodies, trailers, and parts	3361–3363	2	1	98	2	2	97	D	D	D
Aerospace products and parts	3364	1	1	98	1	2	98	D	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	0	1	98	1	2	98	0	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	0	D	D	0	D	D	0	D

TABLE 92. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Military armored vehicle, tank, and tank components	336992	0	0	100	0	0	100	0	0	100
Other transportation equipment	other 336	1	2	97	2	7	91	0	D	D
Furniture and related products	337	0	2	98	D	1	D	D	2	D
Miscellaneous manufacturing	339	1	3	97	1	3	95	0	2	97
Medical equipment and supplies	3391	0	2	98	1	4	95	0	1	99
Other miscellaneous manufacturing	3399	1	3	96	1	3	96	1	3	96
Nonmanufacturing industries	21–23, 42–81	1	1	98	2	5	92	1	1	98
Mining, extraction, and support activities	21	D	1	D	0	D	D	D	D	D
Utilities	22	5	2	93	D	D	80	D	0	D
Construction	23	1	1	98	5	D	D	1	1	98
Wholesale trade	42	1	3	97	2	8	90	1	3	97
Retail trade	44, 45	1	2	97	D	D	D	1	2	97
Electronic shopping and mail-order houses	4541	1	0	99	0	D	D	1	0	99
Other retail trade	other 44, 45	1	2	97	D	D	D	1	2	97
Transportation and warehousing	48, 49	D	1	98	D	D	1	D	1	D
Information	51	1	3	96	1	3	96	1	3	97
Publishing	511	1	2	98	2	4	95	D	0	D
Newspaper, periodical, book, and directory publishers	5111	D	0	D	0	D	D	D	D	D
Software publishers	5112	1	4	95	2	4	94	0	3	97
Telecommunications	517	1	2	97	1	2	96	0	2	98
Data processing, hosting, and related services	518	1	10	89	1	3	95	1	13	86
Other information	other 51	1	2	98	D	1	D	1	2	98
Finance and insurance	52	0	0	100	D	D	D	D	0	D
Real estate and rental and leasing	53	0	1	99	0	8	92	0	D	D
Professional, scientific, and technical services	54	1	2	97	3	4	93	1	1	98
Architectural, engineering, and related services	5413	1	2	98	1	5	94	1	1	98
Computer systems design and related services	5415	4	5	91	6	8	86	2	4	94
Scientific R&D services	5417	3	3	94	4	4	93	D	D	D
Biotechnology R&D	541711	1	4	94	1	4	95	0	D	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	5	3	92	6	3	91	D	0	D
Social sciences and humanities R&D	541720	D	1	D	D	3	D	0	0	100
Other professional, scientific, and technical services	other 54	0	1	99	0	0	99	0	1	99
Health care services	621–623	0	1	99	D	1	D	D	1	D
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	0	1	98	0	1	70	0	1	98
All companies	21–23, 31–33, 42–81	1	2	98	3	6	91	1	1	98
Small companies (number of domestic employees)[b]										
5–499	–	1	2	98	3	6	91	1	1	98
5–99	–	1	2	98	3	6	92	1	1	98
5–49	–	1	2	98	3	5	93	1	1	98
5–24	–	1	1	98	2	5	93	1	1	98

TABLE 92. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2009
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
25–49	–	1	2	97	4	5	92	1	2	97
50–99	–	1	2	97	3	10	86	0	2	98
100–249	–	1	3	97	4	8	88	1	2	97
250–499	–	2	2	96	5	5	90	1	2	97
Medium and large companies (number of domestic employees)										
500–999	–	1	1	98	3	4	93	0	0	99
1,000–4,999	–	1	3	95	6	8	86	0	2	98
5,000–9,999	–	2	5	93	5	8	87	0	1	99
10,000–24,999	–	2	8	90	3	12	85	D	D	D
25,000 or more	–	4	5	90	8	8	84	D	3	D

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2009.

TABLE 93. R&D costs paid for by the company and paid for by others projected for 2010, by location of R&D performance: 2009
(Millions of U.S. dollars)

		Total worldwide R&D cost			Domestic performance				Foreign performance		
					Paid for by company		Paid for by others				
Industry and company size	NAICS code	Total	Paid for by company	Paid for by others	Total	For collaborative R&D	Total	Paid for by U.S. federal government	Total	Paid for by company	Paid for by others
All industries	21–23, 31–33, 42–81	396,048	327,181	68,867	264,857	21,574	54,390	32,535	76,803	62,326	14,477

NAICS = 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, 2009.

TABLE 94. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2010

Question	Survey item	Aggregate amount
Company and financial information (US$millions)		
1.8	Worldwide net sales and operating revenues	12,182,049
1.9	Net sales and operating revenues from domestic operations	8,818,081
2.13(1) + 3.10(1)	Total domestic R&D performance	278,977
2.4	Worldwide R&D expense	316,201
2.6	Independent research and development (IR&D)	13,881
2.8a	Domestic R&D incurred	250,922
2.8b	Foreign R&D incurred	65,280
2.11a(1)	Salaries, wages, and fringe benefits	132,752
2.11b(1)	Stock-based compensation	7,831
2.11c(1)	Temporary staffing	8,793
2.11d(1)	Expensed equipment	2,492
2.11e(1)	Materials and supplies	14,021
2.11f(1)	Lease and rental payments	2,821
2.11g(1)	Depreciation and amortization	9,746
2.11h(1)	Payments to business partners for collaborative R&D	6,503
2.11i(1)	Purchased R&D services	22,713
2.11j(1)	All other purchased services except R&D	3,072
2.11k(1)	Allocated costs	7,250
2.11l(1)	All other costs	32,926
2.12(1)	Domestic R&D performed by others	29,216
2.12(2)	Foreign R&D performed by others	9,914
2.12(3)	Worldwide R&D performed by others	39,130
2.13(1)	Domestic R&D performance	221,706
2.13(2)	Foreign R&D performance	55,366
2.13(3)	Worldwide R&D performance	277,071
2.19	Performed at largest domestic location	132,119
2.21	Paid for by foreign operations or subsidiaries	3,519
	Domestic R&D performed by others	
2.23a	Companies in United States	21,256
2.23b	Your company's foreign owner	245
2.23c	Companies outside United States	2,266
2.23d	U.S. federal government	136
2.23e	U.S. state and local governments	8
2.23f	Foreign governments	20
2.23g	Universities and colleges in United States	829
2.23h	Universities and colleges outside United States	188 i
2.23i	All other organizations	352
2.23	Undistributed (from Form BRDI-1A only)	3,916
	Projected worldwide R&D expense for 2011	
2.24(1)	Domestic R&D incurred	271,529
2.24(2)	Foreign R&D incurred	65,912
2.24(3)	Worldwide R&D incurred	337,441
2.25	Projected R&D services and projected payments for collaborative R&D	34,777
2.26	Total domestic capital expenditures	790,040
2.27	Domestic capital expenditures for R&D	25,113
2.28a	Structures	1,899
2.28b	Equipment	8,436
2.28c	Capitalized software	5,083 i
2.28d	All other expenditures	2,226
2.28	Undistributed (from Form BRDI-1A only)	7,469
	R&D expense paid for by others	
3.1j	Worldwide	74,975
3.5a	Domestic R&D incurred	69,590
3.5b	Foreign R&D incurred	5,385
3.8a(1)	Salaries, wages, and fringe benefits	33,372
3.8b(1)	Stock-based compensation	194

TABLE 94. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2010

Question	Survey item	Aggregate amount
3.8c(1)	Temporary staffing	1,557
3.8d(1)	Expensed equipment	452 i
3.8e(1)	Materials and supplies	7,146
3.8f(1)	Lease and rental payments	571
3.8g(1)	Depreciation and amortization	1,152
3.8h(1)	Payments to business partners for collaborative R&D	1,176
3.8i(1)	Purchased R&D services	11,144 i
3.8j(1)	All other purchased services except R&D	783
3.8k(1)	Allocated costs	1,903
3.8l(1)	All other costs	10,142 i
3.9(1)	Domestic R&D performed by others	12,319 i
3.9(2)	Foreign R&D performed by others	1,522
3.9(3)	Worldwide R&D performed by others	13,841
3.10(1)	Domestic R&D performance	57,271
3.10(2)	Foreign R&D performance	3,863
3.10(3)	Worldwide R&D performance	61,134
	R&D performed in United States	
3.14a	Funded by companies in United States	11,013
3.14b	Your company's foreign owner	7,102
3.14c	Companies outside United States	3,913
3.14d	U.S. federal government	34,199 i
3.14e	U.S. state and local governments	156
3.14f	Foreign governments	37
3.14g	Other organizations in United States	779
3.14h	Other organizations outside United States	74
	Federally funded R&D	
3.16a	Department of Defense	28,545 i
3.16b	Department of Energy	1,089
3.16c	National Aeronautics and Space Administration	1,872
3.16d	National Institutes of Health	872
3.16e	Other U.S. federal agencies	1,822
3.17a	Funded by contracts	21,041
3.17b	Funded by grants	1,315 i
3.17	Undistributed (from Form BRDI-1A only)	11,843
	Projected R&D paid for by others in 2011	
3.20	Total worldwide	74,777
3.21	Performed by company in United States	64,547
3.22	Funded by U.S. federal government	36,272 i
	R&D expense	
	Worldwide	
4.3	New business areas or product lines	25,060
4.4	Science/technology new to company	19,624
4.5	Science/technology new to market	33,736
4.6	R&D agreements	11
	R&D performed in United States	
4.11b	Basic research	13,453
4.11a	Applied research	35,475
4.10b	Development	172,777
4.12	Energy applications	16,477
4.13	Environmental protection applications	7,923
4.14	Software products	46,513
4.15	Software embedded in other projects	17,304
4.16	Medical clinical trials	22,826
4.17	Biotechnology	20,061
4.18	Nanotechnology	11,532

TABLE 94. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2010

Question	Survey item	Aggregate amount
	Paid for by others, performed in United States	
4.23b	Basic research	2,918
4.23a	Applied research	9,431
4.22b	Development	44,922 i
4.24	Medical clinical trials	6,618
4.25	Energy applications	2,910
4.26	Environmental protection applications	1,766 i
4.27	Biotechnology	7,313
4.28	Nanotechnology	1,968
	Federally funded	
4.32b	Basic research	1,406
4.32a	Applied research	4,705
4.31b	Development	28,089 i
Employees (thousands)		
5.1	Total employees	29,195
5.3b(3)	Non-R&D employees	27,271
5.3a(3)	R&D employees	1,924
5.5a(3)	Female	487
5.5b(3)	Male	1,437
5.6a(3)	Scientists and engineers	1,307
5.6b(3)	Technicians	389
5.6c(3)	Support staff	228
	R&D scientists and engineers	
5.8a(3)	PhD degree holders	155
5.8b(3)	All other	1,152
	Domestic	
5.2(1)	Total employees	18,638
5.3b(1)	Non-R&D employees	17,226
5.3a(1)	R&D employees	1,412
5.5a(1)	Female	352
5.5b(1)	Male	1,060
5.6a(1)	Scientists and engineers	950
5.6b(1)	Technicians	292
5.6c(1)	Support staff	170
	R&D scientists and engineers	
5.8a(1)	PhD degree holders	123
5.8b(1)	All other	828
	Foreign	
5.2(2)	Total employees	10,557
5.3b(2)	Non-R&D employees	10,045
5.3a(2)	R&D employees	512
5.5a(2)	Female	135
5.5b(2)	Male	376
5.6a(2)	Scientists and engineers	357
5.6b(2)	Technicians	97
5.6c(2)	Support staff	58
	R&D scientists and engineers	
5.8a(2)	PhD degree holders	32
5.8b(2)	All other	324
5.9	Temporary visa	25
5.10	Domestic full-time equivalent (FTE) R&D scientists and engineers, total	804
5.11	Domestic FTE R&D scientists and engineers working on federal grants or contracts	74 i
U.S. patents		
6.1	Applied for (number)	123,084
6.2	Applications, also foreign (number)	66,707
6.3	Applications originated from R&D (number)	105,129

TABLE 94. Business R&D and Innovation Survey item aggregate amounts, by questionnaire reference: 2010

Question	Survey item	Aggregate amount
6.4	Issued (number)	86,889
6.7	New agreements to license patents to others (number)	8,230
6.6	Revenue from patent licensing (US$millions)	28,751

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

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2010.

TABLE 95. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	12,182,049	8,818,081	3,363,968
Manufacturing industries	31–33	7,290,019	4,845,584	2,444,435
Food	311	875,745	620,462	255,283
Beverage and tobacco products	312	279,705	120,396	159,309
Textiles, apparel, and leather products	313–316	61,292	55,185	6,107
Wood products	321	D	29,998	D
Paper	322	128,283	88,071	40,212
Printing and related support activities	323	40,485	34,472	6,013
Petroleum and coal products	324	D	D	D
Chemicals	325	1,533,343	1,017,360	515,983
Basic chemicals	3251	387,814	287,423	100,390
Resin, synthetic rubber, fibers, and filaments	3252	175,072	133,113	41,960
Pesticide, fertilizer, and other agricultural chemical	3253	30,438	25,440	4,998
Pharmaceuticals and medicines	3254	583,240	387,932	195,309
Soap, cleaning compound, and toilet preparation	3256	197,848	102,162	95,686
Paint, coating, adhesive, and other chemical	3255, 3259	158,932	81,291	77,641
Plastics and rubber products	326	190,213	149,006	41,207
Nonmetallic mineral products	327	65,876	51,818	14,058
Primary metals	331	180,840	150,820	30,020
Fabricated metal products	332	130,536	110,529	20,007
Machinery	333	420,603	257,089	163,514
Agricultural implement	33311	56,910	34,277	22,633
Semiconductor machinery	333295	22,020	12,099	9,921
Engine, turbine, and power transmission equipment	3336	36,616	24,259	12,357
Other machinery	other 333	305,056	186,454	118,602
Computer and electronic products	334	1,036,276	623,950	412,326
Communications equipment	3342	155,476	110,785	44,691
Semiconductor and other electronic components	3344	231,050	133,795	97,255
Navigational, measuring, electromedical, and control instruments	3345	278,195	196,944	81,251
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	55,325	41,331	13,994
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	128,968	100,953	28,015
Other measuring and controlling instruments	other 3345	93,903	54,660	39,242
Other computer and electronic products	other 334	371,555	182,425	189,129
Electrical equipment, appliances, and components	335	176,760	111,576	65,184
Transportation equipment	336	1,292,123	913,573	378,550
Automobiles, bodies, trailers, and parts	3361–3363	809,097	548,168	260,929
Aerospace products and parts	3364	403,716	307,624	96,091
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	269,707	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	37,917	D
Military armored vehicle, tank, and tank components	336992	1,317	1,317	0
Other transportation	other 336	77,994	56,464	21,530 i
Furniture and related products	337	38,491	32,941	5,550
Miscellaneous manufacturing	339	D	D	D
Medical equipment and supplies	3391	322,952	285,158	37,794
Other miscellaneous manufacturing	3399	D	D	D
Nonmanufacturing industries	21–23, 42–81	4,892,030	3,972,497	919,533
Mining, extraction, and support activities	21	680,021	429,003	251,018
Utilities	22	310,795	305,237	5,558
Construction	23	91,265	84,149	7,116
Wholesale trade	42	183,185	150,396	32,790
Retail trade	44, 45	100,999	75,984	25,014
Electronic shopping and electronic auctions	454111, 454112	D	27,566	D
Other retail trade	other 44, 45	D	48,419	D
Transportation and warehousing	48, 49	228,803	132,659	96,143
Information	51	1,013,069	802,714	210,354

TABLE 95. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Sales		
		Worldwide	Domestic	Foreign
Publishing	511	432,811	281,714	151,097
Newspaper, periodical, book, and directory publishers	5111	18,896	12,259	6,636
Software publishers	5112	413,915	269,454	144,461
Telecommunications	517	399,270	394,104	5,166
Data processing, hosting, and related services	518	41,817	33,293	8,524
Other information	other 51	139,171	93,604	45,567
Finance and insurance	52	1,392,130	1,323,538	68,592
Real estate and rental and leasing	53	10,855	9,898	957
Professional, scientific, and technical services	54	651,222	485,847	165,375
Architectural, engineering, and related services	5413	162,117	114,403	47,714
Computer systems design and related services	5415	263,144	179,010 i	84,134 i
Scientific R&D services	5417	112,149	104,267	7,881
Biotechnology R&D	541711	D	14,323	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	95,553	88,753	6,800
Social sciences and humanities R&D	541720	D	1,192	D
Other professional, scientific, and technical services	other 54	113,813	88,167	25,646
Health care services	621–623	68,671	67,840	830
Other nonmanufacturing	55, 56, 624, 71, 72, 81	161,017	105,232	55,785
All companies (number of employees)	–	12,182,049	8,818,081	3,363,968
Small companies (number of employees)[a]				
5–499	–	1,171,889	990,917	180,972
5–99	–	395,275	372,412	22,863
5–49	–	235,057	224,984	10,072
5–9	–	31,002	29,766	1,236
10–24	–	76,246	69,444	6,802 i
25–49	–	127,809	125,774	2,035
50–99	–	160,218	147,427	12,790
100–249	–	413,038	288,005	125,033
250–499	–	363,577	330,500	33,076
Medium and large companies (number of employees)				
500–999	–	379,103	317,704	61,399
1,000–4,999	–	1,776,469	1,195,200	581,269
5,000–9,999	–	1,672,563	1,345,492	327,071
10,000–24,999	–	2,261,984	1,666,206	595,777
25,000 or more	–	4,920,042	3,302,562	1,617,480

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

NAICS = 2007 North American Industry Classification System.

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

NOTES: Domestic sales are amount of sales that originated from domestic operations. Foreign sales are 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 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, 2010.

TABLE 96. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2010
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
All business activities	21100–81000	12,182,049	8,818,081	3,363,968
Oil and gas extraction	21100	212,392	85,789	126,603
Mining	21200	38,232	33,013	5,219
Support activities for mining, including oil and gas	21300	60,715	34,571	26,144
Utilities	22100	310,899	301,810	9,089
Construction	23000	94,512	82,801	11,711
Food	31100	687,838	497,527	190,312
Beverage	31210	121,517	66,144	55,373
Tobacco	31220	132,921	31,340	101,581
Textiles, apparel, and leather products	31990	68,811	57,099	11,713
Wood products	32100	27,247	24,112	3,136 i
Paper	32200	137,918	98,686	39,232
Printing and related support activities	32300	37,327	32,114	5,213
Petroleum refineries	32401	838,259	540,979	297,280
Asphalt paving, roofing, and saturated materials	32402	7,458	7,423	34
Other petroleum and coal products, including motor oil, hydraulic fluid, and charcoal	32403	32,488	21,866	10,622
Basic chemicals	32510	244,763	148,830	95,934
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	105,122	63,556	41,566
Pesticide, fertilizer, and other agricultural chemical	32530	50,449	40,071	10,378
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	470,152	322,817	147,335
In-vitro diagnostic substances	32542	20,644	12,844	7,801
Soap, cleaning compound, and toilet preparation	32591	166,280	80,790	85,490
Paint, adhesive, and other chemical	32592	103,183	59,657	43,526
Plastics and rubber products	32600	195,377	136,879	58,498
Clay and glass products	32710	36,864	24,423	12,441
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	30,486	23,172	7,315
Primary metal	33100	186,320	153,257	33,064
Fabricated metal products	33200	165,306	118,333	46,972
Agricultural machinery and equipment	33311	46,227	28,107	18,120
Construction machinery	33312	31,006	19,737	11,269
Mining, oil, and gas field machinery and equipment	33319	75,573	39,235	36,337
Semiconductor machinery	33321	21,124	11,406	9,718
Industrial machinery, except semiconductor machinery	33322	30,681	21,572	9,109
Photographic and photocopying equipment	33331	D	3,929 i	D
Commercial, service industry, temperature control, and air-flow control machinery	33332	74,886	46,157	28,729
Engine, turbine, and power transmission equipment	33360	84,643	46,481	38,161
Metalworking and other general purpose machinery	33390	94,615	57,827	36,788
Computers and peripheral equipment and magnetic and optical media	33412	329,099	166,234	162,865
Telephone apparatus, including routers, modems, and gateways	33421	83,951	38,933	45,018
Radio, television, and wireless communication equipment	33422	73,537	56,024	17,513
Other communication equipment , except radio, television, and wireless communication equipment	33429	12,776	8,796	3,979
Audio and video equipment	33430	21,399	18,745	2,654
Semiconductor and other electronic components	33440	256,819	144,541	112,278
Electromedical, electrotherapeutic, and irradiation apparatus	33451	27,812	18,664	9,148
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	68,800	57,610	11,191
Measuring and control instruments (not listed elsewhere)	33459	88,225	50,062	38,163
Electrical equipment, appliances, and components	33500	158,864	104,054	54,810
Motor vehicles	33610	476,761	329,908	146,853
Motor vehicle body and trailer	33620	20,933	20,391	542
Motor vehicle parts	33630	248,461	159,902	88,560
Aircraft	33641	89,791	81,984	7,807
Aircraft engine and engine parts	33642	35,037	25,644	9,393
Other aircraft parts and auxiliary equipment	33643	41,638	31,235	10,402

TABLE 96. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2010
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Guided missile, space vehicle, and related parts	33644	D	25,360	D
Railroad rolling stock	33651	5,055	3,816	1,239
Ship and boat building	33660	D	10,532	D
Motorcycle, bicycle, and parts	33691	6,639	6,074	565
Military armored vehicle, tank, and tank components	33692	D	9,083	D
All other transportation equipment	33699	12,851	10,955	1,896
Furniture and related products	33700	37,071	32,505	4,566
Medical equipment and supplies	33910	246,773	172,076	74,697
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	99,636	69,630	30,005
Merchant wholesalers, durable goods	42300	360,886	232,743	128,144
Merchant wholesalers, nondurable goods	42400	283,216	248,771	34,444
Wholesale electronic markets and agents and brokers (business to business)	42500	4,020	4,006	13
Retail trade, except electronic shopping and electronic auctions	44000	211,261	184,181	27,080
Electronic shopping and electronic auctions	45411	D	32,636	D
Transportation	48000	181,986	95,077	86,908
Couriers, messengers, and express delivery services	49200	47,769	36,535	11,234
Warehousing and storage	49300	24,310	23,961	349
Newspaper, periodical, book, and directory publishers (except Internet)	51110	27,016	19,069	7,947
Software publishers (except Internet)	51120	215,500	130,088	85,412
Motion picture and sound recording (except Internet)	51200	18,024	11,378	6,646
Broadcasting (except Internet)	51500	53,324	45,793	7,531
Wired telecommunications carriers	51710	211,995	210,184	1,811
Wireless telecommunications carriers (except satellite)	51720	138,480	138,473	6
Satellite telecommunications	51740	15,995	15,819	176
Other telecommunications (not listed elsewhere)	51790	7,632	7,117	515
Data processing, hosting, and related services	51800	36,967	30,366	6,601
Other information services, including Internet publishing, broadcasting, and Web search portals	51910	81,534	45,602	35,932
Finance: banking and credit intermediation	52200	1,069,595	990,799	78,796 i
Securities, commodity contracts, and other financial investments and related activities (including funds and trusts)	52310	148,898	114,550	34,348
Insurance carriers and related activities	52400	281,419	265,194	16,225
Real estate	53100	D	3,435	D
Rental and leasing services	53200	34,696	26,421	8,275 i
Lessors of nonfinancial intangible assets (including patent licensing)	53300	1,585	1,374	210
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	16,153	14,531	1,622
Architectural, engineering, and related services	54130	146,759	112,981	33,778
Specialized design services	54140	4,013	3,559	454
Computer systems design and related services	54150	231,336	148,447	82,888
Management, scientific, and technical consulting services	54160	60,417	28,139	32,278
R&D services in social sciences and humanities	54172	1,149	1,147	2
R&D services in biotechnology	54173	9,476	8,137	1,338
R&D services in physical, engineering, and life sciences (except biotechnology)	54174	17,559	14,516	3,043
Advertising and related services	54180	12,972	11,335 i	1,638
Professional, scientific, and technical services (not listed elsewhere)	54190	35,294	33,131	2,164
Management of companies and enterprises	55100	3,607	3,345	261
Administrative and support services	56100	45,282 i	25,726	19,557
Waste management and remediation services	56200	14,150	13,949	201
Offices of physicians	62110	24,107	24,107	0
Medical and diagnostic laboratories	62150	37,938	36,227	1,710
Other ambulatory health care services (ambulance, dental, home health care)	62199	9,432	9,277	154
Hospitals and nursing care facilities	62200	D	7,056	D
Social assistance services	62400	424	424	0
Arts, entertainment, and recreation	71000	17,437	13,607	3,830
Accommodation and food services	72000	68,908	36,685	32,223

TABLE 96. Worldwide and domestic sales for companies located in the United States that performed or funded R&D, by business activity: 2010
(Millions of U.S. dollars)

Business activity	Business code[a]	Sales		
		Worldwide	Domestic	Foreign
Other services (not listed elsewhere)	81000	43,833	35,949	7,884
Less: intersegment eliminations	–	226,776	125,842	100,934
Undistributed	–	542,397	420,962	121,435

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

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2007 North American Industry Classification System industry definitions.

NOTES: Domestic sales are amount of sales that originated from domestic operations. Foreign sales are amount of sales that originated from foreign operations. Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2010.

TABLE 97. Worldwide R&D paid for by the company and performed by the company and by others, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
All industries	21–23, 31–33, 42–81	316,201	277,071	39,130
Manufacturing industries	31–33	235,921	202,711	33,210
Food	311	5,162	4,658	504
Beverage and tobacco products	312	1,655	1,486	169
Textiles, apparel, and leather products	313–316	541	515	26
Wood products	321	263	231	32
Paper	322	1,607	1,539	68
Printing and related support activities	323	248	239	9
Petroleum and coal products	324	D	1,243	D
Chemicals	325	90,205	67,431	22,774
Basic chemicals	3251	2,748	2,569	178
Resin, synthetic rubber, fibers, and filaments	3252	1,113	1,036	77
Pesticide, fertilizer, and other agricultural chemical	3253	1,149	D	D
Pharmaceuticals and medicines	3254	77,877	56,124	21,753
Soap, cleaning compound, and toilet preparation	3256	3,695	3,261	434
Paint, coating, adhesive, and other chemical	3255, 3259	3,624	D	D
Plastics and rubber products	326	2,356	2,230	126
Nonmetallic mineral products	327	1,687	1,515	172
Primary metals	331	853	696	156
Fabricated metal products	332	1,612	1,554	58
Machinery	333	12,004	11,460	545
Agricultural implement	33311	1,848	1,574	274
Semiconductor machinery	333295	2,327	2,294	33
Engine, turbine, and power transmission equipment	3336	1,400	1,359	41
Other machinery	other 333	6,429	6,233	196
Computer and electronic products	334	67,571	64,455	3,116
Communications equipment	3342	15,772	14,725	1,048
Semiconductor and other electronic components	3344	28,100	27,527	573
Navigational, measuring, electromedical, and control instruments	3345	12,643	11,746	897
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,364	4,139	225
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,378	3,157	220
Other measuring and controlling instruments	other 3345	4,902	4,450	451 i
Other computer and electronic products	other 334	11,055	10,457	598
Electrical equipment, appliances, and components	335	4,808	4,587	221
Transportation equipment	336	33,397	29,126	4,271
Automobiles, bodies, trailers, and parts	3361–3363	19,225	D	D
Aerospace products and parts	3364	13,090	11,710	1,380
Aircraft, aircraft engine, and aircraft parts	336411–336413	12,194	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	896	D	D
Military armored vehicle, tank, and tank components	336992	35	D	D
Other transportation	other 336	1,047	D	D
Furniture and related products	337	408	403	5
Miscellaneous manufacturing	339	D	9,343	D
Medical equipment and supplies	3391	7,981	7,291	690
Other miscellaneous manufacturing	3399	D	2,052	D
Nonmanufacturing industries	21–23, 42–81	80,281	74,360	5,920
Mining, extraction, and support activities	21	2,705	2,482	223
Utilities	22	682	388	294
Construction	23	1,225	708	517
Wholesale trade	42	1,258	1,095	162
Retail trade	44, 45	D	D	D
Electronic shopping and electronic auctions	454111, 454112	D	D	1
Other retail trade	other 44, 45	D	D	D
Transportation and warehousing	48, 49	127	117	10
Information	51	46,610	44,075	2,535

TABLE 97. Worldwide R&D paid for by the company and performed by the company and by others, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Own performance	Paid to others
Publishing	511	34,578	33,320	1,258
Newspaper, periodical, book, and directory publishers	5111	878	848	30
Software publishers	5112	33,700	32,473	1,227
Telecommunications	517	2,944	1,868	1,076 i
Data processing, hosting, and related services	518	2,762	2,624	138
Other information	other 51	6,327	6,263	64
Finance and insurance	52	2,726	2,590	136
Real estate and rental and leasing	53	375	364	11
Professional, scientific, and technical services	54	20,069	18,312	1,758
Architectural, engineering, and related services	5413	1,620	1,459	162
Computer systems design and related services	5415	12,196	11,650	547
Scientific R&D services	5417	3,992	3,102	890
Biotechnology R&D	541711	2,517	1,780	737
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,454	1,305	149
Social sciences and humanities R&D	541720	21	18	4
Other professional, scientific, and technical services	other 54	2,261	2,101	160
Health care services	621–623	1,309	D	D
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	D	D
All companies (number of employees)	–	316,201	277,071	39,130
Small companies (number of employees)[a]				
5–499	–	50,779	44,790	5,989
5–99	–	28,112	24,472	3,640
5–49	–	20,134	17,439	2,695
5–9	–	3,555	3,059	496
10–24	–	8,177	7,154	1,023
25–49	–	8,402	7,226	1,176
50–99	–	7,978	7,033	945
100–249	–	12,119	10,767	1,352
250–499	–	10,549	9,551	998
Medium and large companies (number of employees)				
500–999	–	11,344	10,366	978
1,000–4,999	–	57,144	50,264	6,880
5,000–9,999	–	29,762	26,833	2,929
10,000–24,999	–	53,804	45,234	8,570
25,000 or more	–	113,369	99,585	13,784

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 98. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2010

(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Worldwide R&D	Domestic R&D performance
All business activities	21100–81000	316,201	221,706
Oil and gas extraction	21100	1,270	889
Mining	21200	75	66
Support activities for mining, including oil and gas	21300	1,635	1,254
Utilities	22100	898	524
Construction	23000	1,004	466
Food	31100	4,474	3,358
Beverage	31210	911	D
Tobacco	31220	811	D
Textiles, apparel, and leather products	31990	663	D
Wood products	32100	233	199
Paper	32200	1,214	850
Printing and related support activities	32300	243	195
Petroleum refineries	32401	707	546
Asphalt paving, roofing, and saturated materials	32402	34	33
Other petroleum and coal products, including motor oil, hydraulic fluid, and charcoal	32403	407	244
Basic chemicals	32510	3,136	2,276
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	1,420	929
Pesticide, fertilizer, and other agricultural chemical	32530	1,657	1,016 i
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	71,521	41,529
In-vitro diagnostic substances	32542	1,207	829
Soap, cleaning compound, and toilet preparation	32591	3,135	2,071
Paint, adhesive, and other chemical	32592	2,241	1,730
Plastics and rubber products	32600	3,173	2,325
Clay and glass products	32710	1,024 i	872 i
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	500	280
Primary metal	33100	889	603
Fabricated metal products	33200	1,969	1,567
Agricultural machinery and equipment	33311	1,309	939
Construction machinery	33312	691	509
Mining, oil, and gas field machinery and equipment	33319	1,763	1,320
Semiconductor machinery	33321	2,278	1,965
Industrial machinery, except semiconductor machinery	33322	814	656
Photographic and photocopying equipment	33331	270	182
Commercial, service industry, temperature control, and air-flow control machinery	33332	1,260	850
Engine, turbine, and power transmission equipment	33360	3,496	2,712
Metalworking and other general purpose machinery	33390	1,997	1,457
Computers and peripheral equipment and magnetic and optical media	33412	12,465	9,421
Telephone apparatus, including routers, modems, and gateways	33421	8,593	6,466
Radio, television, and wireless communication equipment	33422	5,556	4,042
Other communication equipment, except radio, television, and wireless communication equipment	33429	703	585
Audio and video equipment	33430	1,190	756
Semiconductor and other electronic components	33440	29,176	22,192
Electromedical, electrotherapeutic, and irradiation apparatus	33451	2,904	2,390
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	2,413	2,056
Measuring and control instruments (not listed elsewhere)	33459	4,575	2,993
Electrical equipment, appliances, and components	33500	4,482	2,990
Motor vehicles	33610	14,527	7,146
Motor vehicle body and trailer	33620	186	129
Motor vehicle parts	33630	4,301	2,532

TABLE 98. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2010

(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Worldwide R&D	Domestic R&D performance
Aircraft	33641	4,469	4,273
Aircraft engine and engine parts	33642	1,976	1,013
Other aircraft parts and auxiliary equipment	33643	1,818	1,417
Guided missile, space vehicle, and related parts	33644	1,126	925
Railroad rolling stock	33651	159	145
Ship and boat building	33660	608 i	419 i
Motorcycle, bicycle, and parts	33691	186	174
Military armored vehicle, tank, and tank components	33692	183	159
All other transportation equipment	33699	227	198
Furniture and related products	33700	402	371
Medical equipment and supplies	33910	13,367	9,681
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	2,349	1,973
Merchant wholesalers, durable goods	42300	757	645
Merchant wholesalers, nondurable goods	42400	388	285
Wholesale electronic markets and agents and brokers (business to business)	42500	20 i	19 i
Retail trade, except electronic shopping and electronic auctions	44000	179	165
Electronic shopping and electronic auctions	45411	753	428
Transportation	48000	210	184
Couriers, messengers, and express delivery services	49200	6	5
Warehousing and storage	49300	19	15
Newspaper, periodical, book, and directory publishers (except Internet)	51110	875	790
Software publishers (except Internet)	51120	28,500	21,552
Motion picture and sound recording (except Internet)	51200	93	71
Broadcasting (except Internet)	51500	100	79
Wired telecommunications carriers	51710	910	703
Wireless telecommunications carriers (except satellite)	51720	114	104
Satellite telecommunications	51740	224	201
Other telecommunications (not listed elsewhere)	51790	339	277
Data processing, hosting, and related services	51800	2,896	2,543
Other information services including Internet publishing, broadcasting, and Web search portals	51910	7,239	6,180
Finance: banking and credit intermediation	52200	1,234	897
Securities, commodity contracts, and other financial investments and related activities (including funds and trusts)	52310	903	727
Insurance carriers and related activities	52400	610	488
Real estate	53100	3	2
Rental and leasing services	53200	145	109
Lessors of nonfinancial intangible assets (including patent licensing)	53300	270	242
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	505	390 i
Architectural, engineering, and related services	54130	1,365	1,142
Specialized design services	54140	69	65
Computer systems design and related services	54150	12,420	10,036
Management, scientific, and technical consulting services	54160	1,410	1,087
R&D services in social sciences and humanities	54172	8	7
R&D services in biotechnology	54173	2,602	1,806
R&D services in physical, engineering, and life sciences (except biotechnology)	54174	1,541	1,198
Advertising and related services	54180	368	310
Professional, scientific, and technical services (not listed elsewhere)	54190	557	439
Management of companies and enterprises	55100	22	18 i
Administrative and support services	56100	622	582
Waste management and remediation services	56200	683	671
Offices of physicians	62110	371	365

TABLE 98. Worldwide R&D paid for by the company and performed by the company and others and domestic R&D paid for and performed by the company, by business activity: 2010

(Millions of U.S. dollars)

Business activity[a]	Business code[b]	Worldwide R&D	Domestic R&D performance
Medical and diagnostic laboratories	62150	400	332
Other ambulatory health care services (ambulance, dental, home health care)	62199	329	327
Hospitals and nursing care facilities	62200	69	66
Social assistance services	62400	14	13
Arts, entertainment, and recreation	71000	237	192
Accommodation and food services	72000	119	98
Other services (not listed elsewhere)	81000	501	454
Undistributed	–	6,932 i	4,412 i

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

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

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

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2010.

TABLE 99. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
All industries	21–23, 31–33, 42–81	221,706	132,752	7,831	8,793	2,492	14,021	2,821	9,746	3,072	40,177
Manufacturing industries	31–33	159,579	89,749	4,485	5,446	1,716	12,670	1,788	7,451	2,512	33,762
Food	311	3,659	2,730 i	60	72	4	175	15	108	33	463
Beverage and tobacco products	312	717	407	* i	5	2 i	63	13	36	27	163
Textiles, apparel, and leather products	313–316	478	309	4	10	4 i	25 i	7	21	5	93
Wood products	321	229	143	* i	10	2	55	3	3	1	12
Paper	322	1,247	851	D	31	12	102	5	52	19	D
Printing and related support activities	323	201	162	* i	3	1 i	9 i	2 i	12 i	* i	11 i
Petroleum and coal products	324	1,104	548	0	30	1	47	17	28	117	315
Chemicals	325	53,555	27,239	1,219	2,356	202	4,010	906	3,114	1,017	13,492
Basic chemicals	3251	1,718	1,016	12	48	11 i	143	36	100	26	326 i
Resin, synthetic rubber, fibers, and filaments	3252	807	493	D	24	2	40	16	43	7	D
Pesticide, fertilizer, and other agricultural chemical	3253	760 i	259	* i	7	*	10	D	74	D	D
Pharmaceuticals and medicines	3254	45,398	22,525	1,128	2,148	163	3,524	783	2,644	882	11,601
Soap, cleaning compound, and toilet preparation	3256	2,383	1,426	15	44	1	136	19	106	26	611
Paint, coating, adhesive, and other chemical	3255, 3259	2,491	1,520	D	86	25	157	D	147	D	D
Plastics and rubber products	326	1,809	1,105	19	37	11	179	21	60	24 i	353 i
Nonmetallic mineral products	327	1,246 i	748 i	5 i	114 i	48	103 i	7 i	65 i	48 i	107 i
Primary metals	331	579	332	6	14	* i	97	2	23	5	99 i
Fabricated metal products	332	1,464	1,066	5 i	24	16 i	107 i	10 i	39 i	9 i	188 i
Machinery	333	9,384	5,334	93	472	93 i	829	85	394	167	1,917
Agricultural implement	33311	1,172	667	*	73	6	151	3	32	1	240
Semiconductor machinery	333295	1,999	817	80	46	13 i	245	22	169	76	532
Engine, turbine, and power transmission equipment	3336	1,231	794	2 i	92	52 i	101 i	16 i	58 i	57 i	58 i
Other machinery	other 333	4,981	3,056	11 i	262	23 i	331 i	44 i	136	33 i	1,086
Computer and electronic products	334	51,223	30,764	2,785	1,088	850	3,697	481	2,513	630	8,416
Communications equipment	3342	11,663	6,790	700	197	199	706	46	655	347	2,022
Semiconductor and other electronic components	3344	21,318	12,220	1,496	400	175	1,525	301	1,209	115	3,877
Navigational, measuring, electromedical, and control instruments	3345	9,729	6,029	127	351	75	917	94	339	83	1,715
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,800	2,232	73	181	19	257	52	207	18	762
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	2,787	1,805	D	91	11	356	9	51	30	D
Other measuring and controlling instruments	other 3345	3,141	1,992	D	79	45	303 i	33 i	80	35 i	D
Other computer and electronic products	other 334	8,514	5,725	462	140	402	549	40	310	84	802
Electrical equipment, appliances, and components	335	3,141	2,304	D	118	26	181	30	82	46	D
Transportation equipment	336	21,076	10,604	25 i	775	339	2,450	85	601	209	5,987
Automobiles, bodies, trailers, and parts	3361–3363	10,098	5,827	11	608	196	1,273	39	380	64	1,698
Aerospace products and parts	3364	10,152	4,282	13 i	144	140	1,061	42	193	135	4,143
Aircraft, aircraft engine, and aircraft parts	336411–336413	9,353	3,787	13 i	137	137	958	41	189	125	3,966

TABLE 99. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
Guided missile, space vehicle, and related parts	336414, 336415, 336419	800	495	0	7	3	103	1	4	10	177
Military armored vehicle, tank, and tank components	336992	26	16	*	D	1	D	*	1	1	D
Other transportation	other 336	800 i	479 i	* i	D	2	D	3	27	9	D
Furniture and related products	337	370	262	* i	6	6 i	50 i	2 i	5 i	2 i	38 i
Miscellaneous	339	8,097	4,841	227	278	99	491	97 i	295	152	1,616
Medical equipment and supplies	3391	D	3,620	192	243	80	439	79 i	250	142	D
Other miscellaneous	3399	D	1,222	35	35	19	52	19	46	10	D
Nonmanufacturing industries	21–23, 42–81	62,127	43,003	3,346	3,346	776	1,352	1,033	2,295	560	6,415
Mining, extraction, and support activities	21	2,254	1,179	19	229	143	152	44	46	17	424
Utilities	22	371	171	2 i	35	5 i	63 i	1 i	48 i	2 i	43 i
Construction	23	704	417	25 i	73	1 i	42 i	* i	40 i	* i	106 i
Wholesale trade	42	1,040	762	2 i	48	5 i	108 i	8 i	17 i	7 i	82 i
Retail trade	44, 45	D	468	D	92	D	14 i	19	40	D	D
Electronic shopping and electronic auctions	454111, 454112	D	346	D	D	D	*	D	D	D	D
Other retail trade	other 44, 45	D	122	D	D	D	14 i	D	D	D	D
Transportation and warehousing	48, 49	88	68	0	10	1 i	6	1	* i	0	2 i
Information	51	36,085	24,305	2,581	1,693	423	367	559	1,357	210	4,589
Publishing	511	26,387	18,014	1,487	1,189	144	322	365	834	169	3,864
Newspaper, periodical, book, and directory publishers	5111	791	662	* i	88	1	2	* i	* i	*	37
Software publishers	5112	25,596	17,352	1,486	1,101	143	320	365	834	169	3,826
Telecommunications	517	1,755	1,147	16	112 i	89 i	8	5	16	1	360
Data processing, hosting, and related services	518	2,491	1,975	D	97 i	18	8 i	27	94 i	6	D
Other information	other 51	5,452	3,168	D	295	172	29	161	414	34	D
Finance and insurance	52	2,109	1,245	84	424	35	13	25	68	10	206
Real estate and rental and leasing	53	327	164	22	14	*	7	4	18	* i	98
Professional, scientific, and technical services	54	15,438	11,897	518 i	D	148 i	497 i	361 i	567 i	221 i	D
Architectural, engineering, and related services	5413	1,381	956	18 i	33	18 i	80 i	36 i	43 i	17 i	179 i
Computer systems design and related services	5415	9,416	8,073	382 i	D	103 i	127 i	207 i	335 i	126 i	D
Scientific R&D services	5417	2,851	1,524	89	148	22	216	104	120	53	575 i
Biotechnology R&D	541711	1,720	851	82	74	11	161	78	80	32	350 i
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,116	662	6 i	73	11	54	26	39	21	224
Social sciences and humanities R&D	541720	15	11	* i	1 i	* i	* i	* i	* i	* i	1 i
Other professional, scientific, and technical services	other 54	1,790	1,344	30	50	5	73 i	13 i	69 i	25	180
Health care services	621–623	1,126	825	14 i	99 i	1 i	27 i	1 i	67 i	38 i	52 i
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	1,501 i	D	62	D	56 i	9 i	25 i	D	D
All companies (number of employees)	–	221,706	132,752	7,831	8,793	2,492	14,021	2,821	9,746	3,072	40,177
Small companies (number of employees)[b]											
5–499	–	40,822	27,961	963	1,793	322 i	2,178 i	645	1,291 i	448 i	5,221 i
5–99	–	22,974	16,308	384 i	1,147	156 i	962 i	313 i	669 i	239 i	2,796 i

TABLE 99. Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
5–49	–	16,574	11,926	232 i	905	108 i	620 i	199 i	425 i	164 i	1,995 i
5–9	–	2,907	2,145	35 i	228 i	17 i	93 i	28 i	118 i	34 i	209 i
10–24	–	6,720	4,917	85 i	260	33 i	178 i	65 i	109 i	45 i	1,028 i
25–49	–	6,947	4,864	112 i	416	58 i	350 i	105 i	198 i	85 i	758 i
50–99	–	6,400	4,382	153 i	242	48 i	342 i	114	244 i	74 i	800 i
100–249	–	9,435	6,303	274	371	82	642	181	301	81 i	1,200
250–499	–	8,413	5,351	305	275	85	573	151	321	128	1,225
Medium and large companies (number of employees)											
500–999	–	8,640	4,975	361	294	126	670	111	369	234	1,500
1,000–4,999	–	39,468	23,189	1,508	1,282	381	2,519	529	1,636	612	7,811
5,000–9,999	–	21,940	11,966	750	764	265	1,413	334	1,245	389	4,814
10,000–24,999	–	36,688	21,767	1,775	1,040	492	2,190	674	1,926	660	6,165
25,000 or more	–	74,148	42,894	2,475	3,620	907	5,050	527	3,279	730	14,667

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

NAICS = 2007 North American Industry Classification System.

[a] Includes data for costs allocated to subsidiaries by parent companies.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 100. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2010
(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	221,706	13,453	35,475	172,777
Manufacturing industries	31–33	159,579	9,806	29,036	120,737
Food	311	3,659	172	1,379	2,107
Beverage and tobacco products	312	717	53	201	464
Textiles, apparel, and leather products	313–316	478	28	53	397
Wood products	321	229	12	36	181
Printing and related support activities	323	201	10	46	145
Chemicals	325	53,555	4,524	14,471	34,561
Pharmaceuticals and medicines	3254	45,398	3,978	12,580	28,839
Other chemicals	other 325	8,158	545	1,891	5,722
Plastics and rubber products	326	1,809	103	254	1,452
Nonmetallic mineral products	327	1,246 i	93 i	184 i	969 i
Primary metals	331	579	22	102	454
Fabricated metal products	332	1,464	57	149	1,259
Machinery	333	9,384	365	1,087	7,933
Computer and electronic products	334	51,223	2,481 i	6,809	41,933
Semiconductor and other electronic components	3344	21,318	464	3,443 i	17,411
Navigational, measuring, electromedical, and control instruments	3345	9,729	409	1,411	7,909
Other computer and electronic products	other 334	20,176	1,608 i	1,955	16,613
Electrical equipment, appliances, and components	335	3,141	362	458	2,320
Transportation equipment	336	21,076	822	2,050	18,204
Aerospace products and parts	3364	10,152	369	956	8,827
Other transportation equipment	other 336	10,924	453	1,095	9,376
Furniture and related products	337	370	18	37	315
Miscellaneous manufacturing	322, 324, 339	10,448	684	1,720	8,044
Nonmanufacturing industries	21–23, 42–81	62,127	3,647	6,440	52,040
Information	51	36,085	2,047	2,568	31,470
Publishing	511	26,387	1,677	1,811	22,899
Telecommunications	517	1,755	199 i	240 i	1,316 i
Data processing, hosting, and related services	518	2,491	51	226	2,214
Other information	other 51	5,452	120	291	5,040
Professional, scientific, and technical services	54	15,438	731	2,204	12,503
Architectural, engineering, and related services	5413	1,381	82	254	1,045
Computer systems design and related services	5415	9,416	214 i	819 i	8,383
Scientific R&D services	5417	2,851	378	841	1,632
Biotechnology R&D	541711	1,720	327	539	854
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,116	51	297	769
Social sciences and humanities R&D	541720	15	1	5 i	9
Other professional, scientific, and technical services	other 54	1,790	56	290	1,444
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	10,604	868	1,668	8,068
All companies (number of employees)	–	221,706	13,453	35,475	172,777
Small companies (number of employees)[a]					
5–499	–	40,822	2,096	7,647	31,079
5–99	–	22,974	1,209	4,417	17,348
5–49	–	16,574	922	3,432 i	12,219
5–9	–	2,907	113	357	2,437
10–24	–	6,720	403	2,065 i	4,251
25–49	–	6,947	406	1,010	5,531
50–99	–	6,400	287	984	5,129
100–249	–	9,435	474	1,714	7,247
250–499	–	8,413	412	1,516	6,484

TABLE 100. Domestic R&D paid for and performed by the company, by character of work, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
Medium and large companies (number of employees)					
500–999	–	8,640	371	1,270	6,999
1,000–4,999	–	39,468	1,819	5,292	32,357
5,000–9,999	–	21,940	1,227	3,153	17,560
10,000–24,999	–	36,688	3,716	5,352	27,621
25,000 or more	–	74,148	4,224	12,762	57,162

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 101. Worldwide R&D paid for by others and performed by the company and by others, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Performed by company	Performed by others
All industries	21–23, 31–33, 42–81	74,975	61,134	13,841
Manufacturing industries	31–33	48,459	38,302	10,157 i
Food	311	D	D	17
Beverage and tobacco products	312	D	D	1
Textiles, apparel, and leather products	313–316	14	12	3
Wood products	321	20	18	1
Paper	322	29	28	2
Printing and related support activities	323	31	31	1
Petroleum and coal products	324	D	D	2
Chemicals	325	7,171	4,857	2,315
Basic chemicals	3251	123	114	9
Resin, synthetic rubber, fibers, and filaments	3252	21	21	*
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	*
Pharmaceuticals and medicines	3254	6,643	4,358	2,285
Soap, cleaning compound, and toilet preparation	3256	5	4	2
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	18
Plastics and rubber products	326	347 i	318 i	29
Nonmetallic mineral products	327	35	32	3
Primary metals	331	85	75	10
Fabricated metal products	332	344	239	105
Machinery	333	627	590	37
Agricultural implement	33311	29	D	D
Semiconductor machinery	333295	136	128	8
Engine, turbine, and power transmission equipment	3336	121	117	4
Other machinery	other 333	341	D	D
Computer and electronic products	334	9,398	8,972	427
Communications equipment	3342	1,764	1,713	52
Semiconductor and other electronic components	3344	724	703	21
Navigational, measuring, electromedical, and control instruments	3345	6,253	5,953	301
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	219	200	19
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	5,888	5,616	272
Other measuring and controlling instruments	other 3345	146	137	9
Other computer and electronic products	other 334	656	604	53
Electrical equipment, appliances, and components	335	201	183	18
Transportation equipment	336	29,404 i	22,258 i	7,146 i
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D
Aerospace products and parts	3364	26,533 i	19,935 i	6,598 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	21,469 i	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5,064	D	D
Military armored vehicle, tank, and tank components	336992	D	D	0
Other transportation	other 336	D	D	D
Furniture and related products	337	4	3	1
Miscellaneous manufacturing	339	445	405	40
Medical equipment and supplies	3391	362	333	29
Other miscellaneous manufacturing	3399	83	72	11
Nonmanufacturing industries	21–23, 42–81	26,516	22,832	3,684
Mining, extraction, and support activities	21	312	299	13
Utilities	22	131	54	77
Construction	23	375	375	*
Wholesale trade	42	254	233	20
Retail trade	44, 45	*	*	0
Electronic shopping and electronic auctions	454111, 454112	0	0	0
Other retail trade	other 44, 45	*	*	0
Transportation and warehousing	48, 49	8 i	7 i	1 i
Information	51	811	790	22

TABLE 101. Worldwide R&D paid for by others and performed by the company and by others, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide	Performed by company	Performed by others
Publishing	511	623	616	7
Newspaper, periodical, book, and directory publishers	5111	*	*	*
Software publishers	5112	623	616	7
Telecommunications	517	118	113	5
Data processing, hosting, and related services	518	48	47	1
Other information	other 51	22	13	9
Finance and insurance	52	2	1 i	1 i
Real estate and rental and leasing	53	16	2	14
Professional, scientific, and technical services	54	24,409	20,897	3,513
Architectural, engineering, and related services	5413	3,300 i	2,776	524 i
Computer systems design and related services	5415	1,770	1,669	101
Scientific R&D services	5417	17,282	14,458	2,824
Biotechnology R&D	541711	5,588	4,586	1,002
Physical, engineering, and life sciences (except biotechnology) R&D	541712	11,040	9,339	1,701
Social sciences and humanities R&D	541720	654	533	121
Other professional, scientific, and technical services	other 54	2,058	1,994	64
Health care services	621–623	141	121	21
Other nonmanufacturing	55, 56, 624, 71, 72, 81	56	53	3
All companies (number of employees)	–	74,975	61,134	13,841
Small companies (number of employees)[a]				
5–499	–	13,707	11,656	2,050
5–99	–	8,474	7,201	1,273
5–49	–	5,556	4,705	851
5–9	–	1,243	970	273
10–24	–	2,275	2,021	255
25–49	–	2,038	1,714	323
50–99	–	2,917	2,495	422
100–249	–	2,975	2,476	500
250–499	–	2,258	1,980	277
Medium and large companies (number of employees)				
500–999	–	1,685	1,495	190
1,000–4,999	–	12,042	9,548	2,495
5,000–9,999	–	8,355	7,542	813
10,000–24,999	–	6,535	5,512	1,023
25,000 or more	–	32,651 i	25,382 i	7,270 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 102. Worldwide R&D paid for by others and performed by the company, by business activity: 2010
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
All business activities	21100–81000	74,975
Oil and gas extraction	21100	D
Mining	21200	1
Support activities for mining, including oil and gas	21300	D
Utilities	22100	133
Construction	23000	371 i
Food	31100	67 i
Beverage	31210	0
Tobacco	31220	D
Textiles, apparel, and leather products	31990	0
Wood products	32100	0
Paper	32200	4
Printing and related support activities	32300	0
Petroleum refineries	32401	D
Asphalt paving, roofing, and saturated materials	32402	0
Other petroleum and coal products, including motor oil, hydraulic fluid, and charcoal	32403	*
Basic chemicals	32510	118
Resin, synthetic rubber, and artificial synthetic fibers and filaments	32520	2
Pesticide, fertilizer, and other agricultural chemical	32530	D
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic)	32541	6,291
In-vitro diagnostic substances	32542	9
Soap, cleaning compound, and toilet preparation	32591	1
Paint, adhesive, and other chemical	32592	D
Plastics and rubber products	32600	308 i
Clay and glass products	32710	28
Cement, concrete, lime, gypsum, and other nonmetallic mineral product	32790	D
Primary metal	33100	42
Fabricated metal products	33200	14
Agricultural machinery and equipment	33311	18
Construction machinery	33312	2
Mining, oil, and gas field machinery and equipment	33319	16
Semiconductor machinery	33321	118 i
Industrial machinery, except semiconductor machinery	33322	19
Photographic and photocopying equipment	33331	D
Commercial, service industry, temperature control, and air-flow control machinery	33332	57
Engine, turbine, and power transmission equipment	33360	146
Metalworking and other general purpose machinery	33390	75
Computers and peripheral equipment and magnetic and optical media	33412	608
Telephone apparatus, including routers, modems, and gateways	33421	D
Radio, television, and wireless communication equipment	33422	2,497
Other communication equipment, except radio, television, and wireless communication equipment	33429	94 i
Audio and video equipment	33430	94
Semiconductor and other electronic components	33440	368
Electromedical, electrotherapeutic, and irradiation apparatus	33451	151
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	33452	4,619
Measuring and control instruments (not listed elsewhere)	33459	92
Electrical equipment, appliances, and components	33500	115
Motor vehicles	33610	584
Motor vehicle body and trailer	33620	0
Motor vehicle parts	33630	762 i
Aircraft	33641	D
Aircraft engine and engine parts	33642	1,463

TABLE 102. Worldwide R&D paid for by others and performed by the company, by business activity: 2010
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
Other aircraft parts and auxiliary equipment	33643	832
Guided missile, space vehicle, and related parts	33644	4,050
Railroad rolling stock	33651	0
Ship and boat building	33660	D
Motorcycle, bicycle, and parts	33691	0
Military armored vehicle, tank, and tank components	33692	D
All other transportation equipment	33699	D
Furniture and related products	33700	0
Medical equipment and supplies	33910	230
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	55
Merchant wholesalers, durable goods	42300	30
Merchant wholesalers, nondurable goods	42400	3
Wholesale electronic markets and agents and brokers (business to business)	42500	59
Retail trade, except electronic shopping and electronic auctions	44000	0
Electronic shopping and electronic auctions	45411	0
Transportation	48000	13
Couriers, messengers, and express delivery services	49200	0
Warehousing and storage	49300	D
Newspaper, periodical, book, and directory publishers (except Internet)	51110	0
Software publishers (except Internet)	51120	298
Motion picture and sound recording (except Internet)	51200	0
Broadcasting (except Internet)	51500	0
Wired telecommunications carriers	51710	1
Wireless telecommunications carriers (except satellite)	51720	D
Satellite telecommunications	51740	D
Other telecommunications (not listed elsewhere)	51790	52
Data processing, hosting, and related services	51800	1
Other information services including Internet publishing, broadcasting, and Web search portals	51910	6
Finance: banking and credit intermediation	52200	0
Securities, commodity contracts, and other financial investments and related activities (including funds and trusts)	52310	*
Insurance carriers and related activities	52400	0
Real estate	53100	0
Rental and leasing services	53200	0
Lessors of nonfinancial intangible assets (including patent licensing)	53300	0
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	D
Architectural, engineering, and related services	54130	2,062 i
Specialized design services	54140	120
Computer systems design and related services	54150	921
Management, scientific, and technical consulting services	54160	1,036
R&D services in social sciences and humanities	54172	D
R&D services in biotechnology	54173	4,453
R&D services in physical, engineering, and life sciences (except biotechnology)	54174	9,141
Advertising and related services	54180	1
Professional, scientific, and technical services (not listed elsewhere)	54190	1,006
Management of companies and enterprises	55100	0
Administrative and support services	56100	31
Waste management and remediation services	56200	D
Offices of physicians	62110	1 i
Medical and diagnostic laboratories	62150	715
Other ambulatory health care services (ambulance, dental, home health care)	62199	2
Hospitals and nursing care facilities	62200	16

TABLE 102. Worldwide R&D paid for by others and performed by the company, by business activity: 2010
(Millions of U.S. dollars)

Business activity	Business code[a]	Amount
Social assistance services	62400	0
Arts, entertainment, and recreation	71000	1 i
Accommodation and food services	72000	0
Other services (not listed elsewhere)	81000	15
Undistributed	–	15,544 i

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

[a] Data tabulated independent of industry classification of company. Companies were asked to report their sales and R&D into one or more business codes. Business codes and descriptions based on 2007 North American Industry Classification System industry definitions.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2010.

TABLE 103. Worldwide, domestic, and foreign R&D paid for by the company and paid for by others and performed by the company, by source of funds, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total performance			Domestic performance			Foreign 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	338,205	277,071	61,134	278,977	221,706	57,271	59,228	55,366	3,863
Manufacturing industries	31–33	241,013	202,711	38,302	196,711	159,579	37,133	44,302	43,132	1,169
Food	311	D	4,658	D	D	3,659	D	1,002	999	3
Beverage and tobacco products	312	D	1,486	D	D	717	D	769 i	769 i	0
Textiles, apparel, and leather products	313–316	527	515	12	489	478	12	37	37	*
Wood products	321	250	231	18	247	229	18	3	3	*
Paper	322	1,566	1,539	28	1,274	1,247	28	292	292	*
Printing and related support activities	323	269	239	31	231	201	30	38	38	*
Petroleum and coal products	324	D	1,243	D	D	1,104	D	D	139	D
Chemicals	325	72,288	67,431	4,857	58,038	53,555	4,483	14,249	13,876	374
Basic chemicals	3251	2,683	2,569	114	1,803	1,718	85	880	852	29
Resin, synthetic rubber, fibers, and filaments	3252	1,057	1,036	21	828	807	21	229	229	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	D	760 i	D	D	D	D
Pharmaceuticals and medicines	3254	60,482	56,124	4,358	49,415	45,398	4,017	11,067	10,726	341
Soap, cleaning compound, and toilet preparation	3256	3,265	3,261	4	2,387	2,383	4	878	878	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	D	D	2,491	D	D	D	D
Plastics and rubber products	326	2,548	2,230	318 i	2,121	1,809	312 i	427	421	6 i
Nonmetallic mineral products	327	1,548	1,515	32	1,276 i	1,246 i	30	272 i	270 i	2
Primary metals	331	771	696	75	653	579	74	118	118	*
Fabricated metal products	332	1,793	1,554	239	1,703	1,464	239	90	90	*
Machinery	333	12,050	11,460	590	9,955	9,384	571	2,094	2,075	19
Agricultural implement	33311	D	1,574	D	1,196	1,172	23	D	402	D
Semiconductor machinery	333295	2,422	2,294	128	2,126	1,999	127	296	294	1
Engine, turbine, and power transmission equipment	3336	1,476	1,359	117	1,344	1,231	113	132	127	4
Other machinery	other 333	D	6,233	D	5,290	4,981	308	D	1,252	D
Computer and electronic products	334	73,427	64,455	8,972	59,875	51,223	8,652	13,552	13,232	320
Communications equipment	3342	16,437	14,725	1,713	13,349	11,663	1,687	3,088	3,062	26
Semiconductor and other electronic components	3344	28,230	27,527	703	21,933	21,318	615	6,297	6,209	88
Navigational, measuring, electromedical, and control instruments	3345	17,699	11,746	5,953	15,561	9,729	5,832	2,138	2,018	121
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,339	4,139	200	3,997	3,800	197	342	338	3
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	8,773	3,157	5,616	8,298	2,787	5,511	475	370	105
Other measuring and controlling instruments	other 3345	4,587	4,450	137	3,266	3,141	124	1,322	1,309	12
Other computer and electronic products	other 334	11,061	10,457	604	9,032	8,514	518	2,029	1,944	85 i
Electrical equipment, appliances, and components	335	4,769	4,587	183	3,320	3,141	180	1,449	1,446	3
Transportation equipment	336	51,384	29,126	22,258 i	42,913	21,076	21,837 i	8,472	8,050	422
Automobiles, bodies, trailers, and parts	3361–3363	17,792	D	D	D	10,098	D	D	D	D
Aerospace products and parts	3364	31,645	11,710	19,935 i	29,854	10,152	19,702 i	1,791	1,558	233
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	D	D	24,900 i	9,353	15,547 i	D	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	D	4,955	800	4,155	D	D	D
Military armored vehicle, tank, and tank components	336992	D	D	D	D	26	D	D	D	0
Other transportation	other 336	D	D	D	D	800 i	D	D	D	D
Furniture and related products	337	406	403	3	373	370	3	33	33	0

TABLE 103. Worldwide, domestic, and foreign R&D paid for by the company and paid for by others and performed by the company, by source of funds, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total performance			Domestic performance			Foreign 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
Miscellaneous manufacturing	339	9,748	9,343	405	D	8,097	D	D	1,246	D
Medical equipment and supplies	3391	7,624	7,291	333	6,597	D	D	1,027	D	D
Other miscellaneous manufacturing	3399	2,124	2,052	72	D	D	72	D	D	0
Nonmanufacturing industries	21–23, 42–81	97,192	74,360	22,832	82,265	62,127	20,138	14,927	12,233	2,693
Mining, extraction, and support activities	21	2,782	2,482	299	2,542	2,254	289	239	229	11
Utilities	22	442	388	54	425	371	54	17	17	0
Construction	23	1,083	708	375	1,079	704	375	4	4	0
Wholesale trade	42	1,329	1,095	233	1,274	1,040	233	55 i	55 i	*
Retail trade	44, 45	D	D	*	D	D	*	D	D	0
Electronic shopping and electronic auctions	454111, 454112	D	D	0	D	D	0	D	D	0
Other retail trade	other 44, 45	D	D	*	D	D	*	D	D	0
Transportation and warehousing	48, 49	124	117	7 i	96	88	7 i	29	29	0
Information	51	44,865	44,075	790	36,852	36,085	768	8,013	7,991	22
Publishing	511	33,937	33,320	616	26,982	26,387	595	6,955	6,934	22
Newspaper, periodical, book, and directory publishers	5111	848	848	*	791	791	*	57	57	0
Software publishers	5112	33,089	32,473	616	26,191	25,596	595	6,898	6,877	22
Telecommunications	517	1,981	1,868	113	1,868	1,755	113	113	113	*
Data processing, hosting, and related services	518	2,671	2,624	47	2,538	2,491	47	133 i	133 i	*
Other information	other 51	6,276	6,263	13	5,465	5,452	13	811	811	0
Finance and insurance	52	2,591	2,590	1	2,109	2,109	0	481	481	1
Real estate and rental and leasing	53	366	364	2	329	327	2	37	37	0
Professional, scientific, and technical services	54	39,208	18,312	20,897	33,690	15,438	18,252	5,518	2,874	2,644
Architectural, engineering, and related services	5413	4,235	1,459	2,776	4,093	1,381	2,712	142	78 i	64
Computer systems design and related services	5415	13,318	11,650	1,669	11,050	9,416	1,634	2,268	2,233	35
Scientific R&D services	5417	17,560	3,102	14,458	14,818	2,851	11,968	2,742	252	2,490
Biotechnology R&D	541711	6,366	1,780	4,586	5,610	1,720	3,890	756	60	696
Physical, engineering, and life sciences (except biotechnology) R&D	541712	10,644	1,305	9,339	8,663	1,116	7,547	1,981	189	1,792
Social sciences and humanities R&D	541720	550	18	533	545	15	530	5 i	3 i	2
Other professional, scientific, and technical services	other 54	4,095	2,101	1,994	3,729	1,790	1,939	366	311	55
Health care services	621–623	D	D	121	1,232	1,126	107	D	D	14
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	D	53	D	D	52	D	D	1
All companies (number of employees)	–	338,205	277,071	61,134	278,977	221,706	57,271	59,228	55,366	3,863
Small companies (number of employees)[a]										
5–499	–	56,446	44,790	11,656	52,202	40,822	11,379	4,244	3,968	277
5–99	–	31,672	24,472	7,201	30,052	22,974	7,078	1,620	1,498	122
5–49	–	22,144	17,439	4,705	21,197	16,574	4,623	947	865	82
5–9	–	4,029	3,059	970	3,851	2,907	944	179	152	27
10–24	–	9,175	7,154	2,021	8,722	6,720	2,002	453	434	19
25–49	–	8,940	7,226	1,714	8,624	6,947	1,678	316	279	37
50–99	–	9,528	7,033	2,495	8,855	6,400	2,455	673 i	633 i	40
100–249	–	13,242	10,767	2,476	11,866	9,435	2,431	1,376 i	1,332 i	44

TABLE 103. Worldwide, domestic, and foreign R&D paid for by the company and paid for by others and performed by the company, by source of funds, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total performance			Domestic performance			Foreign 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
250–499	–	11,531	9,551	1,980	10,283	8,413	1,870	1,248	1,138	110
Medium and large companies (number of employees)										
500–999	–	11,861	10,366	1,495	10,116	8,640	1,477	1,745	1,727	18
1,000–4,999	–	59,812	50,264	9,548	48,227	39,468	8,760	11,584	10,796	788
5,000–9,999	–	34,374	26,833	7,542	27,463	21,940	5,523	6,911	4,893	2,018
10,000–24,999	–	50,746	45,234	5,512	41,835	36,688	5,147	8,910	8,546	365
25,000 or more	–	124,967	99,585	25,382 i	99,133	74,148	24,985 i	25,833	25,437	397

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 104. Domestic R&D paid for by the company and by others and performed by the company, by character of work, industry, and company size: 2010
(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	278,977	16,371	44,906	217,699
Manufacturing industries	31–33	196,711	10,667	33,224	152,821
Food	311	D	D	D	D
Beverage and tobacco products	312	D	D	201	D
Textiles, apparel, and leather products	313–316	489	28	53	408
Wood products	321	247	12	36	199
Printing and related support activities	323	231	10	46	174
Chemicals	325	58,038	4,670	15,006	38,362
Pharmaceuticals and medicines	3254	49,415	D	D	32,341
Other chemicals	other 325	8,623	D	D	6,022
Plastics and rubber products	326	2,121	133	445 i	1,543
Nonmetallic mineral products	327	1,276 i	112 i	187 i	976 i
Primary metals	331	653	25	116	512
Fabricated metal products	332	1,703	58	152	1,493
Machinery	333	9,955	404	1,199	8,352
Computer and electronic products	334	59,875	2,808 i	8,426	48,640
Semiconductor and other electronic components	3344	21,933	472	3,545 i	17,917
Navigational, measuring, electromedical, and control instruments	3345	15,561	D	D	12,082
Other computer and electronic products	other 334	22,381	D	D	18,641
Electrical equipment, appliances, and components	335	3,320	365	496	2,460
Transportation equipment	336	42,913	1,097	3,597	38,219
Aerospace products and parts	3364	29,854	D	D	27,135 i
Other transportation equipment	other 336	13,059	D	D	11,084
Furniture and related products	337	373	18	37	318
Miscellaneous manufacturing	322, 324, 339	10,969	D	D	8,473
Nonmanufacturing industries	21–23, 42–81	82,265	5,704	11,682	64,878
Information	51	36,852	2,101	2,764	31,987
Publishing	511	26,982	1,710	1,998	23,274
Telecommunications	517	1,868	D	D	1,408
Data processing, hosting, and related services	518	2,538	51	227	2,260
Other information	other 51	5,465	D	D	5,046
Professional, scientific, and technical services	54	33,690	2,663	7,162	23,866
Architectural, engineering, and related services	5413	4,093	142	477	3,474
Computer systems design and related services	5415	11,050	279	1,141	9,630
Scientific R&D services	5417	14,818	1,994	4,806	8,018
Biotechnology R&D	541711	5,610	1,084	1,759	2,767
Physical, engineering, and life sciences (except biotechnology) R&D	541712	8,663	D	D	5,213
Social sciences and humanities R&D	541720	545	D	D	38
Other professional, scientific, and technical services	other 54	3,729	249	737	2,743
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	11,723	940	1,757	9,025
All companies (number of employees)	–	278,977	16,371	44,906	217,699
Small companies (number of employees)[a]					
5–499	–	52,202	2,933	10,329	38,940
5–99	–	30,052	1,675	6,260	22,117
5–49	–	21,197	1,274	4,650	15,273
5–9	–	3,851	218	635	2,998
10–24	–	8,722	521	2,507 i	5,695
25–49	–	8,624	535	1,509	6,580
50–99	–	8,855	401	1,610	6,844
100–249	–	11,866	647	2,190	9,029
250–499	–	10,283	611	1,878	7,794
Medium and large companies (number of employees)					
500–999	–	10,116	479	1,641	7,996
1,000–4,999	–	48,227	2,795	6,991	38,442

TABLE 104. Domestic R&D paid for by the company and by others and performed by the company, by character of work, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
5,000–9,999	–	27,463	1,528	4,707	21,229
10,000–24,999	–	41,835	3,909	5,828	32,099
25,000 or more	–	99,133	4,728	15,410	78,994

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies	United States	Alabama	Alaska	Arizona	Arkansas	California
All industries	21–23, 31–33, 42–81	48,393	221,706	628	D	2,841	245	53,327
Manufacturing industries	31–33	25,408	159,579	358	D	2,442	166	35,918
Food	311	1,704	3,659	5 e	2 e	4 e	40	152
Beverage and tobacco products	312	83	717	* e	D	* e	* e	14
Textiles, apparel, and leather products	313–316	1,097	478	2 e	* e	* e	* e	70
Wood products	321	255	229	4	D	* e	2	14
Paper	322	166	1,247	4	* e	2	D	19
Printing and related support activities	323	637	201	* e	* e	1	D	11
Petroleum and coal products	324	131	1,104	* e	* e	* e	D	72
Chemicals	325	3,064	53,555	89	*	153	14	10,050
Basic chemicals	3251	416	1,718	2 e	0	* e	4	125
Resin, synthetic rubber, fibers, and filaments	3252	136	807	3	0	* e	* e	5
Pesticide, fertilizer, and other agricultural chemical	3253	37	760 i	3	0	5 i	3	36
Pharmaceuticals and medicines	3254	1,471	45,398	80	*	116	6	9,626
Soap, cleaning compound, and toilet preparation	3256	373	2,383	* e	* e	29	1	171
Paint, coating, adhesive, and other chemical	3255, 3259	631	2,491	2	*	2 e	* e	85
Plastics and rubber products	326	1,253	1,809	10	* e	158	5	97
Nonmetallic mineral products	327	617	1,246 i	2	* e	1 e	1	21
Primary metals	331	226	579	8	* e	2	6	12 i
Fabricated metal products	332	2,834	1,464	8 e	D	19	2 e	141
Machinery	333	3,629	9,384	16 e	D	58	19 e	1,798
Agricultural implement	33311	269	1,172	* e	0	9	* e	24
Semiconductor machinery	333295	82	1,999	* e	D	3	0	1,450
Engine, turbine, and power transmission equipment	3336	255	1,231	6 e	0	6 e	13 e	69 e
Other machinery	other 333	3,024	4,981	9 e	D	40	5 e	254
Computer and electronic products	334	3,013	51,223	148	2	1,800	35 i	19,939
Communications equipment	3342	410	11,663	D	1	63	11	3,934
Semiconductor and other electronic components	3344	821	21,318	D e	1	1,203	4 e	9,410
Navigational, measuring, electromedical, and control instruments	3345	1,134	9,729	28	* e	530	16 i	2,234
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	184	3,800	1 e	* e	1 e	0	712
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	199	2,787	11	0	D	* e	372
Other measuring and controlling instruments	other 3345	751	3,141	16	* e	D	16 i	1,150
Other computer and electronic products	other 334	648	8,514	D	0	4	4 e	4,361
Electrical equipment, appliances, and components	335	1,411	3,141	4 e	* e	78	28	326
Transportation equipment	336	1,646	21,076	48	1	97	4	1,147
Automobiles, bodies, trailers, and parts	3361–3363	987	10,098	15 e	1	D	2	244
Aerospace products and parts	3364	426	10,152	22	*	67	2	883
Aircraft, aircraft engine, and aircraft parts	336411–336413	301	9,353	22	*	D	2	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	125	800	* e	0	D	*	D
Military armored vehicle, tank, and tank components	336992	8	26	0	0	D	0	0

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies	United States	Alabama	Alaska	Arizona	Arkansas	California
Other transportation	other 336	225	800 i	10	* e	D	* e	20
Furniture and related products	337	634	370	4	* e	3	* e	20
Miscellaneous manufacturing	339	3,008	8,097	5 e	* e	65	4 e	2,015
Medical equipment and supplies	3391	1,458	D	3 e	* e	52	2 e	1,819
Other miscellaneous manufacturing	3399	1,550	D	2 e	* e	13	2 e	196
Nonmanufacturing industries	21–23, 42–81	22,985	62,127	270	34 e	399	80	17,409
Mining, extraction, and support activities	21	415	2,254	5 e	D	1 e	3 e	175
Utilities	22	72	371	8	* e	11	1 e	48
Construction	23	1,319	704	8 e	3 e	11 e	4 e	88 e
Wholesale trade	42	1,321	1,040	5 e	1 e	19	3 e	214
Retail trade	44, 45	349	D	1 e	* e	1 e	* e	610
Electronic shopping and electronic auctions	454111, 454112	189	D	* e	D	1 e	D	D
Other retail trade	other 44, 45	160	D	1 e	D	1 e	D	D
Transportation and warehousing	48, 49	688	88	3	* e	* e	1	2
Information	51	3,462	36,085	70	D e	224	12 e	11,908
Publishing	511	1,809	26,387	35	1	159	8 e	7,055
Newspaper, periodical, book, and directory publishers	5111	249	791	1 e	* e	1 e	* e	38
Software publishers	5112	1,560	25,596	34	1	158	8 e	7,017
Telecommunications	517	136	1,755	5	D	1 e	* e	147
Data processing, hosting, and related services	518	618	2,491	27 i	* e	56	1 e	506
Other information	other 51	899	5,452	3 e	1 e	7 e	2 e	4,200
Finance and insurance	52	567	2,109	4	* e	* e	18	124
Real estate and rental and leasing	53	30	327	* e	* e	* e	* e	190
Professional, scientific, and technical services	54	9,902	15,438	135	18	85 e	11 e	3,561
Architectural, engineering, and related services	5413	2,758	1,381	12 e	3 e	14 e	2 e	139
Computer systems design and related services	5415	5,336	9,416	99	3 e	42 e	5 e	2,294
Scientific R&D services	5417	751	2,851	17	* e	21	1 e	890
Biotechnology R&D	541711	369	1,720	2 e	0	4	* e	527
Physical, engineering, and life sciences (except biotechnology) R&D	541712	358	1,116	15	* e	17	1 e	360
Social sciences and humanities R&D	541720	24	15	* e	* e	0	* e	4
Other professional, scientific, and technical services	other 54	1,058	1,790	8 e	12	8 e	3 e	238
Health care services	621–623	1,944	1,126	14 e	2 e	15 e	7 e	232
Other nonmanufacturing	55, 56, 624, 71, 72, 81	2,915	D	18 e	4 e	30 e	21	257 e
All companies (number of employees)	–	48,393	221,706	628	D	2,841	245	53,327
Small companies (number of employees)[a]								
5–499	–	46,261	40,822	306 e	37 e	413 e	111 e	10,216
5–99	–	40,194	22,974	178 e	19 e	278 e	77 e	5,324
5–49	–	34,709	16,574	137 e	15 e	213 e	66 e	3,450 e
5–9	–	11,265	2,907	31 e	4 e	42 e	16 e	486 e
10–24	–	13,299	6,720	55 e	6 e	99 e	21 e	1,393 e

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies	United States	Alabama	Alaska	Arizona	Arkansas	California
25–49	–	10,145	6,947	52 e	5 e	72 e	29 e	1,572
50–99	–	5,485	6,400	41 e	4 e	65	11 e	1,874
100–249	–	4,516	9,435	73	3 e	69	D	2,422
250–499	–	1,551	8,413	56	D	66	D	2,469
Medium and large companies (number of employees)								
500–999	–	794	8,640	D	D	94	D	2,574
1,000–4,999	–	912	39,468	187	5	437	18	11,456
5,000–9,999	–	187	21,940	59	* e	347	34	6,609
10,000–24,999	–	134	36,688	26	*	198	D	9,948
25,000 or more	–	105	74,148	D	1	1,352	D	12,525

Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
All industries	21–23, 31–33, 42–81	3,270	5,482	D	84	3,045	2,931	173
Manufacturing industries	31–33	2,344	5,117	D	20	1,697	1,599	119
Food	311	43	9	D	*	16	D	D
Beverage and tobacco products	312	5	* e	D	1 e	3	D	D
Textiles, apparel, and leather products	313–316	* e	D	7 e	*	4	D	* e
Wood products	321	* e	* e	D	0 e	1 e	D	D
Paper	322	* e	D	D	0 e	1	84	D
Printing and related support activities	323	5	D	D	* e	2 e	D	* e
Petroleum and coal products	324	10	D	D	0 e	1	D	2
Chemicals	325	245	3,690	177	9	455	249	45 i
Basic chemicals	3251	22	60	7	0	7	40	0
Resin, synthetic rubber, fibers, and filaments	3252	* e	3	D	0	12	26	0
Pesticide, fertilizer, and other agricultural chemical	3253	3	2 i	4 i	*	8	5 i	D
Pharmaceuticals and medicines	3254	212	3,575	D	8	398	144	2 e
Soap, cleaning compound, and toilet preparation	3256	1 e	37	*	* e	4 e	14	* e
Paint, coating, adhesive, and other chemical	3255, 3259	7	13	D	*	27	21	D
Plastics and rubber products	326	40	13	D	0	21	37 i	* e
Nonmetallic mineral products	327	5	* e	3 e	*	8	10	* e
Primary metals	331	27	2	6	0 i	1 e	12	* e
Fabricated metal products	332	16	37	1 e	* e	26	13	* e
Machinery	333	109	293 i	1	0	53	94	* e
Agricultural implement	33311	2	* e	0	0	1 e	38	0
Semiconductor machinery	333295	9	35	0	0	D	0	0
Engine, turbine, and power transmission equipment	3336	74	23	0	0	13 e	8	0
Other machinery	other 333	23	235 i	1	0	D	48	* e
Computer and electronic products	334	1,471	225	61	9	781	539	13
Communications equipment	3342	238	27	1	D	171	347	D
Semiconductor and other electronic components	3344	518	65 e	3	D	177	76	0
Navigational, measuring, electromedical, and control instruments	3345	221	114 i	48	0	371	70	D

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(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	0	0	228	10	* e
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	62	20	*	0 e	91	18	* e
Other measuring and controlling instruments	other 3345	121	78 i	48	0	52 i	41 i	D
Other computer and electronic products	other 334	494	18	9	D	62	47	D
Electrical equipment, appliances, and components	335	17	76	7 e	*	38	46	0
Transportation equipment	336	137	606	D	*	178	202	D
Automobiles, bodies, trailers, and parts	3361–3363	2	6	*	* e	15	26	* e
Aerospace products and parts	3364	134	599	D	*	150	168	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	599	D	*	D	167	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	*	D	0	D	*	0
Military armored vehicle, tank, and tank components	336992	0	0	0	0	* e	0	0
Other transportation	other 336	1	1 e	D	0 e	14	8	* e
Furniture and related products	337	17	1 e	1 e	*	3 e	10	* e
Miscellaneous manufacturing	339	196	139	5 e	*	106	56	1 e
Medical equipment and supplies	3391	187	121	5 e	*	99	41	1 e
Other miscellaneous manufacturing	3399	9	18	* e	* e	7 e	15	* e
Nonmanufacturing industries	21–23, 42–81	926	365	481 e	65	1,348	1,332	54 e
Mining, extraction, and support activities	21	25	1	D	* e	1 e	7	*
Utilities	22	31	7 e	D	* e	11 e	32	4
Construction	23	19 e	6 e	2 e	1 e	29 e	19 e	4 e
Wholesale trade	42	11 e	13	1 e	* e	22 e	37	2 e
Retail trade	44, 45	4	1 e	* e	* e	5 e	2 e	* e
Electronic shopping and electronic auctions	454111, 454112	4	1 e	* e	* e	2 e	1 e	* e
Other retail trade	other 44, 45	1 e	1 e	* e	* e	2 e	1 e	* e
Transportation and warehousing	48, 49	7	1	* e	* e	3	1	* e
Information	51	539	147	D	18	653	579	11
Publishing	511	397	127	D	9 e	509	336	8
Newspaper, periodical, book, and directory publishers	5111	2 e	1 e	D	1 e	4 e	1 e	* e
Software publishers	5112	395	126	D	9 e	505	335	8
Telecommunications	517	59	D	D	*	20	10	* e
Data processing, hosting, and related services	518	39	14	D	2 e	92	168	1 e
Other information	other 51	44	D	D	7 e	33 e	65	2 e
Finance and insurance	52	22	24	D	*	187	310	* e
Real estate and rental and leasing	53	*	3	D	* e	1	* e	* e
Professional, scientific, and technical services	54	230	127	20 e	37 e	291 e	251	22
Architectural, engineering, and related services	5413	27	18	2 e	2 e	23 e	30	2 e
Computer systems design and related services	5415	154	45 e	14 e	20 e	202	179	14
Scientific R&D services	5417	24	33	2	1 e	35	24	5
Biotechnology R&D	541711	17	23	* e	* e	14 i	5 e	4

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Physical, engineering, and life sciences (except biotechnology) R&D	541712	6	10	1	1 e	19	19	1 e
Social sciences and humanities R&D	541720	1	0	0 e	*	2	* e	0
Other professional, scientific, and technical services	other 54	24	31	2 e	13 e	30 e	17 e	1 e
Health care services	621–623	14 e	16 e	D	2 e	65 e	33 e	3 e
Other nonmanufacturing	55, 56, 624, 71, 72, 81	25 e	19 e	D	6 e	80 e	59 e	8 e
All companies (number of employees)	–	3,270	5,482	D	84	3,045	2,931	173
Small companies (number of employees)[a]								
5–499	–	765	653	133 e	60	961 e	634 e	49 e
5–99	–	451 e	358 e	42 e	52 e	644 e	408 e	43 e
5–49	–	312 e	264 e	34 e	45 e	523 e	313 e	34 e
5–9	–	49 e	43 e	7 e	13 e	121 e	66 e	7 e
10–24	–	148 e	107 e	13 e	17 e	209 e	122 e	14 e
25–49	–	115 e	114 e	14 e	15 e	193 e	125 e	14 e
50–99	–	138	94	8 e	7 e	122 e	94 e	9 e
100–249	–	119	106	D	5	216	132	5 e
250–499	–	196	189	D	3	100	95	2 e
Medium and large companies (number of employees)								
500–999	–	73	D	9	*	156	117	D
1,000–4,999	–	657	D	D	4	608	530	13
5,000–9,999	–	416	493	85	2	200	338	D
10,000–24,999	–	422	876	42	8	533	368	9
25,000 or more	–	936	D	1,008	10	587	944	61

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
All industries	21–23, 31–33, 42–81	810 i	11,500	4,219	1,516	1,039	820	340
Manufacturing industries	31–33	755 i	10,153	3,938	1,392	845	696	174
Food	311	25	262	34	306	21	9	D
Beverage and tobacco products	312	* e	D	* e	* e	* e	29	D
Textiles, apparel, and leather products	313–316	* e	2 e	2	1	* e	2	* e
Wood products	321	D	D	3	10	* e	1 e	D
Paper	322	D	D	1 e	* e	5	D	D
Printing and related support activities	323	* e	16	1 e	2	1 e	2	1
Petroleum and coal products	324	D	6	1	2	5	D	5 e
Chemicals	325	31 i	3,686	2,337	181 i	98	394	77
Basic chemicals	3251	1	38	12	29	12	18	10
Resin, synthetic rubber, fibers, and filaments	3252	* e	2 e	2	* e	5	8	* e
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	D	6 i	1	D
Pharmaceuticals and medicines	3254	D	3,377	D	17	71	D	45
Soap, cleaning compound, and toilet preparation	3256	1	50	1 e	* e	2	* e	* e
Paint, coating, adhesive, and other chemical	3255, 3259	* e	D	D	D	2 e	D	D
Plastics and rubber products	326	3	71	68	11	7	D	D

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Nonmetallic mineral products	327	* e	26	9	24	1	2	1 e
Primary metals	331	* e	20	70	13 i	* e	1 e	* e
Fabricated metal products	332	2	149	42	13	24	8 e	13
Machinery	333	4 e	1,911	536	412	80	21	24
Agricultural implement	33311	1 e	419	5	364	35	* e	5
Semiconductor machinery	333295	*	D	0	0	0	1	0
Engine, turbine, and power transmission equipment	3336	*	83 e	324	19 e	2 e	1 e	2 e
Other machinery	other 333	3 e	D	207	29	44	19	17
Computer and electronic products	334	666 i	3,119	146	295	261	81	10 e
Communications equipment	3342	D	2,609	51	8	D	4	5
Semiconductor and other electronic components	3344	512 i	181	36 e	18	69	34	2 e
Navigational, measuring, electromedical, and control instruments	3345	D	260	45	D	170	21	3 e
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	*	59	8	D	D	D	* e
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	0	D	D	D	D	4	1
Other measuring and controlling instruments	other 3345	D	D	D	D	D	D	1 e
Other computer and electronic products	other 334	D	70	14	D	D	22	* e
Electrical equipment, appliances, and components	335	6	112	108	69	4	12	3 e
Transportation equipment	336	D	337	324	29	325	105	D
Automobiles, bodies, trailers, and parts	3361–3363	5	134	301	27	3 e	D	D
Aerospace products and parts	3364	D	188	21	1	320	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	D	21	1	320	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	*	0	0	0	0
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0	0	0
Other transportation	other 336	1	15	2 e	1	2	D	4 e
Furniture and related products	337	1 e	12	19	16	4	3	1 e
Miscellaneous manufacturing	339	2 e	297	237	6 e	9 e	12 e	5 e
Medical equipment and supplies	3391	2 e	107	220	3 e	6 e	6 e	2 e
Other miscellaneous manufacturing	3399	1 e	191	17	3	3 e	6	3 e
Nonmanufacturing industries	21–23, 42–81	55 e	1,347	282	125 e	194	124 e	167 e
Mining, extraction, and support activities	21	1 e	70	17	1 e	15	11 e	56
Utilities	22	1	6	3 e	* e	4 e	* e	2 e
Construction	23	2 e	28 e	15 e	9 e	8 e	6 e	15 e
Wholesale trade	42	1 e	61	13 e	5 e	4 e	9	5 e
Retail trade	44, 45	* e	8	1 e	1 e	1 e	1 e	1 e
Electronic shopping and electronic auctions	454111, 454112	* e	6	1 e	* e	* e	* e	* e
Other retail trade	other 44, 45	* e	2 e	1 e	* e	* e	* e	1 e
Transportation and warehousing	48, 49	* e	3	2	* e	* e	* e	* e
Information	51	30	360	86	59	66	31	17 e

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Publishing	511	25	245	61	40	41	14	10 e
Newspaper, periodical, book, and directory publishers	5111	* e	6 e	1 e	1 e	1 e	1 e	* e
Software publishers	5112	25	239	61	39	41	14	10 e
Telecommunications	517	* e	27	1 e	1 e	16	1 e	1 e
Data processing, hosting, and related services	518	3	45 e	17	12	6 e	12	2 e
Other information	other 51	1 e	43	6 e	6 e	3 e	3 e	4 e
Finance and insurance	52	4	421	7	* e	4	2	1
Real estate and rental and leasing	53	* e	* e	* e	* e	* e	* e	* e
Professional, scientific, and technical services	54	7 e	266 e	95	33 e	75	24 e	41 e
Architectural, engineering, and related services	5413	2 e	26 e	11 e	2 e	4 e	3 e	14 e
Computer systems design and related services	5415	4 e	152 e	59	14 e	39	12 e	13 e
Scientific R&D services	5417	1 e	44	17	15	28	5 e	8
Biotechnology R&D	541711	* e	31	5	14	1	3 e	6
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1	13	12	1	27	2	2
Social sciences and humanities R&D	541720	0	* e	* e	* e	0	* e	* e
Other professional, scientific, and technical services	other 54	1 e	43 e	8 e	2 e	5 e	3 e	6 e
Health care services	621–623	3 e	37 e	18 e	7 e	7 e	11 e	12 e
Other nonmanufacturing	55, 56, 624, 71, 72, 81	4 e	87 e	25 e	10 e	10 e	30	16 e
All companies (number of employees)	–	810 i	11,500	4,219	1,516	1,039	820	340
Small companies (number of employees)[a]								
5–499	–	97 e	1,494 e	506 e	280	255 e	194 e	171 e
5–99	–	57 e	914 e	307 e	185 e	163 e	125 e	144 e
5–49	–	47 e	701 e	223 e	134 e	127 e	100 e	113 e
5–9	–	8 e	127 e	47 e	25 e	23 e	25 e	29 e
10–24	–	20 e	267 e	90 e	34 e	50 e	40 e	38 e
25–49	–	19 e	307 e	87 e	75 e	55 e	36 e	46 e
50–99	–	10 e	213	83	51	35 e	25 e	31 e
100–249	–	38	275	101	53	52	35	16 e
250–499	–	2 e	305	98	43	40	34	11 e
Medium and large companies (number of employees)								
500–999	–	2	222	118	14	7	4	D
1,000–4,999	–	76	1,213	376	107	273	435	15
5,000–9,999	–	445 i	1,033	183	184 i	106	34	24 i
10,000–24,999	–	13	3,321	2,770	270	104	18	77
25,000 or more	–	178	4,216	266	661	294	134	D

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
All industries	21–23, 31–33, 42–81	228	2,538	11,139	10,750	5,677	170	D
Manufacturing industries	31–33	183	1,832	7,461	9,968	4,871	118	D
Food	311	D	70	33	207	385	11	D
Beverage and tobacco products	312	* e	* e	D	* e	D	* e	8
Textiles, apparel, and leather products	313–316	D	28	57	7	D	1 e	1 e
Wood products	321	D	1	1	1 e	D	2	D
Paper	322	D	* e	33	6	D	2	D
Printing and related support activities	323	D	2 e	3	4	D	* e	7
Petroleum and coal products	324	D	* e	D	2 e	D	* e	1
Chemicals	325	20	1,004	3,249	577	391	25	688
Basic chemicals	3251	* e	53	70	53	10	7	58
Resin, synthetic rubber, fibers, and filaments	3252	* e	* e	14	12	4	* e	* e
Pesticide, fertilizer, and other agricultural chemical	3253	D	1 i	1 i	D	25 i	6 i	D
Pharmaceuticals and medicines	3254	D	932	2,964	169	229	6	510
Soap, cleaning compound, and toilet preparation	3256	* e	16	115	8	76	1 e	7
Paint, coating, adhesive, and other chemical	3255, 3259	1	2	85	D	48	5	D
Plastics and rubber products	326	1 e	55	91	71	D	7	10
Nonmetallic mineral products	327	D	1 e	56	86	D	* e	10
Primary metals	331	* e	* e	9	37	1 e	* e	5
Fabricated metal products	332	D	9	49	52	D	3 e	28
Machinery	333	D	112	287	229	288	17 e	61
Agricultural implement	33311	* e	1	0	1 e	49	1 e	1 e
Semiconductor machinery	333295	0	1	220	0	26	0	0
Engine, turbine, and power transmission equipment	3336	1 e	* e	15	57 e	35	6 e	11 e
Other machinery	other 333	D	110	51	171	179	11	49
Computer and electronic products	334	59	234	2,688	243	1,750	28	70
Communications equipment	3342	2	115	413	48	124 i	8	28
Semiconductor and other electronic components	3344	48	66	1,045	32 e	130	15	16 e
Navigational, measuring, electromedical, and control instruments	3345	8	43	662	109	1,072	4	14
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1 e	7	291	5	906	4	1 e
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	0	20	93	D	96	1 e	7
Other measuring and controlling instruments	other 3345	7	15 i	278	D	70	* e	5
Other computer and electronic products	other 334	1 e	11	569	54 i	423	1 e	12
Electrical equipment, appliances, and components	335	* e	4 e	76	309	121	10 i	51
Transportation equipment	336	D	296	176	7,973	263	3	D
Automobiles, bodies, trailers, and parts	3361–3363	* e	D	32	7,874	57	1 e	D
Aerospace products and parts	3364	D	D	143	94	78	1	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	D	143	D	D	1	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	D	* e	D	D	0	* e
Military armored vehicle, tank, and tank components	336992	0	0	* e	3	1 i	0	0

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Other transportation	other 336	1 e	1	* e	2	128	1 e	D
Furniture and related products	337	D	1 e	3	73	D	6	10
Miscellaneous manufacturing	339	64	16	639	90 i	1,003	3 e	145
Medical equipment and supplies	3391	63	D	547	78 i	960	1 e	134
Other miscellaneous manufacturing	3399	1 e	D	92	12	43	1 e	11
Nonmanufacturing industries	21–23, 42–81	45 e	705	3,677	783	806	51 e	651
Mining, extraction, and support activities	21	* e	6	D	12	3 i	5	6
Utilities	22	1 e	6 e	4 e	2 e	1 e	2	5 e
Construction	23	2 e	23 e	15 e	17 e	10 e	3 e	15 e
Wholesale trade	42	1 e	11 e	62	52	25	2 e	8 e
Retail trade	44, 45	* e	D	6	27	2 e	* e	1 e
Electronic shopping and electronic auctions	454111, 454112	* e	D	2 e	1 e	D	D	1 e
Other retail trade	other 44, 45	* e	D	4	26	D	D	1 e
Transportation and warehousing	48, 49	* e	3	* e	* e	* e	* e	* e
Information	51	18	250	1,508	221	467	D	163 i
Publishing	511	15	190	1,207	195	397	12	37
Newspaper, periodical, book, and directory publishers	5111	* e	3	4	1 e	1 e	* e	1 e
Software publishers	5112	14	188	1,202	194	395	12	36
Telecommunications	517	* e	26	59	1 e	2 e	D	1 e
Data processing, hosting, and related services	518	1 e	21 e	168	15	60	1 e	118 i
Other information	other 51	2 e	14 e	74	10 e	8 e	2 e	7 e
Finance and insurance	52	* e	7	60	9	7	* e	7
Real estate and rental and leasing	53	* e	1	7	* e	1	* e	* e
Professional, scientific, and technical services	54	15 e	355 e	1,838	381	198	8 e	395
Architectural, engineering, and related services	5413	3 e	20 e	108	42	26	2 e	15
Computer systems design and related services	5415	9 e	207 e	1,235	97 e	107	4 e	355
Scientific R&D services	5417	1 e	103	442	31	21	*	15
Biotechnology R&D	541711	1 e	67	365	8	4 e	0	5 e
Physical, engineering, and life sciences (except biotechnology) R&D	541712	* e	36	77	23	17	*	10
Social sciences and humanities R&D	541720	* e	* e	*	* e	* e	0	* e
Other professional, scientific, and technical services	other 54	2 e	25	53	211	44	2 e	10 e
Health care services	621–623	4 e	16 e	37 e	27 e	15 e	D	19 e
Other nonmanufacturing	55, 56, 624, 71, 72, 81	5 e	D	D	35 e	77	6 e	32 e
All companies (number of employees)	–	228	2,538	11,139	10,750	5,677	170	D
Small companies (number of employees)[a]								
5–499	–	76 e	771 e	2,944	1,089	1,028	90 e	418 e
5–99	–	52 e	538 e	1,357	599 e	537 e	65 e	269 e
5–49	–	38 e	399 e	968	456 e	409 e	49 e	211 e
5–9	–	8 e	76 e	129 e	85 e	59 e	14 e	41 e
10–24	–	16 e	172 e	399 e	170 e	160 e	16 e	79 e

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
25–49	–	14 e	151 e	441	201 e	189	19 e	91 e
50–99	–	14	139	389	143	128	16 e	58 e
100–249	–	22	123	894	288	231	19	105
250–499	–	2 e	110	693	202	260	5	44
Medium and large companies (number of employees)								
500–999	–	1	280	792	168	342	25	D
1,000–4,999	–	124	713	2,635	2,275	747	9	258
5,000–9,999	–	10	241	763	540	772	15	584
10,000–24,999	–	D	225	860	1,057	996	16	150
25,000 or more	–	D	308	3,145	5,620	1,793	14	1,017

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	123	491	646	841	13,916	231	8,126
Manufacturing industries	31–33	65	258	484	503	12,660	160	4,471
Food	311	46	84	D	1 e	194	2 e	177
Beverage and tobacco products	312	* e	* e	D	* e	D	* e	D
Textiles, apparel, and leather products	313–316	1	* e	*	1	D	* e	D
Wood products	321	*	* e	D	* e	1	* e	D
Paper	322	* e	2	D	2	D	* e	14
Printing and related support activities	323	* e	* e	D	* e	D	* e	5
Petroleum and coal products	324	* e	* e	D	* e	D	1 e	12
Chemicals	325	6	87	10 e	64 i	10,628	25	1,744
Basic chemicals	3251	1	2 e	* e	2	162	11	147
Resin, synthetic rubber, fibers, and filaments	3252	0	* e	* e	7	D	* e	4
Pesticide, fertilizer, and other agricultural chemical	3253	1 i	D	* i	0	D	* i	3
Pharmaceuticals and medicines	3254	4	D	8 e	52 i	10,140	13 e	1,401
Soap, cleaning compound, and toilet preparation	3256	* e	1	* e	1	177	* e	159
Paint, coating, adhesive, and other chemical	3255, 3259	* e	D	2	1	D	* e	30
Plastics and rubber products	326	* e	2 e	D	3 e	D	* e	52
Nonmetallic mineral products	327	* e	* e	D	7	D	* e	12
Primary metals	331	* e	* e	7	* e	6	* e	5
Fabricated metal products	332	* e	6	1 e	22 i	33	1 e	44
Machinery	333	1 e	31	10	45	91	2 e	420 i
Agricultural implement	33311	* e	15	0	4	* e	*	* e
Semiconductor machinery	333295	0	0	0	* e	D	* e	28
Engine, turbine, and power transmission equipment	3336	0	6 e	6	2 e	19 e	* e	29 e
Other machinery	other 333	* e	10	3	38	D	1 e	361 i
Computer and electronic products	334	5	34	115	239	783	117	992
Communications equipment	3342	1	4	D	21	214	2	224
Semiconductor and other electronic components	3344	0	4 e	7 e	99	256	90	236
Navigational, measuring, electromedical, and control instruments	3345	4	19	17	85	272	18	367

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	* e	0	1	46	141	* e	105
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	* e	0	10	16	D	1	159
Other measuring and controlling instruments	other 3345	4	19	7 i	24	D	17	103 i
Other computer and electronic products	other 334	1	8	D	33	40	7	164
Electrical equipment, appliances, and components	335	* e	4 e	14	54	87	2	73
Transportation equipment	336	2 e	5	D	26	93	4	591
Automobiles, bodies, trailers, and parts	3361–3363	* e	1 e	D	* e	D	* e	142
Aerospace products and parts	3364	1 e	2 e	D	22	73	3	445
Aircraft, aircraft engine, and aircraft parts	336411–336413	1 e	2 e	D	22	73	3	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	0	0	0	0	*	*	D
Military armored vehicle, tank, and tank components	336992	0	* e	0	0	* e	0	* i
Other transportation	other 336	* e	2	* e	3	D	0	4
Furniture and related products	337	* e	* e	* e	* e	2 e	* e	11
Miscellaneous manufacturing	339	2 e	2 e	294	38	308	5 e	243
Medical equipment and supplies	3391	1 e	2 e	2 e	34	291	2 e	169
Other miscellaneous manufacturing	3399	1 e	1 e	292	4	17	4	74
Nonmanufacturing industries	21–23, 42–81	58	232	162	337	1,256	71 e	3,655
Mining, extraction, and support activities	21	1 e	* e	8	* e	16	14	3 e
Utilities	22	* e	1 e	6	2 e	9	1 e	10
Construction	23	2 e	6 e	8 e	2 e	22 e	4 e	40 e
Wholesale trade	42	1 e	3 e	3 e	6	28 e	1 e	46 e
Retail trade	44, 45	* e	1 e	1 e	1 e	4 e	* e	10 e
Electronic shopping and electronic auctions	454111, 454112	* e	* e	* e	* e	3 e	* e	6 e
Other retail trade	other 44, 45	* e	* e	* e	* e	1 e	* e	4 e
Transportation and warehousing	48, 49	* e	1	* e	* e	* e	* e	1
Information	51	32	132	38	202	417	18	2,680
Publishing	511	24	D	28	198	337	15	2,247
Newspaper, periodical, book, and directory publishers	5111	* e	D	* e	* e	88	* e	605
Software publishers	5112	24	25 e	27	198	249	15	1,642
Telecommunications	517	* e	D	* e	* e	23	1	28
Data processing, hosting, and related services	518	7	104	4	2 e	35	1 e	51
Other information	other 51	1 e	2 e	6 e	2 e	22	2 e	353
Finance and insurance	52	*	18	* e	*	168	* e	207
Real estate and rental and leasing	53	* e	* e	1	* e	30	* e	3
Professional, scientific, and technical services	54	17	51	20 e	114	490	22 e	487
Architectural, engineering, and related services	5413	2 e	3 e	4 e	16	39	4 e	34 e
Computer systems design and related services	5415	5 e	19 e	11 e	67	333 e	11 e	285 e
Scientific R&D services	5417	6	20	3 e	23 i	99	6	114
Biotechnology R&D	541711	6	19	* e	18 i	55	4	95

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1 e	1	2 e	6	44	2 e	18
Social sciences and humanities R&D	541720	* e	* e	* e	0	* e	* e	1
Other professional, scientific, and technical services	other 54	4	9	3 e	7	19 e	1 e	54 e
Health care services	621–623	2 e	6 e	6 e	3 e	30 e	4 e	56 e
Other nonmanufacturing	55, 56, 624, 71, 72, 81	3 e	13	71	8 e	42 e	6 e	113 e
All companies (number of employees)	–	123	491	646	841	13,916	231	8,126
Small companies (number of employees)[a]								
5–499	–	48 e	166 e	167 e	277	1,569	104 e	1,845 e
5–99	–	39 e	126 e	105 e	189 e	918 e	81 e	1,136 e
5–49	–	27 e	96 e	85 e	127 e	691 e	66 e	911 e
5–9	–	5 e	16 e	17 e	20 e	122 e	13 e	186 e
10–24	–	8 e	29 e	34 e	60 e	292 e	31 e	406 e
25–49	–	14 e	51 e	34 e	46 e	278 e	22 e	319 e
50–99	–	11	30	20 e	62	227	15 e	225 e
100–249	–	9	12 e	47	33	298	21	349
250–499	–	1 e	28	15	55	352	2 e	361
Medium and large companies (number of employees)								
500–999	–	D	4	43	82	313	* e	195
1,000–4,999	–	3	115	299	89	3,320	28	490
5,000–9,999	–	2	60 i	2	42	338	12	1,014
10,000–24,999	–	2	125	12 i	78	4,334 i	9	1,061
25,000 or more	–	D	21	123	273	4,043 i	78	3,520

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
All industries	21–23, 31–33, 42–81	4,688	211	5,134	422	4,188	8,412	448
Manufacturing industries	31–33	3,129	101	4,565	194	3,525	6,993	351
Food	311	55	2 e	121	10	20	124	1 e
Beverage and tobacco products	312	70	0	* e	* e	* e	2	* e
Textiles, apparel, and leather products	313–316	63	* e	9	* e	29	8	2
Wood products	321	10	D	5	* e	17	5	* e
Paper	322	28	0	18	* e	* e	14	4
Printing and related support activities	323	5	* e	19	* e	* e	7	5
Petroleum and coal products	324	*	* e	12	12 e	3	14	* e
Chemicals	325	1,074	7	2,082	32	55	4,259	50
Basic chemicals	3251	97	* e	174	3	6	86	* e
Resin, synthetic rubber, fibers, and filaments	3252	14	0	215	3	* e	18	5
Pesticide, fertilizer, and other agricultural chemical	3253	38	D	D	1	1	11	0
Pharmaceuticals and medicines	3254	886	D	424	23	31	3,837	41
Soap, cleaning compound, and toilet preparation	3256	16	* e	1,104	* e	1 e	3 e	1
Paint, coating, adhesive, and other chemical	3255, 3259	24	D	D	2 e	16	304	3

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Plastics and rubber products	326	67 i	3	202	32	5	116	7
Nonmetallic mineral products	327	9	2	97	1 e	6	64	1
Primary metals	331	8	* e	67	* e	11	138 i	* e
Fabricated metal products	332	16	1 e	136	6 e	12	57	9
Machinery	333	96	69	252	30	272 i	212	5
Agricultural implement	33311	15	34	29	* e	1 e	45	0
Semiconductor machinery	333295	0	0	*	0	62	16	0
Engine, turbine, and power transmission equipment	3336	9 e	1 e	23 e	6 e	19	15 e	1 e
Other machinery	other 333	72	35	199	24	191 i	136	5
Computer and electronic products	334	1,201	6 e	494	36	2,544	1,067	67
Communications equipment	3342	450	*	60	8	43	100	11
Semiconductor and other electronic components	3344	399	6 e	130	7 e	2,280	313	19
Navigational, measuring, electromedical, and control instruments	3345	134	* e	204	17	104	534	D
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	8	0	80	5	4	396	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	22	0	50	9	65	33	D
Other measuring and controlling instruments	other 3345	104	* e	74 i	2 e	35	105	10 i
Other computer and electronic products	other 334	218	* e	100	4	117	120	D
Electrical equipment, appliances, and components	335	122	* e	226	3 e	19	350	10
Transportation equipment	336	219	D	668	22	182	303	3
Automobiles, bodies, trailers, and parts	3361–3363	119	D	129	8	D	80	2
Aerospace products and parts	3364	97	2	531	14	D	215	*
Aircraft, aircraft engine, and aircraft parts	336411–336413	97	2	528	14	D	214	*
Guided missile, space vehicle, and related parts	336414, 336415, 336419	0	0	3	*	0	1 e	*
Military armored vehicle, tank, and tank components	336992	0	0	* e	0	0	0	0
Other transportation	other 336	4	D	8	* e	D	8	* e
Furniture and related products	337	22	1	5	* e	4	7	1
Miscellaneous manufacturing	339	64	1 e	153	9	344	247	186
Medical equipment and supplies	3391	44	1 e	115	7	24	212	12
Other miscellaneous manufacturing	3399	20	1 e	38	2 e	320	35	173
Nonmanufacturing industries	21–23, 42–81	1,560	110	569	228	663	1,420	98
Mining, extraction, and support activities	21	3	2 e	5 e	133	* e	11 e	* e
Utilities	22	2 e	9	17	1 e	2 e	27	* e
Construction	23	14 e	2 e	20 e	5 e	9 e	31 e	2 e
Wholesale trade	42	13 e	1 e	17 e	4 e	32	19 e	8 i
Retail trade	44, 45	2 e	* e	11	1 e	9	6 e	* e
Electronic shopping and electronic auctions	454111, 454112	1 e	* e	2 e	* e	1 e	2 e	* e
Other retail trade	other 44, 45	1 e	* e	9	* e	8	4	* e
Transportation and warehousing	48, 49	* e	* e	1	* e	8	3	* e
Information	51	1,000	82	169	26 e	493	591	14 e

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Publishing	511	972	D	137	16	396	381	13 e
Newspaper, periodical, book, and directory publishers	5111	1 e	* e	4 e	1 e	1 e	3 e	* e
Software publishers	5112	970	D	133	15	395	378	12 e
Telecommunications	517	D	D	3 e	1 e	10	108	* e
Data processing, hosting, and related services	518	D	2	22	5 e	70	63	1 e
Other information	other 51	14	D	8 e	4 e	17	40	1 e
Finance and insurance	52	6	* e	38	2	2	180	4
Real estate and rental and leasing	53	6	* e	8	2	3	7	* e
Professional, scientific, and technical services	54	380	11	184 e	33 e	78	462	45
Architectural, engineering, and related services	5413	61	1 e	17 e	4 e	22	105	33
Computer systems design and related services	5415	175	9	124 e	22 e	37 e	194 e	7 e
Scientific R&D services	5417	127	* e	26	2	9	109	4
Biotechnology R&D	541711	40	* e	5 e	* e	7	62	1 e
Physical, engineering, and life sciences (except biotechnology) R&D	541712	87	* e	21	1	1 e	48	1
Social sciences and humanities R&D	541720	* e	0	*	* e	* e	* e	2
Other professional, scientific, and technical services	other 54	17	1 e	17 e	5 e	10	55	1 e
Health care services	621–623	55	1 e	57 e	9 e	15 e	36 e	3 e
Other nonmanufacturing	55, 56, 624, 71, 72, 81	78	2 e	43 e	12 e	12 e	45 e	22
All companies (number of employees)	–	4,688	211	5,134	422	4,188	8,412	448
Small companies (number of employees)[a]								
5–499	–	826	47 e	1,026 e	198 e	514	1,440	130
5–99	–	444 e	33 e	633 e	137 e	303 e	865 e	73 e
5–49	–	339 e	24 e	462 e	114 e	208 e	647 e	61 e
5–9	–	66 e	4 e	91 e	26 e	31 e	123 e	9 e
10–24	–	134 e	11 e	199 e	43 e	79 e	277 e	36 e
25–49	–	139 e	8 e	172 e	45 e	97 e	247 e	15 e
50–99	–	105	9 e	171	23 e	95	218	12 e
100–249	–	261	9	276	51	100	303	44
250–499	–	120	5	117	10	111	272	13
Medium and large companies (number of employees)								
500–999	–	181	D	140	3	68	373	D
1,000–4,999	–	861	D	668	36	577	1,736	253
5,000–9,999	–	900	D	543	11	109	579	1
10,000–24,999	–	711	4	285	105	553	1,116	26
25,000 or more	–	1,209	D	2,471	70	2,367	3,167	D

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
All industries	21–23, 31–33, 42–81	944	99	1,113	11,850	1,419	278	2,340
Manufacturing industries	31–33	817	73	875	7,336	805	136	1,196
Food	311	1 e	6	41	139	4 e	5	103
Beverage and tobacco products	312	* e	* e	D	*	D	* e	D
Textiles, apparel, and leather products	313–316	18	1	D	3 e	1	* e	3
Wood products	321	D	* e	3	1 e	* e	*	D
Paper	322	D	* e	15	D	D	2	D
Printing and related support activities	323	D	* e	18	3 e	1 e	1	5
Petroleum and coal products	324	D	* e	1	D	D	* e	D
Chemicals	325	106	10 i	227	1,103	169	12	136
Basic chemicals	3251	30	1 e	12	144	1 e	* e	74
Resin, synthetic rubber, fibers, and filaments	3252	14	* e	164	95	* e	* e	17
Pesticide, fertilizer, and other agricultural chemical	3253	1 i	5 i	4 i	13 i	* e	* e	* i
Pharmaceuticals and medicines	3254	51	1 e	38	514	159	10	41
Soap, cleaning compound, and toilet preparation	3256	1 e	* e	3	21	6	1	1
Paint, coating, adhesive, and other chemical	3255, 3259	9	2	5 e	316	3	* e	3
Plastics and rubber products	326	105	1 e	19	50	6	* e	39
Nonmetallic mineral products	327	2	* e	4	4 e	24	2	1 e
Primary metals	331	2	* e	29 i	17 i	* e	* e	7
Fabricated metal products	332	26	28	17	70	10	2	13
Machinery	333	46	5	68	295	11	20	D
Agricultural implement	33311	* e	* e	2	5	* e	0	* e
Semiconductor machinery	333295	0	0	0	31	* e	1	D
Engine, turbine, and power transmission equipment	3336	6 e	* e	35	29 e	2 e	1	9 e
Other machinery	other 333	40	4	31	231	9	17	35
Computer and electronic products	334	132	16	231	4,193	217	15 i	352
Communications equipment	3342	14	*	20	390	15	1	215
Semiconductor and other electronic components	3344	76	6 e	12 e	2,609	35	6 e	56 i
Navigational, measuring, electromedical, and control instruments	3345	36	9	197	255	139	8 i	72
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3	0	185	28	64	* e	5
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3	* e	2 e	146	D	0	41
Other measuring and controlling instruments	other 3345	30	9	10 i	81	D	7 i	26 i
Other computer and electronic products	other 334	6	*	2 e	938	28	*	9 e
Electrical equipment, appliances, and components	335	32	* e	62	104	9	4	25 i
Transportation equipment	336	288	5	85	526	205	62	247
Automobiles, bodies, trailers, and parts	3361–3363	D	2 e	52	64	115	4	12
Aerospace products and parts	3364	D	2	28	442	90	58	227
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	2	D	440	D	58	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	0	0	D	1	D	0	D

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
Military armored vehicle, tank, and tank components	336992	D	0	0	6 i	0	* e	* e
Other transportation	other 336	D	*	5	15	*	* e	8
Furniture and related products	337	1 e	* e	2	15	16	* e	3 e
Miscellaneous manufacturing	339	15	1 e	48	154	92	12	38
Medical equipment and supplies	3391	13	* e	43	126	86	7	19
Other miscellaneous manufacturing	3399	2 e	1 e	5 e	28	5	4	18
Nonmanufacturing industries	21–23, 42–81	127 e	27 e	238	4,514	614	142	1,144
Mining, extraction, and support activities	21	1	1 e	1 e	1,353	15	5	4 e
Utilities	22	3 e	* e	D	20 e	3	1 e	2 e
Construction	23	6 e	1 e	13 e	61 e	6 e	1 e	16 e
Wholesale trade	42	4 e	1 e	9 e	43 e	37 i	1 e	14 e
Retail trade	44, 45	1 e	* e	2 e	34	8	* e	2 e
Electronic shopping and electronic auctions	454111, 454112	* e	* e	1 e	2 e	6	* e	1 e
Other retail trade	other 44, 45	* e	* e	1 e	32	1	* e	1 e
Transportation and warehousing	48, 49	* e	* e	28	3	2	* e	6
Information	51	38	9	D	2,017	321	120	382
Publishing	511	27	6	11 e	1,816	253 i	118	235
Newspaper, periodical, book, and directory publishers	5111	1	* e	1 e	2 e	* e	* e	2 e
Software publishers	5112	26	6	10 e	1,814	253 i	117	234
Telecommunications	517	3	1	D	51	1 e	* e	47
Data processing, hosting, and related services	518	1 e	* e	8	101	16	1 e	35
Other information	other 51	6	1 e	9 e	49	52	1 e	65
Finance and insurance	52	12	* e	D	24	3	*	7
Real estate and rental and leasing	53	* e	* e	D	62	*	* e	* e
Professional, scientific, and technical services	54	37 e	8	81	697	189	10 e	660 e
Architectural, engineering, and related services	5413	7 e	4	9 e	121	7	2	42
Computer systems design and related services	5415	22 e	3 e	40 e	474	118	6 e	543 e
Scientific R&D services	5417	4	1 e	22	57	60	1 e	57
Biotechnology R&D	541711	* e	* e	16	18	50	* e	10
Physical, engineering, and life sciences (except biotechnology) R&D	541712	4	* e	6	40	10	1 e	47
Social sciences and humanities R&D	541720	0	* e	* e	* e	* e	* e	*
Other professional, scientific, and technical services	other 54	4 e	1	10	44 e	4 e	1 e	19 e
Health care services	621–623	10 e	2 e	45	67 e	5 e	1 e	21 e
Other nonmanufacturing	55, 56, 624, 71, 72, 81	16 e	4	D	133 e	24	2 e	31 e
All companies (number of employees)	–	944	99	1,113	11,850	1,419	278	2,340
Small companies (number of employees)[a]								
5–499	–	267 e	43 e	316 e	2,146 e	497	93	848 e
5–99	–	143 e	29 e	211 e	1,361 e	235 e	43 e	703 e
5–49	–	110 e	23 e	159 e	975 e	164 e	35 e	561 e

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
5–9	–	24 e	4 e	38 e	201 e	27 e	5 e	116 e
10–24	–	42 e	13 e	63 e	398 e	67 e	16 e	230 e
25–49	–	44 e	7 e	59 e	376 e	69 e	14 e	215 e
50–99	–	33 e	6 e	51 e	386	71	8 e	142 e
100–249	–	41	11	53	381	174	28	94
250–499	–	83	4 e	52	405	88	21	51
Medium and large companies (number of employees)								
500–999	–	36	2	47	146	86	D	264
1,000–4,999	–	112	38	197	1,665	419	D	288
5,000–9,999	–	132	5 i	221	1,119	68	D	111
10,000–24,999	–	63	3	86	2,456	171	D	236
25,000 or more	–	334	8	246	4,319	178	D	593

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed[b]
All industries	21–23, 31–33, 42–81	13,022	191	3,399	32 e	12,534
Manufacturing industries	31–33	5,043	162	2,380	13	8,451
Food	311	D	D	82	* e	73
Beverage and tobacco products	312	D	D	D	* e	20
Textiles, apparel, and leather products	313–316	1 e	* e	D	* e	53
Wood products	321	D	* e	6	* e	39
Paper	322	D	D	297	0	19
Printing and related support activities	323	D	* e	11	* e	15
Petroleum and coal products	324	D	1 e	1	1 e	4
Chemicals	325	435	108	202	3	2,985
Basic chemicals	3251	8	1	10	* e	106
Resin, synthetic rubber, fibers, and filaments	3252	2	* e	45	0	90
Pesticide, fertilizer, and other agricultural chemical	3253	5	* e	11 i	D	8
Pharmaceuticals and medicines	3254	417	D	97	D	2,427
Soap, cleaning compound, and toilet preparation	3256	1 e	* e	23	0	327
Paint, coating, adhesive, and other chemical	3255, 3259	3	D	16	D	28
Plastics and rubber products	326	D	1 e	93	1	102
Nonmetallic mineral products	327	D	* e	1 e	* e	722
Primary metals	331	7	3	17	* e	21
Fabricated metal products	332	21	2 e	63	* e	165
Machinery	333	96	4 e	332	4	482
Agricultural implement	33311	1 e	0	59	* e	4
Semiconductor machinery	333295	0	0	0	0	53
Engine, turbine, and power transmission equipment	3336	6 e	1 e	143	0	92
Other machinery	other 333	89	3 e	130	4	333
Computer and electronic products	334	953	11	241	2 e	2,488
Communications equipment	3342	110	1	15	*	1,324
Semiconductor and other electronic components	3344	223	3 e	37 e	1 e	732

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed[b]
Navigational, measuring, electromedical, and control instruments	3345	441	6	145	* e	343
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	277	5	53	* e	90
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	46	* e	19	* e	D
Other measuring and controlling instruments	other 3345	118	*	72 i	* e	D
Other computer and electronic products	other 334	179	2	44	1	90
Electrical equipment, appliances, and components	335	17	2 e	325	* e	90
Transportation equipment	336	D	2	612	* e	591
Automobiles, bodies, trailers, and parts	3361–3363	D	* e	179	* e	D
Aerospace products and parts	3364	D	2	D	* e	169
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	1	D	* e	168
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	1	D	0	1
Military armored vehicle, tank, and tank components	336992	0	0	* e	0	D
Other transportation	other 336	D	* e	D	0	D
Furniture and related products	337	D	* e	15	* e	33
Miscellaneous manufacturing	339	108	1 e	64	* e	547
Medical equipment and supplies	3391	47	1 e	33	* e	514
Other miscellaneous manufacturing	3399	61	* e	31	* e	33
Nonmanufacturing industries	21–23, 42–81	7,979	29 e	1,019	19 e	4,083
Mining, extraction, and support activities	21	1 e	6 e	1 e	6 e	D
Utilities	22	1	1 e	8	1	52
Construction	23	23 e	2 e	16 e	2 e	29
Wholesale trade	42	22	1 e	8 e	1 e	129
Retail trade	44, 45	18	* e	7	* e	20
Electronic shopping and electronic auctions	454111, 454112	2 e	* e	1 e	D	4
Other retail trade	other 44, 45	17	* e	6	D	16
Transportation and warehousing	48, 49	* e	* e	2	* e	6
Information	51	7,351	3 e	377	D	1,629
Publishing	511	7,108	1	317	2 e	489
Newspaper, periodical, book, and directory publishers	5111	1 e	* e	2 e	* e	7
Software publishers	5112	7,107	*	314	2 e	481
Telecommunications	517	12	* e	11	D	615
Data processing, hosting, and related services	518	43	* e	39	1 e	482
Other information	other 51	188	2 e	10 e	1 e	44
Finance and insurance	52	3	* e	110	* e	101
Real estate and rental and leasing	53	*	* e	1	* e	2
Professional, scientific, and technical services	54	505	8 e	455 i	3 e	1,872
Architectural, engineering, and related services	5413	37	1 e	12	1 e	239
Computer systems design and related services	5415	391	5 e	403 i	2 e	735

TABLE 105. Domestic R&D paid for and performed by the company, by industry and company size, by state: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Washington	West Virginia	Wisconsin	Wyoming	Undistributed[b]
Scientific R&D services	5417	45	*	28	* e	240
Biotechnology R&D	541711	40	* e	27	* e	141
Physical, engineering, and life sciences (except biotechnology) R&D	541712	5 e	*	2 e	* e	97
Social sciences and humanities R&D	541720	* e	0	0	0	3
Other professional, scientific, and technical services	other 54	32	1 e	12	* e	658
Health care services	621–623	18 e	3 e	13 e	D	30
Other nonmanufacturing	55, 56, 624, 71, 72, 81	33 e	4 e	21 e	2 e	D
All companies (number of employees)	–	13,022	191	3,399	32 e	12,534
Small companies (number of employees)[a]						
5–499	–	1,415	49 e	698	23 e	2,318
5–99	–	668 e	43 e	401 e	20 e	853
5–49	–	467 e	35 e	281 e	16 e	507
5–9	–	68 e	8 e	49 e	5 e	53
10–24	–	205 e	11 e	114 e	5 e	162
25–49	–	195	16 e	119 e	7 e	292
50–99	–	200	7 e	120	3 e	346
100–249	–	444	6 e	174	3 e	704
250–499	–	303	1 e	123	1 e	760
Medium and large companies (number of employees)						
500–999	–	265	* e	199	1	927
1,000–4,999	–	501	D	947	6	3,177
5,000–9,999	–	141	2	493	1	2,468
10,000–24,999	–	465	35	584	*	1,780
25,000 or more	–	10,235	D	478	1	1,864

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

NAICS = 2007 North American Industry Classification System.

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

[b] Includes data reported on Form BRDI-1 that were not allocated to specific state, as well as data reported on either Form BRDI-1A or BRDI-1B by multiestablishment companies. For single-establishment companies, data reported on either Form BRDI-1A or BRDI-1B were allocated to state in address used to mail 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 given estimate in this table, if conditions are satisfied for both i and e flags, e flag is assigned because imputation rate may be found in corresponding table of imputation rates. Statistics are representative of companies located in 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, 2010.

TABLE 106. Domestic R&D paid for and performed by the company as a percent of domestic net sales, by industry and company size: 2010 (corrected September 2014)

(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D	Percent of domestic sales
All industries	21–23, 31–33, 42–81	221,706	2.5
Manufacturing industries	31–33	159,579	3.3
Food	311	3,659	0.6
Beverage and tobacco products	312	717	0.6
Textiles, apparel, and leather products	313–316	478	0.9
Wood products	321	229	0.8
Paper	322	1,247	1.4
Printing and related support activities	323	201	0.6
Petroleum and coal products	324	1,104	0.9
Chemicals	325	53,555	5.3
Basic chemicals	3251	1,718	0.6
Resin, synthetic rubber, fibers, and filaments	3252	807	0.6
Pesticide, fertilizer, and other agricultural chemical	3253	760 i	3.0
Pharmaceuticals and medicines	3254	45,398	11.7
Soap, cleaning compound, and toilet preparation	3256	2,383	2.3
Paint, coating, adhesive, and other chemical	3255, 3259	2,491	3.1
Plastics and rubber products	326	1,809	1.2
Nonmetallic mineral products	327	1,246 i	2.4
Primary metals	331	579	*
Fabricated metal products	332	1,464	1.3
Machinery	333	9,384	3.7
Agricultural implement	33311	1,172	3.4
Semiconductor machinery	333295	1,999	16.5
Engine, turbine, and power transmission equipment	3336	1,231	5.1
Other machinery	other 333	4,981	2.7
Computer and electronic products	334	51,223	8.2
Communications equipment	3342	11,663	10.5
Semiconductor and other electronic components	3344	21,318	15.9
Navigational, measuring, electromedical, and control instruments	3345	9,729	4.9
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,800	9.2
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	2,787	2.8
Other measuring and controlling instruments	other 3345	3,141	5.8
Other computer and electronic products	other 334	8,514	4.7
Electrical equipment, appliances, and components	335	3,141	2.8
Transportation equipment	336	21,076	2.3
Automobiles, bodies, trailers, and parts	3361–3363	10,098	1.8
Aerospace products and parts	3364	10,152	3.3
Aircraft, aircraft engine, and aircraft parts	336411–336413	9,353	3.5
Guided missile, space vehicle, and related parts	336414, 336415, 336419	800	2.1
Military armored vehicle, tank, and tank components	336992	26	2.0
Other transportation	other 336	800 i	1.4
Furniture and related products	337	370	1.1
Miscellaneous manufacturing	339	8,097	2.3
Medical equipment and supplies	3391	D	D
Other miscellaneous manufacturing	3399	D	D
Nonmanufacturing industries	21–23, 42–81	62,127	1.6
Mining, extraction, and support activities	21	2,254	0.5
Utilities	22	371	*
Construction	23	704	0.8
Wholesale trade	42	1,040	0.7
Retail trade	44, 45	D	D
Electronic shopping and electronic auctions	454111, 454112	D	D
Other retail trade	other 44, 45	D	D
Transportation and warehousing	48, 49	88	*

TABLE 106. Domestic R&D paid for and performed by the company as a percent of domestic net sales, by industry and company size: 2010 (corrected September 2014)

(Millions of U.S. dollars)

Industry and company size	NAICS code	Domestic R&D	Percent of domestic sales
Information	51	36,085	4.5
Publishing	511	26,387	9.4
Newspaper, periodical, book, and directory publishers	5111	791	6.5
Software publishers	5112	25,596	9.5
Telecommunications	517	1,755	*
Data processing, hosting, and related services	518	2,491	7.5
Other information	other 51	5,452	5.8
Finance and insurance	52	2,109	*
Real estate and rental and leasing	53	327	3.3
Professional, scientific, and technical services	54	15,438	3.2
Architectural, engineering, and related services	5413	1,381	1.2
Computer systems design and related services	5415	9,416	5.3
Scientific R&D services	5417	2,851	2.7
Biotechnology R&D	541711	1,720	12.0
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,116	1.3
Social sciences and humanities R&D	541720	15	1.3
Other professional, scientific, and technical services	other 54	1,790	2.0
Health care services	621–623	1,126	1.7
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	D
All companies (number of employees)	–	221,706	2.5
Small companies (number of employees)[a]			
5–499	–	40,822	4.1
5–99	–	22,974	6.2
5–49	–	16,574	7.4
5–9	–	2,907	9.8
10–24	–	6,720	9.7
25–49	–	6,947	5.5
50–99	–	6,400	4.3
100–249	–	9,435	3.3
250–499	–	8,413	2.6
Medium and large companies (number of employees)			
500–999	–	8,640	2.7
1,000–4,999	–	39,468	3.3
5,000–9,999	–	21,940	1.6
10,000–24,999	–	36,688	2.2
25,000 or more	–	74,148	2.3

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 107. Domestic R&D paid for and performed by the company, by industry, by company size: 2010
(Millions of U.S. dollars)

Industry	NAICS codes	All companies	Company size (domestic employees) 5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000+
All industries	21–23, 31–33, 42–81	221,706	2,907	6,720	6,947	6,400	9,435	8,413	8,640	39,468	21,940	36,688	74,148
Manufacturing industries	31–33	159,579	736	3,163	3,240	3,447	5,560	5,567	6,066	30,039	16,977	30,540	54,244
Food	311	3,659	3	46	82	106	124	137	82	353	173	713	1,839
Beverage and tobacco products	312	717	0	*	5	3	6	22	6	55	D	D	260
Textiles, apparel, and leather products	313–316	478	18	10	17	25	41	D	34	150	122	D	0
Wood products	321	229	1	7	3	15	11	10	11	70	D	D	0
Paper	322	1,247	0	0	3	18	D	D	38	86	88	D	626
Printing and related support activities	323	201	8	7	14	15	29	26	8	67	3	13	9
Petroleum and coal products	324	1,104	6	6	57	9	D	D	0	14	0	D	757
Chemicals	325	53,555	196	549	821	875	1,712	1,469	1,751	9,969	5,419	14,389	16,406
Basic chemicals	3251	1,718	6	15	33	88	132	56	251	765	102	269	0
Resin, synthetic rubber, fibers, and filaments	3252	807	4	4	10	D	41	40	19	184	D	0	318
Pesticide, fertilizer, and other agricultural chemical	3253	760 i	0	5 i	4	14	5	15	0	D	D	0	0
Pharmaceuticals and medicines	3254	45,398	150	483	672	668	1,415	1,291	1,397	8,176	3,716	12,559	14,870
Soap, cleaning compound, and toilet preparation	3256	2,383	4	9	28	D	39	18	49	152	629 i	D	1,177
Paint, coating, adhesive, and other chemical	3255, 3259	2,491	32	32	73	D	80	48	34	D	D	D	41
Plastics and rubber products	326	1,809	1	13	94	136	218	146	207	353	500	46	95
Nonmetallic mineral products	327	1,246 i	3	11	50	27	24	25	32	194	682 i	198	0
Primary metals	331	579	3	4	2	22	52	21	56	191	72	154	0
Fabricated metal products	332	1,464	39	149	90	114	273	229	109	235	171	56	0
Machinery	333	9,384	170	179	655	304	510	463	670	1,288	1,482	1,063	2,600
Agricultural implement	33311	1,172	11	16	12 i	D	30	7	12	109	D	0	781
Semiconductor machinery	333295	1,999	1	D	11	D	59	102	327	487	D	0	0
Engine, turbine, and power transmission equipment	3336	1,231	101	15	341	D	40	63	23	94	D	522	0
Other machinery	other 333	4,981	57	D	291	D	381	291	308	598	D	542 i	1,818
Computer and electronic products	334	51,223	83	1,539 i	690	1,137	1,405	1,824	2,082	10,953	5,230	8,746	17,533
Communications equipment	3342	11,663	4	D	D	D	275	388	663	1,986	423	3,374	4,234
Semiconductor and other electronic components	3344	21,318	7	1,210 i	D	334	461	945	563	6,129	2,593	D	5,275
Navigational, measuring, electromedical, and control instruments	3345	9,729	57	198	238	385	293	331	350	1,360	746	1,677	4,094
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,800	D	75	66	141	68	60	149	216	D	D	2,277
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	2,787	*	D	32	73	57	59	53	300	D	D	1,726
Other measuring and controlling instruments	other 3345	3,141	D	D	140	172	169	211	148	843	D	D	91 i
Other computer and electronic products	other 334	8,514	15	D	D	D	377	160	507	1,479	1,469	D	3,931
Electrical equipment, appliances, and components	335	3,141	26	90	203	130	266	153	180	467	607	767	254
Transportation equipment	336	21,076	14	174	111	129	286	280	370	2,818	1,239	1,791	13,864
Automobiles, bodies, trailers, and parts	3361–3363	10,098	2	15	D	D	152	D	201	2,252	818	731	5,625
Aerospace products and parts	3364	10,152	10	147	D	41	97	87	81	443	D	1,060	7,906
Aircraft, aircraft engine, and aircraft parts	336411–336413	9,353	4	147	D	40	D	D	D	D	D	D	7,392
Guided missile, space vehicle, and related parts	336414, 336415, 336419	800	5	0	2	1	D	D	D	D	0	D	514
Military armored vehicle, tank, and tank components	336992	26	* i	2 i	* i	0	6 i	D	D	D	0	0	0

TABLE 107. Domestic R&D paid for and performed by the company, by industry, by company size: 2010
(Millions of U.S. dollars)

Industry	NAICS codes	All companies	Company size (domestic employees) 5–9[a]	10–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000+
Other transportation	other 336	800 i	2	10 i	D	D	32	D	D	D	D	0	332 i
Furniture and related products	337	370	0	10	10	41	44	38	17	116	78	18	0
Miscellaneous manufacturing	339	8,097	167	369	333	341	487	648	413	2,660	823	1,856	0
Medical equipment and supplies	3391	D	158	286	272	197	D	575	263	1,939	646	1,560	0
Other miscellaneous manufacturing	3399	D	9	83	61	144	D	73	150	721	177	295	0
Nonmanufacturing industries	21–23, 42–81	62,127	2,171	3,557	3,706	2,954	3,875	2,846	2,573	9,429	4,963	6,149	19,904
Mining, extraction, and support activities	21	2,254	64	49	73	47	24	9	D	24	197 i	986	745
Utilities	22	371	0	21	109	27	1	4	46	81	17	45	20
Construction	23	704	21	2	202	275	83	D	D	40	*	D	1
Wholesale trade	42	1,040	38	52	249	149	201 i	156	145 i	48 i	0	2	0
Retail trade	44, 45	D	1	D	D	57	25	D	D	50	10	D	11
Electronic shopping and electronic auctions	454111, 454112	D	1	D	D	D	D	D	D	5	0	D	0
Other retail trade	other 44, 45	D	0	28	D	D	D	2	0	45	10	D	11
Transportation and warehousing	48, 49	88	1	2	2	3	4	8	12	6	0	2	50
Information	51	36,085	425	967	960	985	1,450	1,104	1,041	5,850	3,927	3,959	15,417
Publishing	511	26,387	277	724	D	498	942	661	724	5,092	D	3	14,188
Newspaper, periodical, book, and directory publishers	5111	791	6	2	D	2	25	17	7	0	D	3	0
Software publishers	5112	25,596	272	722	518	496	917	644	717	5,092	2,030	0	14,188
Telecommunications	517	1,755	0	D	13	95	73	100	D	228	0	45	1,181
Data processing, hosting, and related services	518	2,491	3	D	263	226	322	168	170 i	454	D	D	0
Other information	other 51	5,452	145	D	D	166	113	174	D	77	D	D	48
Finance and insurance	52	2,109	4	19	23	5	50	108	81	283	100	323	1,112
Real estate and rental and leasing	53	327	0	2	1	6	26	99	103	90	0	1	0
Professional, scientific, and technical services	54	15,438	919	1,717	1,839	1,356	1,499	1,147	951	2,721	708	232	2,349
Architectural, engineering, and related services	5413	1,381	56	171	176	155	107	56	62	251 i	D	D	70
Computer systems design and related services	5415	9,416	535	1,056	836	703	875	778	599	1,847	327	215	1,646
Scientific R&D services	5417	2,851	139	446	625	364	448	173	204	404	40	0	7
Biotechnology R&D	541711	1,720	84	302	449	283	350	5	135	104	0	0	7
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,116	51	134	176	81	97	168	69	300	40	0	0
Social sciences and humanities R&D	541720	15	5	10	*	0	1	0	0	0	0	0	0
Other professional, scientific, and technical services	other 54	1,790	189	44	202	134	69	141	85	219	D	D	626
Health care services	621–623	1,126	606	D	51	26	153	83	10	47	0	D	102
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	92	652	D	17	359	71	D	188	4	D	98

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

NAICS = 2007 North American Industry Classification System.

[a] Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 108. Domestic R&D paid for by the company and by others and performed by the company, by source of funds and state: 2010
(Millions of U.S. dollars)

State	Total	Paid for by the company	Paid for by others		
			Total	Federal	Nonfederal
All states	278,977	221,706	57,271	34,199 i	23,072
Alabama	1,449	628	821	749	72
Alaska	74	D	D	D	D
Arizona	4,054	2,841	1,213 i	967 i	246
Arkansas	276	245	31 e	12 e	19
California	64,914	53,327	11,587	7,600 i	3,987
Colorado	3,899	3,270	629	410	219
Connecticut	6,498	5,482	1,017	587	429
Delaware	2,144	D	D	D	D
District of Columbia	235	84 e	151	123	28
Florida	5,127	3,045	2,083	1,770	313
Georgia	3,644	2,931	713 i	429 i	283
Hawaii	257	173	84	37	47
Idaho	1,120 i	810 i	309	13	296
Illinois	12,221	11,500	721	237	483
Indiana	4,985	4,219	766	186 i	580
Iowa	1,950	1,516	433	D	D
Kansas	1,492	1,039	454	47	406
Kentucky	889	820	69	21 e	48
Louisiana	428	340	88	49 i	39 e
Maine	251	228	24	14	9 e
Maryland	4,384	2,538	1,847	1,247	600
Massachusetts	14,020	11,139	2,882	1,077	1,804
Michigan	12,144	10,750	1,394	377	1,017
Minnesota	6,246	5,677	569	314	255
Mississippi	243	170	73	61	13 e
Missouri	8,106 i	D	D	D	D
Montana	145	123	22 i	7 e	15 i
Nebraska	527	491	36 e	15 e	22 e
Nevada	709	646	63	41	22 e
New Hampshire	1,818	841	977	D	D
New Jersey	15,925	13,916	2,009	259	1,750
New Mexico	546	231	315 i	267 i	48
New York	10,954	8,126	2,828	2,134 i	694
North Carolina	5,749	4,688	1,060	211	849
North Dakota	236	211	25	7	18
Ohio	6,857	5,134	1,723	1,162 i	561
Oklahoma	478	422	57 e	19 e	37
Oregon	4,396	4,188	208	64	144
Pennsylvania	9,246	8,412	834	296	538
Rhode Island	531	448	82	40	42
South Carolina	1,316	944	372 i	109	264 i
South Dakota	120	99	21	8 e	13
Tennessee	1,244	1,113	131	43 e	88
Texas	14,384	11,850	2,535	1,342 i	1,193
Utah	2,066	1,419	647	D	D
Vermont	313	278	35	19	16
Virginia	4,655	2,340	2,315 i	2,023 i	292
Washington	13,545	13,022	523	204 i	319
West Virginia	240	191	49	38	12

TABLE 108. Domestic R&D paid for by the company and by others and performed by the company, by source of funds and state: 2010
(Millions of U.S. dollars)

State	Total	Paid for by the company	Paid for by others		
			Total	Federal	Nonfederal
Wisconsin	3,927	3,399	528	79	449
Wyoming	39 e	32 e	7 e	3 e	4 e
Undistributed[a]	17,960	12,534	5,426	2,363	3,063

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

[a] Includes data reported on Form BRDI-1 that were not allocated to specific state, as well as data reported on either Form BRDI-1A or BRDI-1B by multiestablishment companies. For single-establishment companies, data reported on either Form BRDI-1A or BRDI-1B were allocated to state in address used to mail survey form.

NOTES: Detail may not add to total because of rounding. Statistics are representative of companies located in 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, 2010.

TABLE 109. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Foreign owners	Independent companies outside United States	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other, in United States	All other, outside United States
All industries	21–23, 31–33, 42–81	57,271	11,013	7,102	3,913	34,199 i	156	37	779	74
Manufacturing industries	31–33	37,133	3,655	4,051	2,432	26,739 i	30	31	166	29
Food	311	D	D	D	D	15	0	0	0	D
Beverage and tobacco products	312	D	D	0	D	* i	0	0	0	0
Textiles, apparel, and leather products	313–316	12	D	0	D	5	0	0	0	D
Wood products	321	18	D	7	D	0	1 i	0	0	0
Paper	322	28	D	2	D	D	D	0	*	0
Printing and related support activities	323	30	D	2	D	1	2	0	0	0
Petroleum and coal products	324	D	D	D	D	D	0	0	0	0
Chemicals	325	4,483	D	1,882	D	180	D	*	D	D
Basic chemicals	3251	85	D	D	*	40	1	0	1	0
Resin, synthetic rubber, fibers, and filaments	3252	21	1	* i	9 i	5	0	0	6	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	0	D	0	0	D	0
Pharmaceuticals and medicines	3254	4,017	D	1,683	D	99	D	*	D	D
Soap, cleaning compound, and toilet preparation	3256	4	D	0	0	*	0	0	D	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	D	D	D	D	0	D	D
Plastics and rubber products	326	312 i	D	225 i	D	8	D	0	5	D
Nonmetallic mineral products	327	30	D	*	D	23	0	0	* i	0
Primary metals	331	74	D	34	*	29	D	D	4	D
Fabricated metal products	332	239	124	D	D	90	1	0	D	D
Machinery	333	571	176	200	82	98	5	*	6	3
Agricultural implement	33311	23	12	D	1 i	3	D	0	D	*
Semiconductor machinery	333295	127	D	111	D	3	0	0	2	0
Engine, turbine, and power transmission equipment	3336	113	33	10	47	22	0	0	0	0
Other machinery	other 333	308	D	D	D	69	D	*	D	2
Computer and electronic products	334	8,652	911	1,039	728	5,935	7	23	7	2
Communications equipment	3342	1,687	179 i	603	D	D	* i	* i	2	* i
Semiconductor and other electronic components	3344	615	161	172	101	177	D	0	D	1
Navigational, measuring, electromedical, and control instruments	3345	5,832	473	219	203	4,906	D	23	D	1 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	197	9	D	89	62	0	0	D	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	5,511	446	D	112	4,763	D	D	D	0
Other measuring and controlling instruments	other 3345	124	17	D	2	81	0	D	D	1 i
Other computer and electronic products	other 334	518	97 i	44	D	D	D	0	D	0
Electrical equipment, appliances, and components	335	180	D	54	D	84	1	0	25	0
Transportation equipment	336	21,837 i	1,016	324	217	20,191 i	D	D	76	D
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D	D	D	D	0	D	0
Aerospace products and parts	3364	19,702 i	635	D	D	18,921 i	D	D	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	15,547 i	D	D	D	D	0	D	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	4,155	D	0	D	D	D	D	D	0

TABLE 109. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Foreign owners	Independent companies outside United States	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other, in United States	All other, outside United States
Military armored vehicle, tank, and tank components	336992	D	D	0	0	0	0	0	0	0
Other transportation	other 336	D	D	D	D	D	D	0	0	0
Furniture and related products	337	3	2	0	0	0	0	0	1	0
Miscellaneous manufacturing	339	D	D	210	D	D	1	1	23	D
Medical equipment and supplies	3391	D	D	197	D	28	1	0	22	D
Other miscellaneous manufacturing	3399	72	19 i	13	D	D	*	1	1	D
Nonmanufacturing industries	21–23, 42–81	20,138	7,358	3,051	1,481	7,460	126	6	612	44
Mining, extraction, and support activities	21	289	D	0	D	4	0	0	0	0
Utilities	22	54	2	0	0	45	1	0	7	0
Construction	23	375	5 i	2	*	367	0	0	1	0
Wholesale trade	42	233	69	101 i	0	34	D	0	1	D
Retail trade	44, 45	*	*	0	0	0	0	0	0	0
Electronic shopping and electronic auctions	454111, 454112	0	0	0	0	0	0	0	0	0
Other retail trade	other 44, 45	*	*	0	0	0	0	0	0	0
Transportation and warehousing	48, 49	7 i	2	* i	0	5 i	0	0	0	0
Information	51	768	244	342	D	152	D	1	10	D
Publishing	511	595	134	305	D	140	D	1	1	D
Newspaper, periodical, book, and directory publishers	5111	*	* i	0	0	* i	*	0	0	0
Software publishers	5112	595	134	305	D	140	D	1	1	D
Telecommunications	517	113	74	30	D	5	*	0	0	D
Data processing, hosting, and related services	518	47	34	0	0	3	*	0	9	0
Other information	other 51	13	2	8 i	0	4	0	0	0	0
Finance and insurance	52	0	0	0	0	0	0	0	0	0
Real estate and rental and leasing	53	2	2	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	18,252	6,906	2,603	1,198	6,829	D	D	582	D
Architectural, engineering, and related services	5413	2,712	668	83	116	1,534 i	19	*	292	0
Computer systems design and related services	5415	1,634	397	236	112	712	D	0	160	D
Scientific R&D services	5417	11,968	5,344	2,229	915	3,279	45	3 i	129	22
Biotechnology R&D	541711	3,890	1,756	1,043	565	465	8	2 i	37	15
Physical, engineering, and life sciences (except biotechnology) R&D	541712	7,547	3,568 i	1,184	351	2,352	23	1	60	7
Social sciences and humanities R&D	541720	530	20	2	0	463	14	0	31	0
Other professional, scientific, and technical services	other 54	1,939	498	54	54	1,303	22	D	2	D
Health care services	621–623	107	D	0	D	22	1	D	12	D
Other nonmanufacturing	55, 56, 624, 71, 72, 81	52	D	2	D	3	*	0	0	0
All companies (number of employees)	–	57,271	11,013	7,102	3,913	34,199 i	156	37	779	74
Small companies (number of employees)[a]										
5–499	–	11,379	3,610	1,357	647	4,951	94	6	647	67
5–99	–	7,078	1,997	671	341	3,369	84	6	568	43
5–49	–	4,623	1,255	396	133	2,200	73	5 i	540	22

TABLE 109. Domestic R&D paid for by others and performed by the company, by source of funds, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Foreign owners	Independent companies outside United States	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	All other, in United States	All other, outside United States
5–9	–	944	253	18	17	577	12	2 i	54	11
10–24	–	2,002	632	170	29	779	46	1	343	3
25–49	–	1,678	370	209	87	844	15	2	143	8
50–99	–	2,455	742	275	208 i	1,169	11	1	28	22
100–249	–	2,431	756	403	228	962	D	D	54	D
250–499	–	1,870	857	284	78	620	D	D	24	D
Medium and large companies (number of employees)										
500–999	–	1,477	260	490	119	585	D	1	D	* i
1,000–4,999	–	8,760	2,179	2,808	2,036	1,674	26	*	32	4
5,000–9,999	–	5,523	2,997	1,706	181	637	1	0	1	1
10,000–24,999	–	5,147	910	737	616	2,789	D	*	D	0
25,000 or more	–	24,985 i	1,056	3	314	23,563 i	4	30	14	1

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 110. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
All industries	21–23, 31–33, 42–81	57,271	33,372	194	1,557	452 i	7,146	571	1,152	783	12,045 i
Manufacturing industries	31–33	37,133	21,139 i	83	657 i	208 i	5,277	126	629	532	8,482 i
Food	311	D	88	* i	1	2 i	13 i	* i	1 i	2 i	D
Beverage and tobacco products	312	D	D	0	0	0	*	*	*	D	D
Textiles, apparel, and leather products	313–316	12	7	* i	0	* i	1 i	* i	* i	* i	3 i
Wood products	321	18	8	* i	2	* i	2 i	* i	1 i	* i	6 i
Paper	322	28	14	0	3 i	0	1	0	1	*	8
Printing and related support activities	323	30	30	* i	0	* i	* i	* i	* i	* i	* i
Petroleum and coal products	324	D	D	D	0	D	1	D	D	D	D
Chemicals	325	4,483	2,125	56	333 i	7 i	535	30	212	153	1,033
Basic chemicals	3251	85	42	* i	D	* i	10 i	1 i	D	3 i	D
Resin, synthetic rubber, fibers, and filaments	3252	21	13	* i	D	* i	* i	* i	1 i	D	7 i
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	D	D	D	D	D	D	D
Pharmaceuticals and medicines	3254	4,017	1,989	D	D	D	520	D	204	148	D
Soap, cleaning compound, and toilet preparation	3256	4	2	* i	D	0	D	* i	* i	* i	*
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	* i	D	D	D	* i	D	D	D
Plastics and rubber products	326	312 i	134 i	*	7 i	39 i	22 i	*	9	* i	101 i
Nonmetallic mineral products	327	30	D	D	*	D	15	* i	1 i	D	1 i
Primary metals	331	74	D	* i	*	* i	27 i	D	D	*	D
Fabricated metal products	332	239	137	1 i	1	6 i	47 i	1 i	9 i	5 i	33 i
Machinery	333	571	355	*	20	10 i	80	6	15	7	79
Agricultural implement	33311	23	14	* i	1	* i	3	* i	1	* i	4
Semiconductor machinery	333295	127	87	*	6	3	7	5	7	2 i	9
Engine, turbine, and power transmission equipment	3336	113	59	0	7	* i	26	*	2	*	19
Other machinery	other 333	308	196	* i	6	6 i	44 i	* i	5 i	4	48 i
Computer and electronic products	334	8,652	5,112	24	146	63 i	1,283	44	286	149	1,545
Communications equipment	3342	1,687	1,079 i	* i	29	6	201 i	3	46 i	D	D
Semiconductor and other electronic components	3344	615	288	1	16	4	54	4 i	109	23	116
Navigational, measuring, electromedical, and control instruments	3345	5,832	3,464	22	93	48 i	997	35	101	59	1,013
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	197	120	D	12	2	13	7	4	4	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	5,511	3,273	D	78	44 i	973	27 i	95	54	D
Other measuring and controlling instruments	other 3345	124	71	D	3	1 i	11 i	1 i	1 i	* i	D
Other computer and electronic products	other 334	518	282	* i	7	6 i	31	2	30	D	D
Electrical equipment, appliances, and components	335	180	116	* i	7	1 i	25 i	3 i	3 i	1 i	24
Transportation equipment	336	21,837 i	12,583 i	*	129	79 i	3,200 i	35	87	201	5,522 i
Automobiles, bodies, trailers, and parts	3361–3363	D	D	*	D	D	D	D	D	D	D
Aerospace products and parts	3364	19,702 i	11,418 i	*	30	39	2,930 i	17	58	139	5,071 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	15,547 i	D	*	24	36	1,929 i	16	58	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	4,155	D	0	6	3	1,001	1 i	* i	D	D

TABLE 110. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
Military armored vehicle, tank, and tank components	336992	D	D	* i	0	* i	D	D	* i	0	D
Other transportation	other 336	D	D	0	D	D	D	D	D	D	D
Furniture and related products	337	3	3 i	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	D	304	1 i	9	2 i	25 i	6 i	5 i	5 i	D
Medical equipment and supplies	3391	D	261	1 i	8	1 i	9 i	4 i	5 i	1 i	D
Other miscellaneous manufacturing	3399	72	43	* i	1	1 i	16 i	3 i	1 i	4 i	4 i
Nonmanufacturing industries	21–23, 42–81	20,138	12,233	111	900	243	1,869	445	523	251	3,563
Mining, extraction, and support activities	21	289	146	2	9	*	31	D	5	4 i	D
Utilities	22	54	25	*	*	1	17	1	0	*	10
Construction	23	375	62	* i	0	* i	1 i	D	* i	* i	D
Wholesale trade	42	233	123	* i	11	1 i	2 i	2 i	3 i	6 i	85 i
Retail trade	44, 45	*	*	0	0	0	0	0	0	0	0
Electronic shopping and electronic auctions	454111, 454112	0	0	0	0	0	0	0	0	0	0
Other retail trade	other 44, 45	*	*	0	0	0	0	0	0	0	0
Transportation and warehousing	48, 49	7 i	1	0	3 i	* i	1 i	* i	* i	* i	2 i
Information	51	768	639	* i	33	9	17	12	10	*	48
Publishing	511	595	483	* i	27	9	15	11	9	*	42
Newspaper, periodical, book, and directory publishers	5111	*	0	0	*	0	0	0	0	0	0
Software publishers	5112	595	483	* i	27	9	15	11	9	*	42
Telecommunications	517	113	99	* i	5	*	2	1	1	* i	5
Data processing, hosting, and related services	518	47	45 i	0	*	0	* i	* i	* i	* i	1 i
Other information	other 51	13	13 i	0	* i	* i	* i	* i	* i	0	* i
Finance and insurance	52	0	0	0	0	0	0	0	0	0	0
Real estate and rental and leasing	53	2	2 i	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	18,252	11,113	109	842	231	1,788	414	502	241	3,012
Architectural, engineering, and related services	5413	2,712	1,991	6 i	76 i	74 i	214 i	66 i	51 i	17 i	217 i
Computer systems design and related services	5415	1,634	1,204	* i	78	3 i	49 i	13 i	5 i	9 i	272 i
Scientific R&D services	5417	11,968	6,801	102	385	142	1,345	302	429	213	2,248
Biotechnology R&D	541711	3,890	2,016	75	105	107	423	109	198	D	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	7,547	4,393	D	265	29 i	912	178 i	227 i	165	D
Social sciences and humanities R&D	541720	530	393	D	15	7	10 i	15	4	D	D
Other professional, scientific, and technical services	other 54	1,939	1,117	1 i	303	12	179	34	17 i	2 i	274
Health care services	621–623	107	74	* i	*	2 i	11 i	2 i	2 i	* i	15 i
Other nonmanufacturing	55, 56, 624, 71, 72, 81	52	47	0	1	* i	2 i	D	* i	* i	D
All companies (number of employees)	–	57,271	33,372	194	1,557	452 i	7,146	571	1,152	783	12,045 i
Small companies (number of employees)[b]											
5–499	–	11,379	7,046	47 i	417	111 i	1,079 i	271 i	302 i	197 i	1,909 i
5–99	–	7,078	4,477	23 i	218	75 i	651 i	159 i	162 i	103 i	1,211 i
5–49	–	4,623	3,131	16 i	120	54 i	353 i	88 i	94 i	58 i	710 i

TABLE 110. Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Other purchased services (except R&D)	Other[a]
5–9	–	944	613	4 i	29	5 i	67 i	14 i	19 i	12 i	180 i
10–24	–	2,002	1,358	7 i	54	28 i	166 i	42 i	47 i	26 i	273 i
25–49	–	1,678	1,160	5 i	37	20 i	120 i	31 i	28 i	19 i	257 i
50–99	–	2,455	1,346	8 i	98	21 i	298 i	71 i	67 i	46 i	500 i
100–249	–	2,431	1,530	13	80	22 i	247	55	76	41	368
250–499	–	1,870	1,039	11	119	14	182	57	64	53 i	330
Medium and large companies (number of employees)											
500–999	–	1,477	917	9	39	28	151	17	40	76	200
1,000–4,999	–	8,760	4,467	84	533 i	126	1,149	117	195	120	1,970
5,000–9,999	–	5,523	3,224	46	246	39 i	461	71	391	112	933
10,000–24,999	–	5,147	2,977	3	72	18 i	1,029	30	79	201	739
25,000 or more	–	24,985 i	14,742 i	6 i	251	129 i	3,276 i	65	145	77	6,294 i

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

NAICS = 2007 North American Industry Classification System.

[a] Includes data for costs allocated to subsidiaries by parent companies.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 111. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	57,271	2,918	9,431	44,922 i
Manufacturing industries	31–33	37,133	861	4,188	32,084 i
Food	311	D	D	D	D
Beverage and tobacco products	312	D	D	* i	D
Textiles, apparel, and leather products	313–316	12	*	*	11
Wood products	321	18	0	0	18
Printing and related support activities	323	30	*	*	30
Chemicals	325	4,483	146	535	3,801
Pharmaceuticals and medicines	3254	4,017	D	D	3,501
Other chemicals	other 325	466	D	D	300
Plastics and rubber products	326	312 i	30 i	191 i	91
Nonmetallic mineral products	327	30	20	3	7
Primary metals	331	74	2 i	14 i	58 i
Fabricated metal products	332	239	1	4	235
Machinery	333	571	40	112	419
Computer and electronic products	334	8,652	327	1,617	6,707
Semiconductor and other electronic components	3344	615	8	102	506
Navigational, measuring, electromedical, and control instruments	3345	5,832	D	D	4,173
Other computer and electronic products	other 334	2,205	D	D	2,028 i
Electrical equipment, appliances, and components	335	180	2	38	139
Transportation equipment	336	21,837 i	275	1,546 i	20,015 i
Aerospace products and parts	3364	19,702 i	D	D	18,307 i
Other transportation equipment	other 336	2,135 i	D	D	1,708 i
Furniture and related products	337	3	0	*	3
Miscellaneous manufacturing	322, 324, 339	521	D	D	430 i
Nonmanufacturing industries	21–23, 42–81	20,138	2,058	5,243	12,838
Information	51	768	54	196	518
Publishing	511	595	33	187	375
Telecommunications	517	113	D	D	92
Data processing, hosting, and related services	518	47	1	1	45
Other information	other 51	13	D	D	5
Professional, scientific, and technical services	54	18,252	1,932	4,958	11,363
Architectural, engineering, and related services	5413	2,712	59	223	2,429
Computer systems design and related services	5415	1,634	64	322	1,247
Scientific R&D services	5417	11,968	1,615	3,965	6,387
Biotechnology R&D	541711	3,890	757	1,220	1,914
Physical, engineering, and life sciences (except biotechnology) R&D	541712	7,547	D	D	4,444
Social sciences and humanities R&D	541720	530	D	D	29
Other professional, scientific, and technical services	other 54	1,939	193	447	1,299
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	1,118	72	89	958
All companies (number of employees)	–	57,271	2,918	9,431	44,922 i
Small companies (number of employees)[a]					
5–499	–	11,379	837	2,682	7,861
5–99	–	7,078	465	1,844	4,769
5–49	–	4,623	352	1,218	3,054
5–9	–	944	105	278	561
10–24	–	2,002	117	441	1,443
25–49	–	1,678	129	499	1,050
50–99	–	2,455	114	626	1,715
100–249	–	2,431	173	476	1,782
250–499	–	1,870	199	362	1,310
Medium and large companies (number of employees)					
500–999	–	1,477	108	372	997

TABLE 111. Domestic R&D paid for by others and performed by the company, by character of work, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
1,000–4,999	–	8,760	975	1,699	6,085
5,000–9,999	–	5,523	301	1,554	3,668
10,000–24,999	–	5,147	193	476 i	4,478
25,000 or more	–	24,985 i	504	2,648 i	21,833 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 112. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2010
(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	34,199 i	1,406	4,705	28,089 i
Manufacturing industries	31–33	26,739 i	460	2,678 i	23,601 i
Food	311	15	0	10	5
Beverage and tobacco products	312	* i	0	* i	* i
Textiles, apparel, and leather products	313–316	5	*	*	5
Wood products	321	0	0	0	0
Printing and related support activities	323	1	0	*	*
Chemicals	325	180	16	40	125
Pharmaceuticals and medicines	3254	99	9	21	69
Other chemicals	other 325	81	7	19	56
Plastics and rubber products	326	8	3	*	4
Nonmetallic mineral products	327	23	15	3	5
Primary metals	331	29	1 i	2	26
Fabricated metal products	332	90	0	* i	90
Machinery	333	98	32 i	32	33
Computer and electronic products	334	5,935	272	1,337	4,326 i
Semiconductor and other electronic components	3344	177	5	73	100
Navigational, measuring, electromedical, and control instruments	3345	4,906	266	1,255	3,385 i
Other computer and electronic products	other 334	852	1	9	841 i
Electrical equipment, appliances, and components	335	84	1	30	53
Transportation equipment	336	20,191 i	115 i	1,209 i	18,867 i
Aerospace products and parts	3364	18,921	85 i	1,107 i	17,729 i
Other transportation equipment	other 336	1,269 i	30 i	101 i	1,138 i
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	322, 324, 339	80	5	14	60
Nonmanufacturing industries	21–23, 42–81	7,460	946	2,027	4,488
Information	51	152	D	D	79
Publishing	511	140	D	D	72
Telecommunications	517	5	0	*	5
Data processing, hosting, and related services	518	3	*	*	2
Other information	other 51	4	4	0	0
Professional, scientific, and technical services	54	6,829	921	1,946	3,962 i
Architectural, engineering, and related services	5413	1,534 i	48	162	1,324 i
Computer systems design and related services	5415	712	49	277	386
Scientific R&D services	5417	3,279	714	1,250	1,315
Biotechnology R&D	541711	465	82	164	220
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,352	D	D	1,075
Social sciences and humanities R&D	541720	463	D	D	20
Other professional, scientific, and technical services	other 54	1,303	109 i	256	937 i
Other nonmanufacturing	21–23, 42–49, 52, 53, 55–81	480	D	D	447
All companies (number of employees)	–	34,199 i	1,406	4,705	28,089 i
Small companies (number of employees)[a]					
5–499	–	4,951	446	1,696	2,810
5–99	–	3,369	262	1,269	1,837
5–49	–	2,200	224	834	1,142
5–9	–	577	89	226	262
10–24	–	779	71	298	410
25–49	–	844	63	310	470
50–99	–	1,169	39	435	695
100–249	–	962	100	245	618
250–499	–	620	84	182	354
Medium and large companies (number of employees)					
500–999	–	585	58	178	349

TABLE 112. Domestic R&D paid for by the U.S. federal government and performed by the company, by character of work, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
1,000–4,999	–	1,674	450	298	927
5,000–9,999	–	637	1 i	121 i	515 i
10,000–24,999	–	2,789	39 i	55	2,695
25,000 or more	–	23,563 i	412	2,358 i	20,794 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 113. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
All industries	21–23, 31–33, 42–81	34,199 i	28,545 i	1,089	1,872	872	1,822
Manufacturing industries	31–33	26,739 i	23,467 i	606	1,497	112	1,057
Food	311	15	D	D	0	D	D
Beverage and tobacco products	312	* i	* i	* i	0	0	0
Textiles, apparel, and leather products	313–316	5	4	0	0	0	1
Wood products	321	0	0	0	0	0	0
Paper	322	D	D	D	0	D	2
Printing and related support activities	323	1	0	0	0	1	0
Petroleum and coal products	324	D	D	0	0	0	0
Chemicals	325	180	75	30	*	53	21
Basic chemicals	3251	40	18	11	*	2	9
Resin, synthetic rubber, fibers, and filaments	3252	5	3	1	0	*	1
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	1	0	0	*
Pharmaceuticals and medicines	3254	99	D	D	*	48	9
Soap, cleaning compound, and toilet preparation	3256	*	*	0	0	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	D	0	2	3
Plastics and rubber products	326	8	1	4	0	0	2
Nonmetallic mineral products	327	23	16	5	1	0	1
Primary metals	331	29	15	12	1 i	1 i	1
Fabricated metal products	332	90	90	1	0	0	0
Machinery	333	98	46	38	2	5	6
Agricultural implement	33311	3	* i	3	* i	* i	* i
Semiconductor machinery	333295	3	2 i	2	0	0	0
Engine, turbine, and power transmission equipment	3336	22	5	17	0	0	0
Other machinery	other 333	69	39	16	2	5	6
Computer and electronic products	334	5,935	5,290	57	242 i	29 i	318
Communications equipment	3342	D	D	D	D	D	D
Semiconductor and other electronic components	3344	177	D	28	D	0	D
Navigational, measuring, electromedical, and control instruments	3345	4,906	4,375	28	216 i	28 i	260
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	62	15 i	15	0	18 i	14
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	4,763	4,305	D	D	D	237
Other measuring and controlling instruments	other 3345	81	55	D	D	D	9 i
Other computer and electronic products	other 334	D	D	D	0	D	D
Electrical equipment, appliances, and components	335	84	63	16	*	2	3 i
Transportation equipment	336	20,191 i	17,830 i	D	1,246	9	D
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D	0	0	D
Aerospace products and parts	3364	18,921 i	16,740 i	244 i	1,246	9	683
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	14,130 i	244 i	D	9	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	2,611	0	D	0	D
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0	0
Other transportation	other 336	D	D	0	0	0	D
Furniture and related products	337	0	0	0	0	0	0
Miscellaneous manufacturing	339	D	D	5	6	13	10

TABLE 113. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
Medical equipment and supplies	3391	28	4	1	5	8	9
Other miscellaneous manufacturing	3399	D	D	4	1 i	5	*
Nonmanufacturing industries	21–23, 42–81	7,460	5,077	483	375	761	765
Mining, extraction, and support activities	21	4	0	4	0	0	*
Utilities	22	45	0	45	0	0	1
Construction	23	367	337	27	3	0	*
Wholesale trade	42	34	7	0	0	28	* i
Retail trade	44, 45	0	0	0	0	0	0
Electronic shopping and electronic auctions	454111, 454112	0	0	0	0	0	0
Other retail trade	other 44, 45	0	0	0	0	0	0
Transportation and warehousing	48, 49	5 i	4 i	0	*	0	*
Information	51	152	117	7	4	12	12
Publishing	511	140	113	7	4	8	7
Newspaper, periodical, book, and directory publishers	5111	* i	0	0	0	0	* i
Software publishers	5112	140	113	7	4	8	7
Telecommunications	517	5	1	0	0	0	4
Data processing, hosting, and related services	518	3	3	0	0	0	1
Other information	other 51	4	0	0	0	4	0
Finance and insurance	52	0	0	0	0	0	0
Real estate and rental and leasing	53	0	0	0	0	0	0
Professional, scientific, and technical services	54	6,829	4,611	399	367	712	739
Architectural, engineering, and related services	5413	1,534 i	1,363 i	32	39 i	24	77 i
Computer systems design and related services	5415	712	603	2	2	22	83
Scientific R&D services	5417	3,279	1,737	314	90	611	528
Biotechnology R&D	541711	465	D	33	3	240	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,352	1,584	281	83	241	162
Social sciences and humanities R&D	541720	463	D	*	3	130	D
Other professional, scientific, and technical services	other 54	1,303	908	52	237	55	51
Health care services	621–623	22	1	0	0	9 i	12
Other nonmanufacturing	55, 56, 624, 71, 72, 81	3	2	0	0	* i	1
All companies (number of employees)	–	34,199 i	28,545 i	1,089	1,872	872	1,822
Small companies (number of employees)[a]							
5–499	–	4,951	3,411	349	157	655	379
5–99	–	3,369	2,189	309	102	497	272
5–49	–	2,200	1,233	268	73	444	181
5–9	–	577	207	112	6	188	63
10–24	–	779	420	60	55	159	84
25–49	–	844	606	96	12	97	33
50–99	–	1,169	956	41	28	53	91
100–249	–	962	695	20	38	124	85
250–499	–	620	527	20	17	34	22
Medium and large companies (number of employees)							
500–999	–	585	382	22	123	45	13

TABLE 113. Domestic R&D paid for by the U.S. federal government and performed by the company, by funding agency, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	DOD	DOE	NASA	NIH	All other agencies
1,000–4,999	–	1,674	920	96	149	129	379
5,000–9,999	–	637	402	61	D	3 i	D
10,000–24,999	–	2,789	1,592	142 i	D	9 i	D
25,000 or more	–	23,563 i	21,837 i	418	381 i	31	896

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

DOD = Department of Defense; DOE = Department of Energy; NAICS = 2007 North American Industry Classification System; NASA = National Aeronautics and Space Administration; NIH = National Institutes of Health.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 114. 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: 2010

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign-located companies: Companies' foreign subsidiaries[a]	Foreign-located companies: Parents	Foreign-located companies: Independent companies	Foreign governments	All other
All industries	21–23, 31–33, 42–81	14,644	3,519	7,102	3,913	37	74
Manufacturing industries	31–33	9,332	2,789	4,051	2,432	31	29
Food	311	D	D	D	D	0	D
Beverage and tobacco products	312	D	D	0	D	0	0
Textiles, apparel, and leather products	313–316	1	0	0	D	0	D
Wood products	321	D	0	7	D	0	0
Paper	322	D	0	2	D	0	0
Printing and related support activities	323	D	D	2	D	0	0
Petroleum and coal products	324	D	D	D	D	0	0
Chemicals	325	4,058	D	1,882	D	*	D
Basic chemicals	3251	107	80	D	*	0	0
Resin, synthetic rubber, fibers, and filaments	3252	10 i	1	* i	9 i	0	0
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	0	0	0
Pharmaceuticals and medicines	3254	3,581	D	1,683	D	*	D
Soap, cleaning compound, and toilet preparation	3256	4	4	0	0	0	0
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	D	D	0	D
Plastics and rubber products	326	227 i	D	225 i	D	0	D
Nonmetallic mineral products	327	3	D	*	D	0	0
Primary metals	331	34	0	34	*	D	D
Fabricated metal products	332	D	0	D	D	0	D
Machinery	333	457	172	200	82	*	3
Agricultural implement	33311	D	D	D	1 i	0	*
Semiconductor machinery	333295	D	0	111	D	0	0
Engine, turbine, and power transmission equipment	3336	57	0	10	47	0	0
Other machinery	other 333	D	D	D	D	*	2
Computer and electronic products	334	2,274	482	1,039	728	23	2
Communications equipment	3342	814	D	603	D	* i	* i
Semiconductor and other electronic components	3344	519	244	172	101	0	1
Navigational, measuring, electromedical, and control instruments	3345	528	82	219	203	23	1 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	190	65	D	89	0	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	301	D	D	112	D	0
Other measuring and controlling instruments	other 3345	37	D	D	2	D	1 i
Other computer and electronic products	other 334	413	D	44	D	0	0
Electrical equipment, appliances, and components	335	D	D	54	D	0	0
Transportation equipment	336	661	112	324	217	D	D
Automobiles, bodies, trailers, and parts	3361–3363	554	D	D	D	0	0
Aerospace products and parts	3364	D	D	D	D	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	101	D	D	D	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	0	0	D	D	0
Military armored vehicle, tank, and tank components	336992	0	0	0	0	0	0
Other transportation	other 336	D	0	D	D	0	0
Furniture and related products	337	0	0	0	0	0	0
Miscellaneous manufacturing	339	656	D	210	D	1	D
Medical equipment and supplies	3391	641	D	197	D	0	D
Other miscellaneous manufacturing	3399	15	0	13	D	1	D
Nonmanufacturing industries	21–23, 42–81	5,312	730	3,051	1,481	6	44
Mining, extraction, and support activities	21	587	D	0	D	0	0
Utilities	22	0	0	0	0	0	0
Construction	23	3	0	2	*	0	0
Wholesale trade	42	D	0	101 i	0	0	D
Retail trade	44, 45	0	0	0	0	0	0
Electronic shopping and electronic auctions	454111, 454112	0	0	0	0	0	0

TABLE 114. 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: 2010

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Foreign-located companies: Companies' foreign subsidiaries[a]	Foreign-located companies: Parents	Foreign-located companies: Independent companies	Foreign governments	All other
Other retail trade	other 44, 45	0	0	0	0	0	0
Transportation and warehousing	48, 49	* i	0	* i	0	0	0
Information	51	698	337	342	D	1	D
Publishing	511	520	200	305	D	1	D
Newspaper, periodical, book, and directory publishers	5111	0	0	0	0	0	0
Software publishers	5112	520	200	305	D	1	D
Telecommunications	517	D	D	30	D	0	D
Data processing, hosting, and related services	518	0	0	0	0	0	0
Other information	other 51	D	D	8 i	0	0	0
Finance and insurance	52	D	D	0	0	0	0
Real estate and rental and leasing	53	11	11	0	0	0	0
Professional, scientific, and technical services	54	3,883	D	2,603	1,198	D	D
Architectural, engineering, and related services	5413	199	0	83	116	*	0
Computer systems design and related services	5415	380	D	236	112	0	D
Scientific R&D services	5417	3,187	17	2,229	915	3 i	22
Biotechnology R&D	541711	1,634	10	1,043	565	2 i	15
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,551	7	1,184	351	1	7
Social sciences and humanities R&D	541720	2	0	2	0	0	0
Other professional, scientific, and technical services	other 54	116	D	54	54	D	D
Health care services	621–623	D	0	0	D	D	D
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	0	2	D	0	0
All companies (number of employees)	–	14,644	3,519	7,102	3,913	37	74
Small companies (number of employees)[b]							
5–499	–	2,273	195	1,357	647	6	67
5–99	–	1,115	54	671	341	6	43
5–49	–	555	*	396	133	5 i	22
5–9	–	47	0	18	17	2 i	11
10–24	–	203	*	170	29	1	3
25–49	–	305	0	209	87	2	8
50–99	–	559	54	275	208 i	1	22
100–249	–	685	D	403	228	D	D
250–499	–	473	D	284	78	D	D
Medium and large companies (number of employees)							
500–999	–	680	70	490	119	1	* i
1,000–4,999	–	5,565	717	2,808	2,036	*	4
5,000–9,999	–	2,210	323	1,706	181	0	1
10,000–24,999	–	2,137	784	737	616	*	0
25,000 or more	–	1,779	1,431	3	314	30	1

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

NAICS = 2007 North American Industry Classification System.

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

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 115. R&D paid for by the company and by others and performed by the company outside of the United States, by selected location: 2010

(Millions of U.S. dollars)

Location	Total	Paid for by the company	Paid for by others
Total	59,228	55,366	3,863
Puerto Rico	98	91	7
Canada	4,003	3,693	310
China	3,053	2,978	75
France	2,412	2,211	201
Germany	7,451	7,140	311
India	3,465	3,359	106
Ireland	1,042	998	44
Israel	2,335	2,299	35
Italy	969	883	86
Japan	2,767	2,580	188
Russia	286	255	31
Singapore	1,326	1,238	88
South Korea	937	890	47
Sweden	945	895	50
United Kingdom	7,949	7,252	696
Other foreign locations	16,654	15,320	1,334
Undistributed	3,537 i	3,283 i	253

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

NOTES: Detail may not add to total because of rounding. Detailed data by country was not collected on Form BRDI-1A or BRDI-1B (the questionnaires sent to smaller companies). Form BRDI-1A and BRDI-1B data are included in the undistributed stub line. Statistics are representative of companies located in 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, 2010.

TABLE 116. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Foreign owners	Independent companies outside United States	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	Universities or colleges in United States	Universities or colleges outside United States	All other organizations	Undistributed[b]
All industries	21–23, 31–33, 42–81	29,216	21,256	245	2,266	136	8	20	829	188 i	352	3,916
Manufacturing industries	31–33	24,218	18,585	242	2,151	D	6	18	733	184 i	348	D
Food	311	458	358 i	0	24 i	0	0	0	37 i	4 i	D	D
Beverage and tobacco products	312	96	86	0	D	0	D	0	3	0	*	D
Textiles, apparel, and leather products	313–316	17	7	0	*	0	0	0	*	*	0	11
Wood products	321	31	5 i	0	* i	0	0	0	0	0	0	26
Paper	322	56	D	0	*	0	0	0	D	2	0	D
Printing and related support activities	323	8	1	0	0	0	0	0	0	0	0	8
Petroleum and coal products	324	D	D	D	D	4	0	0	D	2	D	D
Chemicals	325	16,931	13,332	115	1,564	4	*	6	560	150 i	298	901
Basic chemicals	3251	84	32	D	6	0	0	0	8	* i	0	D
Resin, synthetic rubber, fibers, and filaments	3252	36	24	*	1 i	*	0	* i	3	* i	* i	7
Pesticide, fertilizer, and other agricultural chemical	3253	D	71 i	D	0	0	0	*	D	*	2 i	14
Pharmaceuticals and medicines	3254	16,212	12,842	79	1,517	4	*	5	497	145 i	292	832
Soap, cleaning compound, and toilet preparation	3256	351	290	0	16	0	0	0	30	1 i	* i	14
Paint, coating, adhesive, and other chemical	3255, 3259	D	74	D	24	0	0	1	D	3	5	D
Plastics and rubber products	326	58	D	D	*	0	0	0	*	*	D	42
Nonmetallic mineral products	327	133	17	3	*	*	0	0	*	0	0	113
Primary metals	331	140	18	70	*	*	0	D	1	1	D	D
Fabricated metal products	332	44	6 i	* i	0	0	0	0	0	0	0	37
Machinery	333	397	271	*	18	0	0	0	16	*	2	89
Agricultural implement	33311	206	177	0	*	0	0	0	D	0	0	D
Semiconductor machinery	333295	26	23	0	*	0	0	0	D	*	0	D
Engine, turbine, and power transmission equipment	3336	31	14	0	0	0	0	0	0	0	0	18
Other machinery	other 333	134	57	*	18	0	0	0	D	*	2	D
Computer and electronic products	334	1,756	1,408	17	118	6	4	5	13	14	3	167
Communications equipment	3342	633	548	3	D	4	4	4	4	4	* i	D
Semiconductor and other electronic components	3344	435	359	*	33	1	0	0	2	*	0	40
Navigational, measuring, electromedical, and control instruments	3345	342	217	14	34	1	*	1	5	9	3	57
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	154	80	D	24	D	0	1	3	3	2	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	103	90	D	D	D	*	0	2	0	0	D

TABLE 116. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Foreign owners	Independent companies outside United States	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	Universities or colleges in United States	Universities or colleges outside United States	All other organizations	Undistributed[b]
Other measuring and controlling instruments	other 3345	85	47	D	D	D	0	0	*	7	1	D
Other computer and electronic products	other 334	346	284	*	D	0	0	0	3	0	0	D
Electrical equipment, appliances, and components	335	164	69	1	D	D	1	0	2	0	D	D
Transportation equipment	336	3,118	2,486	26	387	10	D	D	61	8	3	D
Automobiles, bodies, trailers, and parts	3361–3363	1,901	1,608	24	D	3	D	0	32	5	0	D
Aerospace products and parts	3364	1,096	805	1	186	7	0	D	27	2	3	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	1,024	754	*	D	D	0	D	D	2	3	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	72	51	1	D	D	0	2	D	0	0	D
Military armored vehicle, tank, and tank components	336992	D	D	0	0	0	0	0	0	0	0	* i
Other transportation	other 336	D	D	0	D	* i	D	* i	2 i	1 i	* i	D
Furniture and related products	337	5	1	0	0	0	0	0	0	0	0	4
Miscellaneous manufacturing	339	D	382	9	22	1	*	D	D	3	13	D
Medical equipment and supplies	3391	600	343	9	22	1	*	D	17	3	13	D
Other miscellaneous manufacturing	3399	D	38	0	*	*	0	0	D	0	*	27
Nonmanufacturing industries	21–23, 42–81	4,998	2,671	4	115	D	2	2	96	4	4	D
Mining, extraction, and support activities	21	190	79	2	7	0	D	2	74	4	2	D
Utilities	22	294	133	0	0	0	D	0	6	0	0	D
Construction	23	514	D	0	0	0	0	0	0	0	0	D
Wholesale trade	42	140	1 i	0	0	0	0	0	0	0	0	140
Retail trade	44, 45	D	0	0	0	0	0	0	0	0	0	D
Electronic shopping and electronic auctions	454111, 454112	1	0	0	0	0	0	0	0	0	0	1
Other retail trade	other 44, 45	D	0	0	0	0	0	0	0	0	0	D
Transportation and warehousing	48, 49	6	0	0	0	0	0	0	0	0	0	6
Information	51	2,039	1,852 i	*	36	0	0	0	5	0	*	146
Publishing	511	867	750	*	32	0	0	0	5	0	*	80
Newspaper, periodical, book, and directory publishers	5111	24	3	0	0	0	0	0	0	0	0	21
Software publishers	5112	843	747	*	32	0	0	0	5	0	*	59
Telecommunications	517	1,012 i	997 i	0	4 i	0	0	0	0	0	* i	11
Data processing, hosting, and related services	518	121	100	0	0	0	0	0	*	0	0	22
Other information	other 51	39	5	0	*	0	0	0	*	0	0	34
Finance and insurance	52	111	68	0	3	0	0	0	*	0	0	40
Real estate and rental and leasing	53	11	2	0	0	0	0	0	0	0	0	9

TABLE 116. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Foreign owners	Independent companies outside United States	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	Universities or colleges in United States	Universities or colleges outside United States	All other organizations	Undistributed[b]
Professional, scientific, and technical services	54	1,447	514	2	68	D	D	* i	12	1	1	D
Architectural, engineering, and related services	5413	123	17	0	D	0	0	0	*	0	0	D
Computer systems design and related services	5415	408	88 i	* i	22 i	1 i	* i	* i	* i	* i	0	296
Scientific R&D services	5417	757	390	1 i	29	* i	0	* i	11	*	1	326
Biotechnology R&D	541711	622	322	* i	29	* i	0	* i	8	*	1	263
Physical, engineering, and life sciences (except biotechnology) R&D	541712	132	68	* i	*	0	0	0	3	0	1	61
Social sciences and humanities R&D	541720	3	0	0	0	0	0	0	0	0	0	3
Other professional, scientific, and technical services	other 54	158	19	1	D	D	D	0	1	*	0	D
Health care services	621–623	170	5	0	*	0	0	0	*	0	0	164
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	D	0	0	0	0	0	0	0	0	D
All companies (number of employees)	–	29,216	21,256	245	2,266	136	8	20	829	188 i	352	3,916
Small companies (number of employees)[a]												
5–499	–	4,862	1,438	8	173	1	0	2	62	5	18	3,154
5–99	–	2,971	481	D	72	1	0	1	44	1	D	D
5–49	–	2,166	235	D	11	* i	0	1	25	*	6	D
5–9	–	465	1	0	0	0	0	0	0	0	0	464
10–24	–	636	35	0	0	0	0	0	9	*	5	588
25–49	–	1,065	200	D	11	* i	0	1	17	*	1	D
50–99	–	805	247	D	60	1	0	0	18	*	D	D
100–249	–	1,085	447	D	54	* i	0	1	12	2	D	D
250–499	–	806	510	5	47	* i	0	* i	7 i	3	1	232
Medium and large companies (number of employees)												
500–999	–	821	491	4	46 i	1	* i	* i	10 i	2 i	2	265
1,000–4,999	–	4,804	3,739	50	409	4	D	2	138	9	D	D

TABLE 116. Domestic R&D paid for by the company and performed by others, by type of performer, industry, and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Companies in United States	Foreign owners	Independent companies outside United States	U.S. federal government agencies	U.S. state government agencies	Foreign government agencies	Universities or colleges in United States	Universities or colleges outside United States	All other organizations	Undistributed[b]
5,000–9,999	–	2,285	1,668	82	149 i	17	1	2 i	137	13	D	D
10,000–24,999	–	6,426	5,552	88	413	0	*	3	225	22	7	115
25,000 or more	–	10,019	8,368	14	1,076 i	113	D	11	257	137 i	D	6

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

NAICS = 2007 North American Industry Classification System.

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

[b] Detailed data for domestic R&D by type of performer were not collected on Form BRDI-1A or BRDI-1B (the questionnaires sent to smaller companies). Form BRDI-1A and 1B data are included in undistributed column.

NOTES: NAICS 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 United States that performed or funded R&D. Detailed data were not collected on BRDI-1A and BRDI-1B questionnaires.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2010.

TABLE 117. Capital expenditures, total in the United States and for domestic R&D paid for by the company and by others and performed by the company, by industry and company size: 2010

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
All industries	21–23, 31–33, 42–81	25,113	1,899	8,436	5,083 i	2,226	7,469
Manufacturing industries	31–33	13,545	1,410	6,546	1,191	1,332	3,066
Food	311	240	31	76	4	10	119
Beverage and tobacco products	312	39	1	32	1	*	5 i
Textiles, apparel, and leather products	313–316	38	* i	D	D	D	D
Wood products	321	69	0	27	D	0	D
Paper	322	142	12	32	1	6	92
Printing and related support activities	323	42	0	5	0	*	37
Petroleum and coal products	324	91	*	D	D	D	D
Chemicals	325	3,953	1,004	1,860	235	167 i	687
Basic chemicals	3251	193	21	99	3	2 i	67
Resin, synthetic rubber, fibers, and filaments	3252	58	11	25	*	3	19
Pesticide, fertilizer, and other agricultural chemical	3253	614 i	D i	D i	D i	22 i	D
Pharmaceuticals and medicines	3254	2,773	731	1,254	190	130 i	468
Soap, cleaning compound, and toilet preparation	3256	106	11	64	D	7	D
Paint, coating, adhesive, and other chemical	3255, 3259	210	D	D	1	3	D
Plastics and rubber products	326	480	19 i	127 i	5 i	130 i	200
Nonmetallic mineral products	327	142 i	15 i	62 i	D i	D i	39
Primary metals	331	107	3	20	2 i	6 i	76
Fabricated metal products	332	219	*	15	6	9	188
Machinery	333	944	50	444	34	62	353
Agricultural implement	33311	104	8	44	1	26	25
Semiconductor machinery	333295	100	3	88	*	*	9
Engine, turbine, and power transmission equipment	3336	206	3 i	42 i	1 i	6 i	155
Other machinery	other 333	533	36	270	32	31 i	164
Computer and electronic products	334	4,590	164 i	2,803	628	473 i	523
Communications equipment	3342	1,037	7	781	96	30	122 i
Semiconductor and other electronic components	3344	1,565	56	810	270	183	246
Navigational, measuring, electromedical, and control instruments	3345	1,150	49 i	572 i	188 i	224 i	117
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	261 i	10 i	78 i	68	74 i	32
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	572	20 i	349 i	51 i	134 i	18
Other measuring and controlling instruments	other 3345	317	20 i	144 i	69 i	17 i	67
Other computer and electronic products	other 334	837	51 i	640	73	35	39
Electrical equipment, appliances, and components	335	217	7 i	104 i	8 i	36 i	62
Transportation equipment	336	1,340	75	703	210	212	141
Automobiles, bodies, trailers, and parts	3361–3363	536	D	D	D	D	D
Aerospace products and parts	3364	628	46	331	51	175	24 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	501	38	214	51	175	24 i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	127	8	118	*	1	*
Military armored vehicle, tank, and tank components	336992	5	1	1	*	1	2
Other transportation	other 336	172 i	D i	D i	D i	D i	D i
Furniture and related products	337	26	*	7 i	1 i	3	15
Miscellaneous manufacturing	339	864	29	198	36	202	400
Medical equipment and supplies	3391	539	23	173	28	192	122
Other miscellaneous manufacturing	3399	325	6	25	8	9	278
Nonmanufacturing industries	21–23, 42–81	11,568	489	1,890	3,892 i	895	4,403
Mining, extraction, and support activities	21	271	11	132	D	D	72
Utilities	22	449	0	64	4	70	311
Construction	23	320	0	1	D	D	D
Wholesale trade	42	66	* i	1 i	D i	2 i	D
Retail trade	44, 45	171	*	D	D	D	D
Electronic shopping and electronic auctions	454111, 454112	120	*	D	D	D	D
Other retail trade	other 44, 45	51	*	*	0	*	51
Transportation and warehousing	48, 49	66	0	2	5	2	56

TABLE 117. Capital expenditures, total in the United States and for domestic R&D paid for by the company and by others and performed by the company, by industry and company size: 2010

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Structures	Equipment	Capitalized software	All other	Undistributed[a]
Information	51	5,676	366	1,128	3,310 i	132	739
Publishing	511	1,883	D	712	700	77	D
Newspaper, periodical, book, and directory publishers	5111	120	0	96	13	2	8 i
Software publishers	5112	1,764	D	616	687	75	D
Telecommunications	517	2,627 i	*	32 i	D i	5	D i
Data processing, hosting, and related services	518	271	*	D	43	43	D
Other information	other 51	895	D	D	D	7	D
Finance and insurance	52	543	2	59	236	123	124
Real estate and rental and leasing	53	26	*	7	8	1	11
Professional, scientific, and technical services	54	2,686	109	445	258 i	499	1,375
Architectural, engineering, and related services	5413	99	1 i	19 i	2 i	2 i	75
Computer systems design and related services	5415	1,350	12 i	158 i	208 i	33 i	939
Scientific R&D services	5417	902	57	218	13	401	213
Biotechnology R&D	541711	382	33	107	3	113	126
Physical, engineering, and life sciences (except biotechnology) R&D	541712	519	24	110	11	288	86
Social sciences and humanities R&D	541720	1	0	0	0	0	1
Other professional, scientific, and technical services	other 54	335 i	39 i	50 i	34 i	63 i	148
Health care services	621–623	349	*	10	*	1	337
Other nonmanufacturing	55, 56, 624, 71, 72, 81	945	* i	D	D	D	D
All companies (number of employees)	–	25,113	1,899	8,436	5,083 i	2,226	7,469
Small companies (number of employees)[b]							
5–499	–	7,059	115	474	153	142	6,175
5–99	–	4,797	27	103	18	51	4,599
5–49	–	3,430	11	21	4	30	3,363
5–9	–	991	0	*	0	4	987
10–24	–	1,307	1 i	2	* i	D	D
25–49	–	1,132	11	19	4	D i	D
50–99	–	1,368	16	82	14	21	1,235
100–249	–	1,411	41	160	34	57	1,120
250–499	–	851	47	211	102	34	457
Medium and large companies (number of employees)							
500–999	–	1,595	182	362	341	99	612
1,000–4,999	–	4,105	490	1,851	611	718	436
5,000–9,999	–	3,067	532	1,778	410	266 i	81 i
10,000–24,999	–	2,311	213	1,283	394	337	84
25,000 or more	–	6,975	367 i	2,688	3,174 i	665	81 i

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

NAICS = 2007 North American Industry Classification System.

[a] Detailed data for capital expenditures for domestic R&D were not collected on Form BRDI-1A or BRDI-1B (the questionnaires sent to smaller companies). Form BRDI-1A and 1B data are included in undistributed column.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 118. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2010
(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	1,924	1,437	487	1,412	1,060	352	512	376	135
Manufacturing industries	31–33	1,180	899	281	849	651	198	331	248	82
Food	311	29	17	12	22	13	10	6	4	3
Beverage and tobacco products	312	7	4	3	3	2	2	4	2	2
Textiles, apparel, and leather products	313–316	6	3	2	5	3	2	1	*	*
Wood products	321	2	2	*	2	2	*	*	*	*
Paper	322	12	9	3	8	6	2	4	3	1
Printing and related support activities	323	4	3	1	3	2	1	*	*	*
Petroleum and coal products	324	6	5	1	4	3	1	2	2	*
Chemicals	325	234	132	102	169	96	74	64	36	28
Basic chemicals	3251	18	13	5	12	9	3	6	4	2
Resin, synthetic rubber, fibers, and filaments	3252	7	6	1	5	4	1	2 i	1 i	* i
Pesticide, fertilizer, and other agricultural chemical	3253	D	5	D	4	3	1	D	2	D
Pharmaceuticals and medicines	3254	160	81	79	120	61	59	39	20	19
Soap, cleaning compound, and toilet preparation	3256	18	9	8	12	6	5	6	3	3
Paint, coating, adhesive, and other chemical	3255, 3259	D	18	D	16	12	4	D	6	D
Plastics and rubber products	326	27	22	5	21	17	4	6	5	1
Nonmetallic mineral products	327	13	10	3	9	7	2	5	3 i	1
Primary metals	331	8	7	1	7	7	1	1	1	*
Fabricated metal products	332	29	26	3	27	25	3	2	2	*
Machinery	333	86	77	8	65	60	6	20	18	2
Agricultural implement	33311	9	8	1	7	7	1	2	2	*
Semiconductor machinery	333295	9	7	1	6	6	1	2	2	*
Engine, turbine, and power transmission equipment	3336	12	10	1	10	9	1	2	1	*
Other machinery	other 333	57	51	6	42	38	4	15	13	2
Computer and electronic products	334	390	310	80	266	214	51	124	96	28
Communications equipment	3342	85	64	21	55	42	13	30	22	8
Semiconductor and other electronic components	3344	133	106	28	80	64	16	53	41	11
Navigational, measuring, electromedical, and control instruments	3345	105	86	19	89	73	16	17	13	4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	24	18	5	21	16	5	3	2	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	51	43	7	48	41	7	3	3	*
Other measuring and controlling instruments	other 3345	31	25	6	20	16	4	11	8 i	3 i
Other computer and electronic products	other 334	66	55	12	42	35	7	25	20	5
Electrical equipment, appliances, and components	335	51	44	7	29	26	4	22	18	3
Transportation equipment	336	215	183	32	155	132	23	60	51	9
Automobiles, bodies, trailers, and parts	3361–3363	88	77	12	50	43	7	38	33	5
Aerospace products and parts	3364	102	87	16	81	69	13	21	18	3
Aircraft, aircraft engine, and aircraft parts	336411–336413	96	81	15	75	63	12	21	18	3
Guided missile, space vehicle, and related parts	336414, 336415, 336419	7	6	1	6	6	1	*	*	*
Military armored vehicle, tank, and tank components	336992	*	*	*	*	*	*	0	0	0
Other transportation	other 336	24 i	20 i	4 i	23 i	19 i	4 i	1 i	1 i	* i

TABLE 118. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Furniture and related products	337	6	5	1	6	4	1	*	*	*
Miscellaneous manufacturing	339	56	42	15	46	34	12	10	7	3
Medical equipment and supplies	3391	38	27	10	33	24	9	5	4	1
Other miscellaneous manufacturing	3399	19	14	4	14	11	3	5	3	1
Nonmanufacturing industries	21–23, 42–81	744	538	206	563	410	153	181	128	53
Mining, extraction, and support activities	21	9	7	2	7	6	1	2	1	*
Utilities	22	4	3	1	3	3	1	*	*	*
Construction	23	13	11	2	13	10	2	1	1 i	* i
Wholesale trade	42	15	10	5	14	10	5	1	*	*
Retail trade	44, 45	5	4	1	4	3	1	1	*	*
Electronic shopping and electronic auctions	454111, 454112	3	3	1	3	2	1	*	*	*
Other retail trade	other 44, 45	2	1	1	1	1	*	*	*	*
Transportation and warehousing	48, 49	2	1	1	2	1	1	*	*	*
Information	51	300	233	67	208	160	48	92	73	19
Publishing	511	226	176	50	145	112	32	81	64	17
Newspaper, periodical, book, and directory publishers	5111	4	3	1	4	3	1	*	*	*
Software publishers	5112	222	173	49	141	109	32	81	64	17
Telecommunications	517	18 i	14 i	4 i	17 i	13 i	4 i	2	1	*
Data processing, hosting, and related services	518	23	17	7	21	15	6	2	2	1
Other information	other 51	32	26	6	26	20	5	7	6	1
Finance and insurance	52	20	11	9	16	9	7	5	3	2
Real estate and rental and leasing	53	1	1	*	1	1	*	*	*	*
Professional, scientific, and technical services	54	339	236	103	260	188	72	79	48	31
Architectural, engineering, and related services	5413	41	35	7	39	33	7	2 i	2 i	* i
Computer systems design and related services	5415	160	127	33	114	92	23	46	35	10
Scientific R&D services	5417	106	54	52	80	46	34	25	8	18
Biotechnology R&D	541711	31	15	17	25	12	12	7	3	4
Physical, engineering, and life sciences (except biotechnology) R&D	541712	71	37	33	52	32	20	18	5	13
Social sciences and humanities R&D	541720	3 i	2 i	2 i	3 i	2 i	2 i	*	*	*
Other professional, scientific, and technical services	other 54	32	21	11	26	17	9	6	4 i	2 i
Health care services	621–623	10	3	7	10	3	7	* i	* i	* i
Other nonmanufacturing	55, 56, 624, 71, 72, 81	26	17	9	25	16	9	1	1	*
All companies (number of employees)	–	1,924	1,437	487	1,412	1,060	352	512	376	135
Small companies (number of employees)[a]										
5–499	–	492	384	108	441	343	99	51	41	10
5–99	–	295	234	61	270	213	56	25	21	4
5–49	–	205	162	43	191	151	40	14	11	3
5–9	–	40	27	12	35	24	11	4	3	1
10–24	–	85	70	15	80	65	15	5	4	1
25–49	–	80	65	15	75	61	14	5	4	1
50–99	–	90	72	18	79	63	16	11	9	2
100–249	–	115	88	27	102	77	25	13	11	3

TABLE 118. Worldwide, domestic, and foreign R&D employment, by sex, industry, and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
250–499	–	83	62	20	70	53	18	13	10	3
Medium and large companies (number of employees)										
500–999	–	72	55	17	58	44	14	14	11	3
1,000–4,999	–	322	239	82	217	160	57	105	79	25
5,000–9,999	–	207	142	65	130	92	38	77	50	27
10,000–24,999	–	248	178	70	176	127	49	72	51	21
25,000 or more	–	583	439	144	390	295	95	193	144	50

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 119. Worldwide, domestic, and foreign R&D paid for by the company and by others and performed by the company, R&D employment, and R&D cost per R&D employee, by industry and company size: 2010

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	338,205	278,977	59,228	1,924	1,412	512	175.8	197.6	115.8
Manufacturing industries	31–33	241,013	196,711	44,302	1,180	849	331	204.3	231.8	133.9
Food	311	D	D	1,002	29	22	6	D	D	157.1
Beverage and tobacco products	312	D	D	769	7	3	4	D	D	210.9
Textiles, apparel, and leather products	313–316	527	489	37 i	6	5	1	92.3	94.3	72.3
Wood products	321	250	247	3	2	2	*	112.0	114.1	42.7
Paper	322	1,566	1,274	292	12	8	4	133.3	162.7	74.5
Printing and related support activities	323	269	231	38	4	3	*	70.3	69.0	80.0
Petroleum and coal products	324	D	D	D	6	4	2	D	D	D
Chemicals	325	72,288	58,038	14,249	234	169	64	309.1	342.6	221.2
Basic chemicals	3251	2,683	1,803	880	18	12	6	148.1	149.1	145.9
Resin, synthetic rubber, fibers, and filaments	3252	1,057	828	229	7	5	2	150.8	159.6	125.8
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	D	4	D	D	D	D
Pharmaceuticals and medicines	3254	60,482 i	49,415 i	11,067 i	160	120	39	378.4	410.4	280.7
Soap, cleaning compound, and toilet preparation	3256	3,265	2,387	878	18	12	6	185.4	201.5	152.4
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	D	D	16	D	D	D	D
Plastics and rubber products	326	2,548	2,121	427	27	21	6	94.3	100.7	71.7
Nonmetallic mineral products	327	1,548	1,276	272	13	9	5	117.1	146.5	60.3
Primary metals	331	771	653 i	118 i	8	7	1	93.7	88.4	140.1
Fabricated metal products	332	1,793	1,703	90	29	27	2	61.5	62.2	50.7
Machinery	333	12,050	9,955	2,094	86	65	20	140.8	152.2	103.8
Agricultural implement	33311	D	1,196	D	9	7	2	D	169.0	D
Semiconductor machinery	333295	2,422	2,126	296	9	6	2	283.6	328.2	143.3
Engine, turbine, and power transmission equipment	3336	1,476	1,344	132	12	10	2	128.1	134.2	87.6
Other machinery	other 333	D	5,290	D	57	42	15	D	126.5	D
Computer and electronic products	334	73,427	59,875	13,552	390	266	124	188.4	225.3	109.4
Communications equipment	3342	16,437	13,349	3,088	85	55	30	193.8	242.7	103.5
Semiconductor and other electronic components	3344	28,230	21,933	6,297	133	80	53	211.9	272.7	119.2
Navigational, measuring, electromedical, and control instruments	3345	17,699	15,561	2,138	105	89	17	168.0	175.2	129.2
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,339	3,997	342	24	21	3	184.6	191.9	128.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	8,773	8,298	475	51	48	3	172.5	174.0	150.3
Other measuring and controlling instruments	other 3345	4,587	3,266	1,322	31	20	11	148.0	161.1	123.3
Other computer and electronic products	other 334	11,061	9,032	2,029	66	42	25	166.8	217.3	82.0
Electrical equipment, appliances, and components	335	4,769	3,320	1,449	51	29	22	93.7	113.1	67.2
Transportation equipment	336	51,384	42,913	8,472	215	155	60	239.2	277.5	140.9
Automobiles, bodies, trailers, and parts	3361–3363	17,792	D	D	88	50	38	201.2	D	D
Aerospace products and parts	3364	31,645	29,854	1,791	102	81	21	310.0	366.8	86.6
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	24,900	D	96	75	21	D	332.3	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	4,955 i	D	7	6	*	D	766.5	D
Military armored vehicle, tank, and tank components	336992	D	D	D	*	*	0	D	D	D
Other transportation	other 336	D	D	D	24	23	1	D	D	D
Furniture and related products	337	406 i	373 i	33 i	6 i	6 i	* i	70.6	66.9	193.7

TABLE 119. Worldwide, domestic, and foreign R&D paid for by the company and by others and performed by the company, R&D employment, and R&D cost per R&D employee, by industry and company size: 2010

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
Miscellaneous manufacturing	339	9,748	D	D	56	46	10	173.4	D	D
Medical equipment and supplies	3391	7,624	6,597	1,027	38	33	5	202.5	202.9	200.0
Other miscellaneous manufacturing	3399	2,124	D	D	19	14	5	114.4	D	D
Nonmanufacturing industries	21–23, 42–81	97,192	82,265	14,927	744	563	181	130.6	146.1	82.6
Mining, extraction, and support activities	21	2,782	2,542	239	9	7	2	310.7	353.6	135.8
Utilities	22	442	425	17	4	3	*	125.4	124.9	139.3
Construction	23	1,083	1,079	4	13	13	1	81.2	85.1	6.5
Wholesale trade	42	1,329	1,274	55	15	14	1	88.2	88.7	79.0
Retail trade	44, 45	D	D	D	5	4	1	D	D	D
Electronic shopping and electronic auctions	454111, 454112	D	D	D	3	3	*	D	D	D
Other retail trade	other 44, 45	D	D	D	2	1	*	D	D	D
Transportation and warehousing	48, 49	124	96	29 i	2	2	*	65.9	52.2	542.7
Information	51	44,865	36,852	8,013	300	208	92	149.7	177.4	87.2
Publishing	511	33,937	26,982	6,955	226	145	81	150.3	186.6	85.7
Newspaper, periodical, book, and directory publishers	5111	848	791	57	4	4	*	199.2	203.2	156.4
Software publishers	5112	33,089	26,191	6,898	222	141	81	149.4	186.2	85.3
Telecommunications	517	1,981	1,868	113	18	17	2	108.9	112.8	69.1
Data processing, hosting, and related services	518	2,671	2,538	133	23 i	21 i	2	114.3	121.3	54.4
Other information	other 51	6,276	5,465	811 i	32	26	7	194.6	212.8	123.5
Finance and insurance	52	2,591	2,109	481	20	16	5	126.5	132.9	104.5
Real estate and rental and leasing	53	366	329	37	1	1	*	261.8	292.3	135.4
Professional, scientific, and technical services	54	39,208	33,690	5,518	339	260	79	115.8	129.8	69.9
Architectural, engineering, and related services	5413	4,235	4,093	142	41	39	2	102.1	104.4	62.2
Computer systems design and related services	5415	13,318	11,050	2,268	160	114	46 i	83.3	96.6	49.8
Scientific R&D services	5417	17,560	14,818	2,742	106	80	25	166.3	184.5	108.5
Biotechnology R&D	541711	6,366	5,610	756	31	25	7	203.6	228.5	112.4
Physical, engineering, and life sciences (except biotechnology) R&D	541712	10,644	8,663	1,981	71	52	18	150.2	165.3	107.5
Social sciences and humanities R&D	541720	550	545	5	3	3	*	158.3	162.6	40.1
Other professional, scientific, and technical services	other 54	4,095	3,729	366 i	32 i	26 i	6	129.8	144.9	63.1
Health care services	621–623	D	1,232	D	10	10	*	D	127.1	D
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	D	D	26	25	1 i	D	D	D
All companies (number of employees)	–	338,205	278,977	59,228	1,924	1,412	512	175.8	197.6	115.8
Small companies (number of employees)[a]										
5–499	–	56,446	52,202	4,244	492	441	51	114.6	118.3	83.1
5–99	–	31,672	30,052	1,620	295	270	25	107.4	111.5	64.1
5–49	–	22,144	21,197	947	205	191	14	108.2	111.2	67.2
5–9	–	4,029	3,851	179	40	35	4	101.7	109.2	40.8
10–24	–	9,175	8,722	453	85	80	5	107.8	109.1	88.5
25–49	–	8,940	8,624	316	80	75	5	111.7	114.3	68.7
50–99	–	9,528	8,855	673	90	79	11	105.8	112.3	60.2

TABLE 119. Worldwide, domestic, and foreign R&D paid for by the company and by others and performed by the company, R&D employment, and R&D cost per R&D employee, by industry and company size: 2010

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)		
		Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign	Worldwide	Domestic	Foreign
100–249	–	13,242	11,866	1,376 i	115	102	13	115.1	116.7	103.3
250–499	–	11,531	10,283	1,248 i	83	70	13	139.6	146.7	99.9
Medium and large companies (number of employees)										
500–999	–	11,861	10,116	1,745	72	58	14	165.6	174.8	126.9
1,000–4,999	–	59,812	48,227	11,584	322	217	105	186.0	222.3	110.8
5,000–9,999	–	34,374	27,463	6,911	207	130	77	165.7	211.2	89.3
10,000–24,999	–	50,746	41,835	8,910	248	176	72	204.9	237.8	124.3
25,000 or more	–	124,967	99,133	25,833	583	390	193	214.3	254.3	133.7

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 120. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
All industries	21–23, 31–33, 42–81	29,195	1,924	6.6	18,638	1,412	7.6	10,557	512	4.9
Manufacturing industries	31–33	17,408	1,180	6.8	10,260	849	8.3	7,148	331	4.6
Food	311	2,305	29	1.2	1,541	22	1.5	764	6	0.8
Beverage and tobacco products	312	614	7	1.2	276	3	1.2	338	4	1.1
Textiles, apparel, and leather products	313–316	304	6	1.9	206	5	2.5	98	1	0.5
Wood products	321	132	2	1.7	109	2	2.0	24	*	*
Paper	322	356	12	3.3	209	8	3.8	147	4	2.7
Printing and related support activities	323	189	4	2.0	164	3	2.0	25	*	1.9
Petroleum and coal products	324	D	6	D	66	4	5.4	D	2	D
Chemicals	325	2,522	234	9.3	1,439	169	11.8	1,083	64	6.0
Basic chemicals	3251	332	18	5.5	198	12	6.1	134	6	4.5
Resin, synthetic rubber, fibers, and filaments	3252	218	7	3.2	136	5	3.8	82 i	2 i	2.2
Pesticide, fertilizer, and other agricultural chemical	3253	64	D	D	45	4	9.1	19	D	D
Pharmaceuticals and medicines	3254	1,065	160	15.0	619	120	19.5	446	39	8.8
Soap, cleaning compound, and toilet preparation	3256	483	18	3.6	252	12	4.7	231	6	2.5
Paint, coating, adhesive, and other chemical	3255, 3259	359	D	D	189	16	8.4	170	D	D
Plastics and rubber products	326	666	27	4.1	467	21	4.5	200	6	3.0
Nonmetallic mineral products	327	248	13	5.3	159	9	5.5	89	5	5.1
Primary metals	331	373	8	2.2	264	7	2.8	108	1	0.8
Fabricated metal products	332	543	29	5.4	451	27	6.1	93	2	1.9
Machinery	333	1,450	86	5.9	800	65	8.2	650 i	20	3.1
Agricultural implement	33311	140	9	6.4	80	7	8.8	60	2	3.3
Semiconductor machinery	333295	37	9	23.1	24	6	27.2	13	2	15.7
Engine, turbine, and power transmission equipment	3336	134	12	8.6	78	10	12.8	56	2	2.7
Other machinery	other 333	1,140	57	5.0	618	42	6.8	522 i	15	2.8
Computer and electronic products	334	2,782	390	14.0	1,393	266	19.1	1,389	124	8.9
Communications equipment	3342	354	85	24.0	212	55	26.0	142	30	21.0
Semiconductor and other electronic components	3344	747	133	17.9	290	80	27.8	457	53	11.6
Navigational, measuring, electromedical, and control instruments	3345	954	105	11.1	605	89	14.7	348	17	4.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	155	24	15.2	122	21	17.1	33	3	8.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	402	51	12.7	289	48	16.5	113	3	2.8
Other measuring and controlling instruments	other 3345	397	31	7.8	194	20	10.4	203 i	11	5.3
Other computer and electronic products	other 334	727	66	9.1	286	42	14.5	441	25	5.6
Electrical equipment, appliances, and components	335	820	51	6.2	351	29	8.4	469	22	4.6
Transportation equipment	336	2,950	215	7.3	1,670	155	9.3	1,280	60	4.7
Automobiles, bodies, trailers, and parts	3361–3363	1,642	88	5.4	709	50	7.1	933	38	4.1
Aerospace products and parts	3364	1,002	102	10.2	766	81	10.6	237	21	8.8
Aircraft, aircraft engine, and aircraft parts	336411–336413	D	96	D	658	75	11.4	D	21	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	D	7	D	108	6	6.0	D	*	D
Military armored vehicle, tank, and tank components	336992	4	*	8.7	4	*	8.7	0	0	0.0

TABLE 120. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
Other transportation	other 336	302 i	24 i	7.9	192 i	23 i	12.0	110 i	1 i	1.0
Furniture and related products	337	205	6	2.8	171	6	3.3	33	*	0.5
Miscellaneous manufacturing	339	D	56	D	524	46	8.8	D	10	D
Medical equipment and supplies	3391	483	38	7.8	307	33	10.6	176	5	2.9
Other miscellaneous manufacturing	3399	D	19	D	217	14	6.3	D	5	D
Nonmanufacturing industries	21–23, 42–81	11,787	744	6.3	8,378	563	6.7	3,409	181	5.3
Mining, extraction, and support activities	21	380	9	2.4	232	7	3.1	148	2	1.2
Utilities	22	402	4	0.9	394	3	0.9	8	*	1.6
Construction	23	273	13	4.9	239	13	5.3	34	1	1.9
Wholesale trade	42	388	15	3.9	309	14	4.6	79	1	0.9
Retail trade	44, 45	268	5	1.9	234	4	1.9	35	1	1.8
Electronic shopping and electronic auctions	454111, 454112	D	3	D	40	3	7.7	D	*	D
Other retail trade	other 44, 45	D	2	D	194	1	0.7	D	*	D
Transportation and warehousing	48, 49	1,164	2	*	834	2	*	330	*	*
Information	51	2,498	300	12.0	1,770	208	11.7	727	92	12.6
Publishing	511	1,147	226	19.7	549	145	26.3	598	81	13.6
Newspaper, periodical, book, and directory publishers	5111	52	4	8.3	40	4	9.8	12	*	3.1
Software publishers	5112	1,095	222	20.2	509	141	27.6	586	81	13.8
Telecommunications	517	850	18 i	2.1	843	17 i	2.0	8	2	21.0
Data processing, hosting, and related services	518	182	23	12.9	128	21	16.4	54	2	4.5
Other information	other 51	319	32	10.1	251	26	10.2	68	7	9.7
Finance and insurance	52	1,795	20	1.1	1,490	16	1.1	305	5	1.5
Real estate and rental and leasing	53	43	1	3.3	40	1	2.8	3	*	8.6
Professional, scientific, and technical services	54	2,405	339	14.1	1,564	260	16.6	841	79	9.4
Architectural, engineering, and related services	5413	545	41	7.6	434	39	9.0	111	2 i	2.1
Computer systems design and related services	5415	1,017	160	15.7	601	114	19.0	416 i	46	11.0
Scientific R&D services	5417	301	106	35.1	209	80	38.4	92	25	27.6
Biotechnology R&D	541711	129	31	24.2	74	25	33.1	55	7	12.3
Physical, engineering, and life sciences (except biotechnology) R&D	541712	165	71	43.0	128	52	41.0	37	18	50.2
Social sciences and humanities R&D	541720	7	3 i	47.8	7	3 i	47.2	*	*	71.2
Other professional, scientific, and technical services	other 54	542	32	5.8	320	26	8.0	222	6	2.6
Health care services	621–623	348	10	2.8	346	10	2.8	2 i	* i	7.6
Other nonmanufacturing	55, 56, 624, 71, 72, 81	1,823	26	1.4	925	25	2.7	898 i	1	*
All companies (number of employees)	–	29,195	1,924	6.6	18,638	1,412	7.6	10,557	512	4.9
Small companies (number of employees)[a]										
5–499	–	3,918	492	12.6	3,270	441	13.5	648	51	7.9
5–99	–	1,679	295	17.6	1,518	270	17.8	162	25	15.6
5–49	–	1,021	205	20.1	957	191	19.9	64	14	22.0
5–9	–	143	40	27.8	124	35	28.4	18	4	23.8
10–24	–	347	85	24.5	326	80	24.5	21	5	24.5
25–49	–	531	80	15.1	506	75	14.9	25	5	18.5

TABLE 120. Worldwide, domestic, and foreign all and R&D employment, by industry and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide employees			Domestic employees			Foreign employees		
		All	R&D	% R&D employees	All	R&D	% R&D employees	All	R&D	% R&D employees
50–99	–	659	90	13.7	561	79	14.1	97	11	11.5
100–249	–	1,329	115	8.7	1,020	102	10.0	309	13	4.3
250–499	–	909	83	9.1	732	70	9.6	177	13	7.1
Medium and large companies (number of employees)										
500–999	–	1,033	72	6.9	745	58	7.8	288	14	4.8
1,000–4,999	–	4,739	322	6.8	2,628	217	8.3	2,112	105	5.0
5,000–9,999	–	2,877	207	7.2	1,651	130	7.9	1,226	77	6.3
10,000–24,999	–	3,997	248	6.2	2,555	176	6.9	1,442	72	5.0
25,000 or more	–	12,631	583	4.6	7,788	390	5.0	4,842	193	4.0

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 121. Worldwide R&D employment, by occupation, industry, and company size: 2010
(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	1,924	1,307	389	228
Manufacturing industries	31–33	1,180	821	222	137
Food	311	29	15	9	4
Beverage and tobacco products	312	7	5	1	*
Textiles, apparel, and leather products	313–316	6	2	2	2
Wood products	321	2	1	1	*
Paper	322	12	8	3	1
Printing and related support activities	323	4	2	1	1
Petroleum and coal products	324	6	4	1	1
Chemicals	325	234	146	51	37
Basic chemicals	3251	18	9	7	2
Resin, synthetic rubber, fibers, and filaments	3252	7	4	2	1
Pesticide, fertilizer, and other agricultural chemical	3253	D	5	2	D
Pharmaceuticals and medicines	3254	160	99	31	30
Soap, cleaning compound, and toilet preparation	3256	18	14	2	2
Paint, coating, adhesive, and other chemical	3255, 3259	D	15	7	D
Plastics and rubber products	326	27	14	7	6
Nonmetallic mineral products	327	13	7	5	2
Primary metals	331	8	3	3	3
Fabricated metal products	332	29	13	10	7
Machinery	333	86	60	17	8
Agricultural implement	33311	9	7	1	*
Semiconductor machinery	333295	9	6	2	1
Engine, turbine, and power transmission equipment	3336	12	6	5	1
Other machinery	other 333	57	41	9	6
Computer and electronic products	334	390	301	60	29
Communications equipment	3342	85	63	16	6
Semiconductor and other electronic components	3344	133	108	16	10
Navigational, measuring, electromedical, and control instruments	3345	105	76	21	8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	24	17	5	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	51	38	9	4
Other measuring and controlling instruments	other 3345	31	21	7	3
Other computer and electronic products	other 334	66	55	7	5
Electrical equipment, appliances, and components	335	51	38	10	3
Transportation equipment	336	215	161	29	25 i
Automobiles, bodies, trailers, and parts	3361–3363	88	70	12	7
Aerospace products and parts	3364	102	78	12	12 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	96	72	12	11 i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	7	6	1	*
Military armored vehicle, tank, and tank components	336992	*	*	*	* i
Other transportation	other 336	24 i	12 i	5 i	6 i
Furniture and related products	337	6	3	1	2
Miscellaneous manufacturing	339	56	37	12	7
Medical equipment and supplies	3391	38	25	7	6
Other miscellaneous manufacturing	3399	19	12	5	2
Nonmanufacturing industries	21–23, 42–81	744	486	167	91
Mining, extraction, and support activities	21	9	6	2	1
Utilities	22	4	2	1	1
Construction	23	13	9	2	2
Wholesale trade	42	15	6	6	3
Retail trade	44, 45	5	2	2	2
Electronic shopping and electronic auctions	454111, 454112	3	1	2	1
Other retail trade	other 44, 45	2	1	*	1
Transportation and warehousing	48, 49	2	1	*	1
Information	51	300	240	40	20

TABLE 121. Worldwide R&D employment, by occupation, industry, and company size: 2010
(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)
Publishing	511	226	187	21	17
Newspaper, periodical, book, and directory publishers	5111	4	3	* i	1
Software publishers	5112	222	184	21	17
Telecommunications	517	18 i	15 i	3	1
Data processing, hosting, and related services	518	23	14	8	1
Other information	other 51	32	24	7	1
Finance and insurance	52	20	10	9	2
Real estate and rental and leasing	53	1	1	*	*
Professional, scientific, and technical services	54	339	195	91	52
Architectural, engineering, and related services	5413	41	30	7	5
Computer systems design and related services	5415	160	95	50	15
Scientific R&D services	5417	106	52	26	28
Biotechnology R&D	541711	31	20	6	5
Physical, engineering, and life sciences (except biotechnology) R&D	541712	71	30	19	22
Social sciences and humanities R&D	541720	3 i	1	2 i	1
Other professional, scientific, and technical services	other 54	32	19	8	5
Health care services	621–623	10	4	3	3
Other nonmanufacturing	55, 56, 624, 71, 72, 81	26	11	11 i	5
All companies (number of employees)	–	1,924	1,307	389	228
Small companies (number of employees)[a]					
5–499	–	492	290	139	63
5–99	–	295	173	86	36
5–49	–	205	122	59	24
5–9	–	40	21	12	7
10–24	–	85	50	25	10
25–49	–	80	51	22	7
50–99	–	90	51	27	12
100–249	–	115	67	32	16
250–499	–	83	50	20	12
Medium and large companies (number of employees)					
500–999	–	72	46	18	7
1,000–4,999	–	322	224	63	35
5,000–9,999	–	207	135	35	37
10,000–24,999	–	248	164	56	28
25,000 or more	–	583	448	78	58

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 122. Worldwide, domestic, and foreign R&D scientists and engineers, by highest academic degree, industry, and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Doctorate[a]	Other education	Total	Doctorate[a]	Other education	Total	Doctorate[a]	Other education
All industries	21–23, 31–33, 42–81	1,307	155	1,152	950	123	828	357	32	324
Manufacturing industries	31–33	821	105	716	584	80	504	237	25	212
Food	311	15	2 i	13 i	12	2 i	10	4 i	* i	3 i
Beverage and tobacco products	312	5	1	5	3	*	2	3	*	3
Textiles, apparel, and leather products	313–316	2	*	2	2	*	2	*	*	*
Wood products	321	1	*	1	1	*	1	*	*	*
Paper	322	8	1	8	6	1	5	3	*	3
Printing and related support activities	323	2	*	1	1	*	1	*	*	*
Petroleum and coal products	324	4	1	3	3	1	2	1	*	1
Chemicals	325	146	39	107	109	31	78	37	8	29
Basic chemicals	3251	9	3	7	7	2	5	3	1	2
Resin, synthetic rubber, fibers, and filaments	3252	4	1	3 i	3	1	2	1 i	* i	1 i
Pesticide, fertilizer, and other agricultural chemical	3253	5	1	4	2	1	2	2	*	2
Pharmaceuticals and medicines	3254	99	28	71	78	23	55	21	5	16
Soap, cleaning compound, and toilet preparation	3256	14	2	12	9	2	7	5	1	4
Paint, coating, adhesive, and other chemical	3255, 3259	15	4	11	10	3	7	5	1	4
Plastics and rubber products	326	14	1	13	10	1	10	4	*	4
Nonmetallic mineral products	327	7	2 i	5	4	1	4	2 i	1 i	2 i
Primary metals	331	3	1	2	2	1	2	1	*	*
Fabricated metal products	332	13	1	12	12	1	11	1	*	1
Machinery	333	60	9	52	44	5	39	16	4	13
Agricultural implement	33311	7	*	7	6	*	5	2	*	2
Semiconductor machinery	333295	6	1	5	5	1	4	1	* i	1 i
Engine, turbine, and power transmission equipment	3336	6	*	5	5	*	4	1	*	1
Other machinery	other 333	41	7	34	29	3	25	12	3	9
Computer and electronic products	334	301	24	277	207	18	189	94	6 i	88
Communications equipment	3342	63	2	60 i	42	2 i	41 i	20	*	20
Semiconductor and other electronic components	3344	108	9	98	65	7	58	43	2 i	40
Navigational, measuring, electromedical, and control instruments	3345	76	8	68	64	6	58	12	2 i	10
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	17	4	13	15	3	12	2 i	1 i	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	38	2	36	36	2	34	2	*	2
Other measuring and controlling instruments	other 3345	21	2 i	19	14	2	12	7	1 i	6 i
Other computer and electronic products	other 334	55	4 i	51 i	36	3 i	33 i	19 i	1 i	18 i
Electrical equipment, appliances, and components	335	38	3	34	21	2	19	17	2 i	15
Transportation equipment	336	161	17 i	144	113	14 i	100	47	3	45
Automobiles, bodies, trailers, and parts	3361–3363	70	D	D	38	D	D	32	1	31 i
Aerospace products and parts	3364	78	9	69	63	8	55	15	1	14
Aircraft, aircraft engine, and aircraft parts	336411–336413	72	9	64	58	7	50	15	1	14
Guided missile, space vehicle, and related parts	336414, 336415, 336419	6	*	5	5	*	5	*	*	*
Military armored vehicle, tank, and tank components	336992	*	*	*	*	*	*	0	0	0

TABLE 122. Worldwide, domestic, and foreign R&D scientists and engineers, by highest academic degree, industry, and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Doctorate[a]	Other education	Total	Doctorate[a]	Other education	Total	Doctorate[a]	Other education
Other transportation	other 336	12 i	D i	D i	12 i	D i	D i	1 i	* i	*
Furniture and related products	337	3	*	3	3	*	3	*	* i	*
Miscellaneous manufacturing	339	37	4	33	30	3	27	7	*	7
Medical equipment and supplies	3391	25	3	22	22	3	19	3	*	3
Other miscellaneous manufacturing	3399	12	1	11	8	*	8	4	*	4
Nonmanufacturing industries	21–23, 42–81	486	50	436	366	43	323	120	7	112
Mining, extraction, and support activities	21	6	1	4	5	1	4	1	*	1
Utilities	22	2	*	2	2	*	2	*	*	*
Construction	23	9	*	9 i	9	*	9	1	* i	1 i
Wholesale trade	42	6	1	5	6	1	5	*	* i	*
Retail trade	44, 45	2	*	1	2	*	1	*	*	*
Electronic shopping and electronic auctions	454111, 454112	1	*	1	1	*	1	*	*	*
Other retail trade	other 44, 45	1	* i	1	1	* i	1	*	*	*
Transportation and warehousing	48, 49	1	*	1	1	*	1	0	0	0
Information	51	240	18	222	164	14	150	76	4	72
Publishing	511	187	D	D	119	10	109	68	D	D
Newspaper, periodical, book, and directory publishers	5111	3	* i	3	3	* i	3	*	0	*
Software publishers	5112	184	D	D	116	10	106	68	D	D
Telecommunications	517	15 i	1 i	14 i	14 i	1 i	13 i	1	*	1
Data processing, hosting, and related services	518	14	1	13 i	12	*	11 i	2	*	2
Other information	other 51	24	D	D	19	2	17	5	D	D
Finance and insurance	52	10	1	9	8	1	7 i	2	*	2
Real estate and rental and leasing	53	1	*	1	1	*	1	*	*	*
Professional, scientific, and technical services	54	195	25	170	157	23	135	38	3	35
Architectural, engineering, and related services	5413	30	3	27	28	2	25	2 i	* i	2 i
Computer systems design and related services	5415	95	6	89	69	5	64	26	1 i	25
Scientific R&D services	5417	52	14	38	45	12	32	7	1	6
Biotechnology R&D	541711	20	6	15	16	5	11	5	1	4
Physical, engineering, and life sciences (except biotechnology) R&D	541712	30	8	22	28	7	21	2	1	1
Social sciences and humanities R&D	541720	1	*	1	1	*	1	*	*	*
Other professional, scientific, and technical services	other 54	19	3 i	16	15	2	13	3	1 i	3 i
Health care services	621–623	4	1	3	4	1	3	* i	* i	* i
Other nonmanufacturing	55, 56, 624, 71, 72, 81	11	2	8	10	2	7	1	*	1
All companies (number of employees)	–	1,307	155	1,152	950	123	828	357	32	324
Small companies (number of employees)[b]										
5–499	–	290	41	249	259	38	221	31	3	28
5–99	–	173	26	147	159	25	134	13	1	13
5–49	–	122	20	102	115	19	96	6	1	6
5–9	–	21	5	16	20	5	15	1	*	*
10–24	–	50	8	42	48	8	40	2	*	2
25–49	–	51	7	44	47	7	41	3	*	3

TABLE 122. Worldwide, domestic, and foreign R&D scientists and engineers, by highest academic degree, industry, and company size: 2010
(Thousands)

Industry and company size	NAICS code	Worldwide			Domestic			Foreign		
		Total	Doctorate[a]	Other education	Total	Doctorate[a]	Other education	Total	Doctorate[a]	Other education
50–99	–	51	6	45	44	6	38	7 i	*	7 i
100–249	–	67	10	57	58	9	49	9	1	8
250–499	–	50	6	45	41	5	37	9	1	8
Medium and large companies (number of employees)										
500–999	–	46	5	41	37	4	33	9	1	8
1,000–4,999	–	224	24	200	148	18	130	76	6	70
5,000–9,999	–	135	13	122	89	9	79	46	4	43
10,000–24,999	–	164	23	142	121	18	104	43	5	38
25,000 or more	–	448	49	398 i	296	35	261	152	14	138

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

NAICS = 2007 North American Industry Classification System.

[a] Includes EngD, ScD; excludes MD, JD, and EdD.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 123. Domestic R&D employment, by occupation, industry, and company size: 2010
(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	1,412	950	292	170
Manufacturing industries	31–33	849	584	160	105
Food	311	22	12	7	4
Beverage and tobacco products	312	3	3	1	*
Textiles, apparel, and leather products	313–316	5	2	2	1
Wood products	321	2	1	1	*
Paper	322	8	6	2	1
Printing and related support activities	323	3	1	1	1
Petroleum and coal products	324	4	3	1	*
Chemicals	325	169	109	35	25
Basic chemicals	3251	12	7	4	2
Resin, synthetic rubber, fibers, and filaments	3252	5	3	2	1
Pesticide, fertilizer, and other agricultural chemical	3253	4	2	1	1
Pharmaceuticals and medicines	3254	120	78	22	21
Soap, cleaning compound, and toilet preparation	3256	12	9	2	1
Paint, coating, adhesive, and other chemical	3255, 3259	16	10	5	1
Plastics and rubber products	326	21	10	6	5
Nonmetallic mineral products	327	9	4	3	1
Primary metals	331	7	2	2	3
Fabricated metal products	332	27	12	9	6
Machinery	333	65	44	15	6
Agricultural implement	33311	7	6	1	*
Semiconductor machinery	333295	6	5	1	*
Engine, turbine, and power transmission equipment	3336	10	5	5	1
Other machinery	other 333	42	29	8	5
Computer and electronic products	334	266	207	40	19
Communications equipment	3342	55	42	9	4
Semiconductor and other electronic components	3344	80	65	10	5
Navigational, measuring, electromedical, and control instruments	3345	89	64	18	7
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	21	15	5	1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	48	36	8	3
Other measuring and controlling instruments	other 3345	20	14	4	2
Other computer and electronic products	other 334	42	36	3	3
Electrical equipment, appliances, and components	335	29	21	6	2
Transportation equipment	336	155	113	20	21 i
Automobiles, bodies, trailers, and parts	3361–3363	50	38	7	4
Aerospace products and parts	3364	81	63	8	11 i
Aircraft, aircraft engine, and aircraft parts	336411–336413	75	58	7	10 i
Guided missile, space vehicle, and related parts	336414, 336415, 336419	6	5	1	*
Military armored vehicle, tank, and tank components	336992	*	*	*	* i
Other transportation	other 336	23 i	12 i	5 i	6 i
Furniture and related products	337	6	3	1	2
Miscellaneous manufacturing	339	46	30	10	6
Medical equipment and supplies	3391	33	22	6	5
Other miscellaneous manufacturing	3399	14	8	4	1
Nonmanufacturing industries	21–23, 42–81	563	366	132	65
Mining, extraction, and support activities	21	7	5	2	1
Utilities	22	3	2	1	1
Construction	23	13	9	2	2
Wholesale trade	42	14	6	5	3
Retail trade	44, 45	4	2	2	1
Electronic shopping and electronic auctions	454111, 454112	3	1	1	1
Other retail trade	other 44, 45	1	1	*	1
Transportation and warehousing	48, 49	2	1	*	1

TABLE 123. Domestic R&D employment, by occupation, industry, and company size: 2010
(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)
Information	51	208	164	31	13
Publishing	511	145	119	15	10
Newspaper, periodical, book, and directory publishers	5111	4	3	* i	1
Software publishers	5112	141	116	15	10
Telecommunications	517	17 i	14 i	2	1
Data processing, hosting, and related services	518	21	12	8	1
Other information	other 51	26	19	6	1
Finance and insurance	52	16	8	7	1
Real estate and rental and leasing	53	1	1	*	*
Professional, scientific, and technical services	54	260	157	67	36
Architectural, engineering, and related services	5413	39	28	7	5
Computer systems design and related services	5415	114	69	34	11
Scientific R&D services	5417	80	45	20	15
Biotechnology R&D	541711	25	16	5	4
Physical, engineering, and life sciences (except biotechnology) R&D	541712	52	28	13	11
Social sciences and humanities R&D	541720	3 i	1	2 i	*
Other professional, scientific, and technical services	other 54	26	15	6	4
Health care services	621–623	10	4	3	3
Other nonmanufacturing	55, 56, 624, 71, 72, 81	25	10	11 i	5
All companies (number of employees)	–	1,412	950	292	170
Small companies (number of employees)[a]					
5–499	–	441	259	123	59
5–99	–	270	159	76	34
5–49	–	191	115	52	23
5–9	–	35	20	9	7
10–24	–	80	48	23	10
25–49	–	75	47	21	7
50–99	–	79	44	24	11
100–249	–	102	58	29	14
250–499	–	70	41	18	11
Medium and large companies (number of employees)					
500–999	–	58	37	15	5
1,000–4,999	–	217	148	44	25
5,000–9,999	–	130	89	21	21
10,000–24,999	–	176	121	36	18
25,000 or more	–	390	296	52	42

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 124. Domestic full-time equivalent R&D scientists and engineers, all and federally funded, by industry and company size: 2010 (corrected November 2013)

(Thousands)

Industry and company size	NAICS code	Total	Federally funded
All industries	21–23, 31–33, 42–81	804	74 i
Manufacturing industries	31–33	509	42 i
Food	311	9 i	*
Beverage and tobacco products	312	1	0
Textiles, apparel, and leather products	313–316	1	*
Wood products	321	1	0
Paper	322	5	* i
Printing and related support activities	323	1	*
Petroleum and coal products	324	2 i	*
Chemicals	325	102	1
Basic chemicals	3251	6	*
Resin, synthetic rubber, fibers, and filaments	3252	3	*
Pesticide, fertilizer, and other agricultural chemical	3253	2	*
Pharmaceuticals and medicines	3254	73	1
Soap, cleaning compound, and toilet preparation	3256	9	*
Paint, coating, adhesive, and other chemical	3255, 3259	10	*
Plastics and rubber products	326	8	1 i
Nonmetallic mineral products	327	3	*
Primary metals	331	2	* i
Fabricated metal products	332	9	*
Machinery	333	36	*
Agricultural implement	33311	5	* i
Semiconductor machinery	333295	4	*
Engine, turbine, and power transmission equipment	3336	4	* i
Other machinery	other 333	23	*
Computer and electronic products	334	193	19 i
Communications equipment	3342	39 i	3 i
Semiconductor and other electronic components	3344	60	1
Navigational, measuring, electromedical, and control instruments	3345	60	14 i
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	14	*
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	34 i	13 i
Other measuring and controlling instruments	other 3345	12	*
Other computer and electronic products	other 334	34	*
Electrical equipment, appliances, and components	335	19 i	*
Transportation equipment	336	88	19
Automobiles, bodies, trailers, and parts	3361–3363	36	1
Aerospace products and parts	3364	40	16
Aircraft, aircraft engine, and aircraft parts	336411–336413	35	12
Guided missile, space vehicle, and related parts	336414, 336415, 336419	5	4 i
Military armored vehicle, tank, and tank component	336992	*	0
Other transportation	other 336	11 i	3 i
Furniture and related products	337	2	0
Miscellaneous manufacturing	339	25	1
Medical equipment and supplies	3391	19	* i
Other miscellaneous manufacturing	3399	6	*
Nonmanufacturing industries	21–23, 42–81	296	32
Mining, extraction, and support activities	21	4	*
Utilities	22	1	*
Construction	23	7	*
Wholesale trade	42	4 i	*
Retail trade	44, 45	1	0
Electronic shopping and electronic auctions	454111, 454112	1	0
Other retail trade	other 44, 45	*	0
Transportation and warehousing	48, 49	1	*
Information	51	139 i	1 i

TABLE 124. Domestic full-time equivalent R&D scientists and engineers, all and federally funded, by industry and company size: 2010 (corrected November 2013)

(Thousands)

Industry and company size	NAICS code	Total	Federally funded
Publishing	511	108	1 i
Newspaper, periodical, book, and directory publishers	5111	3	0
Software publishers	5112	105	1 i
Telecommunications	517	8 i	*
Data processing, hosting, and related services	518	11 i	* i
Other information	other 51	13 i	*
Finance and insurance	52	7	0
Real estate and rental and leasing	53	1	0
Professional, scientific, and technical services	54	121	31
Architectural, engineering, and related services	5413	23	8
Computer systems design and related services	5415	50	3
Scientific R&D services	5417	35	16
Biotechnology R&D	541711	10	2
Physical, engineering, and life sciences (except biotechnology) R&D	541712	24	13
Social sciences and humanities R&D	541720	1	*
Other professional, scientific, and technical services	other 54	13	4
Health care services	621–623	2	* i
Other nonmanufacturing	55, 56, 624, 71, 72, 81	8 i	*
All companies (number of employees)	–	804	74 i
Small companies (number of employees)[a]			
5–499	–	208	24
5–99	–	125	18
5–49	–	89	14
5–9	–	13	3
10–24	–	38	7
25–49	–	38	4
50–99	–	36	4
100–249	–	49	4
250–499	–	35	2
Medium and large companies (number of employees)			
500–999	–	32	2
1,000–4,999	–	126	5 i
5,000–9,999	–	71	8 i
10,000–24,999	–	112	16 i
25,000 or more	–	254	20 i

* = amount < $500,000; i = value > 50% of estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 125. Foreign R&D employment, by occupation, industry, and company size: 2010
(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	512	357	97	58
Manufacturing industries	31–33	331	237	62	32
Food	311	6	4 i	2	*
Beverage and tobacco products	312	4	3	1	*
Textiles, apparel, and leather products	313–316	1	*	*	*
Wood products	321	*	*	*	*
Paper	322	4	3	1	*
Printing and related support activities	323	*	*	*	*
Petroleum and coal products	324	2	1	1	1
Chemicals	325	64	37	16	12
Basic chemicals	3251	6	3	3	1
Resin, synthetic rubber, fibers, and filaments	3252	2 i	1 i	1 i	* i
Pesticide, fertilizer, and other agricultural chemical	3253	D	2	1	D
Pharmaceuticals and medicines	3254	39	21	9	9
Soap, cleaning compound, and toilet preparation	3256	6	5	*	1
Paint, coating, adhesive, and other chemical	3255, 3259	D	5	3	D
Plastics and rubber products	326	6	4	1	1
Nonmetallic mineral products	327	5	2 i	2	*
Primary metals	331	1	1	*	*
Fabricated metal products	332	2	1	*	*
Machinery	333	20	16	2	2
Agricultural implement	33311	2	2	*	*
Semiconductor machinery	333295	2	1	*	*
Engine, turbine, and power transmission equipment	3336	2	1	*	*
Other machinery	other 333	15	12	1 i	1
Computer and electronic products	334	124	94	20	10
Communications equipment	3342	30	20	8	2
Semiconductor and other electronic components	3344	53	43	5	5
Navigational, measuring, electromedical, and control instruments	3345	17	12	4	1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3	2 i	*	* i
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3	2	1	*
Other measuring and controlling instruments	other 3345	11	7	3 i	1 i
Other computer and electronic products	other 334	25	19 i	4	2
Electrical equipment, appliances, and components	335	22	17	4 i	1 i
Transportation equipment	336	60	47	9	4
Automobiles, bodies, trailers, and parts	3361–3363	38	32	4 i	2 i
Aerospace products and parts	3364	21	15	4	1
Aircraft, aircraft engine, and aircraft parts	336411–336413	21	15	4	1
Guided missile, space vehicle, and related parts	336414, 336415, 336419	*	*	*	*
Military armored vehicle, tank, and tank components	336992	0	0	0	0
Other transportation	other 336	1 i	1 i	* i	* i

TABLE 125. Foreign R&D employment, by occupation, industry, and company size: 2010
(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)
Furniture and related products	337	*	*	*	*
Miscellaneous manufacturing	339	10	7	2	1
Medical equipment and supplies	3391	5	3	1	1
Other miscellaneous manufacturing	3399	5	4	1	*
Nonmanufacturing industries	21–23, 42–81	181	120	35	26
Mining, extraction, and support activities	21	2	1	*	* i
Utilities	22	*	*	*	*
Construction	23	1	1	0	0
Wholesale trade	42	1	*	*	*
Retail trade	44, 45	1	*	*	*
Electronic shopping and electronic auctions	454111, 454112	*	*	*	*
Other retail trade	other 44, 45	*	*	*	*
Transportation and warehousing	48, 49	*	0	*	*
Information	51	92	76	8	8
Publishing	511	81	68	6	7
Newspaper, periodical, book, and directory publishers	5111	*	*	*	*
Software publishers	5112	81	68	6	7
Telecommunications	517	2	1	1	*
Data processing, hosting, and related services	518	2	2	1	*
Other information	other 51	7	5	1	*
Finance and insurance	52	5	2	2	1
Real estate and rental and leasing	53	*	*	*	*
Professional, scientific, and technical services	54	79	38	24	17
Architectural, engineering, and related services	5413	2 i	2 i	* i	* i
Computer systems design and related services	5415	46	26	16	4
Scientific R&D services	5417	25	7	6	12
Biotechnology R&D	541711	7	5	1	1
Physical, engineering, and life sciences (except biotechnology) R&D	541712	18	2	5	11
Social sciences and humanities R&D	541720	*	*	* i	*
Other professional, scientific, and technical services	other 54	6	3	2 i	1 i
Health care services	621–623	* i	* i	* i	* i
Other nonmanufacturing	55, 56, 624, 71, 72, 81	1	1	* i	*
All companies (number of employees)	–	512	357	97	58
Small companies (number of employees)[a]					
5–499	–	51	31	16	4
5–99	–	25	13	10	1
5–49	–	14	6	7	1
5–9	–	4	1	4	*
10–24	–	5	2	2	*
25–49	–	5	3	1	*

TABLE 125. Foreign R&D employment, by occupation, industry, and company size: 2010

(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)
50–99	–	11	7 i	3	1 i
100–249	–	13	9	3	2
250–499	–	13	9	2	1
Medium and large companies (number of employees)					
500–999	–	14	9	3	2
1,000–4,999	–	105	76	19	10
5,000–9,999	–	77	46	15	16
10,000–24,999	–	72	43	19	10
25,000 or more	–	193	152	26	16

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 126. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes, by industry and company size: 2008–10
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,231,009	182,887	1,025,710	126,143	1,071,453	67,508	1,131,875	96,233	1,100,079	128,585	1,065,879	51,044	1,147,357	45,605	1,149,662	100,835	1,095,685
Manufacturing industries	31–33	109,091	33,370	74,159	25,382	80,729	22,066	84,330	11,073	94,174	22,986	83,639	17,566	89,149	6,287	100,077	13,621	92,919
Food	311	8,339	2,857	5,420	2,047	6,204	1,970	6,291	473	7,598	1,771	6,470	1,243	6,997	310	7,676	1,191	7,046
Beverage and tobacco products	312	1,264	411	852	259	1,003	259	1,003	126	1,086	284	968	141	1,120	110	1,141	205	1,056
Textiles, apparel, and leather products	313–316	4,745	1,316	3,331	1,100	3,482	1,057	3,581	420	4,125	762	3,806	533	4,031	333	4,221	513	4,048
Wood products	321	4,815	800	3,962	441	4,208	283	4,412	301	4,347	550	4,144	441	4,253	127	4,567	216	4,478
Paper	322	1,673	338	1,314	192	1,401	173	1,419	62	1,527	249	1,401	184	1,465	45	1,606	124	1,527
Printing and related support activities	323	9,348	2,390	6,697	1,501	7,373	685	8,310	1,282	7,609	1,965	7,072	1,514	7,523	332	8,649	806	8,126
Petroleum and coal products	324	306	111	193	103	201	98	206	58	243	91	213	70	233	34	271	36	269
Chemicals	325	5,096	2,398	2,611	2,069	2,890	1,785	3,183	898	4,010	1,471	3,516	1,095	3,891	390	4,594	826	4,160
Basic chemicals	3251	719	268	439	226	472	212	485	58	636	189	515	161	543	37	669	91	616
Resin, synthetic rubber fibers, and filaments	3252	486	109	352	89	370	89	370	25	431	69	390	60	399	21	439	46	413
Pesticide, fertilizer, and other agricultural chemical	3253	171	88	80	28	140	26	142	18	150	83	85	76	92	13	156	23	145
Pharmaceuticals and medicines	3254	1,681	947	707	830	819	570	1,077	467	1,182	506	1,144	382	1,269	159	1,491	252	1,397
Soap, cleaning compound, and toilet preparation	3256	729	373	344	335	352	332	367	159	509	223	489	174	538	93	618	158	554
Paint, coating, adhesive, and other chemical	3255, 3259	1,310	615	689	561	737	557	741	172	1,101	402	892	243	1,050	69	1,222	257	1,035
Plastics and rubber products	326	5,210	1,756	3,421	1,346	3,794	1,196	3,944	672	4,439	1,494	3,656	1,173	3,977	465	4,683	928	4,221
Nonmetallic mineral products	327	4,521	1,120	3,321	812	3,575	741	3,668	332	4,032	661	3,736	532	3,905	211	4,217	374	4,031
Primary metals	331	1,860	433	1,421	236	1,602	174	1,665	114	1,724	397	1,457	314	1,540	59	1,789	188	1,665
Fabricated metal products	332	23,708	5,161	18,300	3,229	20,053	2,586	20,695	1,874	21,307	4,139	19,184	3,312	19,972	1,283	22,097	2,738	20,591
Machinery	333	10,731	3,899	6,689	3,265	7,121	3,061	7,343	1,102	9,171	2,573	7,892	2,015	8,373	752	9,613	1,559	8,867
Agricultural implement	33311	548	270	275	257	282	249	295	113	418	107	434	85	457	40	504	71	470

TABLE 126. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes, by industry and company size: 2008–10
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Semiconductor machinery	333295	101	71	29	69	31	64	35	21	62	49	48	44	53	8	89	20	77
Engine, turbine, and power transmission equipment	3336	611	274	330	252	345	247	355	88	504	226	371	118	480	76	521	200	398
Other machinery	other 333	9,471	3,284	6,056	2,688	6,464	2,501	6,658	881	8,186	2,190	7,038	1,768	7,383	628	8,498	1,268	7,922
Computer and electronic products	334	5,524	2,810	2,660	2,629	2,773	2,469	2,933	1,024	4,276	1,616	3,819	1,155	4,291	693	4,740	1,064	4,370
Communications equipment	3342	607	341	258	335	264	334	265	132	430	128	471	99	501	59	539	101	497
Semiconductor and other electronic components	3344	1,828	812	993	716	1,039	673	1,082	267	1,447	528	1,267	347	1,451	211	1,573	331	1,463
Navigational, measuring, electromedical, and control instruments	3345	1,898	1,063	819	1,002	864	964	903	319	1,535	567	1,295	463	1,406	142	1,728	309	1,553
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	250	142	107	134	114	134	114	31	217	72	175	65	182	26	221	65	182
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	251	201	46	199	48	171	76	58	189	114	132	105	141	21	225	36	210
Other measuring and controlling instruments	other 3345	1,396	720	667	669	702	658	712	230	1,129	381	988	293	1,084	95	1,282	209	1,161
Other computer and electronic products	other 334	1,191	593	590	576	606	499	683	306	862	393	787	246	933	280	900	323	856
Electrical equipment, appliances, and components	335	2,695	1,426	1,202	1,275	1,330	1,267	1,349	483	2,080	875	1,736	644	1,980	157	2,452	511	2,111
Transportation equipment	336	4,049	1,669	2,305	1,468	2,468	1,317	2,614	616	3,253	1,134	2,755	908	3,003	174	3,745	729	3,166
Automobiles, bodies, trailers, and parts	3361–3363	2,554	990	1,528	894	1,618	827	1,685	288	2,152	614	1,842	487	1,988	92	2,382	398	2,056

TABLE 126. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes, by industry and company size: 2008–10
(Number)

					Product						Process							
			Companies that introduced a new or significantly improved product or process		Companies that introduced new or significantly improved goods or services		New goods		New services		Companies that introduced any new or significantly improved process		New manufacturing or production methods		New logistics, delivery, or distribution methods		New support activities	
Industry	NAICS code	Companies[a]	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Aerospace products and parts	3364	663	424	211	352	264	283	333	230	385	347	289	291	345	38	598	243	393
Aircraft, aircraft engine, and aircraft parts	336411–336413	530	302	202	233	252	164	321	123	361	233	272	182	323	D	468	132	372
Guided missile, space vehicle, and related parts	336414, 336415, 336419	133	122	9	119	12	119	12	107	24	114	17	109	22	D	129	111	20
Military armored vehicle, tank, and tank components	336992	12	8	4	6	6	6	6	D	11	5	7	4	7	3	9	3	8
Other transportation	other 336	820	248	561	217	580	200	589	D	705	168	617	126	663	41	756	86	709
Furniture and related products	337	5,630	1,038	4,544	803	4,715	650	4,920	345	5,128	753	4,776	647	4,933	293	5,289	396	5,134
Miscellaneous manufacturing	339	9,577	3,435	5,915	2,606	6,535	2,297	6,794	888	8,222	2,202	7,039	1,646	7,662	520	8,726	1,217	8,052
Medical equipment and supplies	3391	3,658	1,417	2,178	1,115	2,427	1,005	2,537	329	3,193	820	2,750	651	2,941	193	3,390	409	3,152
Other miscellaneous manufacturing	3399	5,919	2,018	3,737	1,491	4,107	1,292	4,257	559	5,028	1,382	4,289	995	4,721	327	5,337	809	4,900
Nonmanufacturing industries	21–23, 42–81	1,121,918	149,517	951,550	100,761	990,723	45,441	1,047,545	85,160	1,005,905	105,600	982,240	33,478	1,058,208	39,318	1,049,584	87,214	1,002,766
Mining, extraction, and support activities	21	5,873	566	5,157	332	5,391	156	5,567	282	5,441	445	5,236	322	5,359	89	5,593	217	5,464
Utilities	22	925	110	809	48	871	13	891	40	877	86	818	12	892	20	884	81	823
Construction	23	127,079	10,862	114,410	6,835	117,135	2,970	121,749	5,735	118,484	8,222	115,546	4,204	120,565	2,576	121,442	5,790	118,730
Wholesale trade	42	82,806	14,422	67,024	8,788	71,479	6,799	74,067	5,338	74,347	10,269	70,552	2,970	78,054	4,567	76,391	7,916	72,841
Retail trade	44, 45	154,845	18,469	131,335	10,424	137,937	6,786	141,997	8,076	140,333	13,873	133,981	3,346	144,990	5,058	143,106	11,588	136,465
Electronic shopping and electronic auctions	454111, 454112	2,368	644	1,661	351	1,912	204	2,082	230	2,032	519	1,786	125	2,152	233	2,034	443	1,863
Other retail trade	other 44, 45	152,477	17,825	129,673	10,073	136,025	6,583	139,916	7,845	138,302	13,353	132,195	3,222	142,837	4,826	141,073	11,146	134,603
Transportation and warehousing	48, 49	35,331	5,443	29,386	3,130	31,449	275	34,554	3,128	31,451	4,921	29,656	1,054	33,773	3,059	31,518	3,813	30,764
Information	51	17,252	5,283	11,633	4,225	12,564	2,405	14,350	3,326	13,335	3,194	13,630	1,132	15,629	1,655	15,119	2,315	14,523
Publishing	511	7,217	2,540	4,550	2,155	4,925	1,643	5,427	1,394	5,631	1,331	5,695	503	6,521	572	6,465	909	6,131

TABLE 126. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes, by industry and company size: 2008–10
(Number)

Industry	NAICS code	Companies[a]	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Newspaper, periodical, book, and directory publishers	5111	5,109	1,037	3,967	694	4,301	360	4,636	557	4,398	716	4,226	296	4,647	262	4,700	483	4,480
Software publishers	5112	2,108	1,503	583	1,461	624	1,283	792	837	1,233	614	1,469	208	1,874	310	1,765	426	1,651
Telecommunications	517	2,218	608	1,559	337	1,776	117	2,046	280	1,784	372	1,795	20	2,147	231	1,936	159	2,008
Data processing, hosting, and related services	518	1,949	839	1,080	743	1,176	364	1,531	706	1,211	536	1,381	202	1,714	291	1,625	479	1,438
Other information	other 51	5,868	1,296	4,444	990	4,687	282	5,346	945	4,709	955	4,759	408	5,246	561	5,092	768	4,946
Finance and insurance	52	43,136	6,046	36,330	4,071	37,804	1,132	40,991	3,817	38,059	4,680	37,194	525	41,599	1,943	39,931	3,760	38,112
Real estate and rental and leasing	53	35,945	3,427	32,013	2,265	32,675	765	34,674	1,753	32,937	2,172	33,018	11	35,179	503	34,686	2,163	33,028
Professional, scientific, and technical services	54	135,556	26,965	107,398	19,762	113,176	8,648	123,525	17,160	115,771	17,822	115,453	5,467	128,474	5,595	128,098	15,399	118,165
Architectural, engineering, and related services	5413	23,099	5,224	17,666	3,910	18,706	1,959	20,539	3,271	19,307	3,165	19,231	1,206	21,370	723	21,857	2,634	19,862
Computer systems design and related services	5415	16,546	7,443	8,919	6,573	9,671	3,792	12,356	5,409	10,870	4,647	11,662	1,568	14,739	2,017	14,313	3,846	12,413
Scientific R&D services	5417	2,196	866	1,286	737	1,385	600	1,522	365	1,754	533	1,585	380	1,724	205	1,887	337	1,770
Biotechnology R&D	541711	679	290	383	232	437	184	486	161	506	201	470	147	513	74	586	115	556
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,361	528	795	463	835	400	899	177	1,121	304	988	D	1,057	108	1,167	207	1,073
Social sciences and humanities R&D	541720	156	47	108	41	113	16	138	28	127	28	128	D	153	22	133	15	141
Other professional, scientific, and technical services	other 54	93,715	13,432	79,528	8,542	83,414	2,297	89,108	8,115	83,840	9,477	82,976	2,313	90,641	2,649	90,041	8,583	84,121
Health care services	621–623	158,498	24,437	131,236	16,502	138,170	4,700	149,971	15,491	138,932	17,742	134,878	4,948	147,175	6,001	146,621	16,233	136,637
Other nonmanufacturing	55, 56, 624, 71, 72, 81	324,673	33,487	284,820	24,378	292,072	10,792	305,210	21,013	295,937	22,176	292,278	9,486	306,519	8,252	306,195	17,940	297,213

TABLE 126. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes, by industry and company size: 2008–10
(Number)

					Product						Process							
			Companies that introduced a new or significantly improved product or process		Companies that introduced new or significantly improved goods or services		New goods		New services		Companies that introduced any new or significantly improved process		New manufacturing or production methods		New logistics, delivery, or distribution methods		New support activities	
Industry	NAICS code	Companies[a]	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All companies (number of employees)	–	1,231,009	182,887	1,025,710	126,143	1,071,453	67,508	1,131,875	96,233	1,100,079	128,585	1,065,879	51,044	1,147,357	45,605	1,149,662	100,835	1,095,685
Small companies (number of employees)[b]																		
5–499	–	1,221,832	180,475	1,019,190	124,254	1,064,477	66,249	1,124,218	95,072	1,092,388	126,838	1,058,817	50,012	1,139,475	44,850	1,141,563	99,508	1,088,157
5–99	–	1,169,111	168,754	979,420	115,939	1,021,420	61,627	1,077,524	89,679	1,046,499	118,089	1,016,680	46,485	1,092,395	41,715	1,093,818	92,380	1,044,395
5–49	–	1,092,859	154,272	918,712	105,998	956,644	55,257	1,009,183	83,725	977,868	108,115	952,186	41,954	1,022,190	38,463	1,022,351	85,358	976,955
5–9	–	487,889	58,684	418,990	40,492	432,575	20,902	453,083	33,225	439,840	38,634	432,380	14,671	458,265	13,786	457,774	31,643	440,695
10–24	–	445,712	68,907	369,560	46,026	387,845	24,452	410,535	35,773	397,342	50,433	383,671	19,467	415,937	17,731	416,393	39,431	395,057
25–49	–	159,259	26,682	130,162	19,480	136,224	9,904	145,564	14,728	140,685	19,049	136,136	7,815	147,988	6,946	148,184	14,285	141,203
50–99	–	76,253	14,482	60,708	9,941	64,776	6,370	68,341	5,953	68,631	9,973	64,494	4,531	70,206	3,253	71,467	7,022	67,440
100–249	–	40,254	8,734	30,598	5,826	33,418	3,169	36,071	3,930	35,234	6,804	31,941	2,429	36,033	2,382	36,359	5,583	33,163
250–499	–	12,467	2,987	9,172	2,489	9,639	1,453	10,623	1,464	10,655	1,945	10,196	1,097	11,047	753	11,387	1,544	10,598
Medium and large companies (number of employees)																		
500–999	–	4,322	1,156	3,080	923	3,259	464	3,766	621	3,554	723	3,456	406	3,826	209	4,017	528	3,650
1,000–4,999	–	3,920	886	2,923	690	3,114	546	3,258	369	3,428	706	3,040	433	3,367	379	3,367	529	3,266
5,000–9,999	–	444	191	232	119	302	107	314	65	356	170	252	86	337	69	353	146	276
10,000–24,999	–	294	97	178	87	188	80	195	52	222	78	196	58	215	51	222	64	209
25,000 or more	–	198	81	106	71	113	61	123	53	131	70	117	49	138	47	139	60	126

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

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

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

NAICS = 2007 North American Industry Classification System.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2010.

TABLE 127. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2008–10
(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All industries	21–23, 31–33, 42–81	1,231,009	14.9	83.3	10.2	87.0	5.5	91.9	7.8	89.4	10.4	86.6	4.1	93.2	3.7	93.4	8.2	89.0
Manufacturing industries	31–33	109,091	30.6	68.0	23.3	74.0	20.2	77.3	10.2	86.3	21.1	76.7	16.1	81.7	5.8	91.7	12.5	85.2
Food	311	8,339	34.3	65.0	24.5	74.4	23.6	75.4	5.7	91.1	21.2	77.6	14.9	83.9	3.7	92.0	14.3	84.5
Beverage and tobacco products	312	1,264	32.5	67.4	20.5	79.4	20.5	79.4	9.9	85.9	22.5	76.6	11.1	88.6	8.7	90.3	16.2	83.6
Textiles, apparel, and leather products	313–316	4,745	27.7	70.2	23.2	73.4	22.3	75.5	8.9	86.9	16.1	80.2	11.2	85.0	7.0	89.0	10.8	85.3
Wood products	321	4,815	16.6	82.3	9.2	87.4	5.9	91.6	6.3	90.3	11.4	86.1	9.2	88.3	2.6	94.8	4.5	93.0
Paper	322	1,673	20.2	78.6	11.5	83.8	10.3	84.8	3.7	91.3	14.9	83.7	11.0	87.6	2.7	96.0	7.4	91.3
Printing and related support activities	323	9,348	25.6	71.6	16.1	78.9	7.3	88.9	13.7	81.4	21.0	75.7	16.2	80.5	3.6	92.5	8.6	86.9
Petroleum and coal products	324	306	36.3	63.0	33.7	65.6	32.1	67.2	19.0	79.2	29.6	69.5	22.9	76.1	11.0	88.3	11.7	87.7
Chemicals	325	5,096	47.1	51.2	40.6	56.7	35.0	62.5	17.6	78.7	28.9	69.0	21.5	76.4	7.7	90.1	16.2	81.6
Basic chemicals	3251	719	37.3	61.1	31.4	65.6	29.5	67.5	8.0	88.5	26.3	71.6	22.4	75.5	5.2	93.0	12.6	85.6
Resin, synthetic rubber, fibers, and filaments	3252	486	22.3	72.4	18.2	76.1	18.2	76.1	5.0	88.7	14.1	80.4	12.3	82.2	4.2	90.3	9.6	85.0
Pesticide, fertilizer, and other agricultural chemical	3253	171	51.3	46.9	16.2	82.0	15.0	83.2	10.5	87.7	48.4	49.8	44.2	53.5	7.4	90.8	13.3	84.9
Pharmaceuticals and medicines	3254	1,681	56.3	42.0	49.4	48.8	33.9	64.1	27.8	70.4	30.1	68.1	22.7	75.5	9.4	88.7	15.0	83.2
Soap, cleaning compound, and toilet preparation	3256	729	51.1	47.2	46.0	48.3	45.5	50.4	21.8	69.8	30.5	67.1	23.8	73.8	12.7	84.8	21.7	75.9
Paint, coating, adhesive, and other chemical	3255, 3259	1,310	46.9	52.6	42.8	56.2	42.5	56.6	13.1	84.0	30.7	68.1	18.6	80.2	5.3	93.3	19.6	79.0
Plastics and rubber products	326	5,210	33.7	65.7	25.8	72.8	22.9	75.7	12.9	85.2	28.7	70.2	22.5	76.3	8.9	89.9	17.8	81.0
Nonmetallic mineral products	327	4,521	24.8	73.5	18.0	79.1	16.4	81.1	7.3	89.2	14.6	82.6	11.8	86.4	4.7	93.3	8.3	89.2
Primary metals	331	1,860	23.3	76.4	12.7	86.1	9.3	89.5	6.2	92.7	21.3	78.3	16.9	82.8	3.2	96.2	10.1	89.5
Fabricated metal products	332	23,708	21.8	77.2	13.6	84.6	10.9	87.3	7.9	89.9	17.5	80.9	14.0	84.2	5.4	93.2	11.5	86.9
Machinery	333	10,731	36.3	62.3	30.4	66.4	28.5	68.4	10.3	85.5	24.0	73.5	18.8	78.0	7.0	89.6	14.5	82.6
Agricultural implement	33311	548	49.3	50.1	46.8	51.4	45.4	53.8	20.6	76.3	19.6	79.3	15.5	83.3	7.2	92.0	13.0	85.8
Semiconductor machinery	333295	101	69.8	28.2	67.8	30.2	62.9	34.2	20.8	61.7	48.6	47.4	43.2	52.8	7.9	88.1	20.3	75.8
Engine, turbine, and power transmission equipment	3336	611	44.9	54.0	41.2	56.4	40.4	58.2	14.3	82.5	37.0	60.7	19.3	78.5	12.5	85.3	32.7	65.1
Other machinery	other 333	9,471	34.7	63.9	28.4	68.3	26.4	70.3	9.3	86.4	23.1	74.3	18.7	78.0	6.6	89.7	13.4	83.6
Computer and electronic products	334	5,524	50.9	48.2	47.6	50.2	44.7	53.1	18.5	77.4	29.3	69.1	20.9	77.7	12.5	85.8	19.3	79.1
Communications equipment	3342	607	56.2	42.5	55.2	43.5	55.0	43.7	21.8	70.9	21.1	77.6	16.2	82.5	9.8	88.8	16.6	81.9
Semiconductor and other electronic components	3344	1,828	44.4	54.3	39.2	56.8	36.8	59.2	14.6	79.2	28.9	69.3	19.0	79.4	11.5	86.0	18.1	80.0
Navigational, measuring, electromedical, and control instruments	3345	1,898	56.0	43.2	52.8	45.6	50.8	47.6	16.8	80.9	29.9	68.2	24.4	74.1	7.5	91.1	16.3	81.9
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	250	56.7	42.5	53.7	45.5	53.7	45.5	12.4	86.8	28.8	69.8	26.0	72.6	10.3	88.2	25.9	72.6

TABLE 127. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2008–10
(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	251	80.0	18.4	79.2	19.2	68.1	30.3	23.0	75.4	45.4	52.6	41.8	56.2	8.5	89.5	14.2	83.8
Other measuring and controlling instruments	other 3345	1,396	51.6	47.8	47.9	50.3	47.2	51.0	16.5	80.8	27.3	70.8	21.0	77.6	6.8	91.9	15.0	83.2
Other computer and electronic products	other 334	1,191	49.8	49.6	48.4	50.9	41.9	57.4	25.7	72.4	33.0	66.1	20.7	78.3	23.6	75.6	27.1	71.9
Electrical equipment, appliances, and components	335	2,695	52.9	44.6	47.3	49.4	47.0	50.1	17.9	77.2	32.5	64.4	23.9	73.5	5.8	91.0	19.0	78.3
Transportation equipment	336	4,049	41.2	56.9	36.3	61.0	32.5	64.5	15.2	80.3	28.0	68.0	22.4	74.1	4.3	92.5	18.0	78.2
Automobiles, bodies, trailers, and parts	3361–3363	2,554	38.8	59.8	35.0	63.3	32.4	66.0	11.3	84.3	24.1	72.1	19.1	77.8	3.6	93.3	15.6	80.5
Aerospace products and parts	3364	663	63.9	31.9	53.1	39.8	42.7	50.2	34.7	58.0	52.3	43.5	43.8	52.0	5.7	90.1	36.6	59.2
Aircraft, aircraft engine, and aircraft parts	336411–336413	530	56.9	38.2	43.9	47.5	30.9	60.5	23.2	68.1	43.9	51.2	34.3	60.9	D	88.4	24.9	70.3
Guided missile, space vehicle, and related parts	336414, 336415, 336419	133	91.7	6.8	89.5	9.0	89.5	9.0	80.4	18.1	85.6	12.9	81.9	16.6	D	97.0	83.4	15.1
Military armored vehicle, tank, and tank components	336992	12	63.4	36.6	46.9	53.1	46.9	53.1	D	91.7	41.3	58.7	33.0	58.7	24.8	75.2	24.8	67.0
Other transportation	other 336	820	30.2	68.4	26.4	70.7	24.4	71.8	D	85.9	20.5	75.2	15.4	80.8	5.0	92.2	10.4	86.4
Furniture and related products	337	5,630	18.4	80.7	14.3	83.7	11.5	87.4	6.1	91.1	13.4	84.8	11.5	87.6	5.2	93.9	7.0	91.2
Miscellaneous manufacturing	339	9,577	35.9	61.8	27.2	68.2	24.0	70.9	9.3	85.8	23.0	73.5	17.2	80.0	5.4	91.1	12.7	84.1
Medical equipment and supplies	3391	3,658	38.7	59.5	30.5	66.3	27.5	69.4	9.0	87.3	22.4	75.2	17.8	80.4	5.3	92.7	11.2	86.2
Other miscellaneous manufacturing	3399	5,919	34.1	63.1	25.2	69.4	21.8	71.9	9.4	85.0	23.4	72.5	16.8	79.8	5.5	90.2	13.7	82.8
Nonmanufacturing industries	21–23, 42–81	1,121,918	13.3	84.8	9.0	88.3	4.1	93.4	7.6	89.7	9.4	87.6	3.0	94.3	3.5	93.6	7.8	89.4
Mining, extraction, and support activities	21	5,873	9.6	87.8	5.7	91.8	2.7	94.8	4.8	92.6	7.6	89.1	5.5	91.3	1.5	95.2	3.7	93.0
Utilities	22	925	11.8	87.5	5.2	94.2	1.4	96.3	4.4	94.8	9.3	88.4	1.3	96.4	2.1	95.6	8.7	89.0
Construction	23	127,079	8.5	90.0	5.4	92.2	2.3	95.8	4.5	93.2	6.5	90.9	3.3	94.9	2.0	95.6	4.6	93.4
Wholesale trade	42	82,806	17.4	80.9	10.6	86.3	8.2	89.4	6.4	89.8	12.4	85.2	3.6	94.3	5.5	92.3	9.6	88.0
Retail trade	44, 45	154,845	11.9	84.8	6.7	89.1	4.4	91.7	5.2	90.6	9.0	86.5	2.2	93.6	3.3	92.4	7.5	88.1
Electronic shopping and electronic auctions	454111, 454112	2,368	27.2	70.1	14.8	80.7	8.6	87.9	9.7	85.8	21.9	75.4	5.3	90.9	9.8	85.9	18.7	78.7
Other retail trade	other 44, 45	152,477	11.7	85.0	6.6	89.2	4.3	91.8	5.1	90.7	8.8	86.7	2.1	93.7	3.2	92.5	7.3	88.3
Transportation and warehousing	48, 49	35,331	15.4	83.2	8.9	89.0	0.8	97.8	8.9	89.0	13.9	83.9	3.0	95.6	8.7	89.2	10.8	87.1
Information	51	17,252	30.6	67.4	24.5	72.8	13.9	83.2	19.3	77.3	18.5	79.0	6.6	90.6	9.6	87.6	13.4	84.2
Publishing	511	7,217	35.2	63.0	29.9	68.2	22.8	75.2	19.3	78.0	18.4	78.9	7.0	90.4	7.9	89.6	12.6	85.0
Newspaper, periodical, book, and directory publishers	5111	5,109	20.3	77.6	13.6	84.2	7.0	90.7	10.9	86.1	14.0	82.7	5.8	91.0	5.1	92.0	9.5	87.7
Software publishers	5112	2,108	71.3	27.7	69.3	29.6	60.9	37.6	39.7	58.5	29.1	69.7	9.8	88.9	14.7	83.7	20.2	78.3

TABLE 127. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2008–10
(Percent)

Industry	NAICS code	Companies[a] (number)	Companies that introduced a new or significantly improved product or process		Product: Companies that introduced new or significantly improved goods or services		Product: New goods		Product: New services		Process: Companies that introduced any new or significantly improved process		Process: New manufacturing or production methods		Process: New logistics, delivery, or distribution methods		Process: New support activities	
			Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Telecommunications	517	2,218	27.4	70.3	15.2	80.1	5.3	92.3	12.6	80.4	16.8	80.9	0.9	96.8	10.4	87.3	7.2	90.5
Data processing, hosting, and related services	518	1,949	43.1	55.4	38.1	60.4	18.7	78.5	36.3	62.2	27.5	70.8	10.4	88.0	15.0	83.4	24.6	73.8
Other information	other 51	5,868	22.1	75.7	16.9	79.9	4.8	91.1	16.1	80.2	16.3	81.1	6.9	89.4	9.6	86.8	13.1	84.3
Finance and insurance	52	43,136	14.0	84.2	9.4	87.6	2.6	95.0	8.8	88.2	10.9	86.2	1.2	96.4	4.5	92.6	8.7	88.4
Real estate and rental and leasing	53	35,945	9.5	89.1	6.3	90.9	2.1	96.5	4.9	91.6	6.0	91.9	0.0	97.9	1.4	96.5	6.0	91.9
Professional, scientific, and technical services	54	135,556	19.9	79.2	14.6	83.5	6.4	91.1	12.7	85.4	13.1	85.2	4.0	94.8	4.1	94.5	11.4	87.2
Architectural, engineering, and related services	5413	23,099	22.6	76.5	16.9	81.0	8.5	88.9	14.2	83.6	13.7	83.3	5.2	92.5	3.1	94.6	11.4	86.0
Computer systems design and related services	5415	16,546	45.0	53.9	39.7	58.4	22.9	74.7	32.7	65.7	28.1	70.5	9.5	89.1	12.2	86.5	23.2	75.0
Scientific R&D services	5417	2,196	39.4	58.6	33.5	63.1	27.3	69.3	16.6	79.9	24.3	72.2	17.3	78.5	9.3	85.9	15.3	80.6
Biotechnology R&D	541711	679	42.8	56.4	34.2	64.4	27.1	71.6	23.7	74.6	29.7	69.2	21.7	75.7	11.0	86.4	17.0	81.9
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,361	38.8	58.4	34.0	61.4	29.4	66.1	13.0	82.4	22.4	72.6	D	77.7	8.0	85.8	15.2	78.9
Social sciences and humanities R&D	541720	156	30.4	69.0	26.3	72.4	10.0	88.1	17.6	81.1	17.6	81.7	D	98.1	14.2	85.1	9.3	90.0
Other professional, scientific, and technical services	other 54	93,715	14.3	84.9	9.1	89.0	2.5	95.1	8.7	89.5	10.1	88.5	2.5	96.7	2.8	96.1	9.2	89.8
Health care services	621–623	158,498	15.4	82.8	10.4	87.2	3.0	94.6	9.8	87.7	11.2	85.1	3.1	92.9	3.8	92.5	10.2	86.2
Other nonmanufacturing	55, 56, 624, 71, 72, 81	324,673	10.3	87.7	7.5	90.0	3.3	94.0	6.5	91.1	6.8	90.0	2.9	94.4	2.5	94.3	5.5	91.5
All companies (number of employees)	–	1,231,009	14.9	83.3	10.2	87.0	5.5	91.9	7.8	89.4	10.4	86.6	4.1	93.2	3.7	93.4	8.2	89.0
Small companies (number of employees)[b]																		
5–499	–	1,221,832	14.8	83.4	10.2	87.1	5.4	92.0	7.8	89.4	10.4	86.7	4.1	93.3	3.7	93.4	8.1	89.1
5–99	–	1,169,111	14.4	83.8	9.9	87.4	5.3	92.2	7.7	89.5	10.1	87.0	4.0	93.4	3.6	93.6	7.9	89.3
5–49	–	1,092,859	14.1	84.1	9.7	87.5	5.1	92.3	7.7	89.5	9.9	87.1	3.8	93.5	3.5	93.5	7.8	89.4
5–9	–	487,889	12.0	85.9	8.3	88.7	4.3	92.9	6.8	90.2	7.9	88.6	3.0	93.9	2.8	93.8	6.5	90.3
10–24	–	445,712	15.5	82.9	10.3	87.0	5.5	92.1	8.0	89.1	11.3	86.1	4.4	93.3	4.0	93.4	8.8	88.6
25–49	–	159,259	16.8	81.7	12.2	85.5	6.2	91.4	9.2	88.3	12.0	85.5	4.9	92.9	4.4	93.0	9.0	88.7
50–99	–	76,253	19.0	79.6	13.0	84.9	8.4	89.6	7.8	90.0	13.1	84.6	5.9	92.1	4.3	93.7	9.2	88.4
100–249	–	40,254	21.7	76.0	14.5	83.0	7.9	89.6	9.8	87.5	16.9	79.3	6.0	89.5	5.9	90.3	13.9	82.4
250–499	–	12,467	24.0	73.6	20.0	77.3	11.7	85.2	11.7	85.5	15.6	81.8	8.8	88.6	6.0	91.3	12.4	85.0
Medium and large companies (number of employees)																		
500–999	–	4,322	26.8	71.3	21.3	75.4	10.7	87.1	14.4	82.2	16.7	80.0	9.4	88.5	4.8	92.9	12.2	84.5
1,000–4,999	–	3,920	22.6	74.6	17.6	79.4	13.9	83.1	9.4	87.5	18.0	77.6	11.0	85.9	9.7	85.9	13.5	83.3

TABLE 127. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes and the proportion of companies in each industry and company size classification: 2008–10
(Percent)

					Product						Process							
			Companies that introduced a new or significantly improved product or process		Companies that introduced new or significantly improved goods or services		New goods		New services		Companies that introduced any new or significantly improved process		New manufacturing or production methods		New logistics, delivery, or distribution methods		New support activities	
Industry	NAICS code	Compan-ies[a] (number)	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
5,000–9,999	–	444	43.1	52.4	26.9	68.2	24.2	70.9	14.7	80.3	38.4	56.9	19.4	75.9	15.6	79.7	33.0	62.3
10,000–24,999	–	294	32.9	60.6	29.5	64.0	27.2	66.4	17.6	75.6	26.5	66.7	19.7	73.1	17.3	75.5	21.8	71.1
25,000 or more	–	198	40.9	53.5	35.9	57.1	30.8	62.1	26.8	66.2	35.4	59.1	24.7	69.7	23.7	70.2	30.3	63.6

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

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

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

NAICS = 2007 North American Industry Classification System.

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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2010.

TABLE 128. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes, by size of R&D program: 2008–10
(Number)

Company type	Number of companies	New or significantly improved product or process		New or significantly improved product(s)						New or significantly improved process(es)							
				Any good/service		Goods		Services		Any process		Manufacturing/ production methods		Logistics/delivery/ distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All companies[a]	1,231,009	182,887	1,025,710	126,143	1,071,453	67,508	1,131,875	96,233	1,100,079	128,585	1,065,879	51,044	1,147,357	45,605	1,149,662	100,835	1,095,685
With R&D activity[b]	56,571	36,934	19,155	33,133	22,415	26,042	29,291	19,054	35,779	23,439	32,288	15,625	40,159	8,722	46,951	15,776	39,793
< $10 million	54,713	35,819	18,514	32,102	21,694	25,100	28,483	18,530	34,556	22,683	31,302	15,048	38,992	8,344	45,591	15,187	38,643
≥ $10 but < $50 million	1,216	723	460	656	524	587	591	321	855	470	702	360	814	212	956	347	821
≥ $50 but < $100 million	258	156	89	148	97	141	104	74	171	105	140	77	168	58	186	88	156
≥ $100 million	384	236	93	227	101	214	114	129	197	181	145	140	186	108	218	154	173
Without R&D activity	1,174,438	145,953	1,006,555	93,010	1,049,037	41,466	1,102,584	77,179	1,064,301	105,146	1,033,591	35,418	1,107,198	36,883	1,102,710	85,059	1,055,892

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

[b] Dollar ranges determined by total worldwide R&D expense plus total worldwide R&D cost funded by others.

NOTES: Survey asked companies to identify innovations introduced in 2008–10. Sum of yes and no estimates 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, 2010.

TABLE 129. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes and the proportion of companies in each R&D program size classification: 2008–10

(Percent)

Company type	Companies (number)	New or significantly improved product or process		New or significantly improved product(s)						New or significantly improved process(es)							
				Any good/service		Goods		Services		Any process		Manufacturing/ production methods		Logistics/delivery/ distribution methods		Support activities	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All companies[a]	1,231,009	14.9	83.3	10.2	87.0	5.5	91.9	7.8	89.4	10.4	86.6	4.1	93.2	3.7	93.4	8.2	89.0
With R&D activity[b]	56,571	65.3	33.9	58.6	39.6	46.0	51.8	33.7	63.2	41.4	57.1	27.6	71.0	15.4	83.0	27.9	70.3
< $10 million	54,713	65.5	33.8	58.7	39.7	45.9	52.1	33.9	63.2	41.5	57.2	27.5	71.3	15.3	83.3	27.8	70.6
≥ $10 but < $50 million	1,216	59.4	37.8	54.0	43.1	48.2	48.6	26.4	70.3	38.7	57.7	29.6	66.9	17.4	78.6	28.5	67.5
≥ $50 but < $100 million	258	60.5	34.5	57.4	37.6	54.7	40.3	28.7	66.3	40.7	54.3	29.8	65.1	22.5	72.1	34.1	60.5
≥ $100 million	384	61.5	24.1	59.2	26.2	55.8	29.6	33.6	51.2	47.2	37.7	36.5	48.4	28.2	56.7	40.2	45.0
Without R&D activity	1,174,438	12.4	85.7	7.9	89.3	3.5	93.9	6.6	90.6	9.0	88.0	3.0	94.3	3.1	93.9	7.2	89.9

[a] Weighted totals for companies that reported to survey, whether they did or did not perform or fund R&D.

[b] Dollar ranges determined by total worldwide R&D expense plus total worldwide R&D cost funded by others.

NOTES: Survey asked companies to identify innovations introduced in 2008–10. 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, 2010.

TABLE 130. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved goods or services and the sales attributable to the new or improved goods or services, by industry and company size: 2008–10

Industry	NAICS code	Companies (number)	New or significantly improved goods or services: New to the market[a]: Companies (number) Yes	Companies (number) No	Companies (%) Yes	Companies (%) No	Sales (US$millions)	New to the company[a]: Companies (number) Yes	Companies (number) No	Companies (%) Yes	Companies (%) No	Sales (US$millions)	Sales from goods and services that were unchanged or only marginally changed (US$millions)[b]
All industries	21–23, 31–33, 42–81	1,231,009	72,882	190,928	5.9	15.5	828,998	108,000	152,268	8.8	12.4	770,240	25,947,261
Manufacturing industries	31–33	109,091	16,197	19,903	14.8	18.2	478,153	20,781	14,791	19.0	13.6	560,481	7,308,502
Food	311	8,339	1,129	1,398	13.5	16.8	13,103	1,666	894	20.0	10.7	124,902	916,235
Beverage and tobacco products	312	1,264	136	227	10.8	18.0	1,278	194	105	15.3	8.3	D	D
Textiles, apparel, and leather products	313–316	4,745	932	590	19.6	12.4	4,134	762	757	16.1	16.0	2,388	84,070
Wood products	321	4,815	274	964	5.7	20.0	1,388	372	802	7.7	16.7	1,537	75,641
Paper	322	1,673	114	246	6.8	14.7	10,521	212	179	12.7	10.7	8,266	142,397
Printing and related support activities	323	9,348	562	1,846	6.0	19.7	1,319	1,453	1,034	15.5	11.1	2,702	95,811
Petroleum and coal products	324	306	91	40	29.8	12.9	2,564	46	59	15.0	19.3	510	D
Chemicals	325	5,096	1,294	1,066	25.4	20.9	146,452	1,720	638	33.8	12.5	69,505	1,360,557
Basic chemicals	3251	719	174	76	24.3	10.6	9,968	175	75	24.3	10.4	11,844	382,749
Resin, synthetic rubber, fibers, and filaments	3252	486	60	47	12.4	9.6	9,528	69	33	14.1	6.8	8,829	162,284
Pesticide, fertilizer, and other agricultural chemical	3253	171	22	26	12.9	15.1	1,412	22	26	12.9	15.1	1,054	38,284
Pharmaceuticals and medicines	3254	1,681	414	474	24.7	28.2	27,363	744	155	44.3	9.2	26,383	531,592
Soap, cleaning compound, and toilet preparation	3256	729	259	110	35.6	15.1	81,614	306	70	41.9	9.6	7,348	112,068
Paint, coating, adhesive, and other chemical	3255, 3259	1,310	364	332	27.8	25.4	16,568	406	278	31.0	21.2	14,046	133,580
Plastics and rubber products	326	5,210	1,024	875	19.7	16.8	7,780	1,137	735	21.8	14.1	8,253	211,562
Nonmetallic mineral products	327	4,521	491	970	10.9	21.4	2,187	625	724	13.8	16.0	4,000	98,522
Primary metals	331	1,860	114	290	6.1	15.6	4,258	235	163	12.6	8.8	5,932	236,056
Fabricated metal products	332	23,708	1,704	4,291	7.2	18.1	12,383	3,101	2,810	13.1	11.9	15,532	266,509
Machinery	333	10,731	2,400	1,895	22.4	17.7	55,908	2,401	1,793	22.4	16.7	47,425	361,834
Agricultural implement	33311	548	127	148	23.2	27.0	6,491	209	44	38.1	7.9	12,903	39,200
Semiconductor machinery	333295	101	57	17	55.9	16.8	2,641	33	41	33.1	40.7	1,064	18,567
Engine, turbine, and power transmission equipment	3336	611	218	75	35.7	12.2	706	63	172	10.3	28.1	1,779	38,288
Other machinery	other 333	9,471	1,999	1,655	21.1	17.5	46,070	2,096	1,537	22.1	16.2	31,679	265,779
Computer and electronic products	334	5,524	1,985	1,107	35.9	20.0	99,521	1,844	1,168	33.4	21.2	59,084	906,003
Communications equipment	3342	607	277	78	45.6	12.8	27,380	188	151	30.9	24.9	17,423	112,675
Semiconductor and other electronic components	3344	1,828	567	364	31.0	19.9	18,569	515	368	28.2	20.1	15,233	212,435
Navigational, measuring, electromedical, and control instruments	3345	1,898	829	272	43.7	14.3	26,099	705	371	37.2	19.5	13,416	244,706
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	250	88	75	35.1	29.9	8,830	92	59	36.8	23.6	3,781	43,913
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	251	186	14	74.2	5.4	8,350	147	53	58.5	21.2	5,991	115,534
Other measuring and controlling instruments	other 3345	1,396	555	184	39.8	13.2	8,919	466	259	33.4	18.5	3,644	85,259
Other computer and electronic products	other 334	1,191	312	393	26.2	33.0	27,473	436	278	36.6	23.4	13,012	336,188
Electrical equipment, appliances, and components	335	2,695	865	697	32.1	25.9	5,793	1,020	434	37.9	16.1	24,794	156,157
Transportation equipment	336	4,049	971	804	24.0	19.9	88,636	1,300	526	32.1	13.0	134,088	1,126,618
Automobiles, bodies, trailers, and parts	3361–3363	2,554	597	477	23.4	18.7	71,202	784	332	30.7	13.0	119,005	665,269

TABLE 130. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved goods or services and the sales attributable to the new or improved goods or services, by industry and company size: 2008–10

Industry	NAICS code	Companies (number)	New or significantly improved goods or services: New to the market[a]: Companies (number) Yes	Companies (number) No	Companies (%) Yes	Companies (%) No	Sales (US$millions)	New to the company[a]: Companies (number) Yes	Companies (number) No	Companies (%) Yes	Companies (%) No	Sales (US$millions)	Sales from goods and services that were unchanged or only marginally changed (US$millions)[b]
Aerospace products and parts	3364	663	197	225	29.8	34.0	14,478	336	93	50.7	13.9	13,247	379,317
Aircraft, aircraft engine, and aircraft parts	336411–336413	530	85	D	16.1	D	13,303	223	85	42.1	16.1	12,112	340,978
Guided missile, space vehicle, and related parts	336414, 336415, 336419	133	112	D	84.1	D	1,176	113	7	84.8	5.4	D	D
Military armored vehicle, tank, and tank components	336992	12	6	0	46.9	0.0	526	3	D	24.8	D	D	D
Other transportation	other 336	820	171	102	20.8	12.5	2,430	177	D	21.5	D	1,769	81,193
Furniture and related products	337	5,630	384	899	6.8	16.0	4,224	715	578	12.7	10.3	5,668	97,785
Miscellaneous manufacturing	339	9,577	1,728	1,697	18.0	17.7	16,703	1,979	1,391	20.7	14.5	D	D
Medical equipment and supplies	3391	3,658	718	683	19.6	18.7	12,387	798	592	21.8	16.2	15,366	306,441
Other miscellaneous manufacturing	3399	5,919	1,010	1,014	17.1	17.1	4,316	1,181	799	20.0	13.5	D	D
Nonmanufacturing industries	21–23, 42–81	1,121,918	56,685	171,025	5.1	15.2	350,846	87,219	137,477	7.8	12.3	209,759	18,638,759
Mining, extraction, and support activities	21	5,873	189	626	3.2	10.7	1,002	204	617	3.5	10.5	2,464	1,029,909
Utilities	22	925	14	255	1.5	27.5	571	42	227	4.5	24.5	423	567,101
Construction	23	127,079	5,039	17,663	4.0	13.9	10,255	5,078	16,621	4.0	13.1	16,857	975,558
Wholesale trade	42	82,806	6,204	11,026	7.5	13.3	75,253	7,720	9,350	9.3	11.3	24,871	2,056,815
Retail trade	44, 45	154,845	7,114	23,372	4.6	15.1	15,596	8,394	21,148	5.4	13.7	13,162	4,086,088
Electronic shopping and electronic auctions	454111, 454112	2,368	222	353	9.4	14.9	D	282	185	11.9	7.8	1,448	D
Other retail trade	other 44, 45	152,477	6,892	23,019	4.5	15.1	D	8,112	20,964	5.3	13.7	11,714	D
Transportation and warehousing	48, 49	35,331	1,356	7,674	3.8	21.7	4,346	3,573	5,206	10.1	14.7	3,096	895,432
Information	51	17,252	2,652	3,212	15.4	18.6	135,248	3,326	2,418	19.3	14.0	64,377	1,188,290
Publishing	511	7,217	1,454	1,018	20.2	14.1	90,333	1,503	967	20.8	13.4	33,526	397,673
Newspaper, periodical, book, and directory publishers	5111	5,109	450	580	8.8	11.3	173	523	482	10.2	9.4	541	99,321
Software publishers	5112	2,108	1,004	438	47.6	20.8	90,159	980	485	46.5	23.0	32,985	298,352
Telecommunications	517	2,218	153	520	6.9	23.5	41,072	423	249	19.1	11.2	23,256	457,568
Data processing, hosting, and related services	518	1,949	502	297	25.8	15.3	1,356	535	238	27.4	12.2	1,607	86,315
Other information	other 51	5,868	542	1,375	9.2	23.4	2,487	865	963	14.7	16.4	5,989	246,733
Finance and insurance	52	43,136	1,696	6,887	3.9	16.0	20,442	4,204	3,877	9.7	9.0	18,881	3,898,480
Real estate and rental and leasing	53	35,945	1,259	3,565	3.5	9.9	341	1,509	2,816	4.2	7.8	1,208	244,775
Professional, scientific, and technical services	54	135,556	12,029	17,230	8.9	12.7	44,709	16,031	13,043	11.8	9.6	47,803	1,612,978
Architectural, engineering, and related services	5413	23,099	2,406	3,832	10.4	16.6	7,928	3,100	3,052	13.4	13.2	11,176	299,421
Computer systems design and related services	5415	16,546	4,238	3,331	25.6	20.1	12,661	5,200	2,348	31.4	14.2	8,986	347,987
Scientific R&D services	5417	2,196	601	235	27.4	10.7	16,239	414	382	18.8	17.4	12,019	115,539
Biotechnology R&D	541711	679	156	96	22.9	14.2	264	163	76	24.1	11.2	148	15,410
Physical, engineering, and life sciences (except biotechnology) R&D	541712	1,361	424	112	31.2	8.2	15,921	226	285	16.6	21.0	11,832	74,075
Social sciences and humanities R&D	541720	156	21	26	13.3	16.8	54	24	20	15.6	13.0	39	26,054
Other professional, scientific, and technical services	other 54	93,715	4,784	9,833	5.1	10.5	7,882	7,317	7,262	7.8	7.7	15,623	850,031
Health care services	621–623	158,498	7,331	28,516	4.6	18.0	8,059	14,285	21,556	9.0	13.6	3,563	775,694
Other nonmanufacturing	55, 56, 624, 71, 72, 81	324,673	11,800	50,999	3.6	15.7	35,025	22,854	40,597	7.0	12.5	13,053	1,307,638

TABLE 130. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved goods or services and the sales attributable to the new or improved goods or services, by industry and company size: 2008–10

Industry	NAICS code	Companies (number)	New or significantly improved goods or services: New to the market[a] — Companies (number) Yes	Companies (number) No	Companies (%) Yes	Companies (%) No	Sales (US$millions)	New to the company[a] — Companies (number) Yes	Companies (number) No	Companies (%) Yes	Companies (%) No	Sales (US$millions)	Sales from goods and services that were unchanged or only marginally changed (US$millions)[b]
All companies (number of employees)	–	1,231,009	72,882	190,928	5.9	15.5	828,998	108,000	152,268	8.8	12.4	770,240	25,947,261
Small companies (number of employees)[c]													
5–499	–	1,221,832	71,696	189,659	5.9	15.5	133,292	106,513	151,326	8.7	12.4	150,920	9,332,957
5–99	–	1,169,111	66,668	183,336	5.7	15.7	74,896	100,161	146,701	8.6	12.5	84,541	6,174,436
5–49	–	1,092,859	60,852	172,750	5.6	15.8	49,331	92,103	138,349	8.4	12.7	63,495	4,533,280
5–9	–	487,889	22,444	78,977	4.6	16.2	9,094	34,193	66,452	7.0	13.6	9,239	689,453
10–24	–	445,712	28,334	69,489	6.4	15.6	21,771	41,168	54,957	9.2	12.3	27,208	2,751,271
25–49	–	159,259	10,073	24,284	6.3	15.2	18,467	16,743	16,940	10.5	10.6	27,048	1,092,556
50–99	–	76,253	5,817	10,586	7.6	13.9	25,565	8,058	8,351	10.6	11.0	21,046	1,641,156
100–249	–	40,254	3,923	4,146	9.7	10.3	35,492	4,228	3,581	10.5	8.9	36,087	1,801,826
250–499	–	12,467	1,105	2,177	8.9	17.5	22,904	2,124	1,044	17.0	8.4	30,292	1,356,694
Medium and large companies (number of employees)													
500–999	–	4,322	468	723	10.8	16.7	26,933	719	464	16.6	10.7	25,947	1,212,680
1,000–4,999	–	3,920	504	355	12.9	9.0	125,119	545	298	13.9	7.6	99,124	3,453,719
5,000–9,999	–	444	87	146	19.7	32.9	58,475	87	144	19.7	32.4	45,934	2,315,885
10,000–24,999	–	294	67	29	22.7	9.9	159,597	76	20	25.8	6.8	95,344	3,283,123
25,000 or more	–	198	60	17	30.3	8.6	325,584	59	17	29.8	8.6	352,970	6,348,897

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

NAICS = 2007 North American Industry Classification System.

[a] Estimates are for companies that responded "yes" to at least one of two questions: "Did your company introduce new or significantly improved products during the last three years?" and "Did your company introduce new or significantly improved services during the last three years?" No item imputation was performed for these estimates. Therefore percentages do not add to 100%, and detail does not add to total.

[b] Includes resale of new goods or services purchased from other companies.

[c] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2010.

TABLE 131. U.S. patent applications and patents issued for R&D-active and non-R&D-active companies, by industry and company size: 2010
(Number)

Industry and company size	NAICS code	All companies		R&D-active companies[a]		Non-R&D-active companies	
		Applications	Patents issued[b]	Applications	Patents issued[b]	Applications	Patents issued[b]
All industries	21–23, 31–33, 42–81	141,544	101,768	123,084	86,889	18,460	14,879
Manufacturing industries	31–33	83,924	59,174	81,749	57,760	2,175	1,415
Food	311	2,852	1,189	2,687	1,089	165	100
Beverage and tobacco products	312	409	209	396	209	13	0
Textiles, apparel, and leather products	313–316	1,240	889	1,194	872	46	17
Wood products	321	160	97	149	90	11	7
Paper	322	1,338	1,341	1,170	1,212	168	128
Printing and related support activities	323	369	354	353	139	16	215
Petroleum and coal products	324	784	563	784	562	0	1
Chemicals	325	16,658	9,886	16,609	9,813	49	73
Basic chemicals	3251	1,537	927	1,536	876	1	51
Resin, synthetic rubber, fibers, and filaments	3252	701	544	695	542	6	2
Pesticide, fertilizer, and other agricultural chemical	3253	691	550	691	550	0	0
Pharmaceuticals and medicines	3254	9,265	5,423	9,265	5,423	0	0
Soap, cleaning compound, and toilet preparation	3256	1,973	1,218	1,965	1,217	7	1
Paint, coating, adhesive, and other chemical	3255, 3259	2,493	1,223	2,458	1,204	35	19
Plastics and rubber products	326	2,310	1,226	2,095	1,173	215	53
Nonmetallic mineral products	327	740	569	680	565	60	4
Primary metals	331	439	289	429	289	10	0
Fabricated metal products	332	2,638	1,576	1,661	1,045	977	531
Machinery	333	6,219	4,509	6,192	4,492	27	17
Agricultural implement	33311	506	462	501	459	5	3
Semiconductor machinery	333295	1,325	1,184	1,325	1,184	0	0
Engine, turbine, and power transmission equipment	3336	622	287	619	287	3	0
Other machinery	other 333	3,766	2,576	3,747	2,562	19	14
Computer and electronic products	334	26,948	23,089	26,810	22,947	138	143
Communications equipment	3342	3,747	3,607	3,747	3,605	0	2
Semiconductor and other electronic components	3344	11,166	10,650	11,047	10,528	118	122
Navigational, measuring, electromedical, and control instruments	3345	6,588	4,484	6,573	4,481	15	3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,711	1,775	2,711	1,775	0	0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	2,044	1,618	2,044	1,618	0	0
Other measuring and controlling instruments	other 3345	1,834	1,090	1,819	1,087	15	3
Other computer and electronic products	other 334	5,447	4,348	5,442	4,333	5	16
Electrical equipment, appliances, and components	335	3,965	2,308	3,875	2,259	90	49
Transportation equipment	336	9,128	6,111	9,062	6,068	66	44
Automobiles, bodies, trailers, and parts	3361–3363	3,956	2,739	3,893	2,705	63	34
Aerospace products and parts	3364	4,946	3,239	4,946	3,231	0	8
Aircraft, aircraft engine, and aircraft parts	336411–336413	4,764	3,037	4,764	3,029	0	8
Guided missile, space vehicle, and related parts	336414, 336415, 336419	182	202	182	202	0	0
Military armored vehicle, tank, and tank components	336992	15	0	15	0	0	0

TABLE 131. U.S. patent applications and patents issued for R&D-active and non-R&D-active companies, by industry and company size: 2010
(Number)

Industry and company size	NAICS code	All companies		R&D-active companies[a]		Non-R&D-active companies	
		Applications	Patents issued[b]	Applications	Patents issued[b]	Applications	Patents issued[b]
Other transportation	other 336	211	133	208	131	3	2
Furniture and related products	337	681	434	667	427	13	7
Miscellaneous manufacturing	339	7,046	4,536	6,934	4,510	111	26
Medical equipment and supplies	3391	5,167	3,165	5,078	3,161	89	4
Other miscellaneous manufacturing	3399	1,879	1,371	1,856	1,349	23	22
Nonmanufacturing industries	21–23, 42–81	57,620	42,593	41,335	29,129	16,286	13,465
Mining, extraction, and support activities	21	2,104	1,230	2,076	1,198	27	32
Utilities	22	191	19	186	19	5	0
Construction	23	1,384	1,261	71	10	1,313	1,251
Wholesale trade	42	5,409	6,711	1,706	744	3,703	5,968
Retail trade	44, 45	3,266	3,108	764	225	2,502	2,883
Electronic shopping and electronic auctions	454111, 454112	763	204	713	185	51	19
Other retail trade	other 44, 45	2,502	2,904	51	40	2,451	2,864
Transportation and warehousing	48, 49	158	46	48	43	110	3
Information	51	13,922	13,024	13,752	12,895	170	130
Publishing	511	9,402	10,959	9,318	10,908	84	51
Newspaper, periodical, book, and directory publishers	5111	111	69	37	20	74	48
Software publishers	5112	9,291	10,891	9,281	10,888	10	3
Telecommunications	517	1,560	965	1,537	934	23	31
Data processing, hosting, and related services	518	679	213	678	195	1	18
Other information	other 51	2,282	887	2,220	857	62	30
Finance and insurance	52	1,105	522	970	464	135	58
Real estate and rental and leasing	53	941	559	442	308	499	251
Professional, scientific, and technical services	54	22,165	12,986	19,986	12,819	2,179	168
Architectural, engineering, and related services	5413	2,252	561	2,248	427	4	134
Computer systems design and related services	5415	11,748	9,903	11,608	9,894	140	9
Scientific R&D services	5417	4,993	1,997	4,973	1,983	20	13
Biotechnology R&D	541711	2,065	664	2,059	664	6	0
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,905	1,327	2,891	1,314	14	13
Social sciences and humanities R&D	541720	23	5	23	5	0	0
Other professional, scientific, and technical services	other 54	3,171	526	1,156	515	2,015	11
Health care services	621–623	3,270	170	265	170	3,005	0
Other nonmanufacturing	55, 56, 624, 71, 72, 81	3,706	2,957	1,069	234	2,637	2,723
All companies (number of employees)	–	141,544	101,768	123,084	86,889	18,460	14,879
Small companies (number of employees)[c]							
5–499	–	61,419	37,689	43,518	23,030	17,902	14,659
5–99	–	39,084	23,328	23,406	8,821	15,678	14,508
5–49	–	32,094	16,714	17,618	5,825	14,477	10,889
5–9	–	11,580	7,368	3,168	1,301	8,412	6,067

TABLE 131. U.S. patent applications and patents issued for R&D-active and non-R&D-active companies, by industry and company size: 2010
(Number)

Industry and company size	NAICS code	All companies		R&D-active companies[a]		Non-R&D-active companies	
		Applications	Patents issued[b]	Applications	Patents issued[b]	Applications	Patents issued[b]
10–24	–	13,432	6,949	8,900	2,472	4,531	4,477
25–49	–	7,082	2,396	5,549	2,052	1,533	344
50–99	–	6,989	6,615	5,788	2,996	1,201	3,619
100–249	–	7,621	2,792	5,472	2,688	2,149	103
250–499	–	14,715	11,569	14,640	11,521	75	48
Medium and large companies (number of employees)							
500–999	–	4,277	2,914	4,100	2,870	177	43
1,000–4,999	–	16,742	12,337	16,620	12,261	122	76
5,000–9,999	–	10,204	8,735	10,074	8,689	130	46
10,000–24,999	–	15,881	10,444	15,854	10,422	27	22
25,000 or more	–	33,021	29,649	32,918	29,616	103	33

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

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

[c] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2010.

TABLE 132. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2.0	1.8	96.2	20.9	13.3	65.8	1.2	1.3	97.5
Manufacturing industries	31–33	8.1	5.9	86.0	25.6	15.1	59.3	2.6	3.0	94.4
Food	311	2.9	2.2	94.8	7.6	7.2	85.2	1.7	0.9	97.3
Beverage and tobacco products	312	0.7	7.1	92.2	11.2	9.0	79.8	0.0	S	93.0
Textiles, apparel, and leather products	313–316	7.5	4.5	88.0	9.7	15.2	75.1	6.8	1.4	91.8
Wood products	321	1.9	2.2	95.8	21.9	6.2	71.9	0.7	2.0	97.3
Paper	322	5.0	4.5	90.5	24.1	18.7	57.2	2.9	3.0	94.2
Printing and related support activities	323	1.4	2.9	95.8	3.3	11.8	84.9	1.2	2.2	96.6
Petroleum and coal products	324	13.1	3.5	83.4	33.2	9.2	57.6	D	0.0	D
Chemicals	325	21.2	15.4	63.5	31.8	20.2	48.0	5.7	8.2	86.1
Basic chemicals	3251	21.3	12.3	66.4	35.5	14.8	49.6	S	S	S
Resin, synthetic rubber, fibers, and filaments	3252	18.6	11.9	69.5	41.3	22.3	36.5	S	S	85.2
Pesticide, fertilizer, and other agricultural chemical	3253	9.5	25.9	S	30.2	19.9	49.9	D	27.9	D
Pharmaceuticals and medicines	3254	35.6	20.4	44.0	39.4	21.8	38.9	S	S	S
Soap, cleaning compound, and toilet preparation	3256	9.3	15.1	75.5	12.0	24.7	63.3	6.5	4.8	88.8
Paint, coating, adhesive, and other chemical	3255, 3259	14.6	11.4	74.0	23.7	17.4	58.9	6.0	5.6	88.4
Plastics and rubber products	326	9.0	7.1	83.9	24.1	14.5	61.4	3.7	4.6	91.7
Nonmetallic mineral products	327	4.4	5.7	90.0	14.0	12.7	73.3	2.5	4.3	93.2
Primary metals	331	3.8	2.8	93.5	17.1	15.6	67.3	1.3	0.4	98.4
Fabricated metal products	332	3.5	4.7	91.9	15.5	11.8	72.7	1.6	3.5	94.9
Machinery	333	13.2	8.3	78.5	27.6	15.2	57.2	4.8	4.3	90.9
Agricultural implement	33311	22.6	17.7	59.7	33.9	19.5	46.6	12.4	16.1	71.5
Semiconductor machinery	333295	38.7	17.4	S	48.5	12.6	S	S	S	S
Engine, turbine, and power transmission equipment	3336	18.0	10.3	71.6	33.5	9.5	57.0	5.2	11.0	83.8
Other machinery	other 333	12.1	7.5	80.4	26.1	15.3	58.6	4.5	3.3	92.3
Computer and electronic products	334	28.5	9.8	61.7	41.0	15.0	44.0	11.2	S	86.1
Communications equipment	3342	22.8	10.1	67.2	31.4	12.1	56.5	S	D	D
Semiconductor and other electronic components	3344	32.4	9.5	58.1	51.4	16.3	32.3	14.5	3.1	82.4
Navigational, measuring, electromedical, and control instruments	3345	32.6	11.4	56.0	46.9	16.8	36.4	7.1	1.8	91.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	55.6	13.2	31.1	67.4	18.2	14.4	S	0.0	76.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	47.4	13.1	39.5	55.0	14.4	30.5	S	D	D
Other measuring and controlling instruments	other 3345	25.0	10.7	64.3	39.2	17.0	43.8	5.2	1.9	92.9
Other computer and electronic products	other 334	19.4	7.7	72.9	23.5	12.4	64.1	14.0	1.6	84.3
Electrical equipment, appliances, and components	335	20.6	10.7	68.7	38.1	15.6	46.3	2.0	5.4	92.6
Transportation equipment	336	10.6	10.4	79.0	24.7	20.4	54.9	1.9	4.2	93.9
Automobiles, bodies, trailers, and parts	3361–3363	11.0	12.8	76.2	25.7	25.6	48.7	1.5	4.7	93.8
Aerospace products and parts	3364	S	S	S	14.7	12.7	S	S	D	D
Aircraft, aircraft engine, and aircraft parts	336411–336413	S	S	S	17.2	11.2	71.6	S	D	D
Guided missile, space vehicle, and related parts	336414, 336415, 336419	S	S	S	S	S	S	D	0.0	D
Military armored vehicle, tank, and tank components	336992	D	0.0	D	D	0.0	D	0.0	0.0	100.0
Other transportation	other 336	10.9	7.5	81.5	35.7	12.8	51.4	1.3	5.5	93.2
Furniture and related products	337	2.6	3.0	94.4	12.2	11.2	76.6	1.4	1.9	96.7

TABLE 132. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	13.6	6.9	79.6	36.2	18.5	45.3	3.0	1.4	95.6
Medical equipment and supplies	3391	21.5	4.5	74.0	51.5	9.2	39.3	2.4	1.5	96.1
Other miscellaneous manufacturing	3399	8.8	8.3	82.9	23.2	26.5	50.3	3.3	1.4	95.3
Nonmanufacturing industries	21–23, 42–81	1.4	1.5	97.1	16.6	11.6	71.8	1.1	1.2	97.7
Mining, extraction, and support activities	21	2.2	2.3	95.4	25.8	2.4	71.7	0.2	2.3	97.5
Utilities	22	4.0	2.5	93.4	42.9	19.7	37.4	D	D	98.8
Construction	23	0.8	1.4	97.9	2.3	4.7	93.0	0.8	1.3	97.9
Wholesale trade	42	2.6	2.4	95.0	20.1	6.4	73.5	2.0	2.2	95.8
Retail trade	44, 45	1.2	1.2	97.6	2.9	2.1	94.9	1.2	1.2	97.6
Electronic shopping and electronic auctions	454111, 454112	3.9	1.2	94.9	3.9	D	D	3.9	1.2	94.8
Other retail trade	other 44, 45	1.1	1.2	97.7	2.4	2.9	94.6	1.1	1.2	97.7
Transportation and warehousing	48, 49	1.8	0.9	97.3	2.3	36.1	61.7	1.7	0.0	98.2
Information	51	4.1	6.3	89.6	14.4	17.6	68.0	1.3	3.3	95.4
Publishing	511	5.5	6.2	88.4	17.1	15.8	67.1	1.3	2.7	96.0
Newspaper, periodical, book, and directory publishers	5111	0.8	2.7	96.5	1.5	1.3	97.2	D	D	96.4
Software publishers	5112	16.8	14.7	68.5	20.2	18.8	61.0	6.3	D	D
Telecommunications	517	6.5	5.4	88.1	49.8	7.1	43.1	3.4	5.3	91.3
Data processing, hosting, and related services	518	5.8	12.4	81.8	11.7	15.8	72.5	2.1	10.3	87.6
Other information	other 51	0.9	4.6	94.5	5.4	24.5	70.1	0.1	1.1	98.8
Finance and insurance	52	0.7	0.7	98.5	1.5	1.2	97.3	0.7	0.7	98.6
Real estate and rental and leasing	53	1.5	0.2	98.3	31.7	D	D	1.5	0.2	98.3
Professional, scientific, and technical services	54	3.1	2.7	94.3	20.2	15.3	64.6	1.3	1.4	97.3
Architectural, engineering, and related services	5413	3.4	3.0	93.6	17.5	20.0	62.5	1.1	0.3	98.6
Computer systems design and related services	5415	6.8	8.3	84.9	13.3	14.8	71.9	3.0	4.4	92.6
Scientific R&D services	5417	43.6	8.1	48.3	58.3	9.6	32.1	S	S	S
Biotechnology R&D	541711	57.7	9.8	32.5	66.4	9.5	24.1	S	D	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	41.2	8.0	50.8	56.2	9.8	33.9	S	S	S
Social sciences and humanities R&D	541720	6.8	D	D	13.5	D	D	D	0.0	D
Other professional, scientific, and technical services	other 54	1.3	1.4	97.3	10.6	13.3	76.1	1.2	1.2	97.6
Health care services	621–23	1.4	0.6	98.1	1.9	0.8	97.3	1.4	0.6	98.1
Other nonmanufacturing	55–56, 624, 71–72, 81	0.9	1.3	97.7	28.4	5.5	66.1	0.7	1.3	98.0
All companies (number of employees)	–	2.0	1.8	96.2	20.9	13.3	65.8	1.2	1.3	97.5
Small companies (number of employees)[b]										
5–499	–	1.9	1.8	96.3	19.8	13.1	67.1	1.2	1.3	97.5
5–99	–	1.8	1.6	96.5	18.2	12.7	69.1	1.2	1.2	97.6
5–49	–	1.7	1.6	96.7	17.4	12.7	69.9	1.1	1.2	97.7
5–9	–	1.2	1.4	97.4	12.7	13.1	74.1	0.8	1.1	98.1
10–24	–	2.2	1.6	96.2	21.1	11.9	67.0	1.5	1.2	97.2
25–49	–	1.8	2.1	96.2	17.5	13.2	69.3	0.7	1.3	97.9
50–99	–	3.4	2.5	94.1	23.3	13.3	63.4	2.0	1.7	96.4
100–249	–	4.5	5.0	90.5	30.7	15.7	53.7	1.1	3.6	95.2
250–499	–	4.4	5.7	89.9	32.6	16.9	50.5	0.8	4.2	95.0

TABLE 132. Importance of utility patents for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Medium and large companies (number of employees)										
500–999	–	7.0	3.4	89.7	40.2	16.9	42.9	0.6	0.8	98.6
1,000–4,999	–	14.7	7.7	77.6	49.2	17.2	33.6	4.4	4.9	90.6
5,000–9,999	–	27.6	7.5	64.9	67.1	12.9	20.0	4.0	4.3	91.7
10,000–24,999	–	33.2	10.2	56.6	70.4	18.6	11.0	4.1	3.7	92.2
25,000 or more	–	38.8	15.6	45.6	69.6	16.5	13.9	8.0	14.7	77.3

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2010.

TABLE 133. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	2.0	2.8	95.2	13.9	16.3	69.8	1.5	2.2	96.3
Manufacturing industries	31–33	6.2	8.4	85.4	16.4	20.3	63.3	3.0	4.6	92.4
Food	311	2.9	3.9	93.3	6.2	12.3	81.5	2.0	1.7	96.3
Beverage and tobacco products	312	2.5	15.0	82.5	6.7	8.0	85.4	D	D	82.3
Textiles, apparel, and leather products	313–316	7.4	9.8	82.8	11.0	18.0	71.0	6.3	7.4	86.3
Wood products	321	1.8	2.4	95.8	16.0	4.5	79.6	0.9	2.3	96.8
Paper	322	4.6	7.6	87.8	20.1	18.9	61.0	2.9	6.3	90.8
Printing and related support activities	323	3.7	5.0	91.4	2.8	17.5	79.7	3.7	4.0	92.3
Petroleum and coal products	324	4.9	4.9	90.2	11.9	10.7	77.4	D	D	D
Chemicals	325	7.2	16.0	76.7	8.8	21.4	69.8	S	8.1	87.0
Basic chemicals	3251	4.0	13.0	83.0	6.0	18.9	75.1	S	S	S
Resin, synthetic rubber, fibers, and filaments	3252	S	8.2	77.8	14.9	24.0	61.1	D	D	85.7
Pesticide, fertilizer, and other agricultural chemical	3253	8.4	23.7	S	26.0	8.3	65.7	D	28.7	D
Pharmaceuticals and medicines	3254	8.9	22.8	68.3	9.6	24.4	66.0	D	D	S
Soap, cleaning compound, and toilet preparation	3256	7.4	15.6	77.0	8.6	24.8	66.6	6.2	5.0	88.8
Paint, coating, adhesive, and other chemical	3255, 3259	4.4	12.2	83.4	6.5	15.1	78.3	2.4	9.4	88.2
Plastics and rubber products	326	10.0	9.3	80.7	24.0	21.4	54.7	5.1	5.0	89.8
Nonmetallic mineral products	327	3.8	7.7	88.4	13.1	17.1	69.8	2.0	5.9	92.1
Primary metals	331	1.5	7.6	90.9	8.8	31.8	59.4	D	D	96.8
Fabricated metal products	332	4.0	5.7	90.3	13.1	19.2	67.7	2.6	3.6	93.8
Machinery	333	9.1	11.4	79.5	20.1	20.2	59.7	2.7	6.3	91.0
Agricultural implement	33311	10.8	25.8	63.4	16.9	35.3	47.8	5.2	17.2	77.6
Semiconductor machinery	333295	16.3	22.8	60.9	16.4	25.6	58.0	D	D	S
Engine, turbine, and power transmission equipment	3336	23.6	7.5	68.9	47.7	9.2	43.1	3.5	6.2	90.3
Other machinery	other 333	8.1	10.6	81.3	18.4	19.6	62.0	2.5	5.8	91.7
Computer and electronic products	334	16.3	15.6	68.1	23.0	22.6	54.4	7.0	6.0	87.0
Communications equipment	3342	11.7	9.7	78.5	16.0	11.6	72.4	D	D	S
Semiconductor and other electronic components	3344	17.3	14.2	68.6	29.6	23.6	46.8	5.7	5.2	89.1
Navigational, measuring, electromedical, and control instruments	3345	13.9	23.1	63.0	18.0	30.9	51.1	6.4	9.3	84.4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	23.1	30.5	46.4	28.4	36.9	34.7	D	D	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	11.5	44.8	43.6	13.4	51.3	35.4	S	D	D
Other measuring and controlling instruments	other 3345	12.3	17.6	70.1	16.5	23.8	59.7	6.4	9.0	84.6
Other computer and electronic products	other 334	21.6	9.6	68.8	28.6	14.5	56.9	12.6	3.2	84.3
Electrical equipment, appliances, and components	335	8.7	17.2	74.1	13.1	26.9	60.0	4.0	6.8	89.2
Transportation equipment	336	12.0	9.6	78.4	25.1	14.6	60.3	3.9	6.6	89.6
Automobiles, bodies, trailers, and parts	3361–3363	14.7	9.8	75.4	29.5	14.4	56.1	5.4	6.9	87.7
Aerospace products and parts	3364	S	S	S	15.3	7.3	S	S	S	S
Aircraft, aircraft engine, and aircraft parts	336411–336413	S	S	S	19.6	7.2	73.2	S	S	S
Guided missile, space vehicle, and related parts	336414, 336415, 336419	S	S	S	S	S	S	D	0.0	D
Military armored vehicle, tank, and tank components	336992	D	D	D	D	D	D	0.0	0.0	100.0
Other transportation	other 336	7.9	14.0	78.0	23.8	26.0	50.1	1.8	9.4	88.8
Furniture and related products	337	3.4	6.0	90.6	19.4	17.3	63.3	D	D	94.1

TABLE 133. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	8.4	11.0	80.6	20.9	27.1	52.1	2.5	3.5	94.0
Medical equipment and supplies	3391	11.0	15.9	73.1	25.6	37.1	37.3	1.6	2.3	96.1
Other miscellaneous manufacturing	3399	6.9	8.1	85.0	16.9	18.5	64.6	3.0	4.0	92.9
Nonmanufacturing industries	21–23, 42–81	1.6	2.3	96.1	11.6	12.7	75.7	1.4	2.0	96.6
Mining, extraction, and support activities	21	0.3	4.0	95.7	1.7	23.4	74.9	0.1	2.3	97.6
Utilities	22	0.9	4.2	94.9	10.7	39.5	49.7	0.0	0.8	99.2
Construction	23	1.5	2.0	96.5	0.4	5.5	94.1	1.5	2.0	96.5
Wholesale trade	42	2.9	4.6	92.5	13.2	16.5	70.3	2.6	4.1	93.3
Retail trade	44, 45	1.7	2.4	95.9	3.9	9.0	87.1	1.7	2.4	96.0
Electronic shopping and electronic auctions	454111, 454112	6.4	5.7	87.9	6.9	9.1	84.0	6.4	5.4	88.2
Other retail trade	other 44, 45	1.6	2.3	96.0	2.4	8.9	88.7	1.6	2.3	96.1
Transportation and warehousing	48, 49	1.7	1.1	97.2	1.9	36.1	61.9	1.7	0.2	98.1
Information	51	3.5	6.4	90.1	8.6	17.2	74.3	2.1	3.5	94.4
Publishing	511	3.0	7.5	89.5	5.5	16.0	78.5	2.1	4.5	93.4
Newspaper, periodical, book, and directory publishers	5111	1.7	4.6	93.8	2.4	6.6	91.0	1.6	4.4	93.9
Software publishers	5112	6.2	14.8	79.0	6.2	17.9	76.0	6.4	5.3	88.3
Telecommunications	517	4.1	6.4	89.5	27.1	15.3	57.5	2.5	5.8	91.7
Data processing, hosting, and related services	518	5.4	11.3	83.3	10.6	17.8	71.6	2.2	7.2	90.6
Other information	other 51	3.0	3.4	93.6	9.3	19.2	71.5	1.9	0.7	97.5
Finance and insurance	52	0.3	1.4	98.3	0.6	1.0	98.4	0.3	1.4	98.3
Real estate and rental and leasing	53	3.0	2.0	95.0	19.5	12.2	68.3	3.0	2.0	95.0
Professional, scientific, and technical services	54	2.7	3.5	93.8	12.3	13.3	74.3	1.7	2.5	95.7
Architectural, engineering, and related services	5413	3.4	4.6	91.9	11.0	16.1	72.9	2.2	2.8	95.0
Computer systems design and related services	5415	6.9	8.5	84.6	13.3	11.4	75.3	3.1	6.8	90.1
Scientific R&D services	5417	13.0	10.8	76.2	16.5	13.8	69.7	S	S	S
Biotechnology R&D	541711	11.8	9.0	79.2	12.9	10.0	77.1	S	D	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	14.8	11.8	73.4	19.4	15.3	65.3	S	S	S
Social sciences and humanities R&D	541720	D	D	88.7	0.0	26.4	73.6	D	0.0	D
Other professional, scientific, and technical services	other 54	1.5	2.2	96.3	4.3	16.2	79.5	1.5	2.0	96.5
Health care services	621–623	1.1	1.2	97.7	11.6	1.6	86.8	1.0	1.2	97.9
Other nonmanufacturing	55, 56, 624, 71, 72, 81	1.2	1.9	96.9	25.5	8.1	66.4	0.9	1.9	97.2
All companies (number of employees)	–	2.0	2.8	95.2	13.9	16.3	69.8	1.5	2.2	96.3
Small companies (number of employees)[b]										
5–499	–	2.0	2.8	95.2	13.6	15.9	70.5	1.5	2.2	96.3
5–99	–	1.9	2.6	95.5	12.3	15.3	72.4	1.5	2.1	96.4
5–49	–	1.7	2.6	95.7	11.9	14.7	73.4	1.3	2.1	96.5
5–9	–	1.2	2.2	96.6	8.8	13.3	77.8	1.0	1.9	97.1
10–24	–	2.2	2.9	95.0	14.0	14.4	71.6	1.7	2.4	95.8
25–49	–	2.0	2.8	95.1	12.4	16.8	70.8	1.3	1.9	96.8
50–99	–	4.1	3.5	92.4	15.3	19.1	65.6	3.2	2.4	94.4
100–249	–	4.5	5.6	90.0	23.6	20.3	56.1	2.0	3.7	94.3
250–499	–	4.0	5.9	90.1	20.3	21.2	58.5	1.9	4.0	94.1

TABLE 133. Importance of design patents for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Medium and large companies (number of employees)										
500–999	–	3.6	6.0	90.4	18.9	24.2	56.8	0.7	2.5	96.8
1,000–4,999	–	10.1	9.4	80.5	22.8	27.5	49.7	6.3	4.0	89.7
5,000–9,999	–	10.8	17.3	71.9	25.1	33.9	41.0	2.2	7.2	90.6
10,000–24,999	–	13.2	14.7	72.1	26.3	29.1	44.6	3.0	3.5	93.5
25,000 or more	–	13.8	27.8	58.4	22.7	40.7	36.6	4.9	14.9	80.2

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2010.

TABLE 134. Importance of trademarks for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	6.2	6.6	87.2	30.1	25.4	44.5	5.2	5.7	89.1
Manufacturing industries	31–33	14.0	13.0	73.0	32.0	27.6	40.4	8.3	8.4	83.4
Food	311	21.3	13.6	65.0	45.0	16.7	38.3	15.2	12.8	72.0
Beverage and tobacco products	312	41.3	21.1	37.6	79.7	10.4	9.9	38.8	21.8	39.4
Textiles, apparel, and leather products	313–316	14.7	18.9	66.4	25.4	54.4	20.2	11.5	8.6	79.9
Wood products	321	3.5	4.5	91.9	21.5	17.4	61.0	2.5	3.7	93.8
Paper	322	9.1	11.3	79.7	36.8	21.1	42.1	6.0	10.2	83.9
Printing and related support activities	323	10.3	9.5	80.2	12.0	24.4	63.6	10.2	8.3	81.5
Petroleum and coal products	324	22.2	31.3	46.5	39.7	20.6	39.7	11.5	37.8	50.7
Chemicals	325	30.5	26.1	43.3	34.3	33.3	32.5	25.1	15.7	59.2
Basic chemicals	3251	30.8	17.5	51.7	32.9	26.8	40.3	S	S	S
Resin, synthetic rubber, fibers, and filaments	3252	25.2	10.9	63.9	43.2	26.9	29.9	S	S	80.1
Pesticide, fertilizer, and other agricultural chemical	3253	29.9	30.8	S	56.1	8.2	35.6	S	38.2	S
Pharmaceuticals and medicines	3254	39.0	32.6	28.4	33.4	35.0	31.6	S	D	D
Soap, cleaning compound, and toilet preparation	3256	30.0	33.9	36.1	25.4	42.5	32.2	35.0	24.7	40.3
Paint, coating, adhesive, and other chemical	3255, 3259	23.5	24.6	51.8	38.2	32.1	29.7	9.4	17.5	73.1
Plastics and rubber products	326	11.1	15.4	73.5	27.9	25.2	46.9	5.2	12.0	82.8
Nonmetallic mineral products	327	9.9	8.3	81.8	30.8	17.5	51.6	5.8	6.5	87.8
Primary metals	331	11.1	13.1	75.8	27.1	27.1	45.9	8.1	10.5	81.4
Fabricated metal products	332	6.6	7.3	86.2	25.7	14.8	59.5	3.6	6.1	90.4
Machinery	333	16.3	14.2	69.5	24.5	27.0	48.5	11.6	6.7	81.7
Agricultural implement	33311	25.3	24.7	50.0	38.2	28.8	33.0	13.4	20.8	65.8
Semiconductor machinery	333295	36.3	22.2	S	41.4	22.9	S	D	D	S
Engine, turbine, and power transmission equipment	3336	13.9	16.9	69.2	23.3	28.2	48.5	6.1	7.5	86.5
Other machinery	other 333	15.7	13.3	71.0	23.0	26.9	50.1	11.7	5.9	82.3
Computer and electronic products	334	28.0	20.7	51.4	39.0	30.3	30.7	12.7	7.3	80.0
Communications equipment	3342	30.1	24.2	45.7	40.0	29.5	30.5	S	S	S
Semiconductor and other electronic components	3344	26.7	16.8	56.5	40.8	31.3	28.0	13.4	3.0	83.6
Navigational, measuring, electromedical, and control instruments	3345	24.4	28.0	47.6	32.0	36.0	32.0	10.9	14.0	75.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	37.9	29.7	32.4	48.8	34.0	17.2	D	D	73.2
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	24.0	15.9	60.1	27.9	16.9	55.2	S	D	D
Other measuring and controlling instruments	other 3345	21.6	29.9	48.5	28.7	41.6	29.7	11.8	13.7	74.5
Other computer and electronic products	other 334	34.2	12.7	53.1	48.3	19.4	32.3	15.9	3.9	80.2
Electrical equipment, appliances, and components	335	23.1	17.1	59.8	30.3	26.5	43.2	15.5	6.9	77.6
Transportation equipment	336	16.7	14.3	69.0	33.8	22.8	43.3	6.1	9.0	84.9
Automobiles, bodies, trailers, and parts	3361–3363	17.8	15.3	66.9	35.2	26.4	38.5	6.6	8.3	85.1
Aerospace products and parts	3364	S	S	S	22.7	18.4	S	S	S	S
Aircraft, aircraft engine, and aircraft parts	336411–336413	S	S	S	24.6	23.3	52.1	S	S	S
Guided missile, space vehicle, and related parts	336414, 336415, 336419	S	S	S	S	S	S	D	0.0	D
Military armored vehicle, tank, and tank components	336992	D	D	D	D	D	D	0.0	0.0	100.0
Other transportation	other 336	17.4	12.9	69.7	46.1	15.9	37.9	6.2	11.7	82.0
Furniture and related products	337	7.1	8.7	84.3	34.1	21.4	44.6	3.6	7.0	89.3

TABLE 134. Importance of trademarks for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	16.1	19.1	64.8	39.8	39.5	20.7	5.0	9.6	85.5
Medical equipment and supplies	3391	22.8	17.2	60.0	50.1	32.7	17.2	5.3	7.3	87.5
Other miscellaneous manufacturing	3399	12.0	20.3	67.7	31.0	45.3	23.8	4.8	10.7	84.5
Nonmanufacturing industries	21–23, 42–81	5.5	6.0	88.5	28.2	23.4	48.4	5.0	5.5	89.5
Mining, extraction, and support activities	21	3.6	4.8	91.6	25.5	6.4	68.1	1.7	4.6	93.7
Utilities	22	4.7	14.6	80.7	36.6	21.8	41.6	1.6	13.9	84.4
Construction	23	2.3	3.6	94.2	22.3	5.3	72.4	2.1	3.6	94.4
Wholesale trade	42	10.2	8.3	81.5	29.3	14.4	56.2	9.5	8.0	82.4
Retail trade	44, 45	5.4	6.8	87.8	53.3	6.4	40.2	5.2	6.8	88.0
Electronic shopping and electronic auctions	454111, 454112	31.6	20.5	48.0	80.3	13.3	6.5	27.2	21.1	51.7
Other retail trade	other 44, 45	5.0	6.6	88.4	39.5	2.9	57.5	4.9	6.6	88.5
Transportation and warehousing	48, 49	3.9	4.2	91.9	2.9	14.6	82.6	3.9	3.9	92.2
Information	51	21.4	18.5	60.1	42.5	34.2	23.2	15.8	14.3	69.9
Publishing	511	27.5	22.9	49.7	46.0	33.7	20.4	20.9	19.0	60.1
Newspaper, periodical, book, and directory publishers	5111	19.5	19.8	60.8	21.3	29.4	49.3	19.4	19.1	61.5
Software publishers	5112	47.0	30.4	22.5	51.0	34.5	14.5	34.9	17.9	47.2
Telecommunications	517	12.7	10.0	77.3	34.6	4.7	60.7	11.2	10.3	78.5
Data processing, hosting, and related services	518	27.3	30.1	42.6	38.8	34.7	26.5	20.1	27.2	52.7
Other information	other 51	16.2	12.9	70.8	40.8	40.1	19.1	11.9	8.2	79.9
Finance and insurance	52	2.9	6.9	90.2	24.9	27.6	47.4	2.2	6.2	91.5
Real estate and rental and leasing	53	4.6	3.4	92.0	47.1	29.8	23.1	4.6	3.4	92.1
Professional, scientific, and technical services	54	6.6	9.2	84.2	30.2	31.0	38.9	4.2	7.0	88.8
Architectural, engineering, and related services	5413	6.7	9.1	84.2	27.9	18.1	54.0	3.3	7.6	89.1
Computer systems design and related services	5415	21.2	21.8	57.1	33.6	36.3	30.2	13.7	13.1	73.1
Scientific R&D services	5417	21.3	27.4	51.3	25.6	33.1	41.3	S	S	S
Biotechnology R&D	541711	21.4	34.3	44.4	24.4	37.7	37.9	D	D	S
Physical, engineering, and life sciences (except biotechnology) R&D	541712	22.1	25.4	52.5	26.8	30.8	42.5	S	S	S
Social sciences and humanities R&D	541720	14.0	16.2	69.8	17.5	28.9	53.6	12.1	9.4	78.5
Other professional, scientific, and technical services	other 54	3.5	6.4	90.1	23.6	32.8	43.6	3.2	6.1	90.7
Health care services	621–623	2.7	3.0	94.3	16.5	1.5	81.9	2.5	3.0	94.5
Other nonmanufacturing	55, 56, 624, 71, 72, 81	6.3	5.8	87.9	18.1	19.5	62.4	6.2	5.7	88.1
All companies (number of employees)	–	6.2	6.6	87.2	30.1	25.4	44.5	5.2	5.7	89.1
Small companies (number of employees)[b]										
5–499	–	6.0	6.5	87.5	28.9	25.5	45.6	5.1	5.7	89.3
5–99	–	5.7	6.2	88.1	27.1	25.8	47.1	4.8	5.5	89.7
5–49	–	5.4	6.0	88.6	25.3	26.1	48.7	4.7	5.3	90.1
5–9	–	3.9	4.8	91.2	20.4	26.6	53.0	3.5	4.2	92.3
10–24	–	6.0	6.5	87.5	28.0	26.3	45.7	5.3	5.8	88.9
25–49	–	7.6	8.1	84.3	27.0	25.1	47.9	6.3	6.9	86.7
50–99	–	9.4	9.1	81.5	39.8	24.0	36.2	7.1	8.0	84.9
100–249	–	11.6	12.7	75.7	38.1	24.1	37.8	8.2	11.2	80.6
250–499	–	23.5	10.0	66.6	51.2	21.9	26.9	19.8	8.4	71.8

TABLE 134. Importance of trademarks for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Medium and large companies (number of employees)										
500–999	–	30.4	16.6	53.0	50.2	27.9	21.9	26.6	14.4	59.0
1,000–4,999	–	26.7	19.2	54.1	60.7	20.9	18.5	16.7	18.7	64.7
5,000–9,999	–	39.8	14.0	46.3	76.1	16.0	7.9	18.1	12.8	69.2
10,000–24,999	–	47.7	13.9	38.4	80.0	17.5	2.5	22.4	11.0	66.6
25,000 or more	–	68.4	10.8	20.9	84.2	10.3	5.5	52.6	11.2	36.2

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2010.

TABLE 135. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	4.8	5.1	90.1	23.0	22.9	54.2	3.9	4.3	91.7
Manufacturing industries	31–33	8.4	10.5	81.0	19.4	24.9	55.8	5.0	6.0	89.0
Food	311	9.4	6.7	83.9	18.0	13.0	69.0	7.2	5.1	87.8
Beverage and tobacco products	312	9.4	15.2	75.4	13.0	28.6	58.4	9.2	14.3	76.5
Textiles, apparel, and leather products	313–316	8.3	13.1	78.5	11.9	26.8	61.3	7.3	9.1	83.6
Wood products	321	1.5	2.8	95.7	14.6	10.3	75.1	0.7	2.4	96.9
Paper	322	5.0	9.7	85.3	17.3	21.3	61.4	3.6	8.4	87.9
Printing and related support activities	323	9.9	5.9	84.2	8.0	16.6	75.4	10.0	5.1	84.9
Petroleum and coal products	324	7.9	11.7	80.4	16.6	27.5	55.8	2.5	1.9	95.6
Chemicals	325	18.6	25.0	56.4	22.5	33.5	44.0	S	12.5	74.4
Basic chemicals	3251	12.6	19.3	68.1	13.6	28.9	57.4	S	S	S
Resin, synthetic rubber, fibers, and filaments	3252	S	13.0	74.4	13.2	38.8	48.0	D	D	87.0
Pesticide, fertilizer, and other agricultural chemical	3253	15.5	31.9	S	30.0	24.4	45.6	S	34.4	S
Pharmaceuticals and medicines	3254	35.0	33.6	31.4	30.1	37.3	32.6	S	S	S
Soap, cleaning compound, and toilet preparation	3256	10.4	29.9	59.7	12.5	45.7	41.8	8.1	12.9	79.0
Paint, coating, adhesive, and other chemical	3255, 3259	11.5	19.4	69.1	20.7	20.8	58.5	2.7	18.0	79.3
Plastics and rubber products	326	6.5	13.3	80.2	19.0	23.7	57.3	2.2	9.6	88.2
Nonmetallic mineral products	327	4.3	9.5	86.2	19.3	21.1	59.6	1.3	7.3	91.4
Primary metals	331	6.0	7.1	86.9	12.2	22.7	65.1	4.8	4.1	91.0
Fabricated metal products	332	4.6	5.2	90.2	12.7	16.8	70.6	3.3	3.4	93.3
Machinery	333	8.9	14.2	76.9	13.0	26.4	60.6	6.5	7.1	86.3
Agricultural implement	33311	8.2	29.3	62.5	14.3	41.3	44.4	2.5	18.3	79.2
Semiconductor machinery	333295	35.2	26.5	38.3	39.4	28.0	32.6	D	D	64.6
Engine, turbine, and power transmission equipment	3336	8.6	10.0	81.3	11.7	14.0	74.3	6.1	6.8	87.2
Other machinery	other 333	8.7	13.4	77.9	12.3	26.0	61.7	6.7	6.6	86.7
Computer and electronic products	334	20.9	20.8	58.3	29.5	28.4	42.1	9.0	10.3	80.7
Communications equipment	3342	21.2	19.0	59.9	29.7	25.4	45.0	D	D	S
Semiconductor and other electronic components	3344	19.8	20.5	59.7	36.5	30.3	33.3	4.0	11.3	84.7
Navigational, measuring, electromedical, and control instruments	3345	19.1	27.1	53.8	24.9	33.0	42.1	8.9	16.6	74.4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	17.4	34.6	48.0	20.6	42.5	36.9	D	D	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	21.8	14.7	63.5	25.3	14.8	59.9	S	S	S
Other measuring and controlling instruments	other 3345	19.0	27.8	53.2	25.9	35.4	38.7	9.5	17.2	73.3
Other computer and electronic products	other 334	25.1	12.3	62.6	28.1	19.9	52.1	21.3	2.5	76.2
Electrical equipment, appliances, and components	335	10.9	20.6	68.5	15.4	32.2	52.4	6.1	8.2	85.7
Transportation equipment	336	12.5	10.7	76.9	28.7	17.5	53.8	2.4	6.4	91.2
Automobiles, bodies, trailers, and parts	3361–3363	15.1	10.0	74.9	35.4	16.8	47.8	2.1	5.7	92.3
Aerospace products and parts	3364	S	S	S	S	15.7	S	S	S	S
Aircraft, aircraft engine, and aircraft parts	336411–336413	S	S	S	13.7	19.5	66.7	S	S	S
Guided missile, space vehicle, and related parts	336414, 336415, 336419	S	S	S	S	S	S	D	0.0	D
Military armored vehicle, tank, and tank components	336992	0.0	D	D	0.0	D	D	0.0	0.0	100.0
Other transportation	other 336	8.7	14.6	76.7	25.3	23.2	51.6	2.4	11.2	86.4
Furniture and related products	337	4.4	7.3	88.3	19.1	23.2	57.7	2.6	5.3	92.2

TABLE 135. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	10.2	15.5	74.3	25.8	31.3	42.8	2.9	8.0	89.2
Medical equipment and supplies	3391	12.1	18.2	69.7	26.4	37.0	36.7	3.0	6.1	90.9
Other miscellaneous manufacturing	3399	9.1	13.8	77.1	25.4	26.6	48.1	2.8	8.9	88.3
Nonmanufacturing industries	21–23, 42–81	4.4	4.6	91.0	26.2	21.1	52.7	3.9	4.2	91.9
Mining, extraction, and support activities	21	2.3	3.7	94.1	25.5	3.8	70.7	0.2	3.6	96.1
Utilities	22	1.8	5.6	92.6	11.5	39.7	48.8	0.8	2.3	96.8
Construction	23	2.0	2.8	95.2	21.0	7.1	72.0	1.8	2.8	95.4
Wholesale trade	42	6.8	5.4	87.7	17.5	20.3	62.2	6.4	4.9	88.7
Retail trade	44, 45	4.0	4.3	91.7	44.0	7.0	49.0	3.8	4.3	91.9
Electronic shopping and electronic auctions	454111, 454112	27.8	9.2	63.0	69.6	11.9	18.5	24.1	9.0	66.9
Other retail trade	other 44, 45	3.6	4.2	92.1	30.9	4.5	64.6	3.6	4.2	92.2
Transportation and warehousing	48, 49	1.9	2.6	95.5	2.3	0.6	97.2	1.9	2.6	95.5
Information	51	28.2	18.2	53.6	42.8	34.2	23.0	24.3	13.9	61.8
Publishing	511	39.1	23.1	37.8	47.9	35.5	16.6	36.0	18.7	45.3
Newspaper, periodical, book, and directory publishers	5111	35.3	20.9	43.9	30.6	39.5	29.8	35.6	19.6	44.8
Software publishers	5112	48.5	28.6	22.9	51.4	34.6	13.9	39.5	10.1	50.4
Telecommunications	517	6.7	7.9	85.3	17.2	9.0	73.7	6.0	7.8	86.2
Data processing, hosting, and related services	518	23.0	31.5	45.5	34.2	36.3	29.6	16.0	28.5	55.5
Other information	other 51	26.8	12.0	61.2	45.5	34.1	20.4	23.5	8.1	68.4
Finance and insurance	52	2.8	3.3	93.9	23.8	5.9	70.3	2.1	3.2	94.6
Real estate and rental and leasing	53	3.7	4.3	92.1	21.9	23.5	54.6	3.6	4.2	92.1
Professional, scientific, and technical services	54	7.2	9.8	83.0	30.1	27.3	42.6	4.9	8.0	87.1
Architectural, engineering, and related services	5413	10.8	9.3	80.0	25.7	22.6	51.7	8.4	7.1	84.5
Computer systems design and related services	5415	23.2	19.8	57.0	36.7	31.9	31.3	15.2	12.6	72.3
Scientific R&D services	5417	15.9	20.2	63.9	18.2	23.8	58.0	S	S	S
Biotechnology R&D	541711	10.3	23.7	66.0	11.3	24.9	63.8	D	D	S
Physical, engineering, and life sciences (except biotechnology) R&D	541712	18.4	19.2	62.4	21.4	23.3	55.3	S	S	S
Social sciences and humanities R&D	541720	16.0	14.9	69.1	29.5	21.0	49.5	8.8	11.5	79.7
Other professional, scientific, and technical services	other 54	3.2	7.8	89.1	22.0	19.0	59.0	2.9	7.6	89.5
Health care services	621–623	2.2	2.4	95.4	13.5	1.8	84.7	2.0	2.4	95.6
Other nonmanufacturing	55, 56, 624, 71, 72, 81	4.3	4.1	91.6	16.8	19.4	63.9	4.2	4.0	91.8
All companies (number of employees)	–	4.8	5.1	90.1	23.0	22.9	54.2	3.9	4.3	91.7
Small companies (number of employees)[b]										
5–499	–	4.7	5.1	90.2	22.6	22.5	55.0	3.9	4.3	91.8
5–99	–	4.4	4.9	90.6	22.0	22.0	56.0	3.8	4.3	92.0
5–49	–	4.2	5.0	90.8	20.8	22.1	57.2	3.6	4.3	92.0
5–9	–	3.8	4.2	92.0	21.3	15.0	63.7	3.4	3.9	92.8
10–24	–	4.2	5.6	90.2	22.0	25.9	52.1	3.6	4.9	91.5
25–49	–	5.4	5.5	89.2	18.3	24.9	56.8	4.5	4.2	91.3
50–99	–	7.4	4.5	88.1	30.3	21.7	47.9	5.7	3.3	91.1
100–249	–	6.8	8.7	84.5	26.1	25.3	48.5	4.3	6.6	89.1
250–499	–	19.9	5.5	74.5	29.3	26.8	43.9	18.7	2.7	78.6

TABLE 135. Importance of copyrights for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Medium and large companies (number of employees)										
500–999	–	11.7	6.4	81.8	24.3	30.4	45.3	9.3	1.7	89.0
1,000–4,999	–	12.8	14.5	72.7	34.5	33.5	32.0	6.3	8.9	84.8
5,000–9,999	–	21.7	22.1	56.2	38.0	42.4	19.5	12.0	10.0	77.9
10,000–24,999	–	25.1	24.2	50.7	41.5	44.6	13.9	12.4	8.5	79.1
25,000 or more	–	39.8	27.3	32.9	54.4	36.2	9.5	25.5	18.5	56.0

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2010.

TABLE 136. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	6.5	6.7	86.8	40.6	21.2	38.2	5.0	6.1	89.0
Manufacturing industries	31–33	17.9	14.4	67.7	43.3	24.4	32.4	9.9	11.3	78.8
Food	311	23.2	16.2	60.6	43.3	25.3	31.5	17.9	13.9	68.2
Beverage and tobacco products	312	15.4	13.7	70.9	50.3	37.8	11.9	13.2	12.2	74.7
Textiles, apparel, and leather products	313–316	11.9	23.0	65.1	26.2	52.5	21.3	7.7	14.3	78.0
Wood products	321	3.1	7.2	89.7	30.7	20.2	49.1	1.4	6.4	92.2
Paper	322	11.4	10.8	77.9	50.7	23.4	26.0	7.0	9.4	83.6
Printing and related support activities	323	9.4	11.2	79.3	22.0	23.6	54.4	8.5	10.3	81.3
Petroleum and coal products	324	33.1	8.0	58.9	65.5	17.7	16.8	12.9	D	D
Chemicals	325	44.4	23.9	31.7	55.5	28.2	16.3	28.1	17.6	54.3
Basic chemicals	3251	49.5	14.7	35.8	62.1	9.5	28.4	S	S	S
Resin, synthetic rubber, fibers, and filaments	3252	38.0	7.1	54.9	72.4	16.6	10.9	S	2.7	75.7
Pesticide, fertilizer, and other agricultural chemical	3253	31.5	34.0	S	62.6	D	D	S	38.1	S
Pharmaceuticals and medicines	3254	55.1	38.9	6.0	52.0	41.5	6.5	S	D	D
Soap, cleaning compound, and toilet preparation	3256	38.0	19.0	43.0	45.2	15.3	39.4	30.2	23.0	46.8
Paint, coating, adhesive, and other chemical	3255, 3259	37.7	20.0	42.2	59.7	24.6	15.8	16.7	15.7	67.6
Plastics and rubber products	326	17.8	18.1	64.1	41.3	25.6	33.1	9.6	15.4	75.0
Nonmetallic mineral products	327	16.8	12.9	70.3	48.9	21.6	29.5	10.6	11.2	78.3
Primary metals	331	18.5	15.9	65.6	42.0	27.2	30.7	14.1	13.8	72.1
Fabricated metal products	332	11.4	12.0	76.6	28.6	17.2	54.2	8.7	11.2	80.1
Machinery	333	23.5	16.4	60.0	45.4	20.9	33.7	10.8	13.8	75.4
Agricultural implement	33311	19.0	28.1	52.9	30.8	35.9	33.3	8.2	21.0	70.8
Semiconductor machinery	333295	55.8	25.8	18.4	64.5	25.4	10.1	D	D	56.7
Engine, turbine, and power transmission equipment	3336	38.9	12.6	48.5	79.0	10.8	10.2	5.5	14.2	80.3
Other machinery	other 333	22.5	15.8	61.6	43.6	20.3	36.1	11.1	13.4	75.5
Computer and electronic products	334	41.2	16.7	42.1	57.6	20.1	22.3	18.6	11.9	69.5
Communications equipment	3342	42.0	18.8	S	56.3	26.3	17.4	S	D	D
Semiconductor and other electronic components	3344	40.1	14.5	45.4	62.7	16.1	21.3	18.7	13.0	68.3
Navigational, measuring, electromedical, and control instruments	3345	45.7	19.9	34.4	58.1	21.6	20.2	23.4	16.8	59.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	55.8	11.4	32.9	66.9	14.5	18.5	D	D	71.4
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	34.2	42.8	22.9	39.0	47.4	13.6	D	D	S
Other measuring and controlling instruments	other 3345	45.6	17.5	36.9	61.0	16.5	22.5	24.2	18.9	56.9
Other computer and electronic products	other 334	35.4	13.6	51.0	50.7	18.1	31.2	15.6	7.8	76.6
Electrical equipment, appliances, and components	335	32.0	17.6	50.5	47.1	23.1	29.9	16.0	11.7	72.3
Transportation equipment	336	21.8	16.8	61.4	44.7	25.1	30.2	7.6	11.7	80.7
Automobiles, bodies, trailers, and parts	3361–3363	23.6	16.6	59.7	49.1	19.0	31.8	7.3	15.1	77.6
Aerospace products and parts	3364	S	S	S	39.3	S	24.0	S	S	S
Aircraft, aircraft engine, and aircraft parts	336411–336413	S	S	S	43.5	24.6	31.9	S	S	S
Guided missile, space vehicle, and related parts	336414, 336415, 336419	S	D	D	S	D	D	D	0.0	D
Military armored vehicle, tank, and tank components	336992	D	0.0	D	D	0.0	D	0.0	0.0	100.0
Other transportation	other 336	15.8	14.3	69.8	36.6	31.2	32.2	7.8	7.8	84.4
Furniture and related products	337	6.3	9.8	83.9	22.8	21.6	55.6	4.2	8.3	87.5

TABLE 136. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	19.2	13.1	67.7	42.5	25.8	31.6	8.3	7.1	84.6
Medical equipment and supplies	3391	25.9	13.7	60.4	55.2	24.5	20.2	7.1	6.8	86.2
Other miscellaneous manufacturing	3399	15.2	12.7	72.2	31.6	27.0	41.4	8.9	7.2	83.9
Nonmanufacturing industries	21–23, 42–81	5.4	6.0	88.6	38.1	18.3	43.6	4.6	5.7	89.7
Mining, extraction, and support activities	21	9.1	5.5	85.4	37.4	3.4	59.2	6.7	5.7	87.6
Utilities	22	7.0	12.8	80.2	47.6	18.5	33.9	3.1	12.3	84.6
Construction	23	3.3	4.5	92.3	24.5	25.8	49.7	3.1	4.2	92.7
Wholesale trade	42	10.1	9.0	80.9	34.6	21.9	43.5	9.2	8.5	82.3
Retail trade	44, 45	3.4	5.7	90.9	49.3	4.2	46.4	3.2	5.7	91.1
Electronic shopping and electronic auctions	454111, 454112	21.4	15.9	62.7	79.2	8.4	12.4	16.2	16.6	67.2
Other retail trade	other 44, 45	3.1	5.6	91.3	34.1	2.1	63.8	3.0	5.6	91.4
Transportation and warehousing	48, 49	5.2	4.2	90.5	17.2	0.4	82.5	4.9	4.3	90.7
Information	51	19.4	14.9	65.6	49.9	24.3	25.8	11.3	12.5	76.2
Publishing	511	25.8	14.4	59.8	51.0	18.1	30.9	16.8	13.1	70.0
Newspaper, periodical, book, and directory publishers	5111	15.0	13.6	71.4	7.5	7.7	84.8	15.5	14.0	70.6
Software publishers	5112	52.3	16.5	31.2	59.8	20.2	20.0	29.5	5.2	65.3
Telecommunications	517	6.3	9.2	84.5	41.5	18.6	39.9	3.8	8.5	87.6
Data processing, hosting, and related services	518	34.1	20.8	45.0	56.2	22.1	21.7	20.5	20.1	59.5
Other information	other 51	12.4	15.6	72.0	43.4	S	S	7.1	11.6	81.4
Finance and insurance	52	4.6	5.9	89.4	27.5	S	69.9	3.9	6.0	90.0
Real estate and rental and leasing	53	5.2	5.0	89.7	63.4	D	D	5.2	5.0	89.8
Professional, scientific, and technical services	54	8.9	8.7	82.4	43.0	22.9	34.1	5.5	7.2	87.3
Architectural, engineering, and related services	5413	11.2	8.5	80.3	34.0	14.6	51.4	7.5	7.5	85.0
Computer systems design and related services	5415	24.6	18.2	57.2	45.3	27.8	26.9	12.3	12.5	75.2
Scientific R&D services	5417	45.8	16.6	37.6	59.6	18.0	22.5	S	S	S
Biotechnology R&D	541711	59.2	11.8	29.0	67.9	11.0	21.1	S	S	S
Physical, engineering, and life sciences (except biotechnology) R&D	541712	43.2	19.1	37.8	57.1	22.0	20.9	S	S	S
Social sciences and humanities R&D	541720	14.9	14.5	70.6	21.6	15.4	63.1	11.2	14.1	74.7
Other professional, scientific, and technical services	other 54	4.6	6.7	88.7	30.1	24.6	45.3	4.2	6.5	89.3
Health care services	621–623	2.2	3.3	94.6	26.7	0.7	72.6	1.8	3.3	94.9
Other nonmanufacturing	55, 56, 624, 71, 72, 81	5.5	6.1	88.3	30.7	15.8	53.4	5.3	6.0	88.7
All companies (number of employees)	–	6.5	6.7	86.8	40.6	21.2	38.2	5.0	6.1	89.0
Small companies (number of employees)[b]										
5–499	–	6.3	6.7	87.0	39.8	21.2	39.0	4.9	6.1	89.0
5–99	–	6.0	6.6	87.5	37.4	21.5	41.1	4.7	6.0	89.3
5–49	–	5.7	6.3	88.0	35.5	21.8	42.7	4.6	5.8	89.7
5–9	–	4.1	5.6	90.3	27.7	20.4	51.9	3.4	5.2	91.3
10–24	–	6.7	6.6	86.8	41.1	20.0	38.9	5.5	6.1	88.5
25–49	–	7.3	7.8	84.9	36.8	26.1	37.0	5.4	6.5	88.1
50–99	–	10.1	9.5	80.4	50.1	19.6	30.3	7.0	8.7	84.2
100–249	–	11.3	10.4	78.4	57.6	19.0	23.4	5.4	9.3	85.3
250–499	–	23.3	7.9	68.8	55.0	20.0	25.0	19.2	6.3	74.5

TABLE 136. Importance of trade secrets for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Medium and large companies (number of employees)										
500–999	–	24.3	9.4	66.3	53.2	23.0	23.8	18.7	6.8	74.5
1,000–4,999	–	21.8	11.6	66.7	59.3	20.2	20.4	10.6	9.0	80.5
5,000–9,999	–	33.8	10.8	55.4	73.1	15.3	11.7	10.5	8.1	81.3
10,000–24,999	–	42.2	11.9	45.9	78.2	16.9	4.9	14.1	8.0	77.9
25,000 or more	–	61.1	8.7	30.2	84.5	8.7	6.8	35.0	8.7	56.3

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2010.

TABLE 137. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		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	0.9	1.4	97.8	3.1	4.2	92.7	0.8	1.2	98.0
Manufacturing industries	31–33	1.5	2.4	96.1	3.5	4.6	92.0	0.9	1.7	97.4
Food	311	0.6	1.1	98.3	0.5	2.0	97.5	0.6	0.8	98.6
Beverage and tobacco products	312	0.0	1.5	98.5	0.0	D	D	0.0	1.6	98.4
Textile, apparel and leather	313–316	0.7	1.5	97.8	D	D	97.1	0.9	S	98.0
Textiles, apparel, and leather products	321	0.0	1.6	98.4	0.0	1.6	98.4	0.0	1.6	98.4
Paper	322	D	D	98.3	D	D	94.8	0.0	1.3	98.7
Printing and related support activities	323	2.4	2.0	95.6	0.5	2.0	97.5	2.6	2.0	95.5
Petroleum and coal products	324	D	D	98.6	D	D	96.4	0.0	0.0	100.0
Chemicals	325	1.2	4.8	94.0	1.3	4.3	94.5	S	5.6	93.4
Basic chemicals	3251	1.1	3.2	95.7	D	D	97.2	S	S	S
Resin, synthetic rubber, fibers, and filaments	3252	S	S	93.9	D	D	94.9	D	D	93.4
Pesticide, fertilizer, and other agricultural chemical	3253	5.0	22.1	S	D	D	86.1	D	28.7	D
Pharmaceuticals and medicines	3254	1.6	4.0	94.5	1.8	4.4	93.9	S	D	D
Soap, cleaning compound, and toilet preparation	3256	0.8	3.5	95.7	D	D	96.1	1.4	3.3	95.2
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	95.1	D	D	93.6	0.0	3.4	96.6
Plastics and rubber products	326	1.6	3.8	94.6	2.5	1.7	95.7	1.3	4.6	94.2
Nonmetallic mineral products	327	0.3	1.9	97.8	D	D	94.0	D	D	98.6
Primary metals	331	0.3	1.7	98.0	1.4	10.0	88.6	D	D	D
Fabricated metal products	332	0.7	1.8	97.5	0.6	2.9	96.5	0.8	1.6	97.6
Machinery	333	1.4	2.7	95.9	3.4	3.4	93.2	0.2	2.3	97.5
Agricultural implement	33311	D	D	89.2	D	D	92.6	0.0	D	D
Semiconductor machinery	333295	30.4	12.6	57.0	35.3	11.0	53.7	D	D	72.4
Engine, turbine, and power transmission equipment	3336	D	D	97.4	D	D	97.0	D	D	D
Other machinery	other 333	1.2	2.2	96.6	3.0	3.1	93.9	0.2	1.7	98.1
Computer and electronic products	334	10.9	7.7	81.4	16.1	11.4	72.5	3.8	2.6	93.6
Communications equipment	3342	6.2	6.5	87.3	8.2	9.5	82.3	D	S	D
Semiconductor and other electronic components	3344	20.5	8.8	70.7	35.5	13.0	51.6	6.2	4.9	88.9
Navigational, measuring, electromedical, and control instruments	3345	6.7	4.4	88.9	9.2	6.5	84.3	S	0.6	97.1
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	S	5.4	89.3	4.1	7.4	88.5	D	0.0	D
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	8.4	5.5	86.1	9.7	4.9	85.4	S	D	D
Other measuring and controlling instruments	other 3345	6.7	4.0	89.3	10.4	6.7	82.9	1.6	D	D
Other computer and electronic products	other 334	5.7	11.8	82.5	8.2	19.5	72.3	D	D	95.8
Electrical equipment, appliances, and components	335	1.6	5.6	92.9	2.4	8.0	89.6	D	D	96.4
Transportation equipment	336	1.2	2.3	96.5	2.8	2.5	94.7	0.2	2.2	97.6
Automobiles, bodies, trailers, and parts	3361–3363	1.0	2.4	96.6	2.3	2.6	95.0	D	D	97.7
Aerospace products and parts	3364	S	S	S	0.9	2.1	97.0	D	D	S
Aircraft, aircraft engine, and aircraft parts	336411–336413	S	S	S	1.3	2.5	96.2	D	D	S
Guided missile, space vehicle, and related parts	336414, 336415, 336419	S	D	D	S	D	D	0.0	D	D
Military armored vehicle, tank, and tank components	336992	0.0	0.0	100.0	S	S	S	0.0	0.0	100.0
Other transportation	other 336	2.5	2.3	95.2	7.7	2.5	89.8	D	D	97.3
Furniture and related products	337	1.2	0.6	98.2	0.4	1.3	98.3	D	D	D

TABLE 137. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Miscellaneous manufacturing	339	0.9	2.1	97.0	2.5	4.6	92.9	0.2	1.0	98.9
Medical equipment and supplies	3391	1.8	2.4	95.8	4.2	3.7	92.2	D	D	98.2
Other miscellaneous manufacturing	3399	0.4	2.0	97.6	1.0	5.5	93.6	D	D	99.2
Nonmanufacturing industries	21–23, 42–81	0.8	1.3	97.9	2.7	3.9	93.4	0.8	1.2	98.0
Mining, extraction, and support activities	21	D	D	97.4	D	D	98.8	0.0	2.7	97.3
Utilities	22	0.5	1.3	98.2	5.8	9.4	84.8	0.0	0.5	99.5
Construction	23	0.5	1.0	98.5	D	D	99.4	0.5	1.0	98.5
Wholesale trade	42	1.7	1.7	96.7	1.8	0.9	97.3	1.6	1.7	96.7
Retail trade	44, 45	1.0	1.1	97.9	D	D	D	1.0	1.1	97.9
Electronic shopping and electronic auctions	454111, 454112	1.1	0.6	98.3	D	0.0	D	D	D	98.2
Other retail trade	other 44, 45	1.0	1.1	97.9	D	D	D	1.0	1.1	97.9
Transportation and warehousing	48, 49	D	D	97.5	0.0	D	D	D	D	97.4
Information	51	0.8	3.8	95.4	2.1	7.4	90.6	0.4	2.8	96.8
Publishing	511	1.0	3.6	95.3	2.9	6.7	90.4	0.4	2.6	97.1
Newspaper, periodical, book, and directory publishers	5111	D	D	97.2	0.0	0.0	100.0	D	D	97.0
Software publishers	5112	3.3	6.1	90.6	3.5	8.0	88.5	D	0.0	D
Telecommunications	517	0.2	6.9	92.9	2.6	4.0	93.4	D	D	92.8
Data processing, hosting, and related services	518	2.1	2.1	95.7	2.1	1.1	96.8	2.1	2.8	95.1
Other information	other 51	0.1	3.3	96.5	D	D	84.6	D	D	98.6
Finance and insurance	52	D	D	97.3	D	D	76.9	0.0	2.1	97.9
Real estate and rental and leasing	53	D	D	96.8	0.0	D	D	D	D	96.8
Professional, scientific, and technical services	54	1.4	1.0	97.6	3.0	2.6	94.4	1.2	0.8	98.0
Architectural, engineering, and related services	5413	1.1	1.1	97.8	3.1	2.9	94.0	0.8	0.8	98.5
Computer systems design and related services	5415	2.7	2.1	95.2	3.2	2.1	94.7	2.4	2.1	95.4
Scientific R&D services	5417	3.2	4.9	91.8	3.2	4.4	92.4	S	S	S
Biotechnology R&D	541711	3.3	3.5	93.2	3.8	3.5	92.6	S	D	D
Physical, engineering, and life sciences (except biotechnology) R&D	541712	3.2	6.1	90.8	2.7	5.0	92.3	S	S	S
Social sciences and humanities R&D	541720	D	D	D	D	D	D	D	0.0	D
Other professional, scientific, and technical services	other 54	1.2	0.6	98.2	0.9	1.5	97.6	1.2	0.6	98.2
Health care services	621–623	0.8	0.8	98.5	D	D	D	0.8	0.8	98.4
Other nonmanufacturing	55, 56, 624, 71, 72, 81	0.5	1.3	98.2	0.2	14.4	85.4	0.5	1.2	98.3
All companies (number of employees)	–	0.9	1.4	97.8	3.1	4.2	92.7	0.8	1.2	98.0
Small companies (number of employees)[b]										
5–499	–	0.9	1.3	97.8	3.0	4.0	92.9	0.8	1.2	98.0
5–99	–	0.9	1.3	97.9	2.9	3.9	93.2	0.8	1.1	98.0
5–49	–	0.8	1.2	98.0	2.9	3.9	93.2	0.7	1.1	98.2
5–9	–	0.6	1.0	98.4	2.0	2.5	95.5	0.5	1.0	98.5
10–24	–	0.9	1.4	97.7	3.3	6.0	90.8	0.8	1.2	97.9
25–49	–	0.9	1.3	97.8	3.5	2.4	94.1	0.7	1.3	98.0
50–99	–	2.6	1.4	95.9	2.7	4.3	93.0	2.6	1.2	96.2
100–249	–	1.0	3.1	96.0	3.9	5.0	91.1	0.6	2.8	96.6
250–499	–	1.1	3.7	95.2	4.6	5.1	90.3	0.7	3.5	95.8

TABLE 137. Importance of mask works for R&D-active and non-R&D-active companies, by industry: 2010
(Percent)

Industry and company size	NAICS code	All companies			R&D-active companies[a]			Non-R&D-active companies		
		Very important	Somewhat important	Not important	Very important	Somewhat important	Not important	Very important	Somewhat important	Not important
Medium and large companies (number of employees)										
500–999	–	0.8	1.2	98.0	3.3	5.7	91.0	0.3	0.3	99.4
1,000–4,999	–	3.9	4.1	92.0	4.9	9.0	86.0	3.6	2.7	93.8
5,000–9,999	–	1.8	5.6	92.6	3.6	10.8	85.6	D	D	96.9
10,000–24,999	–	2.9	4.5	92.5	5.6	8.5	85.9	D	D	D
25,000 or more	–	2.4	3.1	94.4	4.9	6.2	88.9	0.0	0.0	100.0

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

NAICS = 2007 North American Industry Classification System.

[a] Statistics are representative of companies located in United States that performed or funded R&D.

[b] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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, 2010.

TABLE 138. Domestic R&D paid for and performed by the company and number of companies that reported R&D in each application area, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS codes	Domestic R&D		Application area			
				Energy		Environmental protection	
		Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42–81	48,393	221,706	11,557	16,477	11,284	7,923
Manufacturing industries	31–33	25,408	159,579	6,381	12,416	5,762	6,147
Food	311	1,704	3,659	179	162 i	74	96 i
Chemicals	325	3,064	53,555	490	673	595	671
Basic chemicals	3251	416	1,718	115	166	118	171
Pharmaceuticals and medicines	3254	1,471	45,398	89	186	89	190
Other chemicals	other 325	1,177	6,440	286	321	389	311
Plastics and rubber products	326	1,253	1,809	236	74	342	105
Nonmetallic mineral products	327	617	1,246 i	184	117	216	202 i
Fabricated metal products	332	2,834	1,464	911	165	937	90
Machinery	333	3,629	9,384	1,399	1,694	1,192	1,621
Agricultural implement	33311	269	1,172	29	65	38	135
Semiconductor machinery	333295	82	1,999	35	107	14	7
Engine, turbine, and power transmission equipment	3336	255	1,231	213	587	182	586
Other machinery	other 333	3,024	4,981	1,123	935	958	893
Computer and electronic products	334	3,013	51,223	867	3,708	531	1,414
Semiconductor and other electronic components	3344	821	21,318	291	2,025 i	96	214
Other electronic products	other 334	2,192	29,905	576	1,683	435	1,200
Electrical equipment, appliances, and components	335	1,411	3,141	540	863	275	194
Transportation equipment	336	1,646	21,076	532	3,881	471	1,129
Automobiles, bodies, trailers, and parts	3361–3363	987	10,098	277	2,935	324	1,044
Other transportation	other 336	658	10,978	255	946	147	85
Miscellaneous manufacturing	339	3,008	8,097	556	123	543	72
Other manufacturing	312–316, 321–324, 331, 337	3,229	4,924	486	955 i	586	554
Nonmanufacturing industries	21–23, 42–81	22,985	62,127	5,177	4,061	5,522	1,776
Mining, extraction, and support activities	21	415	2,254	210	1,250	209	177
Utilities	22	72	371	65	339	53	54
Construction	23	1,319	704	354	210	615	48 i
Wholesale and retail trade	42, 44, 45	1,671	D	318	28	241	21
Information	51	3,462	36,085	923	598	565	175
Publishing	511	1,809	26,387	496	377	470	122
Telecommunications	517	136	1,755	35	35 i	33	33 i
Data processing, hosting, and related services	518	618	2,491	48	47	57	16
Other information	other 51	899	5,452	343	139	6	4 i
Professional, scientific, and technical services	54	9,902	15,438	2,139	1,422 i	2,251	599 i
Architectural, engineering, and related services	5413	2,758	1,381	1,110	561 i	1,233	190 i
Scientific research and development services	5417	751	2,851	196	234	164	100
Biotechnology research and development	541711	369	1,720	69	84	67	25
Other scientific research and development	other 5417	382	1,131	128	150	98	75
Other professional, scientific, and technical services	other 54	6,393	11,206	832	626	853	309 i

TABLE 138. Domestic R&D paid for and performed by the company and number of companies that reported R&D in each application area, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS codes	Domestic R&D		Application area			
				Energy		Environmental protection	
		Companies	Amount	Companies	Amount	Companies	Amount
Health care services	621–623	1,944	1,126	0	0	254	31
Other nonmanufacturing	48, 49, 52, 53, 55, 56, 624, 71, 72, 81	4,200	D	1,170	215 i	1,334	671 i
All companies (number of employees)	–	48,393	221,706	11,557	16,477	11,284	7,923
Small companies (number of employees)[a]							
5–499	--	46,261	40,822	10,878	3,840	10,721	2,600
5–99	--	40,194	22,974	9,557	2,604	9,452	1,922
5–49	–	34,709	16,574	8,202	2,053	8,255	1,690
5–9	–	11,265	2,907	2,493	245	2,377	154
10–24	–	13,299	6,720	3,401	440	3,562	706 i
25–49	–	10,145	6,947	2,309	1,369	2,317	830
50–99	–	5,485	6,400	1,355	550	1,196	232
100–249	–	4,516	9,435	947	652	986	458
250–499	–	1,551	8,413	374	584	284	220
Medium and large companies (number of employees)							
500–999	–	794	8,640	192	590	163	186
1,000–4,999	–	912	39,468	286	2,458	233	1,214
5,000–9,999	–	187	21,940	84	1,277 i	71	622 i
10,000–24,999	–	134	36,688	69	1,967	55	980
25,000 or more	–	105	74,148	49	6,345	41	2,321

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 139. Domestic R&D paid for by others and performed by the company and number of companies that reported R&D in each application area, by industry and company size: 2010 (corrected November 2013)

(Millions of U.S. dollars)

				Application area			
		Domestic R&D		Energy		Environmental protection	
Industry and company size	NAICS codes	Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42–81	8,980	57,271	2,941	2,910	2,534	1,766 i
Manufacturing industries	31–33	3,018	37,133	978	1,329	750	639 i
Food	311	62	168	6	37	D	D
Chemicals	325	449	4,483	69	85	55	44
Basic chemicals	3251	67	85	32	40	18	9
Pharmaceuticals and medicines	3254	224	4,017	17	23	12	17
Other chemicals	other 325	158	380	20	22	25	19
Plastics and rubber products	326	136	312 i	47	5	49	20
Nonmetallic mineral products	327	28	30	24	17	5	4
Fabricated metal products	332	418	239	133	5	123	3
Machinery	333	482	571	271	133	238	64
Agricultural implement	33311	15	23	4	3	D	3
Semiconductor machinery	333295	11	127	6	7 i	5	1 i
Engine, turbine, and power transmission equipment	3336	15	113	12	59	6	20
Other machinery	other 333	440	308	249	64	D	39
Computer and electronic products	334	560	8,652	128	273	77	66
Semiconductor and other electronic components	3344	137	615	38	45	14	24 i
Other electronic products	other 334	423	8,037	90	228	63	42
Electrical equipment, appliances, and components	335	157	180	81	76	47	20
Transportation equipment	336	148	21,837 i	43	549 i	39	365 i
Automobiles, bodies, trailers, and parts	3361–3363	88	D	25	136	26	70 i
Other transportation	other 336	60	D	18	413 i	13	295 i
Miscellaneous manufacturing	339	284	D	60	24	48	12 i
Other manufacturing	312–316, 321–324, 331, 337	294	D	115	125	D	D
Nonmanufacturing industries	21–23, 42–81	5,962	20,138	1,963	1,581	1,784	1,127
Mining, extraction, and support activities	21	33	289	D	283	23	4
Utilities	22	23	54	23	31	14	14
Construction	23	12	375	5	4	4	365
Wholesale and retail trade	42, 44, 45	830	233	205	13	304	10 i
Information	51	238	768	34	23	33	19
Publishing	511	85	595	29	21	27	17
Telecommunications	517	10	113	D	D	D	D
Data processing, hosting, and related services	518	121	47	D	D	D	D
Other information	other 51	22	13	0	0	0	0
Professional, scientific, and technical services	54	3,968	18,252	1,657	1,211 i	1,400	712 i
Architectural, engineering, and related services	5413	1,193	2,712	791	342 i	660	161 i
Scientific R&D services	5417	1,483	11,968	495	693 i	437	427 i
Biotechnology R&D	541711	472	3,890	137	84 i	128	65 i
Other scientific R&D	other 5417	1,010	8,077	358	610 i	309	362 i
Other professional, scientific, and technical services	other 54	1,292	3,573	371	176 i	303	125

TABLE 139. Domestic R&D paid for by others and performed by the company and number of companies that reported R&D in each application area, by industry and company size: 2010 (corrected November 2013)

(Millions of U.S. dollars)

				Application area			
		Domestic R&D		Energy		Environmental protection	
Industry and company size	NAICS codes	Companies	Amount	Companies	Amount	Companies	Amount
Health care services	621–623	564	107	0	0	0	0
Other nonmanufacturing	48, 49, 52, 53, 55, 56, 624, 71, 72, 81	293	61	D	16	6	2 i
All companies (number of employees)	–	8,980	57,271	2,941	2,910	2,534	1,766 i
Small companies (number of employees)[a]							
5–499	–	8,530	11,379	2,770	1,055	2,416	634 i
5–99	–	7,769	7,078	2,549	846	2,251	514 i
5–49	–	7,033	4,623	2,336	595	2,063	379 i
5–9	–	2,401	944	764	162	563	55
10–24	–	2,899	2,002	1,221	221	1,122	172 i
25–49	–	1,733	1,678	350	211	379	152
50–99	–	736	2,455	214	251	188	135 i
100–249	–	564	2,431	175	110 i	128	79
250–499	–	197	1,870	45	99	38	42
Medium and large companies (number of employees)							
500–999	–	125	1,477	36	63 i	34	60
1,000–4,999	–	180	8,760	68	429 i	38	202
5,000–9,999	–	52	5,523	21	122	13	47 i
10,000–24,999	–	50	5,147	22	397	17	96
25,000 or more	–	43	24,985 i	24	844 i	16	727 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 140. Domestic R&D paid for and performed by the company and number of companies that reported R&D in selected technology focus areas, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS codes	Domestic R&D		Technology focus area: Software products		Embedded software		Medical clinical trials		Biotechnology		Nanotechnology	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42–81	48,393	221,706	19,161	46,513	13,450	17,304	10,040	22,826	5,972	20,061	3,810	11,532
Manufacturing industries	31–33	25,408	159,579	5,270	9,334	5,336	10,540	5,717	21,700	3,082	17,994	2,166	10,077
Food	311	1,704	3,659	252	21	177	21	D	D	224	140	8	2 i
Chemicals	325	3,064	53,555	313	140	218	336	1,841	19,939	1,457	16,331	526	640 i
Basic chemicals	3251	416	1,718	3	*	4	1	126	41	62	150	75	73
Pharmaceuticals and medicines	3254	1,471	45,398	226	104	144	303	1,416	19,847	1,226	15,316	245	384 i
Other chemicals	other 325	1,177	6,440	84	36	70	32	299	51 i	169	865 i	206	183
Plastics and rubber products	326	1,253	1,809	156	17	36	6	798	51	124	46	61	24
Nonmetallic mineral products	327	617	1,246 i	69	41	4	31 i	82	33 i	38	5	135	45 i
Fabricated metal products	332	2,834	1,464	527	78	398	43	D	D	20	9	40	21
Machinery	333	3,629	9,384	867	394	882	554	694	7 i	172	26	81	1,108
Agricultural implement	33311	269	1,172	19	17	45	58	0	0	0	0	0	0
Semiconductor machinery	333295	82	1,999	15	15	35	30	0	0	12	5	46	1,099
Engine, turbine, and power transmission equipment	3336	255	1,231	30	12 i	94	32	0	0	0	0	0	0
Other machinery	other 333	3,024	4,981	804	349	708	433	694	7 i	160	20	35	9
Computer and electronic products	334	3,013	51,223	1,040	7,371	1,492	7,729	752	532 i	259	415 i	455	7,885 i
Semiconductor and other electronic components	3344	821	21,318	187	2,179	227	2,033	3	12 i	79	29	269	7,251 i
Other electronic products	other 334	2,192	29,905	854	5,192	1,265	5,697	749	520 i	180	387 i	186	633
Electrical equipment, appliances, and components	335	1,411	3,141	328	118	509	268	D	D	42	21 i	171	85
Transportation equipment	336	1,646	21,076	441	396	446	875	64	32	26	117	88	53
Automobiles, bodies, trailers, and parts	3361–3363	987	10,098	171	41	194	211	3	D	D	D	6	10
Other transportation	other 336	658	10,978	269	356	252	663	61	D	D	D	82	44
Miscellaneous manufacturing	339	3,008	8,097	894	602	837	534	1,326	1,062	527	549	409	114 i
Other manufacturing	312–316, 321–324, 331, 337	3,229	4,924	383	158	336	143	153	35	192	335	191	98
Nonmanufacturing industries	21–23, 42–81	22,985	62,127	13,891	37,179	8,114	6,765	4,322	1,126	2,890	2,067	1,644	1,455
Mining, extraction, and support activities	21	415	2,254	12	165	10	54	0	0	9	76	10	17
Utilities	22	72	371	29	4	33	12 i	0	0	27	1 i	25	3 i
Construction	23	1,319	704	316	6 i	11	2	0	0	D	D	0	0
Wholesale and retail trade	42, 44, 45	1,671	D	388	354	532	319	0	0	236	30 i	134	18 i
Information	51	3,462	36,085	2,772	27,290	1,079	3,726	1,213	154	576	111 i	27	1,047
Publishing	511	1,809	26,387	1,659	20,001	637	2,261	1,213	154	461	79 i	D	D
Telecommunications	517	136	1,755	74	785 i	57	506 i	0	0	0	0	D	D
Data processing, hosting, and related services	518	618	2,491	547	1,816 i	204	525 i	0	0	7	* i	0	0
Other information	other 51	899	5,452	492	4,688	181	434	0	0	107	31	0	0

TABLE 140. Domestic R&D paid for and performed by the company and number of companies that reported R&D in selected technology focus areas, by industry and company size: 2010
(Millions of U.S. dollars)

				Technology focus area									
		Domestic R&D		Software products		Embedded software		Medical clinical trials		Biotechnology		Nanotechnology	
Industry and company size	NAICS codes	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Professional, scientific, and technical services	54	9,902	15,438	6,970	7,809	3,794	1,807	2,009	901	1,039	1,594	755	299 i
Architectural, engineering, and related services	5413	2,758	1,381	1,315	250	813	111	1,284	8 i	476	40 i	443	61 i
Scientific R&D services	5417	751	2,851	142	43	221	107	651	864	478	1,503	223	141
Biotechnology R&D	541711	369	1,720	13	3	60	11	337	481 i	347	1,404	105	96 i
Other scientific R&D	other 5417	382	1,131	129	40	161	96	313	383	130	99	118	45
Other professional, scientific, and technical services	other 54	6,393	11,206	5,513	7,516	2,760	1,589	74	29	85	51	89	97 i
Health care services	621–623	1,944	1,126	1,055	80	1,050	93	D	D	814	229	513	40
Other nonmanufacturing	48, 49, 52, 53, 55, 56, 624, 71, 72, 81	4,200	D	2,347	1,470	1,606	751	D	D	D	D	179	32
All companies (number of employees)	–	48,393	221,706	19,161	46,513	13,450	17,304	10,040	22,826	5,972	20,061	3,810	11,532
Small companies (number of employees)[a]													
5–499	–	46,261	40,822	18,501	10,873	12,781	3,951	9,698	4,234 i	5,683	5,341	3,537	2,220 i
5–99	–	40,194	22,974	16,700	6,573	11,313	2,098	8,416	2,597 i	5,211	3,049	3,167	1,644 i
5–49	–	34,709	16,574	14,752	4,870	10,064	1,495	7,081	1,801 i	4,473	2,160	2,776	1,513 i
5–9	–	11,265	2,907	5,254	743	3,638	312	2,063	206 i	1,639	298	789	97 i
10–24	–	13,299	6,720	5,752	2,029	4,384	605	3,254	453 i	1,859	795	1,583	1,232 i
25–49	–	10,145	6,947	3,746	2,097	2,042	579	1,764	1,142 i	974	1,067	404	184
50–99	–	5,485	6,400	1,948	1,703	1,249	603	1,335	796 i	738	889	390	132
100–249	–	4,516	9,435	1,389	2,331	1,092	909	1,003	928	313	1,311	280	248
250–499	–	1,551	8,413	412	1,969	376	944	280	709	159	981	90	327
Medium and large companies (number of employees)													
500–999	–	794	8,640	218	1,770	201	975	137	467	80	1,236	74	431
1,000–4,999	–	912	39,468	264	8,737	270	2,867	142	3,235	113	3,143	114	1,040
5,000–9,999	–	187	21,940	73	4,130	77	1,368	25	1,404	37	2,145 i	32	1,852
10,000–24,999	–	134	36,688	49	6,281	65	2,127	20	3,216	33	5,322	33	2,920
25,000 or more	–	105	74,148	58	14,722	56	6,016	17	10,270	26	2,873	20	3,069 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 141. Domestic R&D paid for by others and performed by the company and number of companies that reported R&D in selected technology focus areas, by industry and company size: 2010 (corrected November 2013)

(Millions of U.S. dollars)

				Technology focus area					
		Domestic R&D		Medical clinical trials		Biotechnology		Nanotechnology	
Industry and company size	NAICS codes	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42–81	8,980	57,271	2,957	6,618	3,006	7,313	1,768	1,968
Manufacturing industries	31–33	3,018	37,133	529	2,009	609	3,097	471	639
Food	311	62	168	0	0	26	30	0	0
Chemicals	325	449	4,483	222	1,844	223	2,480	79	36
Basic chemicals	3251	67	85	D	D	29	D	36	16
Pharmaceuticals and medicines	3254	224	4,017	182	1,838	161	2,365	6	2
Other chemicals	other 325	158	380	D	D	32	D	36	18
Plastics and rubber products	326	136	312 i	0	0	7	*	20	3 i
Nonmetallic mineral products	327	28	30	0	0	5	1	21	7
Fabricated metal products	332	418	239	0	0	3	*	3	*
Machinery	333	482	571	D	D	114	51	72	114
Agricultural implement	33311	15	23	0	0	0	0	0	0
Semiconductor machinery	333295	11	127	0	0	0	0	D	107
Engine, turbine, and power transmission equipment	3336	15	113	D	D	3	D	3	6 i
Other machinery	other 333	440	308	D	D	110	D	D	1 i
Computer and electronic products	334	560	8,652	83	D	105	329	116	383
Semiconductor and other electronic components	3344	137	615	D	D	10	D	46	297
Other electronic products	other 334	423	8,037	D	D	95	D	70	86
Electrical equipment, appliances, and components	335	157	180	0	0	26	4	34	6
Transportation equipment	336	148	21,837 i	6	10 i	6	79	9	D
Automobiles, bodies, trailers, and parts	3361–3363	88	D	0	0	0	0	D	D
Other transportation	other 336	60	D	6	10 i	6	79	D	D
Miscellaneous manufacturing	339	284	D	126	7 i	73	82	48	8
Other manufacturing	312–316, 321–324, 331, 337	294	D	D	10 i	21	42	70	D
Nonmanufacturing industries	21–23, 42–81	5,962	20,138	2,428	4,610	2,397	4,216	1,297	1,329
Mining, extraction, and support activities	21	33	289	25	9 i	0	0	D	D
Utilities	22	23	54	0	0	0	0	0	0
Construction	23	12	375	0	0	D	D	0	0
Wholesale and retail trade	42, 44, 45	830	233	0	0	607	97	D	D
Information	51	238	768	D	D	D	D	D	D
Publishing	511	85	595	0	0	25	7 i	D	D
Telecommunications	517	10	113	0	0	0	0	0	0
Data processing, hosting, and related services	518	121	47	D	D	0	0	0	0
Other information	other 51	22	13	0	0	D	D	0	0
Professional, scientific, and technical services	54	3,968	18,252	2,356	4,582	1,460	4,081 i	1,187	1,275
Architectural, engineering, and related services	5413	1,193	2,712	972	50 i	436	187 i	426	193 i
Scientific R&D services	5417	1,483	11,968	1,328	4,426	916	3,731	517	989
Biotechnology R&D	541711	472	3,890	421	1,956	425	2,284	163	106 i
Other scientific R&D	other 5417	1,010	8,077	908	2,471	491	1,447 i	353	883
Other professional, scientific, and technical services	other 54	1,292	3,573	56	105 i	108	162 i	244	93 i

TABLE 141. Domestic R&D paid for by others and performed by the company and number of companies that reported R&D in selected technology focus areas, by industry and company size: 2010 (corrected November 2013)

(Millions of U.S. dollars)

				Technology focus area					
		Domestic R&D		Medical clinical trials		Biotechnology		Nanotechnology	
Industry and company size	NAICS codes	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Health care services	621–623	564	107	D	D	276	21 i	3	15
Other nonmanufacturing	48, 49, 52, 53, 55, 56, 624, 71, 72, 81	293	61	0	0	23	6	4	D
All companies (number of employees)	–	8,980	57,271	2,957	6,618	3,006	7,313	1,768	1,968
Small companies (number of employees)[a]									
5–499	–	8,530	11,379	2,870	1,565 i	2,902	2,539	1,659	589
5–99	–	7,769	7,078	2,628	854 i	2,687	1,794	1,502	386
5–49	–	7,033	4,623	2,421	586 i	2,494	1,262	1,350	274
5–9	–	2,401	944	645	145 i	971	396	271	66
10–24	–	2,899	2,002	1,325	255 i	1,151	496	896	153
25–49	–	1,733	1,678	450	186 i	372	370	184	55
50–99	–	736	2,455	208	268 i	192	532 i	151	113 i
100–249	–	564	2,431	184	342	153	458	116	132
250–499	–	197	1,870	58	369	61	286	41	71
Medium and large companies (number of employees)									
500–999	–	125	1,477	20	68 i	27	D	30	59
1,000–4,999	–	180	8,760	40	1,693	41	2,220	44	859
5,000–9,999	–	52	5,523	9	2,445	7	D	10	D
10,000–24,999	–	50	5,147	11	545	15	560	14	D
25,000 or more	–	43	24,985 i	7	302	14	568	11	200 i

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

TABLE 142. R&D costs paid for by the company and paid for by others projected for 2011, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
				Paid for by 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 in United States	R&D performed by the company in United States	U.S. government	Non-U.S. government sources	
All industries	21–23, 31–33, 42–81	337,441	74,777	271,529	34,777	236,752	64,547	36,272 i	28,275	65,912
Manufacturing industries	31–33	244,549	47,498	191,182	26,714	164,468	42,705 i	27,129 i	15,576	53,368
Food	311	5,856	176	4,259	566	3,693	162	23	139	1,597
Beverage and tobacco products	312	D	D	D	D	D	D	* i	D	852
Textiles, apparel, and leather products	313–316	589	12	540	15	525	12	10	2	49
Wood products	321	244	13	239	19	220	11	* i	D	5
Paper	322	1,818 i	28	1,636 i	25 i	1,611 i	25	D	D	183 i
Printing and related support activities	323	239	26	205	12	193	25	1	24	34
Petroleum and coal products	324	D	D	D	D	D	D	*	D	163
Chemicals	325	91,509	7,606	72,799	18,398	54,401	5,573	344	5,229	18,711
Basic chemicals	3251	2,795	118	1,732	127	1,605	89	32	57	1,062
Resin, synthetic rubber, fibers, and filaments	3252	1,264	30	979	60	919	30	18	12	285
Pesticide, fertilizer, and other agricultural chemical	3253	D	D	D	110 i	D	D	1	D	D
Pharmaceuticals and medicines	3254	77,200	6,991	62,483	17,440	45,043	5,005	D	D	14,717
Soap, cleaning compound, and toilet preparation	3256	4,348	6	3,187	133 i	3,054 i	6	1	5	1,161
Paint, coating, adhesive, and other chemical	3255, 3259	D	D	D	528	D	D	D	D	D
Plastics and rubber products	326	2,473	212 i	2,050	82	1,968	196 i	7 i	189	423
Nonmetallic mineral products	327	1,836 i	33	1,548 i	288 i	1,260 i	32	24	8	288 i
Primary metals	331	902	80	676	213 i	463 i	78	30	48	226
Fabricated metal products	332	1,741	393	1,612	91	1,521	384	104	280	129
Machinery	333	12,961	656	10,683	756	9,927	621	122	499	2,278
Agricultural implement	33311	2,119	30	1,575	237	1,338	26	10	16	543
Semiconductor machinery	333295	2,263	148	1,967	21	1,946	148	5	143	296
Engine, turbine, and power transmission equipment	3336	1,188	150	1,072	180	892	136	38	98	116
Other machinery	other 333	7,391	328	6,069	317	5,752	310	69	241	1,322
Computer and electronic products	334	70,668	9,342	56,105	2,011 i	54,094	8,208	5,228	2,980	14,563
Communications equipment	3342	14,043	1,675	11,067	538 i	10,529	1,606	D	D	2,976
Semiconductor and other electronic components	3344	30,398	751	23,097	562	22,535	593	200	393	7,301
Navigational, measuring, electromedical, and control instruments	3345	13,219	6,231	11,074	422	10,652	5,384	4,055	1,329	2,145
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,432	146	3,958	177	3,781	135	47	88	474
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	3,291	5,930	2,947	76	2,871	5,105	3,910	1,195	344
Other measuring and controlling instruments	other 3345	5,495 i	155	4,169 i	169 i	4,000 i	144	98	46	1,327
Other computer and electronic products	other 334	13,009	685	10,868	489 i	10,379	624	D	D	2,141
Electrical equipment, appliances, and components	335	5,129	286	3,532	269 i	3,263	261	146	115	1,597
Transportation equipment	336	33,739	28,096 i	23,071	2,883	20,188	26,603 i	21,002 i	5,601	10,668
Automobiles, bodies, trailers, and parts	3361–3363	D	D	D	1,836	D	D	D	D	D
Aerospace products and parts	3364	12,390	24,905 i	10,071	974	9,097	24,037 i	20,089 i	3,948	2,318

TABLE 142. R&D costs paid for by the company and paid for by others projected for 2011, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
				Paid for by 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 in United States	R&D performed by the company in United States	U.S. government	Non-U.S. government sources	
Aircraft, aircraft engine, and aircraft parts	336411–336413	11,569	D	9,276	901	8,375	18,613 i	D	D	2,293
Guided missile, space vehicle, and related parts	336414, 336415, 336419	821	D	795	73	722	5,424	D	D	25
Military armored vehicle, tank, and tank components	336992	30	1	30	* i	D	1	0	1	*
Other transportation	other 336	D	D	D	73 i	D	D	D	D	D
Furniture and related products	337	463	4	429	13	416	4	0	4	35
Miscellaneous manufacturing	339	D	D	D	D	D	D	D	D	1,568
Medical equipment and supplies	3391	8,782	347	7,586	780	6,806	332	32	300	1,196
Other miscellaneous manufacturing	3399	D	D	D	D	D	D	D	D	372
Nonmanufacturing industries	21–23, 42–81	92,892	27,279	80,347	8,064	72,283	21,842	9,143	12,699	12,544
Mining, extraction, and support activities	21	2,632	310	2,411	316	2,095	290	D	D	222
Utilities	22	670	150	648	252	396	111	94	17	22
Construction	23	1,031	368	1,023	366	657	368	367	1	9
Wholesale trade	42	1,750	243	1,642 i	184 i	1,458 i	230	48	182	108 i
Retail trade	44, 45	D	*	1,103	52	1,051	*	0	D	D
Electronic shopping and electronic auctions	454111, 454112	D	0	940	11	929	0	0	0	D
Other retail trade	other 44, 45	D	*	163	41	122	*	0	*	D
Transportation and warehousing	48, 49	129	4 i	109	8	101	3 i	2 i	1	20 i
Information	51	51,865	734	43,764	2,177 i	41,587	694	139	555	8,101
Publishing	511	37,484	616	30,691	1,387	29,304	582	122	460	6,794
Newspaper, periodical, book, and directory publishers	5111	1,026 i	*	922 i	97 i	825 i	*	0	*	104 i
Software publishers	5112	36,459	616	29,769	1,291	28,478	582	122	460	6,690
Telecommunications	517	3,079 i	46	2,931 i	225 i	2,706 i	46	2	44	148 i
Data processing, hosting, and related services	518	2,504	40	2,337	126	2,211	35	3	32	168
Other information	other 51	8,798 i	32	7,806 i	439 i	7,367 i	31 i	12 i	19	992 i
Finance and insurance	52	2,674	2	2,152	79	2,073	2 i	1	1	522
Real estate and rental and leasing	53	530	17	463	11	452	2	0	2	67
Professional, scientific, and technical services	54	26,285	25,261	23,483	3,013	20,470	19,998	8,437	11,561	2,802
Architectural, engineering, and related services	5413	2,038	3,603	1,887	364	1,523	3,445	1,862 i	1,583	151
Computer systems design and related services	5415	16,227	1,767	14,408 i	1,199 i	13,209 i	1,716	834	882	1,820
Scientific R&D services	5417	5,545	17,813	5,068	1,203	3,865	12,846	4,347	8,499	477
Biotechnology R&D	541711	3,472	5,855	3,238	904	2,334	4,241	669	3,572	234
Physical, engineering, and life sciences (except biotechnology) R&D	541712	2,052	11,236	1,811	294	1,517	8,006	3,154	4,852	241
Social sciences and humanities R&D	541720	21	722	19	4 i	15	598	525	73	2
Other professional, scientific, and technical services	other 54	2,474	2,078	2,121	247	1,874	1,991	1,394	597	354
Health care services	621–623	1,202	131	1,196	638	558	115	34	81	5
Other nonmanufacturing	55, 56, 624, 71, 72, 81	D	59	2,354	968	1,386	30 i	D	D	D

TABLE 142. R&D costs paid for by the company and paid for by others projected for 2011, by industry and company size: 2010
(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
				Paid for by 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 in United States	R&D performed by the company in United States	U.S. government	Non-U.S. government sources	
All companies (number of employees)	–	337,441	74,777	271,529	34,777	236,752	64,547	36,272 i	28,275	65,912
Small companies (number of employees)[a]										
5–499	–	60,114	13,962	53,907	8,917	44,990	12,502	5,832	6,670	6,207
5–99	–	34,728	8,951	31,766	6,281	25,485	8,206	4,071	4,135	2,962
5–49	–	25,573	6,138	23,640	5,083	18,557	5,614	2,961	2,653	1,933
5–9	–	4,580	1,222	4,304	1,655	2,649	1,035	592	443	276
10–24	–	11,564	2,709	10,455	1,823	8,632	2,573	1,237	1,336	1,109
25–49	–	9,429	2,207	8,881	1,605	7,276	2,006	1,132	874	548
50–99	–	9,155	2,813	8,125	1,199	6,926	2,592	1,109	1,483	1,030
100–249	–	13,471	2,753	11,789	1,627	10,162	2,449	1,083	1,366	1,682
250–499	–	11,915	2,258	10,352	1,009	9,343	1,847	678	1,169	1,562
Medium and large companies (number of employees)										
500–999	–	12,770	1,608	10,582	941	9,641	1,472	669	803	2,188
1,000–4,999	–	61,357	12,678	47,219	4,420	42,799	9,947	2,729	7,218	14,138
5,000–9,999	–	32,881	8,870	26,096	2,303 i	23,793	5,706	771 i	4,935	6,785
10,000–24,999	–	53,845	6,360	44,036	6,246	37,790	5,138	2,541	2,597	9,810
25,000 or more	–	116,473	31,298 i	89,688	11,951	77,737	29,782 i	23,729 i	6,053	26,785

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

NAICS = 2007 North American Industry Classification System.

[a] Upper bound based on U.S. Small Business Administration's definition of small business; Business R&D and Innovation Survey (BRDIS) 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 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, 2010.

Appendix A. Technical Notes

Survey Description

The Business Research and Development and Innovation Survey (BRDIS) is an annual company-based sample survey that attempts to represent all for-profit companies that have five or more employees, that are either publicly or privately held, and that have operations in the United States. It is the primary federal source of information on research and development performed or funded by businesses with locations in the United States. It is conducted by the Census Bureau on behalf of the National Science Foundation's National Center for Science and Engineering Statistics.

The survey includes with certainty some companies known to have performed R&D, as well as samples from companies for which there is no clear indication of R&D activity. BRDIS has been designed to provide detailed statistics on global and domestic R&D expenses of companies located in the United States, as well as statistics on their R&D workforce, intellectual property, technology transfer, and innovation activities. BRDIS replaces the Survey of Industrial Research and Development (SIRD), which focused more narrowly on domestic R&D performance.

Data collected are for R&D-related activities during the calendar year and for innovation activities during the past 3 calendar years. Thus, for example, the 2008 BRDIS references R&D activities for 2008 and innovation activities for January 2006 through December 2008. Data collection begins within the first 3 months after the end of the reference year and continues for approximately 9 months.

Companies in the BRDIS sample are mailed a paper questionnaire with instructions for electronic reporting, and they can select how they choose to respond. The BRDIS instrument is structured into different sections to encourage different experts within a single business to provide responses in their areas of expertise. Response to this annual survey is mandatory and confidential under Title 13 of the United States Code.

Coverage

Target Population

The target population for BRDIS consists of all for-profit companies in the United States in business at the end of the reference year that employ five or more persons. The sampling methodology is designed to provide an accurate measure of domestic R&D performance and thus focuses on companies that perform R&D in the United States. Farms are excluded from the target population. A company is comprised of all the establishments that operate under the ownership or control of a single organization.

Survey Frame Design

For each survey year, the Census Bureau's Business Register (BR) was used to help create the frame from which the sample was selected. For companies with more than one establishment, data for establishments located in the 50 United States and the District of Columbia were summed to the company level. The resulting company records were included in the sampling frame and used to process and tabulate the survey data. Note that although BRDIS collects information on U.S.-located companies' worldwide activities, no information about foreign establishments is available on the BR to aid in sampling or estimation activities.

Sample Design

The frame was partitioned into three groups: (1) companies known to conduct R&D in any of the previous 5 survey years or in the most recent Company Organization Survey (conducted by the Census

Bureau), (2) companies that reported zero R&D in all of the previous 5 survey years, and (3) companies for which information about the extent of R&D activity is uncertain. When the 5-year retrospective period was prior to 2008, information from BRDIS' predecessor, SIRD, was used. Thus, the 2008 BRDIS frame partitioning was based on 2003–07 SIRD information, and the 2010 BRDIS frame partitioning was based on the 2005–07 SIRD information and the 2008–09 BRDIS information. Counts of companies in these partitions are listed below in table 1.

TABLE 1. Target population counts by frame partition: 2008–10
(Number of Companies)

Year	Total[a]	Known positive R&D	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

[a] For each year, the estimate of the number of companies in the total target population is based on the original sampling frame that was created to select the sample. The target population estimates in this table do not include R&D performers from the previous year's sample, which were not on the original sampling frame, but were found during the survey's annual contact update procedures. See appendix table 3 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 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.

The above partitions are further stratified by groups of North American Industrial Classification System (NAICS) industries. Each company in the frame is assigned a single NAICS code which is used to assign companies to the industry-based strata. The method changed slightly between the 2008 and 2009 survey cycles.

For the 2008 cycle of BRDIS, each company was assigned to a single 2002 NAICS code based on its total payroll aggregated across all associated establishments located in the United States. The method used followed the hierarchical structure of the NAICS in that the company was first assigned to the economic sector, defined by a 2-digit NAICS code that accounted for the highest percentage of its aggregated payroll. Then the company was assigned to a subsector, defined by a 3-digit NAICS code that accounted for the highest percentage of its payroll within the economic sector. Then the company was assigned a 4-digit NAICS code within the subsector, again based on the highest percentage of its aggregated payroll within the subsector. Finally, the company was assigned a 6-digit NAICS code within the 4-digit NAICS, based on the highest percentage of its aggregated payroll within the 4-digit NAICS. The industry used for sampling purposes was not necessarily the same code used for publication; see the section below titled "Post Sampling Industry Classification."

For the 2009 and 2010 BRDIS surveys, assignment of companies to NAICS strata was aided by the business code data reported by the company in the prior cycle of the survey. The method described above for the 2008 BRDIS was used to assign an initial NAICS code for each company in the frame. Then, if the company reported BRDIS business segment data on domestic R&D performance, the dominant line of business was used to assign the sampling recode. Note that for the 2009 and 2010 BRDIS, the 2007 NAICS replaced the 2002 NAICS.

Once a NAICS code was assigned to each company, the three partitions that were defined in the frame design were further divided into companies that are sure to be selected due to their important or unique contribution to R&D (certainty companies) and into companies that will be subject to sampling

(noncertainty companies). Generally, the certainty companies perform the greatest amounts of R&D, but different criteria defined these certainty companies, depending on the partitioned group the company was in. Table 2 below describes the sample design critera for selecting certainty and noncertainty companies.

TABLE 2. Sample design criteria for selecting certainty and noncertainty companies

Frame partition	Certainty criteria	Measure of size[a]	Selection mechanism
Known-positive R&D	Previously reported or imputed R&D performance of $3 million or more	Positive domestic R&D expenditures	Probability-proportionate-to-size with minimum probability of selection
Zero R&D	Any establishments in NAICS 5417 (scientific R&D services)	None	Simple random sample without replacement; probability of selection 0.01 for manufacturing companies and 0.004 for other companies
Unknown R&D	In top 50 of stratum by payroll or top 50 of their state by payroll	Total domestic payroll	Probability-proportionate-to-size with minimum probability of selection

NAICS = North American Industry Classification System.

[a] Value used to calculate companies' likelihood of being selected.

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

A minimum probability of selection rule was imposed for both the first and third partitions. As noted earlier, probabilities of selection proportionate to size were assigned to each company. Selected companies received a sample weight equal to the reciprocal of their selection probability. Companies not selected with certainty that ultimately report R&D expenditures vastly larger than their sampling measure of size can cause large perturbations in the weighted totals. In order to minimize these effects, a minimum probability rule was imposed to control the maximum sampling weight of any company. If a company's probability of selection based on its measure of size was less than the minimum probability, the selection probability was reset to this minimum value. Using a minimum probability rule increases overall sample sizes in order to minimize the effects of weighted outliers in tabulations.

The parameters set to control sampling error resulted in the sample sizes displayed below in tables 3 and 4. More detailed information on sample sizes can be found in technical tables A-1 through A-3, which show companies in the sample frame and the selected certainty and noncertainty sample sizes by industry and company size.

TABLE 3. Sample size by frame partition: 2008–10

(Number of companies)

Year	Total	Known positive R&D	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

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 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 4. Companies included in sample that were not in the original sampling frame: 2008–10

(Number of companies)

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

NOTES: For each year, the estimate of the number of companies in the total target population in appendix table 1 is based on the original sampling frame that was created to select the sample. The estimates in appendix table 1 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. This table shows the counts of companies that were found during the update procedures and were added to each year's sample.

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

Sampling and Nonsampling Error

The particular sample selected was one of a large number of samples of the same type and size that might have been selected by chance. Statistics resulting from the different samples would differ somewhat from each other. The estimated average values of these differences are represented by estimates of sampling error. Statistical estimates with lesser sampling errors are less variable than those with greater sampling errors. The accuracy of the estimate—that is, how close it is to the true value of the population quantity it is estimating—is also related to nonsampling error.

Because relatively few companies perform R&D 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. Efforts were limited to controlling the amount of error due to sample size variation, but this is only one component of the overall sampling error. The other component depends on the correlation between the data from the sampling frame used to assign probabilities (namely R&D values either imputed or reported in the previous survey) and the actual current year reported data, which cannot be predicted with any reliability.

The constraints used to determine the sample size for each stratum were based on data that was estimated—namely, a prior-year R&D value for the first partitioned group and payroll for the third partitioned group. Assignment of a company's probability of being selected in the sample was based on this data. The assumption made was that actual variation in the population would be less than that estimated for the sample design because many of the sampled companies in the third partitioned group have true R&D values of zero, not the widely varying values that were imputed using total payroll as a predictor of R&D. Previous sample selections from SIRD indicated that in general this assumption held, but exceptions have occurred when companies with large sampling weights have reported large amounts of R&D spending.

In addition to sampling error, estimates are subject to nonsampling error. Nonsampling errors are grouped into five categories: specification, coverage, response, nonresponse, and processing. Efforts are made to minimize the effects of these errors.

Methodology

Questionnaires

For the 2008 and 2009 cycles of BRDIS, two questionnaires were used to collect data for the survey. Companies with R&D greater than or equal to a threshold value were sent the detailed survey form, BRDI-1. All other companies were sent an abbreviated form, BRDI-1A. For the 2010 BRDIS, an

additional form, BRDI-1B, was used as part of a designed experiment to test the effects of the questionnaire on responses to the questions on innovation. Except for the innovation section, the 2010 BRDI-1A and BRDI-1B were identical. Table 5 below summarizes the thresholds and forms sent by year.

TABLE 5. Number and type of survey forms mailed: 2008–10

(Number of forms)

Year	Total forms[a]	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	39,742

[a] For each year, the "Total forms mailed" is smaller than the sum of the "Total" sample size in appendix table 2 plus the number of "Known positive R&D" companies added to the sample in appendix table 3 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 2008 or at least $7.0 million in 2009 or 2010. 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.

Because of the potential compartmentalization of organizational knowledge within companies (particularly in larger companies), the BRDIS questionnaire was generally organized into sections based on the subject matter of the questions, allowing different experts within a single business to provide responses in their corresponding subject areas of expertise. These sections included the following:

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

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

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

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.

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

Intellectual Property and Technology Transfer. Includes questions on the company's production, use, acquisition, and disposition of intellectual property related to science and technology, with a focus on patents.

For specific differences among the 2008, 2009, and 2010 questionnaires, see "Comparability."

Response Rates

Unit Response Rates

Three metrics used by NSF and the Census Bureau to measure unit response to BRDIS were check-in rates, response rates, and coverage rates.

The check-in rate is defined as the number of surveys 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.

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

The coverage rate is based on the same number of companies used in the numerator and denominator in the response rate. However, the coverage rate bases its numerator and denominator on each company's measure of size at the time of sample selection. The contribution of each company in the coverage rate calculation is its measure of size. Thus, the coverage rate roughly reflects how much of the population's estimated R&D is accounted for by response cases.

Using the metrics described above, the overall rates for BRDIS can be found below in table 6.

TABLE 6. Response measures: 2008–10

(Percent of companies)

Measure	2008	2009	2010
Check-in rate[a]	79.5	74.9	75.1
Response rate (unweighted)[b]	74.2	73.1	71.4
Coverage rate for known positive sampling strata (using weighted R&D)[c]	91.4	91.5	87.7
Coverage rate for unknown sampling strata (using weighted payroll)[c]	79.9	75.0	76.2
Coverage rate for known zero sampling strata (using unweighted counts)[c]	77.2	78.7	74.5

[a] Number of survey responses from in-scope companies divided by total number of in-scope companies in sample.
[b] Number of responding companies with worldwide R&D expenses or costs funded by others or number of responding companies with worldwide or domestic sales or worldwide or domestic employees (if R&D was nonzero) divided by total number of in-scope companies in sample.
[c] Based on the same numerator and denominator as the response rate, but each company's measure of size at the time of sample selection is taken into account.

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

More detailed information can be found in technical tables A-4 through A-6, which give unit response rates by industry and type of survey form.

Item Response Rates

BRDIS collects data for over 500 variables, and the distribution of values reported by sample companies is highly skewed. Thus, rather than report item response rates, total quantity response rates (TQRR) are calculated. A TQRR is the proportion of the estimated weighted total of data reported by in-scope units in the sample or from sources determined to be equivalent-quality-to-reported data (expressed as a percentage). The total quantity nonresponse rate (TQNR) is calculated as 1 minus TQRR. (See “Imputation Techniques” for more information.)

Editing

Given the size and complexity of BRDIS, a large number of 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. 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 from the BRDIS project officer upon request.

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, but rather they accounted for these as cost of sales. The largest of these companies were contacted by analysts and asked to resubmit their surveys. In rare cases, if no response could be elicited and public information was available related to costs for customer-sponsored R&D, those data were used to impute an R&D estimate.

Imputation Techniques

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. When respondents did not provide the requested information, estimates for the missing data were made using imputation algorithms. In general, the imputation algorithms computed values for missing items by applying the average percentage change for the target item in the nonresponding firm's industry to the item's prior-year value for that firm, reported or imputed. This approach, with minor variation, was used for most items.

For each published estimate, a corresponding TQNR was calculated to indicate the percentage of the estimate derived from imputed data. TQNR tables corresponding to each data table are available from the BRDIS project officer upon request.

Estimation

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

Weighting

Estimates published for BRDIS are computed as sums of weighted data for sample companies that reported to the survey or sample companies for whom data could be reliably imputed based on prior reports or other information. Two types of weights are used for estimates of R&D: sampling weights and nonresponse adjustment weights. For any given item, the value is multiplied by both the sampling weight and the nonresponse adjustment weight, and the result is summed to create BRDIS estimates.

The sampling weight for a given company is calculated as the reciprocal of the company's probability of inclusion in the sample. Nonresponse adjustment weights are used to represent companies in the sample that did not provide sufficient response data to be directly tabulated. The nonresponse weight for a given company is calculated as the sum of the sampling weight—weighted measure of domestic size for all

companies in the sample—divided by the sampling weighted measure of domestic size for companies with reported or imputed data.

Post Sampling Industry Classification

As noted earlier, the industry classification assigned to some companies for sampling was based on establishment payroll and had certain limitations. For the purpose of generating survey estimates, the business code data (if available) for each company was used to assign an industry code in lieu of the sampling industry code. The company's response to the domestic R&D performance questions from the current year's survey 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 was available for a company's domestic R&D performance, the industry code used for sampling was used.

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 smoothes the estimate over states with R&D activity by industry and accounts for real observed change within a state. However, the weighted estimator described above is not used to estimate the number of R&D performers by state.

Biotechnology R&D Paid for by Others

For the 2008 and 2009 cycles of BRDIS, companies were not asked to report the percentage of R&D related to biotechnology they performed that was paid for by others. However, it was necessary to estimate these percentages in order to produce estimates of total U.S. biotechnology R&D. To produce these estimates, the biotechnology R&D percentage the company reported was applied to the total amount they reported for domestic R&D performance paid for by others (if any). For example, if a company reported spending 100% of R&D funds on biotechnology R&D and reported domestic R&D performance paid for by others, it was estimated that 100% of the domestic R&D performance that was paid for by others was also for biotechnology. No amount of biotechnology R&D paid for by others was estimated for companies that did not respond to the survey's biotechnology R&D question.

For the 2010 cycle of BRDIS, companies were asked to report the percentage of R&D related to biotechnology they performed that was paid for by others

Innovation

Estimates of innovation activity are sums of weighted data (reported or imputed). For these estimates, only the sampling weight was used. There was no weighting for nonresponse.

R&D by Business Segment Code

To provide increased granularity on R&D activities, BRDIS includes questions asking companies to report data for business units below the company level. To support subcompany reporting, BRDIS provided a list of business codes based on NAICS for companies to use to categorize their business operations. The list of business codes for the 2008 cycle of BRDIS was based on the 2002 NAICS, and the list for the 2009 and 2010 cycles of BRDIS was based on the 2007 NAICS. The transition from the 2002 to the 2007 NAICS resulted in few changes to R&D-intensive industries except for the inclusion of a code in the 2007 NAICS for R&D services in biotechnology. To assist companies in selecting appropriate business codes, likely business codes based on BR payroll information were preprinted on the forms mailed to some companies.

Sampling Variability

Estimates of sampling variability were calculated for all published estimates. For estimates of level, the relative standard error (RSE) is given. For percentage estimates, the standard error is presented. Tables of RSEs corresponding to each data table are available from the BRDIS project officer upon request.

Measurement Error

Variations in respondent interpretations of the definitions of R&D activities and variations in accounting procedures are of particular concern. Specifically, some companies have difficulty separating basic research from applied research or locating geographically where R&D is performed. The sophistication and comprehensiveness of a company's accounting system often depends on its size and activities and its willingness to accommodate government-sponsored surveys. Ongoing efforts to minimize measurement error include questionnaire pretesting, improvement of questionnaire wording and format, inclusion of more cues and examples in the questionnaire instructions, consultations with respondents, post-survey evaluations, record check studies, and computer editing.

Survey Definitions

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.

Expense and R&D expense. Involves money spent or cost 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 (such as wages and salaries), a computed expired portion (depreciation) of an asset, or an amount taken out of earnings (such as 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 (for example, costs incurred in acquisition of income generating assets—see capital expense 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.

Expense, capital. Capital expenses or expenditures are payments by a business for fixed assets that usually have a useful life of more than 1 year, like buildings and equipment. Capital expenses are not used for ordinary day-to-day operating expenses of a business, like rent, utilities, and insurance. BRDIS collects data for capital expenses for R&D operations for structures, equipment, capitalized software, and other items.

Sales, worldwide and domestic. 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 United 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.

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 March 12 of the survey year. (March 12 is the date most employers use when paying first quarter employment taxes to the Internal Revenue Service.) 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, BRDIS also offers estimates of full-time-equivalent domestic R&D employment. 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.

Innovation. BRDIS questions on innovation activities refer only to product and process 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 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 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 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 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 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 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, 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, biodesulphurisation, 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 science and technology involved in the study, creation, or use of objects at the nanoscale, which is generally considered to be 100 nanometers or smaller. Many technologies related to conventional solid-state semiconductor manufacturing are capable of creating features smaller than 100 nanometers, and R&D involving these technologies is included in the BRDIS data collection.

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.

Comparability

Differences between the 2009 and 2010 BRDIS Questionnaires

An additional 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.

Additionally, two different sets of questions measuring innovation were used to explore the effect of different questions and embedded instructions on measured innovation rates. Although the innovation questions on the 2010 Form BRDI-1A were identical to questions used on the 2009 Form BRDI-1A, the 2010 Form BRDI-1B altered the questions and instructions to replicate innovation questions on the European Union’s Community Innovation Survey. The experiment did not produce statistically significant differences in measured rates of innovation.

Differences between the 2008 and 2009 BRDIS Questionnaires

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

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

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

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

4. Deriving "R&D performed by others," rather than asking for the concept directly. For the 2009 cycle of BRDIS the concept of "R&D performed by others" was derived from the sum of two R&D costs known to be tracked by companies: payments to business partners for collaborative R&D and purchased R&D services.

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

Data Availability

Publications

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

Electronic Access

BRDIS contains confidential data that are protected under Title 13 and Title 26. Two types of data are currently available: public-use tabular statistics and restricted microdata.

Microdata for SIRD and BRDIS can only be accessed at Census' 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' page on research opportunities (http://www.census.gov/ces/rdcresearch/index.html).

Technical Tables

Table	Technical tables
	by industry and company size: 2008
A-1	companies in the target population and selected for the sample
A-2	unit response rates

by industry and company size: 2009
A-3 companies in the target population and selected for the sample
A-4 unit response rates
by industry and company size: 2010
A-5 companies in the target population and selected for the sample
A-6 unit response rates

TABLE A-1. Companies in the target population and selected for the sample, by industry and company size: 2008

Industry and company size	NAICS codes	Companies in target population	Companies selected for the sample		
			All companies	Noncertainties	Certainties
All industries	21–23, 31–33, 42, 44–81	1,926,012	39,553	20,350	19,203
Manufacturing industries	31–33	156,170	16,763	7,226	9,537
Food	311	11,621	1,052	435	617
Beverage and tobacco products	312	1,543	261	92	169
Textiles, apparel, and leather products	313–316	8,991	732	379	353
Wood products	321	8,396	681	423	258
Paper, printing, and support activities	322, 323	16,289	934	556	378
Petroleum and coal products	324	601	238	34	204
Chemicals	325	5,807	1,464	407	1,057
Basic chemicals	3251	839	292	52	240
Resin, synthetic rubber, fibers, and filaments	3252	472	216	33	183
Pharmaceuticals and medicines	3254	974	276	43	233
Other chemicals	other 325	3,522	680	279	401
Plastics and rubber products	326	7,549	1,031	405	626
Nonmetallic mineral products	327	6,491	664	351	313
Primary metals	331	2,682	450	176	274
Fabricated metal products	332	31,752	1,677	888	789
Machinery	333	14,605	1,508	679	829
Computer and electronic products	334	7,715	1,971	643	1,328
Computers and peripheral equipment	3341	630	254	49	205
Communications equipment	3342	978	315	78	237
Semiconductor and other electronic components	3344	2,807	612	255	357
Navigational, measuring, electromedical, and control instruments	3345	2,667	562	202	360
Other computer and electronic products	other 334	633	228	59	169
Electrical equipment, appliances, and components	335	3,165	695	224	471
Transportation equipment	336	6,324	998	371	627
Motor vehicles, trailers, and parts	3361–3363	4,037	519	230	289
Aerospace products and parts	3364	846	187	21	166
Other transportation equipment	other 336	1,441	292	120	172
Furniture and related products	337	9,704	791	481	310
Miscellaneous manufacturing	339	12,627	1,459	659	800
Medical equipment and supplies	3391	4,237	582	189	393
Other miscellaneous manufacturing	other 339	8,390	877	470	407
Unclassified		308	157	23	134
Nonmanufacturing industries	21–23, 42, 44–81	1,769,842	22,790	13,124	9,666
Mining, extraction, and support activities	21	8,829	737	309	428
Utilities	22	1,191	343	13	330
Construction	23	243,852	1,552	1,058	494
Wholesale trade	42	133,813	4,403	2,783	1,620
Retail trade	44, 45	240,870	1,669	1,325	344
Transportation and warehousing	48, 49	51,701	568	236	332
Information	51	26,884	2,706	1,080	1,626
Publishing	511	9,750	1,092	448	644
Newspaper, periodical, book, and directory	5111	6,597	435	211	224
Software	5112	3,153	657	237	420
Telecommunications	517	3,525	445	105	340
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	1,763	214	54	160
Satellite telecommunications	5174	148	49	19	30
Other telecommunications	other 517	1,614	182	32	150
Internet service providers, Web search portals, and data processing services	518	4,333	695	284	411
Internet service providers and Web search portals	5181	1,251	266	111	155
Data processing, hosting, and related services	5182	3,082	429	173	256
Other information	other 51	9,276	474	243	231
Finance, insurance, and real estate	52, 53	122,012	1,121	611	510
Professional, scientific, and technical services	54	209,938	5,008	2,446	2,562
Architectural, engineering, and related services	5413	36,467	1,067	655	412
Computer systems design and related services	5415	25,879	1,610	796	814
Scientific R&D services	5417	4,888	1,297	342	955
Other professional, scientific, and technical services	other 54	142,704	1,034	653	381

TABLE A-1. Companies in the target population and selected for the sample, by industry and company size: 2008

Industry and company size	NAICS codes	Companies in target population	Companies selected for the sample		
			All companies	Noncertainties	Certainties
Health care services	621–623	214,061	1,452	952	500
Other nonmanufacturing[a]	55, 56, 61, 624, 71, 72, 81	515,918	3,021	2,290	731
Unclassified		773	210	21	189
Company size (employees)					
All companies	–	1,926,012	39,553	20,350	19,203
< 5[b]	–	116,347	1,352	953	399
5–24	–	1,380,034	12,231	10,619	1,612
25–49	–	234,039	5,500	3,659	1,841
50–99	–	109,254	5,566	2,777	2,789
100–249	–	56,486	6,237	1,628	4,609
250–499	–	15,677	3,335	424	2,911
500–999	–	6,965	2,126	161	1,965
1,000–4,999	–	5,575	2,341	93	2,248
5,000–9,999	–	774	404	19	385
10,000–24,999	–	527	286	13	273
25,000 or more	–	334	175	4	171

BRDIS = Business R&D and Innovation Survey; NAICS = 2002 North American Industry Classification System.

[a] Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in Other nonmanufacturing.

[b] Category includes companies that are represented on sampling frame as missing or having fewer than five paid employees, but these companies are in scope to BRDIS because they have at least $250,000 for annual payroll.

NOTES: Estimates of the number of companies in the target population are based on the original sampling frame that was created to select the 2008 BRDIS sample. The estimates in this table do not include 336 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 2008 sample with certainty and are also not reflected in the number of certainties selected for the sample. 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 sample for analytical purposes (analytical certainties). Noncertainties are companies whose probability of selection is less than one. Companies that were missing or had incomplete NAICS codes at time of sampling were assigned to "unclassified" industry category temporarily. If unclassified company reported R&D expenditures, its primary industrial activity was investigated, and NAICS code was assigned during statistical processing. Total number reflects time between sample selection and survey mailout; that is, 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, 2008.

TABLE A-2. Unit response rates, by industry and company size: 2008

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
		All companies		
All industries	21–23, 31–33, 42–81	38,551	28,586	74.2
Manufacturing industries	31–33	17,241	12,680	73.5
Food	311	1,048	744	71.0
Beverage and tobacco products	312	269	209	77.7
Textiles, apparel, and leather products	313–316	722	488	67.6
Wood products	321	664	510	76.8
Paper	322	298	213	71.5
Printing and related support activities	323	616	463	75.2
Petroleum and coal products	324	210	144	68.6
Chemicals	325	1,693	1,280	75.6
Basic chemicals	3251	321	235	73.2
Resin, synthetic rubber, fibers, and filaments	3252	203	148	72.9
Pesticide, fertilizer, and other agricultural chemical	3253	59	55	93.2
Pharmaceuticals and medicines	3254	480	388	80.8
Soap, cleaning compound, and toilet preparation	3256	212	152	71.7
Paint, coating, adhesive, and other chemical	3255, 3259	418	302	72.2
Plastics and rubber products	326	1,070	790	73.8
Nonmetallic mineral products	327	654	491	75.1
Primary metals	331	447	329	73.6
Fabricated metal products	332	1,706	1,300	76.2
Machinery	333	1,525	1,133	74.3
Agricultural implements	33311	97	69	71.1
Semiconductor machinery	333295	50	38	76.0
Engine, turbine, and power transmission equipment	3336	78	67	85.9
Other machinery	other 333	1,300	959	73.8
Computer and electronic products	334	2,138	1,489	69.6
Communications equipment	3342	348	237	68.1
Semiconductor and other electronic components	3344	673	483	71.8
Navigational, measuring, electromedical, and control instruments	3345	617	437	70.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	129	81	62.8
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	87	70	80.5
Other measuring and controlling instruments	other 3345	401	286	71.3
Computer and peripheral equipment and other computer and electronic products	other 334	500	332	66.4
Electrical equipment, appliances, and components	335	727	529	72.8
Transportation equipment	336	1,078	763	70.8
Automobiles, bodies, trailers, and parts	3361–3363	545	378	69.4
Aerospace products and parts	3364	233	174	74.7
Aircraft, aircraft engine, and aircraft parts	336411–336413	211	155	73.5
Guided missile, space vehicle, and related parts	336414, 336415, 336419	22	19	86.4
Military armored vehicle, tank, and tank components	336992	12	7	58.3
Other transportation equipment	other 336	288	204	70.8
Furniture and related products	337	787	595	75.6
Miscellaneous manufacturing	339	1,589	1,210	76.1
Medical equipment and supplies	3391	679	525	77.3
Other miscellaneous manufacturing	3399	910	685	75.3
Nonmanufacturing industries	21–23, 42–81	21,310	15,906	74.6
Mining, extraction, and support activities	21	709	538	75.9
Utilities	22	334	253	75.7
Construction	23	1,526	1,216	79.7
Wholesale trade	42	3,670	2,679	73.0
Retail trade	44, 45	1,557	1,183	76.0

TABLE A-2. Unit response rates, by industry and company size: 2008

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Electronic shopping and mail-order houses	4541	290	205	70.7
Other retail trade	other 44, 45	1,267	978	77.2
Transportation and warehousing	48, 49	552	437	79.2
Information	51	2,896	2,038	70.4
Publishing	511	1,304	967	74.2
Newspaper, periodical, book, and directory publishers	5111	415	309	74.5
Software publishers	5112	889	658	74.0
Telecommunications	517	433	283	65.4
Internet service providers, Web search portals, and data processing services	518	676	457	67.6
Other information	other 51	483	331	68.5
Finance and insurance	52	721	540	74.9
Real estate and rental and leasing	53	365	293	80.3
Professional, scientific, and technical services	54	4,571	3,414	74.7
Architectural, engineering, and related services	5413	1,022	833	81.5
Computer systems design and related services	5415	1,462	1,011	69.2
Scientific R&D services	5417	980	688	70.2
Other professional, scientific, and technical services	other 54	1,107	882	79.7
Health care services	621–623	1,467	1,206	82.2
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2,942	2,109	71.7
		Form BRDI-1 companies		
All industries	21–23, 31–33, 42–81	4,848	3,565	73.5
Manufacturing industries	31–33	2,819	2,179	77.3
Food	311	92	74	80.4
Beverage and tobacco products	312	21	19	90.0
Textile, apparel, and leather products	313–316	41	28	68.3
Wood products	321	15	11	73.3
Paper	322	44	32	72.7
Printing and related support activities	323	11	8	72.7
Petroleum and coal products	324	13	9	69.2
Chemicals	325	471	393	83.4
Basic chemicals	3251	95	67	70.5
Resin, synthetic rubber, fibers, and filaments	3252	26	23	88.5
Pesticide, fertilizer, and other agricultural chemical	3253	6	6	100.0
Pharmaceuticals and medicines	3254	262	230	87.8
Soap, cleaning compound, and toilet preparations	3256	34	29	85.3
Paint, coating, adhesive, and other chemicals	3255, 3259	48	38	79.2
Plastics and rubber products	326	143	111	77.6
Nonmetallic mineral products	327	50	41	82.0
Primary metals	331	43	35	81.4
Fabricated metal products	332	134	101	75.4
Machinery	333	302	224	74.2
Agricultural implements	33311	19	12	63.2
Semiconductor machinery	333295	31	24	77.4
Engine, turbine, and power transmission equipment	3336	19	17	89.5
Other machinery	other 333	233	171	73.4
Computer and electronic products	334	715	528	73.8
Communications equipment	3342	145	106	73.1
Semiconductor and other electronic components	3344	214	172	80.4
Navigational, measuring, electromedical, and control instruments	3345	233	158	67.8
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	58	36	62.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	41	35	85.4
Other measuring and controlling instruments	other 3345	134	87	64.9

TABLE A-2. Unit response rates, by industry and company size: 2008

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Computer and peripheral equipment and other computer and electronic products	other 334	123	92	74.8
Electrical equipment, appliances, and components	335	147	104	70.7
Transportation equipment	336	256	210	82.0
Automobiles, bodies, trailers, and parts	3361–3363	151	123	81.5
Aerospace products and parts	3364	66	57	86.4
Aircraft, aircraft engine, and aircraft parts	336411–336413	56	48	85.7
Guided missile, space vehicle, and related parts	336414, 336415, 336419	10	9	90.0
Military armored vehicle, tank, and tank components	336992	5	4	80.0
Other transportation equipment	other 336	34	26	76.5
Furniture and related products	337	32	22	68.8
Miscellaneous manufacturing	339	289	229	79.2
Medical equipment and supplies	3391	200	159	79.5
Other miscellaneous manufacturing	3399	89	70	78.7
Nonmanufacturing industries	21–23, 42–81	2,029	1,386	68.3
Mining, extraction, and support activities	21	28	23	82.1
Utilities	22	34	30	88.2
Construction	23	20	18	90.0
Wholesale trade	42	151	61	40.4
Retail trade	44, 45	15	8	53.3
Electronic shopping and mail-order houses	4541	4	2	50.0
Other retail trade	other 44, 45	11	6	54.5
Transportation and warehousing	48, 49	20	13	65.0
Information	51	574	407	70.9
Publishing	511	397	281	70.8
Newspaper, periodical, book, and directory publishers	5111	13	6	46.2
Software publishers	5112	384	275	71.6
Telecommunications	517	42	27	64.3
Internet service providers, Web search portals, and data processing services	518	101	78	77.2
Other information	other 51	34	21	61.8
Finance and insurance	52	55	44	80.0
Real estate and rental and leasing	53	8	7	87.5
Professional, scientific, and technical services	54	1,007	697	69.2
Architectural, engineering, and related services	5413	114	78	68.4
Computer systems design and related services	5415	314	199	63.4
Scientific R&D services	5417	474	336	70.9
Other professional, scientific, and technical services	other 54	105	84	80.0
Health care services	621–623	32	24	75.0
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	85	54	63.5
		Form BRDI-1A companies		
All industries	21–23, 31–33, 42–81	33,703	25,021	74.2
Manufacturing industries	31–33	14,422	10,501	72.8
Food	311	956	670	70.1
Beverage and tobacco products	312	248	190	76.6
Textile, apparel, and leather products	313–316	681	460	67.5
Wood products	321	649	499	76.9
Paper	322	254	181	71.3
Printing and related support activities	323	605	455	75.2
Petroleum and coal products	324	197	135	68.5
Chemicals	325	1,222	887	72.6
Basic chemicals	3251	226	168	74.3
Resin, synthetic rubber, fibers, and filaments	3252	177	125	70.6
Pesticide, fertilizer, and other agricultural chemical	3253	53	49	92.5
Pharmaceuticals and medicines	3254	218	158	72.5
Soap, cleaning compound, and toilet preparations	3256	178	123	69.1

TABLE A-2. Unit response rates, by industry and company size: 2008

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Paint, coating, adhesive, and other chemicals	3255, 3259	370	264	71.4
Plastics and rubber products	326	927	679	73.2
Nonmetallic mineral products	327	604	450	74.5
Primary metals	331	404	294	72.8
Fabricated metal products	332	1,572	1,199	76.3
Machinery	333	1,223	909	74.3
Agricultural implements	33311	78	57	73.1
Semiconductor machinery	333295	19	14	73.7
Engine, turbine, and power transmission equipment	3336	59	50	84.7
Other machinery	other 333	1,067	788	73.9
Computer and electronic products	334	1,423	961	67.5
Communications equipment	3342	203	131	64.5
Semiconductor and other electronic components	3344	459	311	67.8
Navigational, measuring, electromedical, and control instruments	3345	384	279	72.7
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	71	45	63.4
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	46	35	76.1
Other measuring and controlling instruments	other 3345	267	199	74.5
Computer and peripheral equipment and other computer and electronic products	other 334	377	240	63.7
Electrical equipment, appliances, and components	335	580	425	73.3
Transportation equipment	336	822	553	67.3
Automobiles, bodies, trailers, and parts	3361–3363	394	255	64.7
Aerospace products and parts	3364	167	117	70.1
Aircraft, aircraft engine, and aircraft parts	336411–336413	155	107	69.0
Guided missile, space vehicle, and related parts	336414, 336415, 336419	12	10	83.3
Military armored vehicle, tank, and tank components	336992	7	3	42.9
Other transportation equipment	other 336	254	178	70.1
Furniture and related products	337	755	573	75.9
Miscellaneous manufacturing	339	1,300	981	75.5
Medical equipment and supplies	3391	479	366	76.4
Other miscellaneous manufacturing	3399	821	615	74.9
Nonmanufacturing industries	21–23, 42–81	19,281	14,520	75.3
Mining, extraction, and support activities	21	681	515	75.6
Utilities	22	300	223	74.3
Construction	23	1,506	1,198	79.5
Wholesale trade	42	3,519	1,618	46.0
Retail trade	44, 45	1,542	1,175	76.2
Electronic shopping and mail-order houses	4541	286	203	71.0
Other retail trade	other 44, 45	1,256	972	77.4
Transportation and warehousing	48, 49	532	424	79.7
Information	51	2,322	1,631	70.2
Publishing	511	907	686	75.6
Newspaper, periodical, book, and directory publishers	5111	402	303	75.4
Software publishers	5112	505	383	75.8
Telecommunications	517	391	256	65.5
Internet service providers, Web search portals, and data processing services	518	575	379	65.9
Other information	other 51	449	310	69.0
Finance and insurance	52	666	496	74.5
Real estate and rental and leasing	53	357	286	80.1
Professional, scientific, and technical services	54	3,564	2,717	76.2
Architectural, engineering, and related services	5413	908	755	83.1
Computer systems design and related services	5415	1,148	812	70.7
Scientific R&D services	5417	506	352	69.6

TABLE A-2. Unit response rates, by industry and company size: 2008

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Other professional, scientific, and technical services	other 54	1,002	798	79.6
Health care services	621–623	1,435	1,182	82.4
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81	2,857	2,055	71.9

NAICS = 2002 North American Industry Classification System.

[a] Active companies are defined as companies that are in scope of survey after all data have been processed.

[b] Companies are considered to have fulfilled response criteria for these tables if they were located in United States and reported that they 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, 2008.

TABLE A-3. Companies in the target population and selected for the sample, by industry and company size: 2009

Industry and company size	NAICS codes	Companies in target population	Companies selected for the sample		
			All companies	Noncertainties	Certainties
All industries	21–23, 31–33, 42–81	2,090,181	43,002	25,192	17,810
Manufacturing industries	31–33	162,523	20,419	10,815	9,604
Food	311	12,147	1,022	568	454
Beverage and tobacco products	312	1,715	249	140	109
Textiles, apparel, and leather products	313–316	8,593	1,230	779	451
Wood products	321	8,546	711	487	224
Paper	322	2,325	454	259	195
Printing and related support activities	323	15,200	841	595	246
Petroleum and coal products	324	555	161	73	88
Chemicals	325	6,316	2,033	765	1,268
Basic chemicals	3251	936	339	138	201
Resin, synthetic rubber, fibers, and filaments	3252	650	192	41	151
Pesticide, fertilizer, and other agricultural chemical	3253	353	152	54	98
Pharmaceuticals and medicines	3254	1,162	474	44	430
Soap, cleaning compound, and toilet preparation	3256	1,153	336	170	166
Paint, coating, adhesive, and other chemical	3255, 3259	2,062	540	318	222
Plastics and rubber products	326	7,610	1,139	611	528
Nonmetallic mineral products	327	6,713	648	405	243
Primary metals	331	2,779	449	171	278
Fabricated metal products	332	33,937	1,977	1,249	728
Machinery	333	14,888	2,529	1,284	1,245
Agricultural implements	33311	740	247	143	104
Semiconductor machinery	333295	156	117	6	111
Engine, turbine, and power transmission equipment	3336	560	160	75	85
Other machinery	other 333	13,432	2,005	1,060	945
Computer and electronic products	334	7,867	2,342	1,039	1,303
Communications equipment	3342	968	325	124	201
Semiconductor and other electronic components	3344	2,867	625	318	307
Navigational, measuring, electromedical, and control instruments	3345	2,757	963	429	534
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	425	178	53	125
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	346	143	44	99
Other measuring and controlling instruments	other 3345	1,986	642	332	310
Computer and peripheral equipment and other computer and electronic products	other 334	1,275	429	168	261
Electrical equipment, appliances, and components	335	3,399	759	368	391
Transportation equipment	336	6,597	1,344	571	773
Automobiles, bodies, trailers, and parts	3361–3363	4,181	562	290	272
Aerospace products and parts	3364	909	273	96	177
Aircraft, aircraft engine, and aircraft parts	336411–336413	852	224	96	128
Guided missile, space vehicle, and related parts	336414, 336415, 336419	57	49	0	49
Military armored vehicle, tank, and tank components	336992	41	29	0	29
Other transportation equipment	other 336	1,466	480	185	295
Furniture and related products	337	9,810	782	489	293
Miscellaneous manufacturing	339	13,129	1,662	935	727
Medical equipment and supplies	3391	4,757	785	390	395
Other miscellaneous manufacturing	3399	8,372	877	545	332
Unclassified		397	87	27	60
Nonmanufacturing industries	21–23, 42–81	1,927,658	22,583	14,377	8,206
Mining, extraction, and support activities	21	9,291	549	358	191
Utilities	22	1,279	198	36	162
Construction	23	259,864	1,741	1,138	603
Wholesale trade	42	140,966	2,743	1,958	785
Retail trade	44, 45	268,553	2,031	1,528	503
Electronic shopping and mail-order houses	4541	6,612	526	364	162
Other retail trade	other 44, 45	261,941	1,505	1,164	341
Transportation and warehousing	48, 49	56,936	489	262	227
Information	51	27,858	3,159	1,741	1,418

TABLE A-3. Companies in the target population and selected for the sample, by industry and company size: 2009

Industry and company size	NAICS codes	Companies in target population	Companies selected for the sample		
			All companies	Noncertainties	Certainties
Publishing	511	10,254	1,209	623	586
Newspaper, periodical, book, and directory publishers	5111	6,940	437	270	167
Software publishers	5112	3,314	772	353	419
Telecommunications	517	3,151	769	398	371
Data processing, hosting, and related services	518	4,953	647	369	278
Other information	other 51	9,500	534	351	183
Finance and insurance	52	70,809	832	371	461
Real estate and rental and leasing	53	60,734	483	278	205
Professional, scientific, and technical services	54	227,796	5,191	3,018	2,173
Architectural, engineering, and related services	5413	38,672	1,076	741	335
Computer systems design and related services	5415	28,020	1,552	1,019	533
Scientific R&D services	5417	4,994	1,312	500	812
Other professional, scientific, and technical services	other 54	156,110	1,251	758	493
Health care services	621–623	240,064	1,605	1,072	533
Other nonmanufacturing	55, 56, 624, 71, 72, 81	562,018	3,333	2,497	836
Unclassified		1,490	229	120	109
Company size (employees)					
All companies	–	2,090,181	43,002	25,192	17,810
< 5[a]	–	115,833	1,731	1,231	500
5–24	–	1,556,975	14,390	13,203	1,187
25–49	–	225,364	6,030	4,475	1,555
50–99	–	105,709	5,770	3,264	2,506
100–249	–	56,523	6,232	2,108	4,124
250–499	–	15,631	3,136	512	2,624
500–999	–	6,896	2,094	236	1,858
1,000–4,999	–	5,650	2,504	150	2,354
5,000–9,999	–	763	445	5	440
10,000–24,999	–	508	362	7	355
25,000 or more	–	329	308	1	307

BRDIS = Business R&D and Innovation Survey; NAICS = 2007 North American Industry Classification System.

[a] This category includes companies that are represented on sampling frame as having missing or fewer than five paid employees, but these companies are in scope to BRDIS because they have at least $250,000 for annual payroll.

NOTES: Estimates of the number of companies in the target population are based on the original sampling frame that was created to select the 2009 BRDIS sample. The estimates in this table do not include 18 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 2009 sample with certainty and are also not reflected in the number of certainties selected for the sample. 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 sample for analytical purposes (analytical certainties). Noncertainties are companies whose probability of selection is less than one. Companies that were missing or had incomplete NAICS codes at time of sampling were assigned to "unclassified" industry category temporarily. If unclassified company reported R&D expenditures, its primary industrial activity was investigated, and NAICS code was assigned during statistical processing. Total number reflects time between sample selection and survey mailout; that is, 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, 2009.

TABLE A-4. Unit response rates, by industry and company size: 2009

Industry	NAICS codes	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
All companies				
All industries	21–23, 31–33, 42, 44–81	40,300	29,462	73.1
Manufacturing industries	31–33	20,085	14,815	73.8
Food	311	1,006	781	77.6
Beverage and tobacco products	312	240	178	74.2
Textiles, apparel, and leather products	313–316	1,180	768	65.1
Wood products	321	679	499	73.5
Paper, printing, and support activities	322, 323	1,235	946	76.6
Petroleum and coal products	324	153	106	69.3
Chemicals	325	2,076	1,541	74.2
Basic chemicals	3251	368	284	77.2
Resin, synthetic rubber, fibers, and filaments	3252	190	140	73.7
Pharmaceuticals and medicines	3254	530	395	74.5
Other chemicals	other 325	988	722	73.1
Plastics and rubber products	326	1,093	823	75.3
Nonmetallic mineral products	327	617	459	74.4
Primary metals	331	433	311	71.8
Fabricated metal products	332	1,962	1,528	77.9
Machinery	333	2,443	1,830	74.9
Computer and electronic products	334	2,385	1,672	70.1
Computers and peripheral equipment	3341	214	150	70.1
Communications equipment	3342	330	223	67.6
Semiconductor and other electronic components	3344	660	444	67.3
Navigational, measuring, electromedical, and control instruments	3345	974	708	72.7
Other computer and electronic products	other 334	207	147	71.0
Electrical equipment, appliances, and components	335	759	551	72.6
Transportation equipment	336	1,358	980	72.2
Motor vehicles, trailers, and parts	3361–3363	579	422	72.9
Aerospace products and parts	3364	302	223	73.8
Other transportation equipment	other 336	451	316	70.1
Furniture and related products	337	747	556	74.4
Miscellaneous manufacturing	339	1,716	1,283	74.8
Medical equipment and supplies	3391	712	518	72.8
Other miscellaneous manufacturing	other 339	1,004	765	76.2
Nonmanufacturing industries	21–23, 42, 44–81	20,215	14,647	72.5
Mining, extraction, and support activities	21	525	391	74.5
Utilities	22	189	158	83.6
Construction	23	1,561	1,158	74.2
Wholesale trade	42	2,276	1,577	69.3
Retail trade	44, 45	1,810	1,343	74.2
Transportation and warehousing	48, 49	459	322	70.2
Information	51	3,122	2,217	71.0
Publishing	511	1,178	863	73.3
Newspaper, periodical, book, and directory publishers	5111	396	287	72.5
Software publishers	5112	782	576	73.7
Telecommunications	517	778	510	65.6
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	307	218	71.0
Satellite telecommunications	5174	55	35	63.6
Other telecommunications	other 517	416	257	61.8
Data processing, hosting, and related services	518	633	465	73.5
Other information	other 51	618	439	71.0
Finance, insurance, and real estate	52, 53	1,175	863	73.4
Professional, scientific, and technical services	54	4,550	3,434	75.5
Architectural, engineering, and related services	5413	983	772	78.5

TABLE A-4. Unit response rates, by industry and company size: 2009

Industry	NAICS codes	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Computer systems design and related services	5415	1,420	969	68.2
Scientific R&D services	5417	971	770	79.3
Other professional, scientific, and technical services	other 54	1,176	923	78.5
Health care services	621–623	1,477	1,148	77.7
Other nonmanufacturing[a]	55, 56, 61, 624, 71, 72, 81	3,071	2,036	66.3
Company size (domestic employees)				
5–24	–	14,490	10,588	73.1
25–49	–	6,144	4,722	76.9
50–99	–	5,615	4,209	75.0
100–249	–	5,819	4,229	72.7
250–499	–	2,877	2,009	69.8
500–999	–	1,862	1,314	70.6
1,000–4,999	–	2,193	1,575	71.8
5,000–9,999	–	425	322	75.8
10,000–24,999	–	327	261	79.8
25,000 or more	–	270	201	74.4
Form BRDI-1 companies				
All industries	21–23, 31–33, 42, 44–81	2,467	1,955	79.2
Manufacturing industries	31–33	1,463	1,175	80.3
Food	311	41	37	90.2
Beverage and tobacco products	312	10	9	90.0
Textiles, apparel, and leather products	313–316	12	12	100.0
Wood products	321	7	6	85.7
Paper, printing, and support activities	322, 323	21	19	90.5
Petroleum and coal products	324	5	4	80.0
Chemicals	325	336	278	82.7
Basic chemicals	3251	51	44	86.3
Resin, synthetic rubber, fibers, and filaments	3252	16	12	75.0
Pharmaceuticals and medicines	3254	215	177	82.3
Other chemicals	other 325	54	45	83.3
Plastics and rubber products	326	48	43	89.6
Nonmetallic mineral products	327	16	10	62.5
Primary metals	331	16	14	87.5
Fabricated metal products	332	28	23	82.1
Machinery	333	131	110	84.0
Computer and electronic products	334	423	317	74.9
Computers and peripheral equipment	3341	51	41	80.4
Communications equipment	3342	84	61	72.6
Semiconductor and other electronic components	3344	157	116	73.9
Navigational, measuring, electromedical, and control instruments	3345	108	78	72.2
Other computer and electronic products	other 334	71	59	83.1
Electrical equipment, appliances, and components	335	74	55	74.3
Transportation equipment	336	146	119	81.5
Motor vehicles, trailers, and parts	3361–3363	84	71	84.5
Aerospace products and parts	3364	48	38	79.2
Other transportation equipment	other 336	13	9	69.2
Furniture and related products	337	14	10	71.4
Miscellaneous manufacturing	339	135	109	80.7
Medical equipment and supplies	3391	99	76	76.8
Other miscellaneous manufacturing	other 339	36	33	91.7

TABLE A-4. Unit response rates, by industry and company size: 2009

Industry	NAICS codes	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Nonmanufacturing industries	21–23, 42, 44–81	1,004	780	77.7
Mining, extraction, and support activities	21	17	16	94.1
Utilities	22	16	15	93.8
Construction	23	10	9	90.0
Wholesale trade	42	57	19	33.3
Retail trade	44, 45	9	7	77.8
Transportation and warehousing	48, 49	8	7	87.5
Information	51	281	211	75.1
Publishing	511	187	132	70.6
Newspaper, periodical, book, and directory publishers	5111	6	5	83.3
Software publishers	5112	181	127	70.2
Telecommunications	517	26	21	80.8
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	8	6	75.0
Satellite telecommunications	5174	4	4	100.0
Other telecommunications	other 517	14	11	78.6
Data processing, hosting, and related services	518	45	37	82.2
Internet service providers and Web search portals	5181	5	2	40.0
Data processing, hosting, and related services	5182	40	35	87.5
Other information	other 51	23	21	91.3
Finance, insurance, and real estate	52, 53	36	31	86.1
Professional, scientific, and technical services	54	527	431	81.8
Architectural, engineering, and related services	5413	61	44	72.1
Computer systems design and related services	5415	152	108	71.1
Scientific R&D services	5417	265	237	89.4
Other professional, scientific, and technical services	other 54	49	42	85.7
Health care services	621–623	10	8	80.0
Other nonmanufacturing[a]	55, 56, 61, 624, 71, 72, 81	33	26	78.8
Company size (domestic employees)				
5–24	–	60	47	78.3
25–49	–	141	122	86.5
50–99	–	251	186	74.1
100–249	–	371	269	72.5
250–499	–	320	249	77.8
500–999	–	316	243	76.9
1,000–4,999	–	605	485	80.2
5,000–9,999	–	171	142	83.0
10,000–24,999	–	135	128	94.8
25,000 or more	–	94	84	89.4
Form BRDI-1A companies				
All industries	21–23, 31–33, 42, 44–81	37,833	27,507	72.7
Manufacturing industries	31–33	18,622	13,640	73.2
Food	311	965	744	77.1
Beverage and tobacco products	312	230	169	73.5
Textiles, apparel, and leather products	313–316	1,168	756	64.7
Wood products	321	672	493	73.4
Paper, printing, and support activities	322, 323	1,214	927	76.4
Petroleum and coal products	324	148	102	68.9
Chemicals	325	1,740	1,263	72.6
Basic chemicals	3251	317	240	75.7
Resin, synthetic rubber, fibers, and filaments	3252	174	128	73.6
Pharmaceuticals and medicines	3254	315	218	69.2
Other chemicals	other 325	934	677	72.5
Plastics and rubber products	326	1,045	780	74.6

TABLE A-4. Unit response rates, by industry and company size: 2009

Industry	NAICS codes	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Nonmetallic mineral products	327	601	449	74.7
Primary metals	331	417	297	71.2
Fabricated metal products	332	1,934	1,505	77.8
Machinery	333	2,312	1,720	74.4
Computer and electronic products	334	1,957	1,350	69.0
Computers and peripheral equipment	3341	163	109	66.9
Communications equipment	3342	258	174	67.4
Semiconductor and other electronic components	3344	503	328	65.2
Navigational, measuring, electromedical, and control instruments	3345	848	612	72.2
Other computer and electronic products	other 334	185	127	68.6
Electrical equipment, appliances, and components	335	685	496	72.4
Transportation equipment	336	1,212	861	71.0
Motor vehicles, trailers, and parts	3361–3363	495	351	70.9
Aerospace products and parts	3364	254	185	72.8
Other transportation equipment	other 336	463	325	70.2
Furniture and related products	337	733	546	74.5
Miscellaneous manufacturing	339	1,584	1,177	74.3
Medical equipment and supplies	3391	628	456	72.6
Other miscellaneous manufacturing	other 339	956	721	75.4
Nonmanufacturing industries	21–23, 42, 44–81	19,211	13,867	72.2
Mining, extraction, and support activities	21	508	375	73.8
Utilities	22	173	143	82.7
Construction	23	1,551	1,149	74.1
Wholesale trade	42	2,219	1,558	70.2
Retail trade	44, 45	1,801	1,336	74.2
Transportation and warehousing	48, 49	451	315	69.8
Information	51	2,802	1,992	71.1
Publishing	511	991	731	73.8
Newspaper, periodical, book, and directory publishers	5111	390	282	72.3
Software publishers	5112	601	449	74.7
Telecommunications	517	711	472	66.4
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	299	212	70.9
Satellite telecommunications	5174	51	31	60.8
Other telecommunications	other 517	361	229	63.4
Data processing, hosting, and related services	518	588	428	72.8
Internet service providers and Web search portals	5181	80	58	72.5
Data processing, hosting, and related services	5182	508	370	72.8
Other information	other 51	512	361	70.5
Finance, insurance, and real estate	52, 53	1,138	831	73.0
Professional, scientific, and technical services	54	4,023	3,003	74.6
Architectural, engineering, and related services	5413	922	728	79.0
Computer systems design and related services	5415	1,268	861	67.9
Scientific R&D services	5417	706	533	75.5
Other professional, scientific, and technical services	other 54	1,127	881	78.2
Health care services	621–623	1,467	1,140	77.7
Other nonmanufacturing[a]	55, 56, 61, 624, 71, 72, 81	3,038	2,010	66.2
Company size (domestic employees)				
5–24	–	14,430	10,541	73.0
25–49	–	6,003	4,600	76.6
50–99	–	5,364	4,023	75.0
100–249	–	5,448	3,960	72.7
250–499	–	2,557	1,760	68.8
500–999	–	1,546	1,071	69.3
1,000–4,999	–	1,588	1,090	68.6

TABLE A-4. Unit response rates, by industry and company size: 2009

Industry	NAICS codes	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
5,000–9,999	–	254	180	70.9
10,000–24,999	–	192	133	69.3
25,000 or more	–	176	117	66.5

NAICS = 2007 North American Industry Classification System.

[a] Active companies are defined as companies that are in scope of survey after all data have been processed.

[b] Companies are considered to have fulfilled response criteria for these tables if they were located in United States and reported that they 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, 2009.

TABLE A-5. Companies in the target population and selected for the sample, by industry and company size: 2010

Industry and company size	NAICS codes	Companies in target population	Companies selected for sample		
			All companies	Noncertainties	Certainties
All industries	21–23, 31–33, 42–81	2,013,399	42,965	25,612	17,353
Manufacturing industries	31–33	152,088	19,308	10,179	9,129
Food	311	12,089	956	493	463
Beverage and tobacco products	312	1,802	239	130	109
Textiles, apparel, and leather products	313–316	7,579	682	415	267
Wood products	321	7,739	688	477	211
Paper	322	2,178	402	218	184
Printing and related support activities	323	13,880	833	576	257
Petroleum and coal products[a]	324	533	194	71	123
Chemicals	325	6,134	1,906	808	1,098
Basic chemicals	3251	945	313	137	176
Resin, synthetic rubber, fibers, and filaments	3252	638	220	88	132
Pesticide, fertilizer, and other agricultural chemical	3253	360	128	52	76
Pharmaceuticals and medicines	3254	1,185	460	65	395
Soap, cleaning compound, and toilet preparation	3256	1,087	280	165	115
Paint, coating, adhesive, and other chemical	3255, 3259	1,919	505	301	204
Plastics and rubber products	326	7,141	1,055	577	478
Nonmetallic mineral products	327	6,163	652	432	220
Primary metals	331	2,544	471	255	216
Fabricated metal products	332	31,937	1,903	1,183	720
Machinery	333	14,045	2,383	1,141	1,242
Agricultural implements	33311	724	223	116	107
Semiconductor machinery	333295	145	124	0	124
Engine, turbine, and power transmission equipment	3336	548	198	98	100
Other machinery	other 333	12,628	1,838	927	911
Computer and electronic products	334	7,615	2,230	897	1,333
Communications equipment	3342	914	318	118	200
Semiconductor and other electronic components	3344	2,793	567	233	334
Navigational, measuring, electromedical, and control instruments	3345	2,718	970	414	556
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	411	161	47	114
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	340	145	42	103
Other measuring and controlling instruments	other 3345	1,967	664	325	339
Computer and peripheral equipment and other computer and electronic products	other 334	1,190	375	132	243
Electrical equipment, appliances, and components	335	3,280	753	406	347
Transportation equipment	336	6,222	1,544	601	943
Automobiles, bodies, trailers, and parts	3361–3363	3,989	892	382	510
Aerospace products and parts	3364	917	255	84	171
Aircraft, aircraft engine, and aircraft parts	336411–336413	857	210	83	127
Guided missile, space vehicle, and related parts	336414, 336415, 336419	60	45	1	44
Military armored vehicle, tank, and tank components	336992	38	19	0	19
Other transportation equipment	other 336	1,278	378	135	243
Furniture and related products	337	8,559	790	510	280
Miscellaneous manufacturing	339	12,371	1,512	928	584
Medical equipment and supplies	3391	4,550	680	405	275
Other miscellaneous manufacturing	3399	7,821	832	523	309
Unclassified		277	115	61	54
Nonmanufacturing industries	21–23, 42–81	1,861,311	23,657	15,433	8,224
Mining, extraction, and support activities[a]	21	9,033	725	480	245
Utilities	22	1,226	227	87	140
Construction	23	226,079	1,559	996	563
Wholesale trade	42	135,506	2,695	1,829	866
Retail trade	44, 45	256,059	3,346	2,949	397
Electronic shopping and electronic auctions[b]	454111, 454112	4,049	370	278	92
Other retail trade	other 44, 45	252,010	2,976	2,671	305
Transportation and warehousing	48, 49	54,625	463	256	207
Information	51	27,436	2,586	1,329	1,257

TABLE A-5. Companies in the target population and selected for the sample, by industry and company size: 2010

Industry and company size	NAICS codes	Companies in target population	Companies selected for sample		
			All companies	Noncertainties	Certainties
Publishing	511	9,950	1,146	577	569
Newspaper, periodical, book, and directory publishers	5111	6,662	425	294	131
Software publishers	5112	3,288	721	283	438
Telecommunications	517	4,088	273	101	172
Data processing, hosting, and related services	518	3,850	633	326	307
Other information	other 51	9,548	534	325	209
Finance and insurance	52	68,366	786	348	438
Real estate and rental and leasing	53	58,122	460	279	181
Professional, scientific, and technical services	54	219,273	5,474	3,106	2,368
Architectural, engineering, and related services	5413	35,033	1,092	705	387
Computer systems design and related services	5415	27,578	1,517	1,010	507
Scientific R&D services[c]	5417	4,608	1,687	631	1,056
Biotechnology R&D	541711	1,202	603	217	386
Physical, engineering, and life sciences (except biotechnology) R&D	541712	3,078	879	349	530
Social sciences and humanities R&D	541720	328	205	65	140
Other professional, scientific, and technical services	other 54	152,054	1,178	760	418
Health care services	621–623	244,993	1,691	1,089	602
Other nonmanufacturing	55–56, 624, 71–72, 81	559,152	3,324	2,513	811
Unclassified		1,441	321	172	149
Company size (employees)					
All companies	–	2,013,399	42,965	25,612	17,353
< 5[d]	–	105,396	1,427	1,114	313
5–24	–	1,510,304	15,672	14,273	1,399
25–49	–	216,147	5,802	4,213	1,589
50–99	–	100,012	5,496	3,104	2,392
100–249	–	53,632	6,016	2,006	4,010
250–499	–	14,470	3,074	507	2,567
500–999	–	6,629	2,042	220	1,822
1,000–4,999	–	5,260	2,338	150	2,188
5,000–9,999	–	747	457	13	444
10,000–24,999	–	493	353	11	342
25,000 or more	–	309	288	1	287

NAICS = 2007 North American Industry Classification System.

[a] Because of widespread practice of 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.

[b] Estimates for mail-order houses (NAICS 454113), formerly included with electronic shopping (NAICS 454111) and electronic auctions (NAICS 454112), are now included in Other retail trade.

[c] Estimates for scientific R&D services (NAICS 5417) are split into three detailed industries (NAICS 541711, 541712, and 541720).

[d] This category includes companies that are represented on the sampling frame as missing or having fewer than five paid employees, but these companies are considered to be in scope because they have at least $250,000 for annual payroll.

NOTES: Estimates of the number of companies in the target population are based on the original sampling frame that was created to select the 2010 Business R&D and Innovation Survey sample. The estimates in this table do not include 49 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 2010 sample with certainty and are also not reflected in the number of certainties selected for the sample. 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 sample for analytical purposes (analytical certainties). Noncertainties are companies whose probability of selection is less than one. Companies that were missing or had incomplete NAICS codes at time of sampling were assigned to "unclassified" industry category temporarily. If unclassified company reported R&D expenditures, its primary industrial activity was investigated, and NAICS code was assigned during statistical processing. Total sample size reflects time between sample selection and survey mailout; that is, 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, 2010.

TABLE A-6. Unit response rates, by industry and company size: 2010

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
All companies				
All industries	21–23, 31–33, 42–81	39,968	28,527	71.4
Manufacturing industries	31–33	19,025	13,900	73.1
Food	311	937	677	72.3
Beverage and tobacco products	312	240	162	67.5
Textiles, apparel, and leather products	313–316	662	445	67.2
Wood products	321	662	470	71.0
Paper manufacturing	322	385	297	77.1
Printing and related support activities	323	806	603	74.8
Petroleum and coal products	324	187	130	69.5
Chemicals	325	2,024	1,515	74.9
Basic chemicals	3251	320	243	75.9
Resin, synthetic rubber, fibers, and filaments	3252	204	132	64.7
Pesticide, fertilizer, and other agricultural chemical	3253	117	77	65.8
Pharmaceuticals and medicines	3254	614	506	82.4
Soap, cleaning compound, and toilet preparation	3256	291	210	72.2
Paint, coating, adhesive, and other chemical	3255, 3259	478	347	72.6
Plastics and rubber products	326	1,040	779	74.9
Nonmetallic mineral products	327	625	488	78.1
Primary metals	331	454	328	72.2
Fabricated metal products	332	1,838	1,383	75.2
Machinery	333	2,321	1,687	72.7
Agricultural implement	33311	227	152	67.0
Semiconductor machinery	333295	116	81	69.8
Engine, turbine, and power transmission equipment	3336	203	156	76.8
Other machinery manufacturing	other 333	1,775	1,298	73.1
Computer and electronic products	334	2,201	1,519	69.0
Communications equipment	3342	316	210	66.5
Semiconductor and other electronic components	3344	562	382	68.0
Navigational, measuring, electromedical, and control instruments	3345	933	656	70.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	163	107	65.6
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	137	97	70.8
Other measuring and controlling instruments	other 3345	633	452	71.4
Other computer and electronic products	other 334	390	271	69.5
Electrical equipment, appliances, and components	335	751	532	70.8
Transportation equipment	336	1,526	1,080	70.8
Automobiles, bodies, trailers, and parts	3361–3363	862	633	73.4
Aerospace products and parts	3364	273	185	67.8
Aircraft, aircraft engine, and aircraft parts	336411–336413	231	157	68.0
Guided missile, space vehicle, and related parts	336414, 336415, 336419	42	28	66.7
Military armored vehicle, tank, and tank components	336992	20	12	60.0
Other transportation	other 336	371	250	67.4
Furniture and related products	337	749	558	74.5
Miscellaneous manufacturing	339	1,617	1,247	77.1
Medical equipment and supplies	3391	771	602	78.1
Other miscellaneous manufacturing	3399	846	645	76.2
Nonmanufacturing industries	21–23, 42–81	20,943	14,627	69.8
Mining, extraction, and support activities	21	687	526	76.6
Utilities	22	209	168	80.4
Construction	23	1,375	990	72.0
Wholesale trade	42	2,243	1,484	66.2
Retail trade	44, 45	2,931	2,023	69.0
Electronic shopping and electronic auctions	454111, 454112	327	217	66.4
Other retail trade	other 44, 45	2,604	1,806	69.4
Transportation and warehousing	48, 49	439	309	70.4
Information	51	2,393	1,696	70.9
Publishing	511	1,088	791	72.7
Newspaper, periodical, book, and directory publishers	5111	399	299	74.9

TABLE A-6. Unit response rates, by industry and company size: 2010

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Software publishers	5112	689	492	71.4
Telecommunications	517	252	177	70.2
Data processing, hosting, and related services	518	574	383	66.7
Other information	other 51	479	345	72.0
Finance and insurance	52	732	552	75.4
Real estate and rental and leasing	53	395	289	73.2
Professional, scientific, and technical services	54	4,705	3,408	72.4
Architectural, engineering, and related services	5413	992	742	74.8
Computer systems design and related services	5415	1,414	988	69.9
Scientific R&D services	5417	1,226	849	69.2
Biotechnology R&D	541711	440	317	72.0
Physical, engineering, and life sciences (except biotechnology) R&D	541712	643	430	66.9
Social sciences and humanities R&D	541720	143	102	71.3
Other professional, scientific, and technical services	other 54	1,073	829	77.3
Health care services	621–623	1,517	1,167	76.9
Other nonmanufacturing	55, 56, 624, 71, 72, 81	3,317	2,015	60.7
Form BRDI-1 companies				
All industries	21–23, 31–33, 42–81	2,552	1,954	76.6
Manufacturing industries	31–33	1,509	1,203	79.7
Food	311	39	31	79.5
Beverage and tobacco products	312	10	9	90.0
Textiles, apparel, and leather products	313–316	13	12	92.3
Wood products	321	9	8	88.9
Paper manufacturing	322	17	17	100.0
Printing and related support activities	323	5	4	80.0
Petroleum and coal products	324	5	4	80.0
Chemicals	325	362	309	85.4
Basic chemicals	3251	49	42	85.7
Resin, synthetic rubber, fibers, and filaments	3252	11	9	81.8
Pesticide, fertilizer, and other agricultural chemical	3253	6	5	83.3
Pharmaceuticals and medicines	3254	249	217	87.1
Soap, cleaning compound, and toilet preparation	3256	26	19	73.1
Paint, coating, adhesive, and other chemical	3255, 3259	21	17	81.0
Plastics and rubber products	326	43	36	83.7
Nonmetallic mineral products	327	18	13	72.2
Primary metals	331	22	20	90.9
Fabricated metal products	332	32	26	81.3
Machinery	333	128	104	81.3
Agricultural implement	33311	6	4	66.7
Semiconductor machinery	333295	26	21	80.8
Engine, turbine, and power transmission equipment	3336	14	13	92.9
Other machinery manufacturing	other 333	82	66	80.5
Computer and electronic products	334	429	311	72.5
Communications equipment	3342	81	60	74.1
Semiconductor and other electronic components	3344	160	116	72.5
Navigational, measuring, electromedical, and control instruments	3345	117	80	68.4
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	35	24	68.6
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	26	20	76.9
Other measuring and controlling instruments	other 3345	56	36	64.3
Other computer and electronic products	other 334	71	55	77.5
Electrical equipment, appliances, and components	335	70	50	71.4
Transportation equipment	336	138	111	80.4
Automobiles, bodies, trailers, and parts	3361–3363	77	65	84.4
Aerospace products and parts	3364	46	34	73.9
Aircraft, aircraft engine, and aircraft parts	336411–336413	37	26	70.3
Guided missile, space vehicle, and related parts	336414, 336415, 336419	9	8	88.9
Military armored vehicle, tank, and tank components	336992	D	D	D
Other transportation	other 336	D	D	D

TABLE A-6. Unit response rates, by industry and company size: 2010

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Furniture and related products	337	12	12	100.0
Miscellaneous manufacturing	339	157	126	80.3
Medical equipment and supplies	3391	122	100	82.0
Other miscellaneous manufacturing	3399	35	26	74.3
Nonmanufacturing industries	21–23, 42–81	1,043	751	72.0
Mining, extraction, and support activities	21	18	14	77.8
Utilities	22	13	10	76.9
Construction	23	8	8	100.0
Wholesale trade	42	54	D	D
Retail trade	44, 45	7	D	D
Electronic shopping and electronic auctions	454111, 454112	4	4	100.0
Other retail trade	other 44, 45	3	D	D
Transportation and warehousing	48, 49	9	7	77.8
Information	51	294	210	71.4
Publishing	511	190	132	69.5
Newspaper, periodical, book, and directory publishers	5111	8	6	75.0
Software publishers	5112	182	126	69.2
Telecommunications	517	32	24	75.0
Data processing, hosting, and related services	518	38	28	73.7
Other information	other 51	34	26	76.5
Finance and insurance	52	43	35	81.4
Real estate and rental and leasing	53	9	7	77.8
Professional, scientific, and technical services	54	545	412	75.6
Architectural, engineering, and related services	5413	60	43	71.7
Computer systems design and related services	5415	171	119	69.6
Scientific R&D services	5417	259	201	77.6
Biotechnology R&D	541711	108	81	75.0
Physical, engineering, and life sciences (except biotechnology) R&D	541712	147	116	78.9
Social sciences and humanities R&D	541720	4	4	100.0
Other professional, scientific, and technical services	other 54	55	49	89.1
Health care services	621–623	11	8	72.7
Other nonmanufacturing	55, 56, 624, 71, 72, 81	32	21	65.6
Form BRDI-1A companies				
All industries	21–23, 31-33, 42–81	18,670	13,275	71.1
Manufacturing industries	31–33	8,730	6,339	72.6
Food	311	459	331	72.1
Beverage and tobacco products	312	118	78	66.1
Textiles, apparel, and leather products	313–316	327	215	65.7
Wood products	321	316	221	69.9
Paper manufacturing	322	176	127	72.2
Printing and related support activities	323	396	290	73.2
Petroleum and coal products	324	94	63	67.0
Chemicals	325	837	616	73.6
Basic chemicals	3251	141	101	71.6
Resin, synthetic rubber, fibers, and filaments	3252	92	58	63.0
Pesticide, fertilizer, and other agricultural chemical	3253	55	34	61.8
Pharmaceuticals and medicines	3254	188	155	82.4
Soap, cleaning compound, and toilet preparation	3256	133	98	73.7
Paint, coating, adhesive, and other chemical	3255, 3259	228	170	74.6
Plastics and rubber products	326	500	382	76.4
Nonmetallic mineral products	327	303	242	79.9
Primary metals	331	214	157	73.4
Fabricated metal products	332	890	679	76.3
Machinery	333	1,098	780	71.0
Agricultural implement	33311	110	69	62.7
Semiconductor machinery	333295	44	28	63.6
Engine, turbine, and power transmission equipment	3336	94	69	73.4
Other machinery manufacturing	other 333	850	614	72.2
Computer and electronic products	334	886	609	68.7

TABLE A-6. Unit response rates, by industry and company size: 2010

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Communications equipment	3342	121	75	62.0
Semiconductor and other electronic components	3344	204	129	63.2
Navigational, measuring, electromedical, and control instruments	3345	400	292	73.0
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	62	44	71.0
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	53	38	71.7
Other measuring and controlling instruments	other 3345	285	210	73.7
Other computer and electronic products	other 334	161	113	70.2
Electrical equipment, appliances, and components	335	339	241	71.1
Transportation equipment	336	701	501	71.5
Automobiles, bodies, trailers, and parts	3361–3363	382	281	73.6
Aerospace products and parts	3364	126	87	69.0
Aircraft, aircraft engine, and aircraft parts	336411–336413	108	76	70.4
Guided missile, space vehicle, and related parts	336414, 336415, 336419	18	11	61.1
Military armored vehicle, tank, and tank components	336992	10	7	70.0
Other transportation	other 336	183	126	68.9
Furniture and related products	337	362	268	74.0
Miscellaneous manufacturing	339	714	539	75.5
Medical equipment and supplies	3391	322	247	76.7
Other miscellaneous manufacturing	3399	392	292	74.5
Nonmanufacturing industries	21–23, 42–81	9,940	6,936	69.8
Mining, extraction, and support activities	21	331	262	79.2
Utilities	22	99	84	84.8
Construction	23	681	494	72.5
Wholesale trade	42	1,096	731	66.7
Retail trade	44, 45	1,456	1,008	69.2
Electronic shopping and electronic auctions	454111, 454112	161	109	67.7
Other retail trade	other 44, 45	1,295	899	69.4
Transportation and warehousing	48, 49	217	151	69.6
Information	51	1,041	732	70.3
Publishing	511	449	323	71.9
Newspaper, periodical, book, and directory publishers	5111	199	146	73.4
Software publishers	5112	250	177	70.8
Telecommunications	517	106	75	70.8
Data processing, hosting, and related services	518	265	172	64.9
Other information	other 51	221	162	73.3
Finance and insurance	52	349	262	75.1
Real estate and rental and leasing	53	181	134	74.0
Professional, scientific, and technical services	54	2,072	1,485	71.7
Architectural, engineering, and related services	5413	464	350	75.4
Computer systems design and related services	5415	620	428	69.0
Scientific R&D services	5417	465	307	66.0
Biotechnology R&D	541711	164	118	72.0
Physical, engineering, and life sciences (except biotechnology) R&D	541712	241	145	60.2
Social sciences and humanities R&D	541720	60	44	73.3
Other professional, scientific, and technical services	other 54	523	400	76.5
Health care services	621–623	763	592	77.6
Other nonmanufacturing	55, 56, 624, 71, 72, 81	1,654	1,001	60.5
Form BRDI-1B companies				
All industries	21–23, 31–33, 42–81	18,746	13,298	70.9
Manufacturing industries	31–33	8,786	6,358	72.4
Food	311	439	315	71.8
Beverage and tobacco products	312	112	75	67.0
Textiles, apparel, and leather products	313–316	322	218	67.7
Wood products	321	337	241	71.5
Paper manufacturing	322	192	153	79.7
Printing and related support activities	323	405	309	76.3
Petroleum and coal products	324	88	63	71.6
Chemicals	325	825	590	71.5

TABLE A-6. Unit response rates, by industry and company size: 2010

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Basic chemicals	3251	130	100	76.9
Resin, synthetic rubber, fibers, and filaments	3252	101	65	64.4
Pesticide, fertilizer, and other agricultural chemical	3253	56	38	67.9
Pharmaceuticals and medicines	3254	177	134	75.7
Soap, cleaning compound, and toilet preparation	3256	132	93	70.5
Paint, coating, adhesive, and other chemical	3255, 3259	229	160	69.9
Plastics and rubber products	326	497	361	72.6
Nonmetallic mineral products	327	304	233	76.6
Primary metals	331	218	151	69.3
Fabricated metal products	332	916	678	74.0
Machinery	333	1,095	803	73.3
Agricultural implement	33311	111	79	71.2
Semiconductor machinery	333295	46	32	69.6
Engine, turbine, and power transmission equipment	3336	95	74	77.9
Other machinery manufacturing	other 333	843	618	73.3
Computer and electronic products	334	886	599	67.6
Communications equipment	3342	114	75	65.8
Semiconductor and other electronic components	3344	198	137	69.2
Navigational, measuring, electromedical, and control instruments	3345	416	284	68.3
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	66	39	59.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	58	39	67.2
Other measuring and controlling instruments	other 3345	292	206	70.5
Other computer and electronic products	other 334	158	103	65.2
Electrical equipment, appliances, and components	335	342	241	70.5
Transportation equipment	336	687	468	68.1
Automobiles, bodies, trailers, and parts	3361–3363	403	287	71.2
Aerospace products and parts	3364	101	64	63.4
Aircraft, aircraft engine, and aircraft parts	336411–336413	86	55	64.0
Guided missile, space vehicle, and related parts	336414, 336415, 336419	15	9	60.0
Military armored vehicle, tank, and tank components	336992	D	D	D
Other transportation	other 336	D	D	D
Furniture and related products	337	375	278	74.1
Miscellaneous manufacturing	339	746	582	78.0
Medical equipment and supplies	3391	327	255	78.0
Other miscellaneous manufacturing	3399	419	327	78.0
Nonmanufacturing industries	21–23, 42–81	9,960	6,940	69.7
Mining, extraction, and support activities	21	338	250	74.0
Utilities	22	97	74	76.3
Construction	23	686	488	71.1
Wholesale trade	42	1,093	D	D
Retail trade	44, 45	1,468	D	D
Electronic shopping and electronic auctions	454111, 454112	162	104	64.2
Other retail trade	other 44, 45	1,306	D	D
Transportation and warehousing	48, 49	213	151	70.9
Information	51	1,058	754	71.3
Publishing	511	449	336	74.8
Newspaper, periodical, book, and directory publishers	5111	192	147	76.6
Software publishers	5112	257	189	73.5
Telecommunications	517	114	78	68.4
Data processing, hosting, and related services	518	271	183	67.5
Other information	other 51	224	157	70.1
Finance and insurance	52	340	255	75.0
Real estate and rental and leasing	53	205	148	72.2
Professional, scientific, and technical services	54	2,088	1,511	72.4
Architectural, engineering, and related services	5413	468	349	74.6
Computer systems design and related services	5415	623	441	70.8
Scientific R&D services	5417	502	341	67.9
Biotechnology R&D	541711	168	118	70.2
Physical, engineering, and life sciences (except biotechnology) R&D	541712	255	169	66.3

TABLE A-6. Unit response rates, by industry and company size: 2010

Industry and company size	NAICS code	Active companies[a]	Companies that met response criteria[b]	% of companies that met response criteria
Social sciences and humanities R&D	541720	79	54	68.4
Other professional, scientific, and technical services	other 54	495	380	76.8
Health care services	621–623	743	567	76.3
Other nonmanufacturing	55, 56, 624, 71, 72, 81	1,631	993	60.9

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

[a] Active companies are defined as companies that are in scope of survey after all data have been processed.

[b] Companies were considered to have fulfilled response criteria if they were located in United States and reported that they performed or funded R&D. If not, company fulfilled response criteria if they were located in United States and reported values for worldwide sales, domestic sales, worldwide employees, or domestic employees.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics and U.S. Census Bureau, Business R&D and Innovation Survey, 2010.

Appendix B. Survey Instruments

2010

BRDI-1
BRDI-1A
BRDI-1B
BRDI-1(SUP1)
BRDI-1(SUP2)
BRDI-1(SUP3)

2009

BRDI-1
BRDI-1A

2008

BRDI-1
BRDI-1A

11010014

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

FORM
BRDI-1 (03-01-2011)

2010 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report electronically:
www.census.gov/econhelp/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:
- www.census.gov/econhelp/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 Research and Development 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 seven 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.38

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.42

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

Section 7: R&D Time Frame and R&D Product Life p.44

Topics: R&D time frame and R&D product life.
Requires: knowledge of accounting, sales, and marketing information related to your company's R&D activities and products resulting from R&D.

Changes from the 2009 survey

Based on extensive conversations with many of the 2009 survey respondents, the 2010 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 **www.census.gov/econhelp/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 **www.census.gov/econhelp/brdis**.

Electronic materials

Electronic versions of the questionnaire and related documents are available to print or share with others in your company via email. They can be found at **www.census.gov/econhelp/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 research and development 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.

Research and development 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.

Research and development 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 2010, if possible, or for your company's fiscal year ending between April 2010 and March 2011.

Estimates are acceptable

Please report all items to the best of your ability.

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

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

SECTION 1
Company Information

1-1 **Did another company other than a holding company own more than 50 percent of your company during 2010?**

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

Name of owner

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

☐ No ➔ **Skip to Question 1-3**

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

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

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

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

If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in Section 3 as "costs funded, paid for, or reimbursed by others".

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you estimate any adjustments that would be required to conform to U.S. GAAP.

☐ No (U.S. owner) ➔ **Please provide the following information:**

EIN of owner (9 digits)

REPORTING INSTRUCTIONS:
If your company was purchased between April 1, 2010 and December 31, 2010, report only for the period January 1, 2010 to the date of purchase. If your company was purchased before April 1, 2010, complete Question 1-6 and return this form to the Census Bureau – you are not required to complete the rest of this survey.
Disregard these instructions if your owner instructs you to complete this survey.

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 2010?**

☐ Yes ➔ **Include data for these operations/subsidiaries in your survey responses**

☐ No

1-4 **Has your company ceased operations?**

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

Date your company ceased operations (MM) (DD) (YYYY)

REPORTING INSTRUCTIONS:
If your company ceased operations between April 1, 2010 and December 31, 2010, report only for the period January 1, 2010 to the date your company ceased operations. If your company ceased operations before April 1, 2010, 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 2010?**

☐ 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 within your company's R&D, accounting, human resources, and legal matters.

Name

Title

Telephone
Area code Number Extension

Fax
Area code Number

E-mail address

Business Codes

1-7 **Do the business code(s) listed below reflect all applicable codes from the list on pages 46-47 in which your company operated worldwide during 2010?**

NOTE: These codes will be used to describe both business activities and R&D activities and may differ from industry codes used by other government surveys and reports.

If no business codes are printed below, please write in the codes from pages 46-47 that apply to your company.

☐ Yes ➔ **Continue with Question 1-8**

☐ No ➔ **Draw a line through codes that are incorrect. As needed, enter additional codes and descriptions from pages 46-47 in the spaces provided.**

Business Code (see pages 46-47)	Description

1-8 **What was the amount of your company's worldwide net sales and revenues during 2010?**

Include:
- Sales and operating revenues from discontinued operations

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

$Bil.	Mil.	Thou.

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.

1-10 **How much of the 2010 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 $Bil.	Mil.	Thou.	(2) Domestic net sales and operating revenues $Bil.	Mil.	Thou.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.	Less eliminations – sales and revenues that are eliminated in order to consolidate the business codes. . . .						
j.	**Total**.						
		Total equals Question 1-8			*Total equals Question 1-9*		

Innovation

1-11 Did your company introduce any of the following during the three-year period, 2008 to 2010?

a. New or significantly improved goods (excluding the simple resale of new goods purchased from others and changes of a solely aesthetic nature) . . . . . ☐ Yes ☐ No

b. New or significantly improved services. . . . . ☐ Yes ☐ No

c. New or significantly improved methods of manufacturing or producing goods or services. . . . . ☐ Yes ☐ No

d. New or significantly improved logistics, delivery, or distribution methods for your inputs, goods, or services. . . . . ☐ Yes ☐ No

e. New or significantly improved support activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing . . . . . ☐ Yes ☐ No

1-12 If you answered "yes" to either 1-11, line a, or 1-11, line b, were any of those new or significantly improved goods or services:

a. New to one of your markets? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services to one of your markets before your competitors (it may have been available in other markets).

b. Only new to your company? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services that were already available from your competitors in your markets.

1-13 Using the definitions above, please give the percentage of your total sales in 2010 from:

a. New or significantly improved goods and services introduced during 2008 to 2010 that were new to one of your markets. . . . . ___ %

b. New or significantly improved goods and services introduced during 2008 to 2010 that were only new to your company . . . . . ___ %

c. Goods and services that were unchanged or only marginally modified during 2008 to 2010 (include the resale of new goods or services purchased from other companies) . . . . . ___ %

d. **Total sales in 2010** . . . . . 1 0 0 %

1-14 – 1-17 Not applicable to this form

This page is intentionally blank. The survey continues on the next page.

SECTION 2

SECTION 2
Financial Schedule A

Who should answer this section?
Persons familiar with accounting concepts and with access to financial records related to your company's R&D activities should complete this section.

What does this section cover?
This section requests financial information about your company's R&D expenses and capital expenditures for R&D. This section requests information about your company's R&D at multiple levels of detail: for your worldwide consolidated enterprise, for units or parts of your company defined by geography (countries, states, specific location), and for parts of your company defined by business code.

2-1 What was the total worldwide R&D expense for your company in 2010?

If your company is publicly traded, this amount is equivalent to that disclosed on SEC Form 10-K as defined by 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 www.census.gov/econhelp/brdis.

NOTE: Report your company's R&D expense even if the amount is not considered material for your company's financial statements.

$Bil. Mil. Thou.

2-2 Does the amount reported in Question 2-1 include any of the following costs?

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements. . . . . ☐ Yes ☐ No

b. R&D paid for by government or private foundation grants. . . . . ☐ Yes ☐ No

c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees). . . . . ☐ Yes ☐ No

d. Bid and proposal costs. . . . . ☐ Yes ☐ No

e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (In-process R&D) . . . . . ☐ Yes ☐ No

2-3 If you answered "Yes" to any of the costs in Question 2-2, what was the amount of these costs that was included in your response to Question 2-1?

$Bil. Mil. Thou.

2-4 Subtract Question 2-3 from Question 2-1 and enter the result here. This is the <u>total R&D paid for by your company</u> in 2010.

$Bil. Mil. Thou.

2-5 Is the amount entered in Question 2-4 greater than zero?

☐ Yes → **Continue with Question 2-6**

☐ No → **Skip to Section 3 on page 20**

2-6 How much of the amount reported in Question 2-4 was for R&D costs your company plans to recoup through indirect charges on U.S. federal government contracts (IR&D or independent R&D)?

$Bil. Mil. Thou.

R&D paid for by your company

2-7 **Of the amount reported in Question 2-4, what were the costs for each business code listed or amended on page 6 of this form?**

Allocate R&D that is applicable to more than one business code on a reasonable basis. Allocation in proportion to operating revenues is acceptable unless some alternative allocation basis is more appropriate.

	Business Code (see page 6)		$Bil.	Mil.	Thou.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.		**Total** (equals Question 2-4)			

2-8 **Of the amount reported in Question 2-4, what costs were incurred by your company in the following locations?**

		$Bil.	Mil.	Thou.
a.	Domestic U.S. (50 states and D.C.) [Include R&D performed by domestic operations that are paid for by foreign subsidiaries]			
b.	All other countries (also, Puerto Rico) [Include R&D performed by foreign subsidiaries that are paid for by domestic operations]			
c.	**Total** (equals Question 2-4)			

2-9 **Copy the amount from Question 2-8, line a. This is the total domestic R&D paid for by your company in 2010.**

$Bil.	Mil.	Thou.

2-10 **Copy the amount reported from Question 2-8, line b. This is the total foreign R&D paid for by your company in 2010.**

$Bil.	Mil.	Thou.

SECTION 2

SECTION 2

2-11 How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2010 was for each of the following types of costs?

	(1) Domestic			(2) Foreign			(3) Total Worldwide		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
a. Salaries, wages, and fringe benefits									
b. Stock-based compensation									
c. Temporary staffing including on-site consultants									
d. Expensed equipment									
e. Materials and supplies									
f. Leased facilities and equipment									
g. Depreciation and amortization on R&D property and equipment									
h. Payments to business partners for collaborative R&D									
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)									
j. All other purchased services except R&D									
k. Allocated costs, not reported elsewhere									
l. All other costs									
m. **Total**									
	Total equals Question 2-9			*Total equals Question 2-10*			*Total equals Question 2-4*		

2-12 **Add 2-11, lines h and i for each column, and enter the result here. This is R&D performed by others.**

(1) Domestic $Bil.	Mil.	Thou.	(2) Foreign $Bil.	Mil.	Thou.	(3) Total Worldwide $Bil.	Mil.	Thou.

2-13 **Subtract 2-12 from 2-11, line m, for each column and enter the result here. This is R&D performed by your company.**

(1) Domestic $Bil.	Mil.	Thou.	(2) Foreign $Bil.	Mil.	Thou.	(3) Total Worldwide $Bil.	Mil.	Thou.

2-14 **Copy the amount from Question 2-13, column 2. This is the foreign R&D paid for and performed by your company in 2010.**

$Bil.	Mil.	Thou.

2-15 **Of the amount reported in Question 2-14, how much R&D was performed in the following locations?**

	$Bil.	Mil.	Thou.		$Bil.	Mil.	Thou.
a. Puerto Rico				j. Japan			
b. Canada				k. Russia			
c. China				l. Singapore			
d. France				m. South Korea			
e. Germany				n. Sweden			
f. India				o. United Kingdom			
g. Ireland				p. All other			
h. Israel							
i. Italy				q. **Total** (equals Question 2-14)			

2-16 **Copy the amount from Question 2-13, column 1. This is the domestic R&D paid for and performed by your company in 2010.**

$Bil.	Mil.	Thou.

SECTION 2

SECTION 2

2-17 **How much of the amount reported in Question 2-16 was performed in each state (including D.C.) in 2010?**

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

Question continues on next page

2-17 **(Continued)**

	$Bil.	Mil.	Thou.		$Bil.	Mil.	Thou.
Pennsylvania . . .				Vermont			
Rhode Island . . .				Virginia			
South Carolina . .				Washington			
South Dakota . . .				West Virginia			
Tennessee				Wisconsin			
Texas				Wyoming			
Utah				**Total** (equals Question 2-16) . . .			

2-18 **At what domestic location did your company perform the largest dollar amount of R&D in 2010?**

Address 1

Address 2

City **State** **ZIP**

2-19 **How much of the amount reported in Question 2-16 was from the location identified in Question 2-18?**

$Bil.	Mil.	Thou.

SECTION 2

SECTION 2

2-20 **How much of the R&D paid for by your company for each business code reported in Question 2-7 was:**
(1) Domestic R&D paid for by your company reported in Question 2-9
(2) Domestic R&D performed by your company reported in Question 2-16

	Business Code (see page 6)	(1) Domestic R&D paid for by your company $Bil. Mil. Thou.	(2) Domestic R&D performed by your company $Bil. Mil. Thou.
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			
i. **Total**			
		Total equals Question 2-9	*Total equals Question 2-16*

R&D paid for by foreign subsidiaries

2-21 **How much of the amount reported in Question 2-16 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 2010, 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.

R&D performed by others

2-22 **Copy the amount from Question 2-12, column 1. <u>This is the domestic R&D paid for by your company in 2010 that was performed by others</u>.**

$Bil. Mil. Thou.

SECTION 2

2-23 **How much of the amount reported in Question 2-22, was performed by the following types of organizations?**

	$Bil.	Mil.	Thou.
a. Companies located inside the United States			
b. Your company's foreign owner (if your company is foreign-owned)			
c. Other companies located outside the United States			
d. U.S. federal government agencies or laboratories			
e. U.S. state and local government agencies or laboratories			
f. Foreign government agencies or laboratories			
g. Universities, colleges, and academic researchers (including principal investigators) located inside the United States			
h. Universities, colleges, and academic researchers (including principal investigators) located outside the United States			
i. All other organizations			
j. **Total domestic R&D paid for by your company that was performed by others** (equals Question 2-22)			

Projected R&D for 2011

2-24 **What are your company's projected 2011 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?**

NOTE: This amount is the 2011 projection for what is reported in Question 2-11, line m.

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-25 **How much of the amount reported in Question 2-24, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?**

Domestic		
$Bil.	Mil.	Thou.

SECTION 2

Capital Expenditures

2-26 **What was the amount of your company's capital expenditures in the domestic United States in 2010?**

$Bil.	Mil.	Thou.

2-27 **How much of the amount reported in Question 2-26 was for R&D operations?**

$Bil.	Mil.	Thou.

2-28 **How much of the amount reported in Question 2-27 was for the following?**

	$Bil.	Mil.	Thou.
a. Structures			
b. Equipment			
c. Capitalized software			
d. All other capital expenditures for R&D operations			
e. **Total domestic capital expenditures for R&D** (equals Question 2-27)			

Reporting information

2-29 **Is the information in this section reported for the 2010 calendar year?**

☐ Yes

☐ No ➔ **Enter time period covered below:**

	(MM)	(YYYY)		(MM)	(YYYY)
From			To		

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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 2010 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. Phase I-III medical clinical trial services provided to others not owned by your company (include pass-through costs)			
g. Nondefense custom software development and/or computer systems designed for others not owned by your company			
h. 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. **Total**			

Exclude:
- Software development that does not depend on a scientific or technological advance such as adding functionality to existing application programs, debugging systems, and adapting existing software

3-2 **Copy the amount from Question 3-1, line j. This is the <u>total R&D paid for by others</u> in 2010.**

$Bil.	Mil.	Thou.

3-3 **Is the amount entered in Question 3-2 greater than zero?**

☐ Yes → **Continue with Question 3-4**

☐ No → **Skip to Section 4 on page 32**

R&D paid for by others

3-4 **How much of total R&D paid for by others reported in Question 3-2 was for each business code listed or amended on page 6 of this form?**

Allocate R&D that is applicable to more than one business code on a reasonable basis. Allocation in proportion to operating revenues is acceptable unless some alternative allocation basis is more appropriate.

	Business Code (see page 6)		$Bil.	Mil.	Thou.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.		**Total** (equals Question 3-2)			

3-5 **Of the amount reported in Question 3-2, what costs were incurred by your company in the following locations?**

	$Bil.	Mil.	Thou.
a. Domestic U.S. (50 states and D.C.)			
b. All other countries (also, Puerto Rico)			
c. **Total** (equals Question 3-2)			

SECTION 3

SECTION 3

3-6 **Copy the amount from Question 3-5, line a. This is the total domestic R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-7 **Copy the amount from Question 3-5, line b. This is the total foreign R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-8 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2010 was for each of the following types of costs?**

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

Question continues on next page

3-8 **(Continued)**

	(1) Domestic			(2) Foreign			(3) Total Worldwide		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
k. Allocated costs, not reported elsewhere									
l. All other costs									
m. **Total**									
	Total equals Question 3-6			*Total equals Question 3-7*			*Total equals Question 3-2*		

3-9 **Add 3-8, lines h and i for each column, and enter the result here. This is R&D performed by others (e.g. subcontracted/passed-through R&D costs).**

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

3-10 **Subtract 3-9 from 3-8, line m, for each column and enter the result here. This is R&D performed by your company that was paid for by others.**

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

3-11 **Copy the amount from Question 3-10, column 2. This is the foreign R&D performed by your company that was paid for by others.**

$Bil.	Mil.	Thou.

SECTION 3

SECTION 3

3-12 **Of the amount reported in Question 3-11, how much R&D was performed in the following locations?**

	$Bil.	Mil.	Thou.		$Bil.	Mil.	Thou.
a. Puerto Rico				j. Japan			
b. Canada				k. Russia			
c. China				l. Singapore			
d. France				m. South Korea			
e. Germany				n. Sweden			
f. India				o. United Kingdom			
g. Ireland				p. All other			
h. Israel							
i. Italy				q. **Total** (equals Question 3-11)			

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

3-13 **Copy the amount from Question 3-10, column 1. This is the domestic R&D performed by your company that was paid for by others.**

$Bil.	Mil.	Thou.

3-14 **How much of the amount reported in Question 3-13 was paid for by each of the following?**

If your company is a subcontractor or subgrantee, report the original source of funds.

Example: Company Sub Inc. performs custom software development for a large defense company as a subcontractor on a contract with the U.S. Dept. of Defense. Even though Sub Inc. is working directly for the defense company, it reports the cost of this development in line d because the Dept. of Defense was the original source of funds.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States			
b. Your company's foreign owner (if your company is foreign-owned)			
c. Other companies located outside the United States			
d. U.S. federal government agencies or laboratories			
e. U.S. state government agencies or laboratories			
f. Foreign government agencies or laboratories			
g. All other organizations inside the United States			
h. All other organizations located outside the United States			
i. **Total** (equals Question 3-13)			

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.

SECTION 3

SECTION 3

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			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. All other			
f. **Total** (equals Question 3-15)			

3-17 **How much of the amount reported in Question 3-15 was performed under the following types of agreements?**

	$Bil.	Mil.	Thou.
a. Contracts (include direct or prime contracts and subcontracts)			
b. Grants, reimbursements, and all other agreements			
c. **Total** (equals Question 3-15)			

3-18 **Subtract Question 3-15 from Question 3-13 and enter the result here. This is the domestic R&D performed by your company that was paid for by nonfederal sources.**

$Bil.	Mil.	Thou.

3-19 **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 3-18
(3) Total domestic R&D performed by your company that was paid for by others reported in Question 3-13

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Alabama									
Alaska									
Arizona									
Arkansas									
California									
Colorado									
Connecticut									
Delaware									
District of Columbia									
Florida									
Georgia									
Hawaii									

Question continues on next page

SECTION 3

SECTION 3

3-19 (Continued)

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Idaho									
Illinois									
Indiana									
Iowa									
Kansas									
Kentucky									
Louisiana									
Maine									
Maryland									
Massachusetts									
Michigan									
Minnesota									
Mississippi									

Question continues on next page

3-19 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Missouri									
Montana									
Nebraska									
Nevada									
New Hampshire									
New Jersey									
New Mexico									
New York									
North Carolina									
North Dakota									
Ohio									
Oklahoma									
Oregon									

Question continues on next page

SECTION 3

SECTION 3

3-19 (Continued)

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Pennsylvania									
Rhode Island									
South Carolina									
South Dakota									
Tennessee									
Texas									
Utah									
Vermont									
Virginia									
Washington									
West Virginia									
Wisconsin									
Wyoming									

Question continues on next page

3-19 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Total									
	Total equals Question 3-15			*Total equals Question 3-18*			*Total equals Question 3-13*		

Projected R&D paid for by others in 2011

3-20 **What are your company's projected 2011 costs for R&D that will be paid for by others?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-2.

$Bil. Mil. Thou.

3-21 **How much of the projected costs in 2011 for R&D that will be paid for by others reported in Question 3-20 will be performed by your company in the United States?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-13.

$Bil. Mil. Thou.

3-22 **How much of the projected costs in 2011 for domestic R&D performed by your company that will be paid for by others reported in Question 3-21 will be paid for by the U.S. federal government?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-15.

$Bil. Mil. Thou.

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 2010.**

$Bil. Mil. Thou.

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

☐ Yes → **Continue with Question 4-3**

☐ No → **Skip to Question 4-19 on page 35**

4-3 **What percentage of the amount reported in Question 4-1 was directed toward business areas or product lines that are new to your company?**

Example: Company A manufactures laptop computers. In 2010 Company A's management decided to attempt to enter the cellular phone market and used a portion of the company's R&D budget to develop cellular phones. Because this was a new line of business in 2010, Company A reports this R&D in this question.

%

4-4 **What percentage of the amount reported in Question 4-1 involved science/technology that was new to your company (such as technology not used by your company in other projects before 2010)?**

Example: In 2010 Company A began to investigate how to integrate a new type of touch sensitive display into its products. Because this display technology was new to Company A in 2010, the R&D using this technology is reported in this question.

%

4-5 **What percentage of the amount reported in Question 4-1 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?**

Exclude
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates.

Example: In 2010 Company B used a portion of its R&D to explore the potential use of a new heat-conducting material in its cookware products. Because this technology had not been used previously in the cookware industry, Company B should include that R&D in this question.

%

SECTION 4

Worldwide R&D Agreements

4-6 **In 2010, how many new R&D agreements did your company enter into?**

R&D agreements involve two or more parties pooling resources and expertise to undertake R&D and share in any resulting intellectual property. R&D agreements involve shared risk and shared reward.

Number

4-7 **Did the new R&D agreements reported in Question 4-6 involve agreements with the following types of organizations?**

a. For-profit companies located inside the United States . . . . . ☐ Yes ☐ No

b. For-profit companies located outside the United States . . . . . ☐ Yes ☐ No

c. U.S. federal government agencies or laboratories. . . . . ☐ Yes ☐ No

d. Universities, colleges, and academic researchers, including individual principal investigators. . . . . ☐ Yes ☐ No

e. Foreign government agencies or laboratories. . . . . ☐ Yes ☐ No

4-8 **Did the new R&D agreements reported in Question 4-6 involve agreements with the following?**

a. Customers . . . . . ☐ Yes ☐ No

b. Vendors/suppliers . . . . . ☐ Yes ☐ No

c. Competitors . . . . . ☐ Yes ☐ No

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

4-9 **Copy the amount from Question 2-16. This is the domestic R&D paid for and performed by your company.**

$Bil. Mil. Thou.

4-10 **How much of the amount reported in Question 4-9 was for the following categories?**

$Bil. Mil. Thou.

a. Research–the planned, systematic pursuit of new knowledge or understanding. . . . . .

b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes . . . . . .

c. **Total** (equals Question 4-9). . . . . .

SECTION 4

4-11 **If you reported any research in Question 4-10, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective.			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-10, line a).			

Areas of application for domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-12 to 4-13.

4-12 **What percentage of the amount reported in Question 4-9 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 2010, 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.

%

4-13 **What percentage of the amount reported in Question 4-9 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 4-14 to 4-18.

4-14 **What percentage of the amount reported in Question 4-9 was for software products?**

%

4-15 **What percentage of the amount reported in Question 4-9 was for software embedded in other projects or products?**

%

4-16 **What percentage of the amount reported in Question 4-9 was for medical clinical trials?**

%

4-17 **What percentage of the amount reported in Question 4-9 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?**

%

4-18 **What percentage of the amount reported in Question 4-9 was for nanotechnology—the science and technology involving work at the nanometer scale?**

%

SECTION 4

Activities with academia

4-19 Did your company perform any of the following activities with universities, students, or academic faculty in 2010?

a. Hired academic consultants for short-term projects in science and engineering . . . . . ☐ Yes ☐ No

b. Hosted student interns pursuing undergraduate or graduate degrees in science or engineering for at least one month. . . . . ☐ Yes ☐ No

c. Hosted postdoctoral fellows in science or engineering for at least one month . . . . . ☐ Yes ☐ No

d. Had scientists or engineers from your company who served as visiting scientists or engineers at a college or university for at least one month. . . . . ☐ Yes ☐ No

e. Made monetary gifts to universities or colleges that were restricted to supporting R&D . . . . . ☐ Yes ☐ No

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

4-20 Copy the amount from Question 3-13. This is the <u>domestic R&D performed by your company that was paid for by others</u>.

$Bil.	Mil.	Thou.

4-21 Is the amount entered in Question 4-20 greater than zero?

☐ Yes → **Continue with Question 4-22**

☐ No → **Skip to Section 5 on page 38**

4-22 How much of the amount reported in Question 4-20 was for the following categories?

	$Bil.	Mil.	Thou.
a. <u>Research</u>–the planned, systematic pursuit of new knowledge or understanding.			
b. <u>Development</u>–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-20).			

4-23 If you reported any research in Question 4-22, 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.			
b. <u>Basic research</u>–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-22, line a).			

SECTION 4

NOTE: You may report the same R&D in multiple areas for Questions 4-24 to 4-28.

4-24 **What percentage of the amount reported in Question 4-20 was for medical clinical trials (Phases I, II, and III)?** ___ %

4-25 **What percentage of the amount reported in Question 4-20 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?** ___ %

4-26 **What percentage of the amount reported in Question 4-20 had environmental protection applications, including pollution abatement?** ___ %

4-27 **What percentage of the amount reported in Question 4-20 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** ___ %

4-28 **What percentage of the amount reported in Question 4-20 was for nanotechnology—the science and technology involving work at the nanometer scale?** ___ %

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

4-29 **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.

4-30 **Is the amount entered in Question 4-29 greater than zero?**

☐ Yes → **Continue with Question 4-31**

☐ No → **Skip to Section 5 on page 38**

4-31 **How much of the amount reported in Question 4-29 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding.			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes.			
c. **Total** (equals Question 4-29).			

4-32 **If you reported any research in Question 4-31, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective.			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-31, line a).			

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.

5-1 **What was the total number of worldwide employees working at your company for the pay period that included March 12, 2010?**

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 IRS Form 941, Employer's Quarterly Tax Return.

	(1) Domestic Operations	(2) Foreign Operations	(3) Total Employees
Employees			

Total equals Question 5-1

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

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.

R&D employees exclude 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			
b. All other employees . . .			
c. **Total employees**.			

Total line equals Question 5-2

SECTION 5

R&D Employees

5-4 **Copy the numbers from Question 5-3, line a. These are your company's R&D employees.**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total R&D Employees
R&D employees			

5-5 **How many of the R&D employees reported in Question 5-4 were female employees and male employees?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total R&D Employees
a. Female R&D employees			
b. Male R&D employees . .			
c. **Total R&D employees**			

Total line equals Question 5-4

5-6 **How many of the R&D employees reported in Question 5-4 worked in the occupations listed below?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total R&D Employees
a. R&D scientists, engineers, and managers			
b. R&D technicians and technologists.			
c. R&D support staff (clerical and other)			
d. **Total R&D employees**			

Total line equals Question 5-4

SECTION 5

R&D scientists, engineers, and managers

5-7 **Copy the numbers from Question 5-6, line a. These are the number of your company's R&D scientists, engineers, and managers.**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total
R&D scientists, engineers, and managers.			

5-8 **How many of the R&D scientists, engineers, and managers reported in Question 5-7 had the following level of education?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total
a. PhD (excluding MD, JD, and EdD).			
b. All other			
c. Total R&D scientists, engineers, and managers			

Total line equals Question 5-7

5-9 **How many of the R&D scientists, engineers, and managers reported in Question 5-7 column 1, were non-U.S. citizens employed in the United States under a temporary visa, such as H-1B or L-1?**

	(1) Domestic Operations
R&D scientists, engineers, and managers employed under a temporary visa.	

Full-time equivalents (FTEs)

5-10 **What was the number of domestic full-time equivalent (FTE) scientists and engineers engaged in R&D activities for the pay period that included March 12, 2010?**

Full-time equivalents account for R&D scientists and engineers who do not work full-time and R&D scientists and engineers who do not work on R&D activities full-time. For example, a scientist or engineer who works half-time would be counted as one employee on a headcount basis but as one-half (½) of an FTE employee. Similarly, a full-time employee who devotes 25% of her time to R&D would be counted as one quarter (¼) of an R&D FTE employee. The number of FTEs and the headcount may differ for your company.

Number

5-11 **How many FTEs reported in Question 5-10 were engaged in R&D activities funded by U.S. federal government grants or contracts for the pay period that included March 12, 2010?**

Number

SECTION 5

This page is intentionally blank. The survey continues on the next page.

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 intellectual property related activities should complete this section.

What does this section cover?
This section requests information about intellectual property and technology transfer activities such as:
- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property

Are responses to this survey confidential?
Yes. Your responses are completely confidential under Title 13, United States Code, and are seen only by persons sworn to uphold the confidentiality of Census Bureau information. Data provided will be used only to publish summary statistics that do not identify individual companies. Title 13 also provides that copies of reports retained in your files are immune from legal process. In addition, reported data are exempt from requests made under the Freedom of Information Act.

Patents

6-1 **How many patents did your company apply for in 2010 from the U.S. Patent and Trademark Office (USPTO)?** — Number

6-2 **What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?** — %

6-3 **What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&D activities?** — %

6-4 **How many patents were issued to your company in 2010 by the USPTO?** — Number

6-5 **What percentage of your company's inventions considered for patenting in 2010 resulted in patent applications?** — %

Patent licensing

6-6 **What was the amount of your company's patent licensing revenue in 2010?** — $Bil. Mil. Thou.

SECTION 6

6-7 **How many new agreements did your company enter into during 2010 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 2010?**

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—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 2010, how important to your company were the following types of intellectual property protection?**

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance)	☐	☐	☐
c. Trademarks	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

SECTION 6

SECTION 7
R&D Time Frame and R&D Product Life

Who should answer this section?
Persons with access to accounting, sales, and marketing records related to your company's R&D and products resulting from R&D should complete this section.

What does this section cover?
This section requests information about the time frame of your company's R&D and R&D product life.

R&D Time Frame

7-1 **Did your company receive any revenue during 2008 to 2010 from products that resulted from R&D mostly paid for by your company?**

☐ Yes ➔ **Continue with Question 7-2**

☐ No ➔ **Skip to Question 7-6**

7-2 **What is the name (or description) of one product resulting from your company's R&D for which your company recently started receiving revenue?**

7-3 **Using the business codes reported in Question 1-7, which one best describes the product reported in Question 7-2?**

Business Code

7-4 **In what year did your company first receive revenue for the product reported in Question 7-2?**

Year

7-5 **In what year did your company begin the R&D for the product reported in Question 7-2?**

If the earliest R&D was used for more than one product, please report the year in which those earliest R&D activities began.

Year

R&D Product Life

7-6 **Did your company stop receiving revenue during 2008 to 2010 from any product that resulted from R&D mostly paid for by your company?**

☐ Yes → **Continue with Question 7-7**

☐ No → **Skip to Remarks section on page 48**

7-7 **What is the name (or description) of one product resulting from your company's R&D for which your company recently stopped receiving revenue?**

7-8 **Using the business codes reported in Question 1-7, which one best describes the product reported in Question 7-7?**

Business Code

7-9 **In what year did your company first receive revenue for the product reported in Question 7-7?**

Year

7-10 **In what year did your company last receive revenue for the product reported in Question 7-7?**

Year

SECTION 7

Business codes
(used in Sections 1, 2, 3, and 7)

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

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 14.9 hours being the average. This includes time to read instructions, develop or assemble materials, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2010 Business R&D and Innovation Survey** ~

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

11020013

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

FORM
BRDI-1A (03-01-2011)

2010 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report electronically:
www.census.gov/econhelp/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:
- www.census.gov/econhelp/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 Research and Development 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 seven 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:

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.8

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.12

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.17

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.22

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.25

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

Section 7: R&D Time Frame and R&D Product Life p.27

Topics: R&D time frame and R&D product life.
Requires: knowledge of accounting, sales, and marketing information related to your company's R&D activities and products resulting from R&D.

Changes from the 2009 survey

Based on extensive conversations with many of the 2009 survey respondents, the 2010 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 **www.census.gov/econhelp/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 **www.census.gov/econhelp/brdis**.

Electronic materials

Electronic versions of the questionnaire and related documents are available to print or share with others in your company via email. They can be found at **www.census.gov/econhelp/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 research and development 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.

Research and development 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.

Research and development 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 2010, if possible, or for your company's fiscal year ending between April 2010 and March 2011.

Estimates are acceptable

Please report all items to the best of your ability.

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

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

SECTION 1
Company Information

1-1 **Did another company other than a holding company own more than 50 percent of your company during 2010?**

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

Name of owner

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

☐ No ➔ **Skip to Question 1-3**

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

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

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

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

If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in Section 3 as "costs funded, paid for, or reimbursed by others".

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you estimate any adjustments that would be required to conform to U.S. GAAP.

☐ No (U.S. owner) ➔ **Please provide the following information:**

EIN of owner (9 digits)

REPORTING INSTRUCTIONS:
If your company was purchased between April 1, 2010 and December 31, 2010, report only for the period January 1, 2010 to the date of purchase. If your company was purchased before April 1, 2010, complete Question 1-6 and return this form to the Census Bureau – you are not required to complete the rest of this survey.
Disregard these instructions if your owner instructs you to complete this survey.

1-3 **Did your company own more than 50 percent of any subsidiaries outside the 50 United States and D.C. during 2010?**

☐ Yes ➔ **Include data for these subsidiaries in your survey responses**

☐ No

1-4 **Has your company ceased operations?**

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

Date your company ceased operations (MM) (DD) (YYYY)

REPORTING INSTRUCTIONS:
If your company ceased operations between April 1, 2010 and December 31, 2010, report only for the period January 1, 2010 to the date your company ceased operations. If your company ceased operations before April 1, 2010, 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 2010?**

☐ 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 within 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 2010?**

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 2010?**

Include:
- Sales and operating revenues from discontinued operations

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

$Bil. Mil. Thou.

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.

1-10 **How much of the 2010 net sales and operating revenue amounts was for the business code reported 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 $Bil. Mil. Thou.	(2) Domestic net sales and operating revenues $Bil. Mil. Thou.
a.			
b.	All other sales and operating revenues.		
c.	**Total**		
		Total equals Question 1-8	*Total equals Question 1-9*

Innovation

1-11 Did your company introduce any of the following during the three-year period, 2008 to 2010?

a. New or significantly improved goods (excluding the simple resale of new goods purchased from others and changes of a solely aesthetic nature) . . . . . ☐ Yes ☐ No

b. New or significantly improved services. . . . . ☐ Yes ☐ No

c. New or significantly improved methods of manufacturing or producing goods or services. . . . . ☐ Yes ☐ No

d. New or significantly improved logistics, delivery, or distribution methods for your inputs, goods, or services. . . . . ☐ Yes ☐ No

e. New or significantly improved support activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing . . . . . ☐ Yes ☐ No

1-12 If you answered "yes" to either 1-11, line a, or 1-11, line b, were any of those new or significantly improved goods or services:

a. New to one of your markets? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services to one of your markets before your competitors (it may have been available in other markets).

b. Only new to your company? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services that were already available from your competitors in your markets.

1-13 Using the definitions above, please give the percentage of your total sales in 2010 from:

a. New or significantly improved goods and services introduced during 2008 to 2010 that were new to one of your markets. . . . . ___ %

b. New or significantly improved goods and services introduced during 2008 to 2010 that were only new to your company. . . . . ___ %

c. Goods and services that were unchanged or only marginally modified during 2008 to 2010 (include the resale of new goods or services purchased from other companies) . . . . . ___ %

d. **Total sales in 2010** . . . . . 1 0 0 %

1-14 – 1-17 Not applicable to this form

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 (inside/outside the U.S., specific location), and by business code.

2-1 What was the total worldwide R&D expense for your company in 2010?

If your company is publicly traded, this amount is equivalent to that disclosed on SEC Form 10-K as defined by 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 www.census.gov/econhelp/brdis.

NOTE: Report your company's R&D expense even if the amount is not considered material for your company's financial statements.

$Bil.	Mil.	Thou.

2-2 Does the amount reported in Question 2-1 include any of the following costs?

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements. . . . . ☐ Yes ☐ No

b. R&D paid for by government or private foundation grants. . . . . ☐ Yes ☐ No

c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees). . . . . ☐ Yes ☐ No

d. Bid and proposal costs. . . . . ☐ Yes ☐ No

e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (In-process R&D) . . . . . ☐ Yes ☐ No

2-3 If you answered "Yes" to any of the costs in Question 2-2, what was the amount of these costs that was included in your response to Question 2-1?

$Bil.	Mil.	Thou.

2-4 Subtract Question 2-3 from Question 2-1 and enter the result here. This is the <u>total R&D paid for by your company</u> in 2010.

$Bil.	Mil.	Thou.

2-5 Is the amount entered in Question 2-4 greater than zero?

☐ Yes → **Continue with Question 2-7**

☐ No → **Skip to Section 3 on page 12**

2-6 Not applicable to this form

R&D paid for by your company

2-7 **Of the amount reported in Question 2-4, what were the costs for each business code listed or amended on page 6 of this form?**

Allocate R&D that is applicable to more than one business code on a reasonable basis. Allocation in proportion to operating revenues is acceptable unless some alternative allocation basis is more appropriate.

	Business Code (see page 6)	$Bil.	Mil.	Thou.
a.				
b. All other R&D paid for by your company				
c. **Total** (equals Question 2-4)				

2-8 **Of the amount reported in Question 2-4, what costs were incurred by your company in the following locations?**

	$Bil.	Mil.	Thou.
a. Domestic U.S. (50 states and D.C.) [Include R&D performed by domestic operations that are paid for by foreign subsidiaries]			
b. All other countries (also, Puerto Rico) [Include R&D performed by foreign subsidiaries that are paid for by domestic operations]			
c. **Total** (equals Question 2-4)			

2-9 **Copy the amount from Question 2-8, line a. This is the total domestic R&D paid for by your company in 2010.**

$Bil.	Mil.	Thou.

2-10 **Copy the amount reported from Question 2-8, line b. This is the total foreign R&D paid for by your company in 2010.**

$Bil.	Mil.	Thou.

2-11 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2010 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									
c. Temporary staffing including on-site consultants									
h. Payments to business partners for collaborative R&D									

2-11 **(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)									
l. All other costs									
m. **Total**									
	Total equals Question 2-9			*Total equals Question 2-10*			*Total equals Question 2-4*		

2-12 **Add 2-11, lines h and i for each column, and enter the result here. This is R&D performed by others.**

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-13 – **2-15** **Not applicable to this form**

2-16 **Subtract Question 2-12 from Question 2-11, line m, for column 1 only and enter the result here. This is the domestic R&D paid for and performed by your company in 2010.**

Domestic		
$Bil.	Mil.	Thou.

2-17 **In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D reported in Question 2-16, and how much of that R&D was performed in this state?**

State . . . . . .

$Bil.	Mil.	Thou.

2-18 **At what domestic location did your company perform the largest dollar amount of R&D in 2010?**

Address 1

Address 2

City **State** **ZIP**

2-19 **How much of the amount reported in Question 2-16 was from the location identified in Question 2-18?**

$Bil. Mil. Thou.

2-20 **How much of the amount reported in Question 2-16 was for the business code reported in Question 2-7?**

Business Code (see page 6)

$Bil. Mil. Thou.

2-21 – **2-23** **Not applicable to this form**

Projected R&D for 2011

2-24 **What are your company's projected 2011 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?**

NOTE: This amount is the 2011 projection for what is reported in Question 2-11, line m.

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-25 **How much of the amount reported in Question 2-24, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?**

Domestic

$Bil. Mil. Thou.

Capital Expenditures

2-26 **What was the amount of your company's capital expenditures in the domestic United States in 2010?**

$Bil. Mil. Thou.

2-27 **How much of the amount reported in Question 2-26 was for R&D operations?**

$Bil. Mil. Thou.

2-28 – **2-29** **Not applicable to this form**

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 (inside/outside the U.S., specific location), and by business code.

3-1 **What were your company's total worldwide costs (both direct and indirect) in 2010 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. Phase I-III medical clinical trial services provided to others not owned by your company (include pass-through costs)			
g. Nondefense custom software development and/or computer systems designed for others not owned by your company			
h. 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. **Total**			

Exclude:
- Software development that does not depend on a scientific or technological advance such as adding functionality to existing application programs, debugging systems, and adapting existing software

3-2 **Copy the amount from Question 3-1, line j. This is the total R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-3 **Is the amount entered in Question 3-2 greater than zero?**

☐ Yes → **Continue with Question 3-5**

☐ No → **Skip to Section 4 on page 17**

R&D paid for by others

3-4 **Not applicable to this form**

3-5 **Of the amount reported in Question 3-2, what costs were incurred by your company in the following locations?**

	$Bil.	Mil.	Thou.
a. Domestic U.S. (50 states and D.C.)			
b. All other countries (also, Puerto Rico)			
c. **Total** (equals Question 3-2)			

3-6 **Copy the amount from Question 3-5, line a. This is the total domestic R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-7 **Copy the amount from Question 3-5, line b. This is the total foreign R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-8 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2010 was for each of the following types of costs?**

	(1) Domestic $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.
a. Salaries, wages, and fringe benefits			
c. Temporary staffing including on-site consultants			
h. Payments to business partners for collaborative R&D			
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)			
l. All other costs			
m. **Total**			
	Total equals Question 3-6	*Total equals Question 3-7*	*Total equals Question 3-2*

3-9 **Add 3-8, 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 $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.

3-10 – **3-12** **Not applicable to this form**

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

3-13 **Subtract Question 3-9, column 1, from Question 3-6 and enter the result here. This is the domestic R&D performed by your company that was paid for by others.**

$Bil. Mil. Thou.

3-14 **How much of the amount reported in Question 3-13 was paid for by each of the following?**

If your company is a subcontractor or subgrantee, report the original source of funds.

Example: Company Sub Inc. performs custom software development for a large defense company as a subcontractor on a contract with the U.S. Dept. of Defense. Even though Sub Inc. is working directly for the defense company, it reports the cost of this development in line d because the Dept. of Defense was the original source of funds.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States			
b. Your company's foreign owner (if your company is foreign-owned)			
c. Other companies located outside the United States			
d. U.S. federal government agencies or laboratories			
e. U.S. state government agencies or laboratories			
f. Foreign government agencies or laboratories			
g. All other organizations inside the United States			
h. All other organizations located outside the United States			
i. **Total** (equals Question 3-13)			

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.

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			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. All other			
f. **Total** (equals Question 3-15)			

3-17 **Not applicable to this form**

3-18 **Subtract Question 3-15 from Question 3-13 and enter the result here. This is the domestic R&D performed by your company that was paid for by nonfederal sources.**

$Bil. Mil. Thou.

3-19 **In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D paid for by others in 2010?**

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 3-18
(3) Total domestic R&D performed by your company that was paid for by others reported in Question 3-13

(1) Federal			(2) Nonfederal			(3) Total		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

Projected R&D paid for by others in 2011

3-20 **What are your company's projected 2011 costs for R&D that will be paid for by others?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-2.

$Bil. Mil. Thou.

3-21 **How much of the projected costs in 2011 for R&D that will be paid for by others reported in Question 3-20 will be performed by your company in the United States?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-13.

$Bil. Mil. Thou.

3-22 **How much of the projected costs in 2011 for domestic R&D performed by your company that will be paid for by others reported in Question 3-21 will be paid for by the U.S. federal government?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-15.

$Bil. Mil. Thou.

SECTION 4
Management and Strategy of R&D

Who should answer this section?
Persons familiar with the technical, managerial, and strategic aspects of your company's R&D should complete this section.

What does this section cover?
This section requests information about the characteristics of the R&D reported in Sections 2 and 3. This section requests information about your company's worldwide consolidated R&D and the R&D your company performs in the domestic United States.

4-1 **Copy the amount from Question 2-4. This is the total R&D paid for by your company in 2010.**

$Bil. Mil. Thou.

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

☐ Yes ➔ **Continue with Question 4-5**

☐ No ➔ **Skip to Question 4-19 on page 19**

4-3 – **4-4** **Not applicable to this form**

4-5 **What percentage of the amount reported in Question 4-1 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?**

Exclude
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates.

Example: In 2010 Company B used a portion of its R&D to explore the potential use of a new heat-conducting material in its cookware products. Because this technology had not been used previously in the cookware industry, Company B should include that R&D in this question.

%

4-6 – **4-8** **Not applicable to this form**

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

4-9 **Copy the amount from Question 2-16. This is the domestic R&D paid for and performed by your company.**

	$Bil.	Mil.	Thou.

4-10 **How much of the amount reported in Question 4-9 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-9)			

4-11 **If you reported any research in Question 4-10, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-10, line a)			

Areas of application for domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-12 to 4-13.

4-12 **What percentage of the amount reported in Question 4-9 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 2010, 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.

%

4-13 **What percentage of the amount reported in Question 4-9 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 4-14 to 4-18.

4-14 **What percentage of the amount reported in Question 4-9 was for software products?** ___ %

4-15 **What percentage of the amount reported in Question 4-9 was for software embedded in other projects or products?** ___ %

4-16 **Not applicable to this form**

4-17 **What percentage of the amount reported in Question 4-9 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** ___ %

4-18 **What percentage of the amount reported in Question 4-9 was for nanotechnology—the science and technology involving work at the nanometer scale?** ___ %

Activities with academia

4-19 **Did your company perform any of the following activities with universities, students, or academic faculty in 2010?**

a. Hired academic consultants for short-term projects in science and engineering . . . . . ☐ Yes ☐ No

b. Hosted student interns pursuing undergraduate or graduate degrees in science or engineering for at least one month. . . . . ☐ Yes ☐ No

c. Hosted postdoctoral fellows in science or engineering for at least one month . . . . . ☐ Yes ☐ No

d. Had scientists or engineers from your company who served as visiting scientists or engineers at a college or university for at least one month . . . . . ☐ Yes ☐ No

e. Made monetary gifts to universities or colleges that were restricted to supporting R&D . . . . . ☐ Yes ☐ No

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

4-20 **Copy the amount from Question 3-13. This is the domestic R&D performed by your company that was paid for by others.**

$Bil.	Mil.	Thou.

4-21 **Is the amount entered in Question 4-20 greater than zero?**

☐ Yes → **Continue with Question 4-22**

☐ No → **Skip to Section 5 on page 22**

4-22 **How much of the amount reported in Question 4-20 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-20)			

4-23 **If you reported any research in Question 4-22, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-22, line a)			

NOTE: You may report the same R&D in multiple areas for Questions 4-25 to 4-28.

4-24 **Not applicable to this form**

4-25 **What percentage of the amount reported in Question 4-20 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?** %

4-26 **What percentage of the amount reported in Question 4-20 had environmental protection applications, including pollution abatement R&D?** %

4-27 **What percentage of the amount reported in Question 4-20 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** %

4-28 **What percentage of the amount reported in Question 4-20 was for nanotechnology—the science and technology involving work at the nanometer scale?** %

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

4-29 **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.

4-30 **Is the amount entered in Question 4-29 greater than zero?**

☐ Yes → **Continue with Question 4-31**

☐ No → **Skip to Section 5 on page 22**

4-31 **How much of the amount reported in Question 4-29 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-29)			

4-32 **If you reported any research in Question 4-31, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-31, line a)			

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.

5-1 **What was the total number of worldwide employees working at your company for the pay period that included March 12, 2010?**

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 IRS Form 941, Employer's Quarterly Tax Return.

	(1) Domestic Operations	(2) Foreign Operations	(3) Total Employees
Employees			

Total equals Question 5-1

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

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.

R&D employees exclude 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			
b. All other employees . . .			
c. **Total employees**.			

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			

5-5 **How many of the R&D employees reported in Question 5-4 were female employees and male employees?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total R&D Employees
a. Female R&D employees			
b. Male R&D employees . .			
c. **Total R&D employees**			

Total line equals Question 5-4

5-6 **How many of the R&D employees reported in Question 5-4 worked in the occupations listed below?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total R&D Employees
a. R&D scientists, engineers, and managers			
b. R&D technicians and technologists.			
c. R&D support staff (clerical and other)			
d. **Total R&D employees**			

Total line equals Question 5-4

R&D scientists, engineers, and managers

5-7 **Copy the numbers from Question 5-6, line a. These are the number of your company's R&D scientists, engineers, and managers.**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total
R&D scientists, engineers, and managers.			

5-8 **How many of the R&D scientists, engineers, and managers reported in Question 5-7 had the following level of education?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total
a. PhD (excluding MD, JD, and EdD).			
b. All other			
c. Total R&D scientists, engineers, and managers			

Total line equals Question 5-7

5-9 **Not applicable to this form**

Full-time equivalents (FTEs)

5-10 **What was the number of domestic full-time equivalent (FTE) scientists and engineers engaged in R&D activities for the pay period that included March 12, 2010?**

Full-time equivalents account for R&D scientists and engineers who do not work full-time and R&D scientists and engineers who do not work on R&D activities full-time. For example, a scientist or engineer who works half-time would be counted as one employee on a headcount basis but as one-half (½) of an FTE employee. Similarly, a full-time employee who devotes 25% of her time to R&D would be counted as one quarter (¼) of an R&D FTE employee. The number of FTEs and the headcount may differ for your company.

Number

5-11 **How many FTEs reported in Question 5-10 were engaged in R&D activities funded by U.S. federal government grants or contracts for the pay period that included March 12, 2010?**

Number

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 intellectual property related activities should complete this section.

What does this section cover?
This section requests information about intellectual property and technology transfer activities such as:
- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property

Are responses to this survey confidential?
Yes. Your responses are completely confidential under Title 13, United States Code, and are seen only by persons sworn to uphold the confidentiality of Census Bureau information. Data provided will be used only to publish summary statistics that do not identify individual companies. Title 13 also provides that copies of reports retained in your files are immune from legal process. In addition, reported data are exempt from requests made under the Freedom of Information Act.

Patents

6-1 **How many patents did your company apply for in 2010 from the U.S. Patent and Trademark Office (USPTO)?** — Number

6-2 **What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?** — %

6-3 **What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&D activities?** — %

6-4 **How many patents were issued to your company in 2010 by the USPTO?** — Number

6-5 **What percentage of your company's inventions considered for patenting in 2010 resulted in patent applications?** — %

Patent licensing

6-6 **What was the amount of your company's patent licensing revenue in 2010?** — $Bil. Mil. Thou.

6-7 **How many new agreements did your company enter into during 2010 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 2010?**

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—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 2010, how important to your company were the following types of intellectual property protection?**

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance)	☐	☐	☐
c. Trademarks	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

SECTION 7
R&D Time Frame and R&D Product Life

Who should answer this section?
Persons with access to accounting, sales, and marketing records related to your company's R&D and products resulting from R&D should complete this section.

What does this section cover?
This section requests information about the time frame of your company's R&D and R&D product life.

R&D Time Frame

7-1 **Did your company receive any revenue during 2008 to 2010 from products that resulted from R&D mostly paid for by your company?**

☐ Yes ➔ **Continue with Question 7-2**

☐ No ➔ **Skip to Question 7-6**

7-2 **What is the name (or description) of one product resulting from your company's R&D for which your company recently started receiving revenue?**

7-3 **Using the business codes in Question 1-7, which one best describes the product reported in Question 7-2?**

Business Code

7-4 **In what year did your company first receive revenue for the product reported in Question 7-2?**

Year

7-5 **In what year did your company begin the R&D for the product reported in Question 7-2?**

If the earliest R&D was used for more than one product, please report the year in which those earliest R&D activities began.

Year

R&D Product Life

7-6 **Did your company stop receiving revenue during 2008 to 2010 from any product that resulted from R&D mostly paid for by your company?**

☐ Yes → **Continue with Question 7-7**

☐ No → **Skip to Remarks section on page 32**

7-7 **What is the name (or description) of one product resulting from your company's R&D for which your company recently stopped receiving revenue?**

7-8 **Using the business codes in Question 1-7, which one best describes the product reported in Question 7-7?**

Business Code

7-9 **In what year did your company first receive revenue for the product reported in Question 7-7?**

Year

7-10 **In what year did your company last receive revenue for the product reported in Question 7-7?**

Year

This page is intentionally blank. The survey continues on the next page.

Business codes
(used in Sections 1, 2, 3, and 7)

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

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 12 hours to complete this form, with 6.9 hours being the average. This includes time to read instructions, develop or assemble materials, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2010 Business R&D and Innovation Survey** ~

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

11030012

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

FORM
BRDI-1B (03-01-2011)

2010 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report electronically:
www.census.gov/econhelp/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:
- www.census.gov/econhelp/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 Research and Development 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 seven 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:

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.9

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.13

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.18

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.23

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.26

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

Section 7: R&D Time Frame and R&D Product Life p.28

Topics: R&D time frame and R&D product life.
Requires: knowledge of accounting, sales, and marketing information related to your company's R&D activities and products resulting from R&D.

Changes from the 2009 survey

Based on extensive conversations with many of the 2009 survey respondents, the 2010 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 **www.census.gov/econhelp/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 **www.census.gov/econhelp/brdis**.

Electronic materials

Electronic versions of the questionnaire and related documents are available to print or share with others in your company via email. They can be found at **www.census.gov/econhelp/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 research and development 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.

Research and development 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.

Research and development 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.

What is innovation?

An innovation is the introduction of a new or significantly improved product, process, organizational method, or marketing method by your company. The innovation must be new to your company, although it could have been originally developed by other companies. The questions on innovation activities only refer to product and process innovations.

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 2010, if possible, or for your company's fiscal year ending between April 2010 and March 2011.

Estimates are acceptable

Please report all items to the best of your ability.

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

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

SECTION 1
Company Information

1-1 **Did another company other than a holding company own more than 50 percent of your company during 2010?**

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

Name of owner

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

☐ No ➔ **Skip to Question 1-3**

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

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

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

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

If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in Section 3 as "costs funded, paid for, or reimbursed by others".

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you estimate any adjustments that would be required to conform to U.S. GAAP.

☐ No (U.S. owner) ➔ **Please provide the following information:**

EIN of owner (9 digits)

REPORTING INSTRUCTIONS:
If your company was purchased between April 1, 2010 and December 31, 2010, report only for the period January 1, 2010 to the date of purchase. If your company was purchased before April 1, 2010, complete Question 1-6 and return this form to the Census Bureau – you are not required to complete the rest of this survey.
Disregard these instructions if your owner instructs you to complete this survey.

1-3 **Did your company own more than 50 percent of any subsidiaries outside the 50 United States and D.C. during 2010?**

☐ Yes ➔ **Include data for these subsidiaries in your survey responses**

☐ No

1-4 **Has your company ceased operations?**

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

Date your company ceased operations (MM) (DD) (YYYY)

REPORTING INSTRUCTIONS:
If your company ceased operations between April 1, 2010 and December 31, 2010, report only for the period January 1, 2010 to the date your company ceased operations. If your company ceased operations before April 1, 2010, 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 2010?**

☐ 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 within 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 2010?**

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 2010?**

Include:
- Sales and operating revenues from discontinued operations

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

$Bil. Mil. Thou.

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.

1-10 **How much of the 2010 net sales and operating revenue amounts was for the business code reported 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 $Bil. Mil. Thou.	(2) Domestic net sales and operating revenues $Bil. Mil. Thou.
a.			
b.	All other sales and operating revenues.		
c.	**Total**		
		Total equals Question 1-8	*Total equals Question 1-9*

1-11 – **1-13** **Not applicable to this form**

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.

1-14 **During the three years 2008 to 2010, 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

1-15 **If you answered "yes" to either 1-14, line a, or 1-14, line b, were any of your product innovations during the three years 2008 to 2010:**

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. Only new 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.

1-16 **Using the definitions above, please give the percentage of your total sales in 2010 from:**

a. New or significantly improved goods and services introduced during 2008 to 2010 that were **new to your market** . . . . . ___ %

b. New or significantly improved goods and services introduced during 2008 to 2010 that were **only new to your company**. . . . . ___ %

c. Good and services that were **unchanged or only marginally modified** during 2008 to 2010 (include the resale of new goods or services purchased from other companies) . . . . . ___ %

d. **Total sales in 2010** . . . . . 1 0 0 %

Process innovation

A process innovation is the implementation of a **new** or **significantly** improved production process, distribution method, or support activity for your goods or services.

- Process innovations must be new to your company, but they do not need to be new to your market.
- The innovation could have been originally developed by your company or by other companies.
- Exclude purely organizational innovations.

1-17 During the three years 2008 to 2010, 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 (inside/outside the U.S., specific location), and by business code.

2-1 What was the total worldwide R&D expense for your company in 2010?

If your company is publicly traded, this amount is equivalent to that disclosed on SEC Form 10-K as defined by 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 www.census.gov/econhelp/brdis.

NOTE: Report your company's R&D expense even if the amount is not considered material for your company's financial statements.

$Bil.	Mil.	Thou.

2-2 Does the amount reported in Question 2-1 include any of the following costs?

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements. . . . . ☐ Yes ☐ No

b. R&D paid for by government or private foundation grants. . . . . ☐ Yes ☐ No

c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees). . . . . ☐ Yes ☐ No

d. Bid and proposal costs. . . . . ☐ Yes ☐ No

e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (In-process R&D) . . . . . ☐ Yes ☐ No

2-3 If you answered "Yes" to any of the costs in Question 2-2, what was the amount of these costs that was included in your response to Question 2-1?

$Bil.	Mil.	Thou.

2-4 Subtract Question 2-3 from Question 2-1 and enter the result here. This is the <u>total R&D paid for by your company</u> in 2010.

$Bil.	Mil.	Thou.

2-5 Is the amount entered in Question 2-4 greater than zero?

☐ Yes → **Continue with Question 2-7**

☐ No → **Skip to Section 3 on page 13**

2-6 Not applicable to this form

R&D paid for by your company

2-7 **Of the amount reported in Question 2-4, what were the costs for each business code listed or amended on page 6 of this form?**

Allocate R&D that is applicable to more than one business code on a reasonable basis. Allocation in proportion to operating revenues is acceptable unless some alternative allocation basis is more appropriate.

	Business Code (see page 6)	$Bil.	Mil.	Thou.
a.				
b. All other R&D paid for by your company				
c. **Total** (equals Question 2-4)				

2-8 **Of the amount reported in Question 2-4, what costs were incurred by your company in the following locations?**

	$Bil.	Mil.	Thou.
a. Domestic U.S. (50 states and D.C.) [Include R&D performed by domestic operations that are paid for by foreign subsidiaries]			
b. All other countries (also, Puerto Rico) [Include R&D performed by foreign subsidiaries that are paid for by domestic operations]			
c. **Total** (equals Question 2-4)			

2-9 **Copy the amount from Question 2-8, line a. This is the total domestic R&D paid for by your company in 2010.**

$Bil.	Mil.	Thou.

2-10 **Copy the amount reported from Question 2-8, line b. This is the total foreign R&D paid for by your company in 2010.**

$Bil.	Mil.	Thou.

2-11 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2010 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									
c. Temporary staffing including on-site consultants									
h. Payments to business partners for collaborative R&D									

2-11 **(Continued)**

	(1) Domestic $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)			
l. All other costs			
m. **Total**			
	Total equals Question 2-9	*Total equals Question 2-10*	*Total equals Question 2-4*

2-12 **Add 2-11, lines h and i for each column, and enter the result here. This is R&D performed by others.**

(1) Domestic $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.

2-13 – **2-15** **Not applicable to this form**

2-16 **Subtract Question 2-12 from Question 2-11, line m, for column 1 only and enter the result here. This is the domestic R&D paid for and performed by your company in 2010.**

Domestic $Bil. Mil. Thou.

2-17 **In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D reported in Question 2-16, and how much of that R&D was performed in this state?**

State . . . . . $Bil. Mil. Thou.

2-18 **At what domestic location did your company perform the largest dollar amount of R&D in 2010?**

Address 1

Address 2

City **State** **ZIP**

2-19 **How much of the amount reported in Question 2-16 was from the location identified in Question 2-18?**

$Bil. Mil. Thou.

2-20 **How much of the amount reported in Question 2-16 was for the business code reported in Question 2-7?**

Business Code (see page 6)

$Bil. Mil. Thou.

2-21 – **2-23** **Not applicable to this form**

Projected R&D for 2011

2-24 **What are your company's projected 2011 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?**

NOTE: This amount is the 2011 projection for what is reported in Question 2-11, line m.

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-25 **How much of the amount reported in Question 2-24, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?**

Domestic

$Bil. Mil. Thou.

Capital Expenditures

2-26 **What was the amount of your company's capital expenditures in the domestic United States in 2010?**

$Bil. Mil. Thou.

2-27 **How much of the amount reported in Question 2-26 was for R&D operations?**

$Bil. Mil. Thou.

2-28 – **2-29** **Not applicable to this form**

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 (inside/outside the U.S., specific location), and by business code.

3-1 **What were your company's total worldwide costs (both direct and indirect) in 2010 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. Phase I-III medical clinical trial services provided to others not owned by your company (include pass-through costs)			
g. Nondefense custom software development and/or computer systems designed for others not owned by your company			
h. 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. **Total**			

Exclude:
- Software development that does not depend on a scientific or technological advance such as adding functionality to existing application programs, debugging systems, and adapting existing software

3-2 **Copy the amount from Question 3-1, line j. This is the total R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-3 **Is the amount entered in Question 3-2 greater than zero?**

☐ Yes → **Continue with Question 3-5**

☐ No → **Skip to Section 4 on page 18**

R&D paid for by others

3-4 **Not applicable to this form**

3-5 **Of the amount reported in Question 3-2, what costs were incurred by your company in the following locations?**

	$Bil.	Mil.	Thou.
a. Domestic U.S. (50 states and D.C.).			
b. All other countries (also, Puerto Rico)			
c. **Total** (equals Question 3-2).			

3-6 **Copy the amount from Question 3-5, line a. This is the total domestic R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-7 **Copy the amount from Question 3-5, line b. This is the total foreign R&D paid for by others in 2010.**

$Bil.	Mil.	Thou.

3-8 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2010 was for each of the following types of costs?**

	(1) Domestic $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.
a. Salaries, wages, and fringe benefits			
c. Temporary staffing including on-site consultants			
h. Payments to business partners for collaborative R&D			
i. Purchased R&D services (if your company is foreign-owned, include payments to your foreign owner for R&D)			
l. All other costs			
m. **Total**			
	Total equals Question 3-6	*Total equals Question 3-7*	*Total equals Question 3-2*

3-9 **Add 3-8, 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 $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.

3-10 – **3-12** **Not applicable to this form**

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

3-13 **Subtract Question 3-9, column 1, from Question 3-6 and enter the result here. This is the domestic R&D performed by your company that was paid for by others.**

$Bil. Mil. Thou.

3-14 **How much of the amount reported in Question 3-13 was paid for by each of the following?**

If your company is a subcontractor or subgrantee, report the original source of funds.

Example: Company Sub Inc. performs custom software development for a large defense company as a subcontractor on a contract with the U.S. Dept. of Defense. Even though Sub Inc. is working directly for the defense company, it reports the cost of this development in line d because the Dept. of Defense was the original source of funds.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States			
b. Your company's foreign owner (if your company is foreign-owned)			
c. Other companies located outside the United States			
d. U.S. federal government agencies or laboratories			
e. U.S. state government agencies or laboratories			
f. Foreign government agencies or laboratories			
g. All other organizations inside the United States			
h. All other organizations located outside the United States			
i. **Total** (equals Question 3-13)			

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.

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			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. All other			
f. **Total** (equals Question 3-15)			

3-17 **Not applicable to this form**

3-18 **Subtract Question 3-15 from Question 3-13 and enter the result here. This is the domestic R&D performed by your company that was paid for by nonfederal sources.**

$Bil. Mil. Thou.

3-19 **In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D paid for by others in 2010?**

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 3-18
(3) Total domestic R&D performed by your company that was paid for by others reported in Question 3-13

(1) Federal			(2) Nonfederal			(3) Total		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

Projected R&D paid for by others in 2011

3-20 **What are your company's projected 2011 costs for R&D that will be paid for by others?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-2.

$Bil. Mil. Thou.

3-21 **How much of the projected costs in 2011 for R&D that will be paid for by others reported in Question 3-20 will be performed by your company in the United States?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-13.

$Bil. Mil. Thou.

3-22 **How much of the projected costs in 2011 for domestic R&D performed by your company that will be paid for by others reported in Question 3-21 will be paid for by the U.S. federal government?**

NOTE: This amount is the 2011 projection for what is reported in Question 3-15.

$Bil. Mil. Thou.

SECTION 4
Management and Strategy of R&D

Who should answer this section?
Persons familiar with the technical, managerial, and strategic aspects of your company's R&D should complete this section.

What does this section cover?
This section requests information about the characteristics of the R&D reported in Sections 2 and 3. This section requests information about your company's worldwide consolidated R&D and the R&D your company performs in the domestic United States.

4-1 **Copy the amount from Question 2-4. This is the total R&D paid for by your company in 2010.**

$Bil. Mil. Thou.

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

☐ Yes ➔ **Continue with Question 4-5**

☐ No ➔ **Skip to Question 4-19 on page 20**

4-3 – **4-4** **Not applicable to this form**

4-5 **What percentage of the amount reported in Question 4-1 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?**

Exclude
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates.

Example: In 2010 Company B used a portion of its R&D to explore the potential use of a new heat-conducting material in its cookware products. Because this technology had not been used previously in the cookware industry, Company B should include that R&D in this question.

%

4-6 – **4-8** **Not applicable to this form**

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

4-9 **Copy the amount from Question 2-16. This is the domestic R&D paid for and performed by your company.**

	$Bil.	Mil.	Thou.

4-10 **How much of the amount reported in Question 4-9 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-9)			

4-11 **If you reported any research in Question 4-10, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-10, line a)			

Areas of application for domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-12 to 4-13.

4-12 **What percentage of the amount reported in Question 4-9 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 2010, 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.

%

4-13 **What percentage of the amount reported in Question 4-9 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 4-14 to 4-18.

4-14 **What percentage of the amount reported in Question 4-9 was for software products?** ___ %

4-15 **What percentage of the amount reported in Question 4-9 was for software embedded in other projects or products?** ___ %

4-16 **Not applicable to this form**

4-17 **What percentage of the amount reported in Question 4-9 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** ___ %

4-18 **What percentage of the amount reported in Question 4-9 was for nanotechnology—the science and technology involving work at the nanometer scale?** ___ %

Activities with academia

4-19 **Did your company perform any of the following activities with universities, students, or academic faculty in 2010?**

a. Hired academic consultants for short-term projects in science and engineering . . . . . ☐ Yes ☐ No

b. Hosted student interns pursuing undergraduate or graduate degrees in science or engineering for at least one month. . . . . ☐ Yes ☐ No

c. Hosted postdoctoral fellows in science or engineering for at least one month . . . . . ☐ Yes ☐ No

d. Had scientists or engineers from your company who served as visiting scientists or engineers at a college or university for at least one month . . . . . ☐ Yes ☐ No

e. Made monetary gifts to universities or colleges that were restricted to supporting R&D . . . . . ☐ Yes ☐ No

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

4-20 **Copy the amount from Question 3-13. This is the domestic R&D performed by your company that was paid for by others.**

$Bil.	Mil.	Thou.

4-21 **Is the amount entered in Question 4-20 greater than zero?**

☐ Yes → **Continue with Question 4-22**

☐ No → **Skip to Section 5 on page 23**

4-22 **How much of the amount reported in Question 4-20 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-20)			

4-23 **If you reported any research in Question 4-22, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-22, line a)			

NOTE: You may report the same R&D in multiple areas for Questions 4-25 to 4-28.

4-24 **Not applicable to this form**

4-25 **What percentage of the amount reported in Question 4-20 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?** %

4-26 **What percentage of the amount reported in Question 4-20 had environmental protection applications, including pollution abatement R&D?** %

4-27 **What percentage of the amount reported in Question 4-20 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** %

4-28 **What percentage of the amount reported in Question 4-20 was for nanotechnology—the science and technology involving work at the nanometer scale?** %

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

4-29 **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.

4-30 **Is the amount entered in Question 4-29 greater than zero?**

☐ Yes → **Continue with Question 4-31**

☐ No → **Skip to Section 5 on page 23**

4-31 **How much of the amount reported in Question 4-29 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-29)			

4-32 **If you reported any research in Question 4-31, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-31, line a)			

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.

5-1 **What was the total number of worldwide employees working at your company for the pay period that included March 12, 2010?**

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 IRS Form 941, Employer's Quarterly Tax Return.

	(1) Domestic Operations	(2) Foreign Operations	(3) Total Employees
Employees			

Total equals Question 5-1

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

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.

R&D employees exclude 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			
b. All other employees . . .			
c. **Total employees**.			

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			

5-5 **How many of the R&D employees reported in Question 5-4 were female employees and male employees?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total R&D Employees
a. Female R&D employees			
b. Male R&D employees . .			
c. **Total R&D employees**			

Total line equals Question 5-4

5-6 **How many of the R&D employees reported in Question 5-4 worked in the occupations listed below?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total R&D Employees
a. R&D scientists, engineers, and managers			
b. R&D technicians and technologists.			
c. R&D support staff (clerical and other)			
d. **Total R&D employees**			

Total line equals Question 5-4

R&D scientists, engineers, and managers

5-7 **Copy the numbers from Question 5-6, line a. These are the number of your company's R&D scientists, engineers, and managers.**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total
R&D scientists, engineers, and managers.			

5-8 **How many of the R&D scientists, engineers, and managers reported in Question 5-7 had the following level of education?**

	(1) Domestic Operations	(2) Foreign Operations	(3) Total
a. PhD (excluding MD, JD, and EdD).			
b. All other			
c. Total R&D scientists, engineers, and managers			

Total line equals Question 5-7

5-9 **Not applicable to this form**

Full-time equivalents (FTEs)

5-10 **What was the number of domestic full-time equivalent (FTE) scientists and engineers engaged in R&D activities for the pay period that included March 12, 2010?**

Full-time equivalents account for R&D scientists and engineers who do not work full-time and R&D scientists and engineers who do not work on R&D activities full-time. For example, a scientist or engineer who works half-time would be counted as one employee on a headcount basis but as one-half (½) of an FTE employee. Similarly, a full-time employee who devotes 25% of her time to R&D would be counted as one quarter (¼) of an R&D FTE employee. The number of FTEs and the headcount may differ for your company.

Number

5-11 **How many FTEs reported in Question 5-10 were engaged in R&D activities funded by U.S. federal government grants or contracts for the pay period that included March 12, 2010?**

Number

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 intellectual property related activities should complete this section.

What does this section cover?
This section requests information about intellectual property and technology transfer activities such as:
- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property

Are responses to this survey confidential?
Yes. Your responses are completely confidential under Title 13, United States Code, and are seen only by persons sworn to uphold the confidentiality of Census Bureau information. Data provided will be used only to publish summary statistics that do not identify individual companies. Title 13 also provides that copies of reports retained in your files are immune from legal process. In addition, reported data are exempt from requests made under the Freedom of Information Act.

Patents

6-1 **How many patents did your company apply for in 2010 from the U.S. Patent and Trademark Office (USPTO)?** — Number

6-2 **What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?** — %

6-3 **What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&D activities?** — %

6-4 **How many patents were issued to your company in 2010 by the USPTO?** — Number

6-5 **What percentage of your company's inventions considered for patenting in 2010 resulted in patent applications?** — %

Patent licensing

6-6 **What was the amount of your company's patent licensing revenue in 2010?** — $Bil. Mil. Thou.

6-7 **How many new agreements did your company enter into during 2010 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 2010?**

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—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 2010, how important to your company were the following types of intellectual property protection?**

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance)	☐	☐	☐
c. Trademarks	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

SECTION 7
R&D Time Frame and R&D Product Life

Who should answer this section?
Persons with access to accounting, sales, and marketing records related to your company's R&D and products resulting from R&D should complete this section.

What does this section cover?
This section requests information about the time frame of your company's R&D and R&D product life.

R&D Time Frame

7-1 **Did your company receive any revenue during 2008 to 2010 from products that resulted from R&D mostly paid for by your company?**

☐ Yes ➔ **Continue with Question 7-2**

☐ No ➔ **Skip to Question 7-6**

7-2 **What is the name (or description) of one product resulting from your company's R&D for which your company recently started receiving revenue?**

7-3 **Using the business codes in Question 1-7, which one best describes the product reported in Question 7-2?**

Business Code

7-4 **In what year did your company first receive revenue for the product reported in Question 7-2?**

Year

7-5 **In what year did your company begin the R&D for the product reported in Question 7-2?**

If the earliest R&D was used for more than one product, please report the year in which those earliest R&D activities began.

Year

R&D Product Life

7-6 **Did your company stop receiving revenue during 2008 to 2010 from any product that resulted from R&D mostly paid for by your company?**

☐ Yes → **Continue with Question 7-7**

☐ No → **Skip to Remarks section on page 32**

7-7 **What is the name (or description) of one product resulting from your company's R&D for which your company recently stopped receiving revenue?**

7-8 **Using the business codes in Question 1-7, which one best describes the product reported in Question 7-7?**

Business Code

7-9 **In what year did your company first receive revenue for the product reported in Question 7-7?**

Year

7-10 **In what year did your company last receive revenue for the product reported in Question 7-7?**

Year

Business codes
(used in Sections 1, 2, 3, and 7)

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

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 12 hours to complete this form, with 6.9 hours being the average. This includes time to read instructions, develop or assemble materials, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2010 Business R&D and Innovation Survey** ~

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

11040011

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

FORM
BRDI-1(SUP1) (05-19-2011)

2010 BRDIS Research and Development Services Follow-up

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report by mail:

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

For information or assistance:

- www.census.gov/econhelp/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.

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(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 R&D and Innovation Survey (BRDIS) about your company's 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 research and development 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 2010 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.

United States Census Bureau

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.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.		**Total** (equals BRDI-1 Question 3-14, lines a, b, and c)			

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			
b. Department of Transportation			
c. Environmental Protection Agency			
d. National Science Foundation			
e. All other			
f. **Total** (equals BRDI-1 Question 3-16, line e)			

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

11050010

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

FORM
BRDI-1(SUP2) (05-19-2011)

2010 BRDIS Research and Development Services Follow-up

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report by mail:

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

For information or assistance:

- www.census.gov/econhelp/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 R&D and Innovation Survey (BRDIS) about your company's 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 research and development 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 2010 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.

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Your response is confidential by law

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United States Census Bureau

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			
b. Department of Transportation			
c. Environmental Protection Agency			
d. National Science Foundation			
e. All other			
f. **Total** (equals BRDI-1 Question 3-16, line e)			

11060019

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

FORM
BRDI-1(SUP3) (05-19-2011)

2010 BRDIS Research and Development Services Follow-up

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report by mail:

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United States Census Bureau

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.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.		**Total** (equals BRDI-1 Question 3-14, lines a, b, and c)			

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
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23000	Construction
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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

11019015

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

FORM
BRDI-1 (01-06-2010) Draft 11

2009 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report electronically:
www.census.gov/econhelp/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:

- www.census.gov/econhelp/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.

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About the Business R&D and Innovation Survey

The Business Research and Development 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.9

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.18

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.31

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.39

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.43

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

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 application or use (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 Research and Development 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

Changes from the 2008 survey

Based on extensive conversations with many of the 2008 survey respondents, the 2009 survey has been improved. Both sections and questions have been modified to facilitate a better understanding of the concepts presented. For a list of specific changes, go to **www.census.gov/econhelp/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, do the following:

(1) Go to **www.census.gov/econhelp/brdis**
(2) Click on Report Online
(3) Follow the instructions to log in. Your username and password are located in the upper left corner of the front page.
(4) Respond to this survey.

Electronic materials

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

Reporting unit

The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership.

Reporting for discontinued operations

For reporting purposes, treat discontinued operations as ongoing and include these data in your responses where applicable.

Reporting for worldwide, domestic, and foreign operations

The term “worldwide” refers to all geographic locations, including the United States. The term “domestic” refers to the 50 United States and the District of Columbia only. The term “foreign” refers to all other locations outside the 50 United States and the District of Columbia.

Foreign-owned companies

If your company is foreign-owned, the reporting unit for the survey is your U.S.-based company, including all its majority-owned subsidiaries and divisions regardless of location. For reporting purposes, your foreign owner and any other foreign affiliates your company does not own should be treated the same as any other customer or business partner you do not own.

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

If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in Section 3 as "costs funded, paid for, or reimbursed by others".

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you estimate any adjustments that would be required to conform to U.S. GAAP. Please note these estimates in the space for "Remarks" at the end of the survey.

Reporting period

Report data for the calendar year 2009, if possible, or for your company’s fiscal year ending between April 2009 and March 2010.

Partial-year reporters

If your company was purchased by a U.S. company or ceased operations between April 1, 2009 and December 31, 2009, report for the period from January 1, 2009 to the date of purchase or the date your company ceased operations. If either of these events occurred before April 1, 2009, complete questions 1-1 through 1-3 on pages 4-5 and return this form to the Census Bureau. Disregard this instruction if your parent company instructs you to complete this survey.

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 ‘5’.

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

SECTION 1
Company Information

1-1 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. The task of completing this survey will require collaboration with persons who have access to your company's R&D, accounting, human resources, and legal departments.

Name

Title

Telephone
Area code Number Extension

Fax
Area code Number

E-mail address

1-2 Did another company other than a holding company own more than 50 percent of your company during 2009?

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

Name of owner

EIN of owner (9 digits)

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

Is the owner a U.S. company?

☐ Yes ➔ **Please follow the instructions on page 3 for "Partial-year reporters"**

☐ No ➔ **Please follow the instructions on page 3 for "Foreign-owned companies"**

☐ No

1-3 **Has your company ceased operations?**

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

Date your company ceased operations (MM) (DD) (YYYY)

Please follow the instructions on page 3 for "Partial-year reporters"

☐ No

1-4 **Did your company own more than 50 percent of any company operations or subsidiaries outside the 50 United States and D.C. during 2009?**

☐ Yes ➔ **Include data for these operations/subsidiaries in your survey responses**

☐ No

1-5 **Did your company have discontinued operations in 2009?**

☐ Yes ➔ **Include data for these operations in your survey responses**

☐ No

Business Codes

1-6 **Do the business code(s) listed below reflect all applicable codes from the list on pages 46-48 in which your company operated worldwide during 2009?**

NOTE: These codes will be used to describe both business activities and R&D activities and may differ from industry codes used by other government surveys and reports.

If no business codes are printed below, please write in the codes from pages 46-48 that apply to your company.

☐ Yes ➔ **Continue with Question 1-7**

☐ No ➔ **Draw a line through codes that are incorrect. As needed, enter additional codes and descriptions from pages 46-48 in the spaces provided.**

Business Code (see pages 46-48)	Description

SECTION 1

1-7 **What was the amount of your company's worldwide net sales and revenues during 2009?**

Include:
- Sales and operating revenues from discontinued operations

Exclude:
- Non-operating income such as gains on disposal of assets

$Bil.	Mil.	Thou.

1-8 **How much of the amount reported in Question 1-7 was attributable to or originated from domestic operations?**

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

$Bil.	Mil.	Thou.

1-9 **How much of the 2009 net sales and operating revenue amounts was for each business code listed or amended in Question 1-6:**
(1) Worldwide net sales and operating revenues reported in Question 1-7
(2) Domestic net sales and operating revenues reported in Question 1-8

	Business Code (see page 5)	(1) Worldwide net sales and operating revenues $Bil.	Mil.	Thou.	(2) Domestic net sales and operating revenues $Bil.	Mil.	Thou.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.	Less eliminations – sales and revenues that are eliminated in order to consolidate the business codes. . . .						
j.	**Total**.						
		Total equals Question 1-7			*Total equals Question 1-8*		

Innovation

1-10 Did your company introduce any of the following during the three-year period, 2007 to 2009?

a. New or significantly improved goods (excluding the simple resale of new goods purchased from others and changes of a solely aesthetic nature) . . . . . ☐ Yes ☐ No

b. New or significantly improved services. . . . . ☐ Yes ☐ No

c. New or significantly improved methods of manufacturing or producing goods or services. . . . . ☐ Yes ☐ No

d. New or significantly improved logistics, delivery, or distribution methods for your inputs, goods, or services. . . . . ☐ Yes ☐ No

e. New or significantly improved support activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing . . . . . ☐ Yes ☐ No

1-11 If you answered "yes" to either 1-10, line a, or 1-10, line b, were any of those new or significantly improved goods or services:

a. New to one of your markets? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services to one of your markets before your competitors? (It may have been available in other markets)

b. Only new to your company? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services that were already available from your competitors in your markets.

1-12 Using the definitions above, please give the percentage of your total sales in 2009 from:

a. New or significantly improved goods and services introduced during 2007 to 2009 that were new to one of your markets? . . . . . ___ %

b. New or significantly improved goods and services introduced during 2007 to 2009 that were only new to your company?. . . . . ___ %

c. Goods and services that were unchanged or only marginally modified during 2007 to 2009 (include the resale of new goods or services purchased from other enterprises) . . . . . ___ %

d. **Total sales in 2009** . . . . . 1 0 0 %

SECTION 1

Reporting Information

1-13 Is the information in this section reported for the 2009 calendar year?

☐ Yes

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

1-14 Approximately how long did it take to complete this section?

Hours : Minutes

1-15 Please list the names and titles of the persons who provided data for this section.

Name	Title

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.

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 2009?

If your company is publicly traded, this amount is equivalent to that disclosed on SEC Form 10-K as defined by FASB Statement No. 2, "Accounting for Research and Development Costs."
If your company is foreign-owned, refer to the instructions on page 3. Additional guidance, such as for **privately-owned companies,** is available online at www.census.gov/econhelp/brdis.

$Bil. Mil. Thou.

2-2 Does the amount reported in Question 2-1 include any of the following costs?

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements. . . . . ☐ Yes ☐ No

b. R&D paid for by government or private foundation grants. . . . . ☐ Yes ☐ No

c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees). . . . . ☐ Yes ☐ No

d. Bid and proposal costs. . . . . ☐ Yes ☐ No

e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (In-process R&D) . . . . . ☐ Yes ☐ No

2-3 If you answered "Yes" to any of the costs in Question 2-2, what was the amount of these costs that were included in your response to Question 2-1?

$Bil. Mil. Thou.

2-4 Subtract 2-3 from 2-1 and enter the result here. This is the <u>total R&D paid for by your company</u> in 2009.

$Bil. Mil. Thou.

2-5 Was the amount entered in Question 2-4 greater than zero?

☐ Yes → **Continue with Question 2-6**

☐ No → **Skip to Section 3 on page 18**

2-6 How much of the amount reported in Question 2-4 was for R&D costs your company plans to recoup through indirect charges on U.S. federal government contracts (IR&D or independent R&D)?

$Bil. Mil. Thou.

SECTION 2

R&D paid for by your company

2-7 **Of the amount reported in Question 2-4, what were the costs for each business code listed or amended on page 5 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 5)		$Bil.	Mil.	Thou.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.		**Total** (equals Question 2-4)			

2-8 **Of the amount reported in Question 2-4, what costs were incurred by your company in the following countries?**

		$Bil.	Mil.	Thou.
a.	Domestic U.S.			
b.	All other countries (including Puerto Rico)			
c.	**Total** (equals Question 2-4)			

2-9 **Copy the amount from Question 2-8, line a. This is the total domestic R&D paid for by your company in 2009.**

$Bil.	Mil.	Thou.

2-10 **Copy the amount reported from Question 2-8, line b. This is the total foreign R&D paid for by your company in 2009.**

$Bil.	Mil.	Thou.

2-11 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2009 was for each of the following types of costs?**

	(1) Domestic			(2) Foreign			(3) Total Worldwide		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
a. Salaries, wages and fringe benefits									
b. Stock-based compensation									
c. Temporary staffing including on-site consultants									
d. Expensed equipment									
e. Materials and supplies									
f. Leased facilities and equipment									
g. Depreciation and amortization on R&D property/equipment									
h. Payments to business partners for collaborative R&D									
i. Purchased R&D services									
j. All other purchased services except R&D									
k. Allocated costs, not reported elsewhere									
l. All other costs									
m. **Total**									
	Total equals Question 2-9			*Total equals Question 2-10*			*Total equals Question 2-4*		

SECTION 2

SECTION 2

2-12 **Add 2-11, lines h and i for each column, and enter the result here. This is R&D performed by others.**

(1) Domestic $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.

2-13 **Subtract 2-12 from 2-11, line m, for each column and enter the result here. This is R&D performed by your company.**

(1) Domestic $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.

2-14 **Copy the amount from Question 2-13, column 2. This is the foreign R&D paid for and performed by your company in 2009.**

$Bil. Mil. Thou.

2-15 **Of the amount reported in Question 2-14, how much R&D was performed in the following countries in 2009?**

	$Bil. Mil. Thou.		$Bil. Mil. Thou.
a. Puerto Rico		j. Japan	
b. Canada		k. Russia	
c. China		l. Singapore	
d. France		m. South Korea	
e. Germany		n. Sweden	
f. India		o. United Kingdom	
g. Ireland		p. All other	
h. Israel			
i. Italy		q. **Total** (equals Question 2-14)	

2-16 **Copy the amount from Question 2-13, column 1. This is the domestic R&D paid for and performed by your company in 2009.**

$Bil. Mil. Thou.

2-17 **How much of the amount reported in Question 2-16 was performed in each state (including D.C.) in 2009?**

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

Question continues on next page

SECTION 2

SECTION 2

2-17 (Continued)

	$Bil.	Mil.	Thou.		$Bil.	Mil.	Thou.
Pennsylvania . . .				Vermont			
Rhode Island . . .				Virginia			
South Carolina . .				Washington			
South Dakota . . .				West Virginia			
Tennessee				Wisconsin			
Texas				Wyoming			
Utah				**Total** (equals Question 2-16) . . .			

2-18 At what domestic location did your company perform the largest dollar amount of R&D in 2009?

Address 1

Address 2

City **State** **ZIP**

2-19 How much of the amount reported in Question 2-16 was from the location identified in Question 2-18?

$Bil.	Mil.	Thou.

2-20 **How much of the R&D paid for by your company for each business code reported in Question 2-7 was:**
(1) Domestic R&D paid for by your company reported in Question 2-9
(2) Domestic R&D performed by your company reported in Question 2-16

	Business Code (see page 5)	(1) Domestic R&D paid for by your company $Bil. Mil. Thou.	(2) Domestic R&D performed by your company $Bil. Mil. Thou.
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			
i. **Total**			
		Total equals Question 2-9	*Total equals Question 2-16*

R&D paid for by foreign subsidiaries

2-21 **How much of the amount reported in Question 2-16 was paid for by your company's foreign operations or foreign subsidiaries?**

$Bil. Mil. Thou.

R&D performed by others

2-22 **Copy the amount from Question 2-12, column 3. This is the total R&D performed by others in 2009.**

$Bil. Mil. Thou.

SECTION 2

SECTION 2

2-23 **How much of the amount reported in Question 2-22, was performed by the following types of organizations?**

	$Bil.	Mil.	Thou.
a. Companies located inside the United States			
b. Companies located outside the United States			
c. U.S. federal government agencies or laboratories			
d. U.S. state and local government agencies or laboratories			
e. Foreign government agencies or laboratories			
f. Universities, colleges, and academic researchers (including principal investigators) located inside the United States			
g. Universities, colleges, and academic researchers (including principal investigators) located outside the United States			
h. All other organizations			
i. **Total R&D performed by others** (equals Question 2-22)			

Projected R&D for 2010

2-24 **What are your company's projected 2010 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?**

NOTE: This question is the 2010 projection for what is reported in Question 2-11, line m.

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-25 **How much of the amount reported in Question 2-24, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?**

Domestic		
$Bil.	Mil.	Thou.

SECTION 2

Capital Expenditures

2-26 **What was the amount of your company's capital expenditures in the domestic United States in 2009?**

$Bil. Mil. Thou.

2-27 **How much of the amount reported in Question 2-26 was for R&D operations?**

$Bil. Mil. Thou.

2-28 **How much of the amount reported in Question 2-27 was for the following?**

	$Bil.	Mil.	Thou.
a. Structures			
b. Equipment			
c. Capitalized software			
d. All other capital expenditures for R&D operations			
e. **Total domestic capital expenditures for R&D** (equals Question 2-27)			

Reporting information

2-29 **Is the information in this section reported for the 2009 calendar year?**

☐ Yes

☐ No → **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

2-30 **Approximately how long did it take to complete this section?**

Hours : Minutes

2-31 **Please list the names and titles of the persons who provided data for this section.**

Name	Title

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.

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.

Foreign-owned companies:
If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in this section.

3-1 **What were your company's total worldwide costs (both direct and indirect) in 2009 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. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements			
b. R&D paid for by government or private foundation grants			
c. Defense R&D services provided to the government and/or government contractors			
d. Medical nonclinical R&D services provided to others not owned by your company			
e. Phase I-III medical clinical trial services provided to others not owned by your company (include pass-through costs)			
f. Non-defense custom software development and/or computer systems design 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

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

3-2 **Copy the amount from Question 3-1, line i. This is the total R&D paid for by others in 2009.**

$Bil.	Mil.	Thou.

3-3 **Was the amount entered in Question 3-2 greater than zero?**

☐ Yes → **Continue with Question 3-4**

☐ No → **Skip to Section 4 on page 31**

R&D paid for by others

3-4 **How much of total R&D paid for by others reported in Question 3-2 was for each business code listed or amended on page 5 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 5)		$Bil.	Mil.	Thou.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.		**Total** (equals Question 3-2)			

3-5 **Of the amount reported in Question 3-2, what costs were incurred by your company in the following countries?**

		$Bil.	Mil.	Thou.
a.	Domestic U.S.			
b.	All other countries (including Puerto Rico)			
c.	**Total** (equals Question 3-2)			

SECTION 3

SECTION 3

3-6 **Copy the amount from Question 3-5, line a. This is the total domestic R&D paid for by others in 2009.**

$Bil. Mil. Thou.

3-7 **Copy the amount from Question 3-5, line b. This is the total foreign R&D paid for by others in 2009.**

$Bil. Mil. Thou.

3-8 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2009 was for each of the following types of costs?**

	(1) Domestic			(2) Foreign			(3) Total Worldwide		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
a. Salaries, wages and fringe benefits									
b. Stock-based compensation									
c. Temporary staffing including on-site consultants									
d. Expensed equipment									
e. Materials and supplies									
f. Leased facilities and equipment									
g. Depreciation and amortization on R&D property/equipment									
h. Payments to business partners for collaborative R&D									
i. Purchased R&D services									
j. All other purchased services except R&D									

Question continues on next page

3-8 **(Continued)**

	(1) Domestic			(2) Foreign			(3) Total Worldwide		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
k. Allocated costs, not reported elsewhere									
l. All other costs									
m. **Total**									
	Total equals Question 3-6			*Total equals Question 3-7*			*Total equals Question 3-2*		

3-9 **Add 3-8, lines h and i for each column, and enter the result here. This is R&D performed by others (e.g. subcontracted/passed-through R&D costs).**

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

3-10 **Subtract 3-9 from 3-8, line m, for each column and enter the result here. This is R&D performed by your company that was paid for by others.**

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

3-11 **Copy the amount from Question 3-10, column 2. This is the foreign R&D performed by your company that was paid for by others.**

$Bil.	Mil.	Thou.

SECTION 3

SECTION 3

3-12 **Of the amount reported in Question 3-11, how much R&D was performed in the following countries?**

	$Bil.	Mil.	Thou.
a. Puerto Rico			
b. Canada			
c. China			
d. France			
e. Germany			
f. India			
g. Ireland			
h. Israel			
i. Italy			
j. Japan			
k. Russia			
l. Singapore			
m. South Korea			
n. Sweden			
o. United Kingdom			
p. All other			
q. **Total** (equals Question 3-11)			

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

3-13 **Subtract 3-9, column 1, from 3-6 and enter the result here. This is the domestic R&D performed by your company that was paid for by others.**

$Bil.	Mil.	Thou.

3-14 **How much of the amount reported in Question 3-13 was performed under the following types of agreements?**

	$Bil.	Mil.	Thou.
a. Contracts (include direct or prime contracts and subcontracts)			
b. Grants, reimbursements, and all other agreements			
c. **Total** (equals Question 3-13)			

3-15 **How much of the amount reported in Question 3-13 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. develops guidance systems 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 c because the Dept. of Defense was the original source of funds.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States			
b. Other companies located outside the United States			
c. U.S. federal government agencies or laboratories			
d. U.S. state government agencies or laboratories			
e. Foreign government agencies or laboratories			
f. All other organizations inside the United States			
g. All other organizations located outside the United States			
h. **Total** (equals Question 3-13)			

3-16 **Add 3-15, lines a and b and enter the result here. This is domestic R&D performed by your company that was paid for by other companies.**

$Bil.	Mil.	Thou.

SECTION 3

SECTION 3

3-17 **How much of the amount reported in Question 3-16 was paid for by the following types of companies?**

	$Bil.	Mil.	Thou.
a. Aerospace			
b. Computer or software products			
c. Electronic products			
d. Motor vehicles			
e. Petrochemicals			
f. Pharmaceuticals			
g. All other companies			
h. **Total** (equals Question 3-16)			

3-18 **Copy the amount from Question 3-15, line c. This is domestic R&D performed by your company that was paid for by the U.S. federal government.**

$Bil.	Mil.	Thou.

3-19 **How much of the amount reported in Question 3-18 was paid for by the following agencies?**

	$Bil.	Mil.	Thou.
a. Department of Defense			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. All other			
f. **Total** (equals Question 3-18)			

3-20 **Subtract 3-18 from 3-13 and enter the result here. This is the domestic R&D performed by your company that was paid for by nonfederal sources.**

$Bil.	Mil.	Thou.

3-21 **How much of the following three amounts was performed in each state (including D.C.):**
(1) Domestic R&D paid for by the U.S. federal government reported in Question 3-18
(2) Domestic R&D paid for by nonfederal sources reported in Question 3-20
(3) Total domestic R&D performed by your company that was paid for by others reported in Question 3-13

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Alabama									
Alaska									
Arizona									
Arkansas									
California									
Colorado									
Connecticut									
Delaware									
District of Columbia									
Florida									
Georgia									
Hawaii									

Question continues on next page

SECTION 3

SECTION 3

3-21 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Idaho									
Illinois									
Indiana									
Iowa									
Kansas									
Kentucky									
Louisiana									
Maine									
Maryland									
Massachusetts									
Michigan									
Minnesota									
Mississippi									

Question continues on next page

3-21 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Missouri									
Montana									
Nebraska									
Nevada									
New Hampshire									
New Jersey									
New Mexico									
New York									
North Carolina									
North Dakota									
Ohio									
Oklahoma									
Oregon									

Question continues on next page

SECTION 3

SECTION 3

3-21 (Continued)

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Pennsylvania									
Rhode Island									
South Carolina									
South Dakota									
Tennessee									
Texas									
Utah									
Vermont									
Virginia									
Washington									
West Virginia									
Wisconsin									
Wyoming									

Question continues on next page

3-21 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Total									
	Total equals Question 3-18			*Total equals Question 3-20*			*Total equals Question 3-13*		

Projected R&D paid for by others in 2010

3-22 **What are your company's projected 2010 costs for R&D that will be paid for by others?**

NOTE: This question is the 2010 projection for what is reported in Question 3-2.

$Bil. Mil. Thou.

3-23 **How much of the projected costs in 2010 for R&D that will be paid for by others reported in Question 3-22 will be performed by your company in the United States?**

NOTE: This question is the 2010 projection for what is reported in Question 3-13.

$Bil. Mil. Thou.

3-24 **How much of the projected costs in 2010 for domestic R&D performed by your company that will be paid for by others reported in Question 3-23 will be paid for by the U.S. federal government?**

NOTE: This question is the 2010 projection for what is reported in Question 3-18.

$Bil. Mil. Thou.

SECTION 3

Reporting information

3-25 Is the information in this section reported for the 2009 calendar year?

☐ Yes

☐ No → **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

3-26 Approximately how long did it take to complete this section?

Hours : Minutes

3-27 Please list the names and titles of the persons who provided data for this section.

Name	Title

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.

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 total worldwide 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 2009.**

$Bil. Mil. Thou.

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

☐ Yes → **Continue with Question 4-3**

☐ No → **Skip to Question 4-39 on page 36**

4-3 **What percentage of the amount reported in Question 4-1 was directed toward business areas or product lines that are new to your company?**

Example: Company A manufactures laptop computers. In 2009 Company A's management decided to attempt to enter the cellular phone market and used a portion of the company's R&D budget to develop cellular phones. Because this was a new line of business in 2009, Company A reports this R&D in this question.

%

4-4 **What percentage of the amount reported in Question 4-1 involved science/technology that was new to your company (such as technology not used by your company in other projects before 2009)?**

Example: In 2009 Company A began to investigate how to integrate a new type of touch sensitive display into its products. Because this display technology was new to Company A in 2009, the R&D using this technology is reported in this question.

%

4-5 **What percentage of the amount reported in Question 4-1 was for R&D with both characteristics described in Questions 4-3 and 4-4?**

Example: Company A would include the R&D that involved both the new cellular phone business area and the new touch sensitive display technology (see examples for Questions 4-3 and 4-4).

%

4-6 **What percentage of the amount reported in Question 4-1 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?**

Exclude:
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates.

Example: In 2009 Company B used a portion of its R&D to explore the potential use of a new heat-conducting material in its cookware products. Because this technology had not been used previously in the cookware industry, Company B should include that R&D in this question.

%

SECTION 4

Worldwide R&D Agreements

4-7 **What percentage of the amount reported in Question 4-1 was for R&D agreements?**

R&D agreements involve two or more parties pooling resources and expertise to undertake R&D and share in any resulting intellectual property. R&D agreements involve shared risk and shared reward.

___ %

4-8 **What percentage of the amount reported in Question 4-1 was for R&D agreements with for-profit companies?**

___ %

4-9 **What percentage of the amount reported in Question 4-1 was for R&D agreements with U.S. federal government agencies or laboratories?**

___ %

4-10 **What percentage of the amount reported in Question 4-1 was for R&D agreements with universities, colleges, and academic researchers, including individual principal investigators?**

___ %

4-11 **What percentage of the amount reported in Question 4-1 was for R&D agreements with nonprofit organizations other than universities and colleges?**

___ %

4-12 **In 2009, how many new R&D agreements did your company enter into?**

Number ___

4-13 **Did the new R&D agreements reported in Question 4-12 involve agreements with the following types of organizations?**

a. For-profit companies located inside the United States . . . . . ☐ Yes ☐ No

b. For-profit companies located outside the United States . . . . . ☐ Yes ☐ No

c. U.S. federal government agencies or laboratories. . . . . ☐ Yes ☐ No

d. Universities, colleges, and academic researchers, including individual principal investigators. . . . . ☐ Yes ☐ No

e. Foreign government agencies or laboratories. . . . . ☐ Yes ☐ No

4-14 **Did the new R&D agreements reported in Question 4-12 involve agreements with the following?**

a. Customers . . . . . ☐ Yes ☐ No

b. Vendors/suppliers . . . . . ☐ Yes ☐ No

c. Competitors . . . . . ☐ Yes ☐ No

SECTION 4

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

4-15 **Copy the amount from Question 2-16. This is the domestic R&D paid for and performed by your company.**

	$Bil.	Mil.	Thou.

4-16 **How much of the amount reported in Question 4-15 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-15)			

4-17 **If you reported any research in Question 4-16, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-16, line a)			

Areas of application for domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-18 to 4-22.

4-18 **What percentage of the amount reported in Question 4-15 had defense applications, including military applications and general security-related R&D?** %

4-19 **What percentage of the amount reported in Question 4-15 had health or medical applications?** %

4-20 **What percentage of the amount reported in Question 4-15 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 2009, 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.

%

SECTION 4

4-21 What percentage of the amount reported in Question 4-15 had environmental protection applications, including pollution abatement R&D? ___ %

4-22 What percentage of the amount reported in Question 4-15 had agricultural applications? ___ %

Technology focus of domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-23 to 4-31.

4-23 What percentage of the amount reported in Question 4-15 was for software products? ___ %

4-24 What percentage of the amount reported in Question 4-15 was for software embedded in other projects or products? ___ %

4-25 What percentage of the amount reported in Question 4-15 was for the development of new or significantly improved processes? ___ %

4-26 What percentage of the amount reported in Question 4-15 was for medical clinical trials? ___ %

4-27 What percentage of the amount reported in Question 4-15 was for the production of prototypes? ___ %

4-28 What percentage of the amount reported in Question 4-15 was for the operation of pilot plants? ___ %

4-29 What percentage of the amount reported in Question 4-15 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products? ___ %

4-30 What percentage of the amount reported in Question 4-15 was for nanotechnology—the science and technology involving work at the nanometer scale? ___ %

4-31 What percentage of the amount reported in Question 4-15 was for social sciences—the application of scientific methods to the study of human aspects of the world, including such disciplines as economics and psychology? ___ %

Worldwide R&D performed by others

4-32 **Copy the amount from Question 2-22. This is the total R&D paid for by your company but performed by others.**

	$Bil.	Mil.	Thou.

4-33 **How much of the amount reported in Question 4-32 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-32)			

4-34 **If you reported any research in Question 4-33, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-33, line a)			

4-35 **What percentage of the amount reported in Question 4-32 was for medical clinical trials?** %

4-36 **What percentage of the amount reported in Question 4-32 was for the production of prototypes?** %

Activities with academia

4-37 **Did your company perform any of the following activities with universities, students, or academic faculty in 2009?**

a. Hired academic consultants for short-term projects in science and engineering ☐ Yes ☐ No

b. Hosted student interns pursuing undergraduate or graduate degrees in science or engineering for at least one month ☐ Yes ☐ No

c. Hosted post-doctoral fellows in science or engineering for at least one month ☐ Yes ☐ No

d. Had scientists or engineers from your company who served as visiting scientists or engineers at a college or university for at least one month ☐ Yes ☐ No

e. Made monetary gifts to universities or colleges that were restricted to supporting R&D ☐ Yes ☐ No

SECTION 4

Company characteristics

4-38 Were the following statements true for your company in 2009?

a. This company has been in business for less than 5 years as of December 31, 2009 . . . . . ☐ Yes ☐ No

b. This company's primary mission in 2009 was to commercialize science/technology discovered or developed by academic researchers. . ☐ Yes ☐ No

c. This company received venture capital funding in 2009 . . . . . ☐ Yes ☐ No

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

4-39 Copy the amount from Question 3-13. This is the domestic R&D performed by your company that was paid for by others.

$Bil.	Mil.	Thou.

4-40 Was the amount entered in Question 4-39 greater than zero?

☐ Yes ➔ **Continue with Question 4-41**

☐ No ➔ **Skip to Section 5 on page 39**

4-41 How much of the amount reported in Question 4-39 was for the following categories?

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding.			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-39).			

4-42 If you reported any research in Question 4-41, line a, how much of that research was for the following categories?

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective.			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-41, line a).			

NOTE: You may report the same R&D in multiple areas for Questions 4-43 to 4-49.

4-43 What percentage of the amount reported in Question 4-39 was for medical clinical trials (phases I, II, and III)? %

SECTION 4

4-44 **What percentage of the amount reported in Question 4-39 was for the production of prototypes?** ___ %

4-45 **What percentage of the amount reported in Question 4-39 had defense applications, including military applications and general security-related R&D?** ___ %

4-46 **What percentage of the amount reported in Question 4-39 had health or medical applications?** ___ %

4-47 **What percentage of the amount reported in Question 4-39 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?** ___ %

4-48 **What percentage of the amount reported in Question 4-39 had environmental protection applications, including pollution abatement R&D?** ___ %

4-49 **What percentage of the amount reported in Question 4-39 had agricultural applications?** ___ %

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

4-50 **Copy the amount from Question 3-18. This is domestic R&D performed by your company that was paid for by the U.S. federal government.**

$Bil.	Mil.	Thou.

4-51 **Was the amount entered in Question 4-50 greater than zero?**

☐ Yes → **Continue with Question 4-52**

☐ No → **Skip to Section 5 on page 39**

4-52 **How much of the amount reported in Question 4-50 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Research–the planned, systematic pursuit of new knowledge or understanding.			
b. Development–the systematic use of research and practical experience to produce new or significantly improved goods, services, or processes.			
c. **Total** (equals Question 4-50).			

SECTION 4

4-53 **If you reported any research in Question 4-52, line a, how much of that research was for the following categories?**

	$Bil.	Mil.	Thou.
a. Applied research–the activity aimed at solving a specific problem or meeting a specific commercial objective.			
b. Basic research–the activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-52, line a).			

4-54 **What percentage of the amount reported in Question 4-50 was for the production of prototypes?** %

Reporting information

4-55 **Is the information in this section reported for the 2009 calendar year?**

☐ Yes

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

4-56 **Approximately how long did it take to complete this section?** Hours : Minutes

4-57 **Please list the names and titles of the persons who provided data for this section.**

Name	Title

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.

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.

5-1 **What was the total number of worldwide employees working at your company for the pay period that included March 12, 2009?**

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 R&D employees?**

Include:
- All employees who work on R&D or who provide direct support to R&D
- Both employees working on R&D that is paid for by your company as well as employees working on R&D that is paid for by others

Exclude:
- Employees who provide indirect support to R&D, such as corporate personnel security guards, and cafeteria workers

Number

5-3 **How many of the employees reported in Question 5-2 were (1) female employees, (2) male employees, and (3) total employees, working in the occupations listed below?**

	(1) Female Employees	(2) Male Employees	(3) Total Employees
a. Engineers and their managers			
b. Scientists and their managers (not already reported in line a)			
c. Technicians and technologists.			
d. Support staff (clerical and other)			
e. **Total worldwide R&D employees**			
			Total equals Question 5-2

SECTION 5

5-4 **Add lines a and b from Question 5-3, column 3. This is the number of worldwide R&D scientists and engineers and their managers in 2009.**

Number

5-5 **How many of the employees reported in Question 5-4 had the following level of education?**

Note: Report using the highest degree attained by each employee.

Number

a. PhD (excluding MD, JD, and EdD) . . . . . .

b. Other college degrees . . . . . .

c. All other. . . . . .

d. **Total**. . . . . .

Total equals Question 5-4

Domestic R&D employees

5-6 **How many of the employees reported in Question 5-1 were employees of your company's domestic operations?**

Include:
- All employees whose payroll was reported on IRS Form 941, Employer's Quarterly Federal Tax Return

Number

5-7 **How many of the employees reported in Question 5-6 were R&D employees?**

Include:
- All employees who work on R&D or who provide direct support to R&D
- Both employees working on R&D that is paid for by your company as well as employees working on R&D that is paid for by others

Exclude:
- Employees who provide indirect support to R&D, such as corporate personnel security guards, and cafeteria workers

Number

SECTION 5

5-8 **How many of the employees reported in Question 5-7 were (1) female employees, (2) male employees, and (3) total employees, working in the occupations listed below?**

	(1) Female Employees	(2) Male Employees	(3) Total Employees
a. Engineers and their managers			
b. Scientists and their managers (not already reported in line a)			
c. Technicians and technologists			
d. Support staff (clerical and other)			
e. **Total domestic R&D employees**			
			Total equals Question 5-7

5-9 **Add lines a and b from Question 5-8, column 3. This is the number of domestic R&D scientists and engineers and their managers in 2009.**

Number

5-10 **How many of the employees reported in Question 5-9 had the following level of education?**

Note: Report using the highest degree attained by each employee.

	Number
a. PhD (excluding MD, JD, and EdD)	
b. Other college degrees	
c. All other	
d. **Total**	
	Total equals Question 5-9

5-11 **How many of the employees reported in Question 5-9 were non-U.S. citizens employed in the United States under a temporary visa, such as H-1B or L-1?**

Number

SECTION 5

Full-time equivalents (FTEs)

5-12 What was the number of domestic full-time equivalent (FTE) scientists and engineers engaged in R&D activities for the pay period that included March 12, 2009?

Full-time equivalents account for R&D scientists and engineers who do not work full-time and R&D scientists and engineers who do not work on R&D activities full-time. For example, a scientist or engineer who works half-time would be counted as one employee on a headcount basis but as one-half (½) an FTE employee. Similarly, a full-time employee who devotes 25% of their time to R&D would be counted as one quarter (¼) an R&D FTE employee. The number of FTEs and the headcount may differ for your company.

Number

5-13 How many FTEs reported in question 5-12 were engaged in R&D activities funded by U.S. federal government grants or contracts for the pay period that included March 12, 2009?

Number

Reporting information

5-14 Approximately how long did it take to complete this section?

Hours : Minutes

5-15 Please list the names and titles of the persons who provided data for this section.

Name	Title

SECTION 5

SECTION 6
Intellectual Property and Technology Transfer

Who should answer this section?
Persons with an understanding of your company's general business strategy and knowledge of its patenting, licensing, and other intellectual property related activities.

What does this section cover?
This section requests information about intellectual property and technology transfer activities such as:
- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property

Are responses to this survey confidential?
Yes. Your responses are completely confidential under Title 13, United States Code, and are seen only by persons sworn to uphold the confidentiality of Census Bureau information. Data provided will be used only to publish summary statistics that do not identify individual companies. Title 13 also provides that copies of reports retained in your files are immune from legal process. In addition, reported data are exempt from requests made under the Freedom of Information Act.

Patents

6-1 **How many patents did your company apply for in 2009 from the U.S. Patent and Trademark Office (USPTO)?** — Number

6-2 **What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?** — %

6-3 **What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&D activities?** — %

6-4 **How many patents were issued to your company in 2009 by the USPTO?** — Number

6-5 **What percentage of your company's inventions considered for patenting in 2009 resulted in patent applications?** — %

Patent licensing

6-6 **What was the amount of your company's patents licensing revenue in 2009?**

$Bil. Mil. Thou.

6-7 **How many new agreements did your company enter into during 2009 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 2009?**

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–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

SECTION 6

Intellectual property protection

6-9 During 2009, how important to your company were the following types of intellectual property protection?

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance)	☐	☐	☐
c. Trademarks	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

Reporting information

6-10 Is the information in this section reported for the 2009 calendar year?

☐ Yes

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

6-11 Approximately how long did it take to complete this section?

Hours : Minutes

6-12 Please list the names and titles of the persons who provided data for this section.

Name	Title

SECTION 6

Business codes
(used in Sections 1, 2, and 3)

Aerospace & Defense

33641 Aircraft manufacturing
33642 Aircraft engine and engine parts manufacturing
33643 Other aircraft parts and auxiliary equipment manufacturing
33644 Guided missiles, space vehicles, and parts manufacturing
32602 Inflatable plastic boats manufacturing
32603 Inflatable rubber boats manufacturing
33692 Military armored vehicle, tank, and tank components manufacturing
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33661 Ship and boat building

Automobiles, Motorcycles, & Components

33610 Motor vehicles manufacturing
33620 Motor vehicle body and trailer manufacturing
33630 Motor vehicle parts manufacturing
33691 Motorcycle, bicycle, and parts manufacturing
33699 All other transportation equipment manufacturing

Capital Goods

33430 Audio and video equipment manufacturing
33332 Commercial, service industry, temperature control, and airflow control machinery manufacturing
33312 Construction machinery manufacturing
23600 Construction of buildings
33360 Engine, turbine, and power transmission equipment manufacturing
33200 Fabricated metal products manufacturing
33311 Farm machinery and equipment manufacturing
23700 Heavy and civil engineering construction
33322 Industrial machinery manufacturing, except semiconductor machinery
33390 Metalworking and other general purpose machinery manufacturing
33313 Mining machinery and equipment manufacturing
33331 Photographic and photocopying equipment manufacturing
33651 Railroad rolling stock manufacturing
33661 Ship and boat building
23800 Specialty trade contractors

Commercial and Professional Services (including contract research)

54120 Accounting, tax preparation, bookkeeping, and payroll services
54180 Advertising and related services
54130 Architectural, engineering, and related services
56140 Business support services
53240 Commercial and industrial machinery and equipment rental and leasing
54162 Executive search consulting services
54110 Legal services
54161 Management, scientific, and technical consulting services (except executive search consulting services)
56191 Office administrative, facilities, employment, and other support services
32300 Printing and related support activities
56290 Remediation and other waste management services
54173 Research & development services in biotechnology
54174 Research & development services in physical, engineering, and life sciences (except biotechnology)
54172 Research & development services in social sciences and humanities
54140 Specialized design services
56150 Travel arrangement and reservation services
56210 Waste collection, treatment, and disposal

Consumer Goods & Services

71300 Amusement, gambling, and recreation industries
31501 Apparel manufacturing (except embroidery contractors)
33430 Audio and video equipment manufacturing
81110 Automotive repair and maintenance
31210 Beverage manufacturing
51520 Cable and other subscription programming (except Internet)
62440 Child day care services
44800 Clothing and clothing accessories stores
23600 Construction of buildings
53220 Consumer goods and general rental centers
61100 Educational services
33500 Electrical equipment, appliances, and components manufacturing
45410 Electronic shopping and mail-order houses
44300 Electronics and appliance stores
31502 Embroidery contractors
44500 Food and beverage stores
31100 Food manufacturing
72200 Food services and drinking places
33700 Furniture and related products manufacturing
45200 General merchandise stores
32602 Inflatable plastic boats manufacturing
32603 Inflatable rubber boats manufacturing
51600 Internet publishing and broadcasting
56160 Investigation, security, and services to buildings and dwellings
31600 Leather and allied products manufacturing
51200 Motion picture and sound recording (except Internet)
44100 Motor vehicle and parts dealers
51110 Newspaper, periodical, book, and directory publishers (except internet)
81200 Personal care, death care, laundry, and other personal services
33331 Photographic and photocopying equipment manufacturing
51510 Radio and television broadcasting (except Internet)
81190 Repair and maintenance, except automotive
32591 Soap, cleaning compound, and toilet preparations manufacturing
62400 Social assistance (except child day care services)
31301 Textile mill products
31302 Textile product mills
31220 Tobacco manufacturing
56150 Travel arrangement and reservation services
72100 Traveler accommodation service

Energy

21210 Coal mining
22110 Electric power generation, transmission, and distribution
21100 Oil and gas extraction
33314 Oil and gas field machinery and equipment manufacturing
32400 Petroleum and coal products manufacturing
48610 Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas
48620 Pipeline transportation of natural gas
21320 Support activities for oil and gas operations
21310 Support activities for solid mineral operations

Financials

52230 Activities related to credit intermediation
52420 Agencies, brokerages, and other insurance related activities
52210 Depository credit intermediation
52501 Funds, trusts, and other financial vehicles (except REITs leasing real estate properties or underwriting or investing in mortgages)
52410 Insurance carriers
52100 Monetary authorities-central bank
52220 Nondepository credit intermediation
53100 Real estate
52502 REIT, hybrid or equity, primarily leasing residential buildings and dwellings
52503 REIT, hybrid or equity, primarily leasing nonresidential buildings
52504 REIT, hybrid or equity, primarily leasing miniwarehouses or self-storage units
52505 REIT, hybrid or equity, primarily leasing other real estate property (Not listed elsewhere)
52506 REIT, hybrid or equity, primarily underwriting or investing in mortgages
52300 Securities, commodity contracts, and other financial investments and related activities

Health Care

33451 Electromedical, electrotherapeutic and irradiation apparatus manufacturing
62210 General medical and surgical hospitals
62160 Home health care services
32542 In-vitro diagnostic substances manufacturing
33912 Laboratory distilling equipment manufacturing
33913 Laboratory freezer manufacturing
33914 Laboratory furnaces and ovens manufacturing
33915 Laboratory scales and balances manufacturing
33916 Laboratory centrifuges
33917 Laboratory furniture
33918 Laboratory apparatus (Not listed elsewhere)
62150 Medical and diagnostic laboratories
33911 Medical equipment and supplies manufacturing (except laboratory apparatus)
62300 Nursing and residential care facilities
62120 Offices of dentists and other health practitioners
62110 Offices of physicians
62190 Outpatient care centers and other ambulatory health care services
32541 Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
62220 Psychiatric, substance abuse, and specialty hospitals
54173 Research & development services in biotechnology
54174 Research & development services in physical, engineering, and life sciences (except biotechnology)

Information Technology - Goods and Services

51812 Broadband internet service providers (e.g., cable, DSL)
33429 Communication equipment manufacturing, except broadcasting, wireless, and telephone apparatus
33424 Communications signal testing and evaluation equipment manufacturing
54150 Computer systems design and related services
33410 Computers and peripheral equipment manufacturing
51820 Data processing, hosting, and related services
33500 Electrical equipment, appliances, and components manufacturing
51900 Information services (Not listed elsewhere)
51813 Internet service providers using client-supplied telecommunications connections (e.g., dial-up, ISPs)
51600 Internet publishing and broadcasting
33460 Manufacturing and reproducing magnetic and optical media manufacturing
33459 Measuring and control instruments manufacturing (Not listed elsewhere)
33423 Radio and television broadcasting and wireless communications equipment manufacturing (except signal testing and evaluation equipment manufacturing)
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33440 Semiconductor and other electronic components manufacturing
33321 Semiconductor machinery manufacturing
51120 Software publishers (except Internet)
33421 Telephone apparatus manufacturing
51811 Web search portals

Materials

32510 Basic chemicals manufacturing
32790 Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing
32710 Clay and glass products manufacturing
33150 Ferrous and nonferrous foundries
33110 Iron and steel mills, ferroalloy, and steel product from purchased steel
21220 Metal ore mining
33130 Nonferrous metals production and processing
21230 Nonmetallic mineral mining and quarrying
32592 Paint, adhesive, and other chemical manufacturing
32200 Paper manufacturing
32530 Pesticide, fertilizer, and other agricultural chemical manufacturing
32601 Plastics and rubber products manufacturing (except inflatable boats and rubber tubing for mechanical use)
32520 Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing
32604 Rubber tubing for mechanical use manufacturing
32591 Soap, cleaning compound, and toilet preparations manufacturing
21320 Support activities for oil and gas operations

21310 Support activities for solid mineral operations
32100 Wood products manufacturing

Telecommunication Services

51750 Cable and other program distribution
51740 Satellite telecommunications
51730 Telecommunications resellers
51790 Telecommunications services (Not listed elsewhere)
51710 Wired telecommunications carriers (except cable and broadband internet)
51720 Wireless telecommunications carriers (except satellite)

Transportation

48100 Air transportation
53210 Automotive equipment rental and leasing
49200 Couriers and messengers
48200 Rail transportation
48700 Scenic and sightseeing transportation
48800 Support activities for transportation
48500 Transit and ground passenger transportation
48400 Truck transportation
49300 Warehousing and storage
48300 Water transportation

Utilities

22110 Electric power generation, transmission, and distribution
22120 Natural gas distribution
56290 Remediation and other waste management services
56210 Waste collection, treatment, and disposal
22130 Water, sewage, and other systems

Business Codes Not Elsewhere Classified

81390 Business, professional, labor, political, and similar organizations
53300 Lessors of nonfinancial intangible assets
55100 Management of companies and enterprises
42300 Merchant wholesalers, durable goods
42400 Merchant wholesalers, nondurable goods
33990 Miscellaneous manufacturing (not listed elsewhere)
71200 Museums, historical sites, and similar institutions
45490 Nonstore retailers, except electronic shopping and mail-order houses
71100 Performing arts, spectator sports, and related industries
54190 Professional, scientific, and technical services (not listed elsewhere)
81310 Religious, grantmaking, social advocacy, civic, and social organizations
45990 Retail trade stores, including gasoline stations (not listed elsewhere)
42500 Wholesale electronic markets and agents and brokers

Please provide your comments in the space for "Remarks" on the back cover.

Please provide your comments in the space for "Remarks" on the back cover.

Please provide your comments in the space for "Remarks" on the back cover.

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 14.9 hours being the average. This includes time to read instructions, develop or assemble material, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912,
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2009 Business R&D and Innovation Survey** ~

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

11029014

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

FORM
BRDI-1A (01-07-2010) Draft 13

2009 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report electronically:
www.census.gov/econhelp/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.

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Jeffersonville, IN 47132-0001

For information or assistance:

- www.census.gov/econhelp/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.

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(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 Research and Development 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 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.8
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.12
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.18
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.23
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.26
Topics: intellectual property and technology transfer.
Requires: knowledge of your company's general business strategy, patenting, and licensing.

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 application or use (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 Research and Development 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

Changes from the 2008 survey

Based on extensive conversations with many of the 2008 survey respondents, the 2009 survey has been improved. Both sections and questions have been modified to facilitate a better understanding of the concepts presented. For a list of specific changes, go to **www.census.gov/econhelp/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, do the following:

(1) Go to **www.census.gov/econhelp/brdis**
(2) Click on Report Online
(3) Follow the instructions to log in. Your username and password are located in the upper left corner of the front page.
(4) Respond to this survey.

Electronic materials

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

Reporting unit

The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership.

Reporting for discontinued operations

For reporting purposes, treat discontinued operations as ongoing and include these data in your responses where applicable.

Reporting for worldwide, domestic, and foreign operations

The term “worldwide” refers to all geographic locations, including the United States. The term “domestic” refers to the 50 United States and the District of Columbia only. The term “foreign” refers to all other locations outside the 50 United States and the District of Columbia.

Foreign-owned companies

If your company is foreign-owned, the reporting unit for the survey is your U.S.-based company, including all its majority-owned subsidiaries and divisions regardless of location. For reporting purposes, your foreign owner and any other foreign affiliates your company does not own should be treated the same as any other customer or business partner you do not own.

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

If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in Section 3 as "costs funded, paid for, or reimbursed by others".

Report your survey data using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you estimate any adjustments that would be required to conform to U.S. GAAP. Please note these estimates in the space for "Remarks" at the end of the survey.

Reporting period

Report data for the calendar year 2009, if possible, or for your company’s fiscal year ending between April 2009 and March 2010.

Partial-year reporters

If your company was purchased by a U.S. company or ceased operations between April 1, 2009 and December 31, 2009, report for the period from January 1, 2009 to the date of purchase or the date your company ceased operations. If either of these events occurred before April 1, 2009, complete questions 1-1 through 1-3 on pages 4-5 and return this form to the Census Bureau. Disregard this instruction if your parent company instructs you to complete this survey.

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 ‘5’.

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

SECTION 1
Company Information

1-1 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. The task of completing this survey will require collaboration with persons who have access to your company's R&D, accounting, human resources, and legal departments.

Name

Title

Telephone
Area code Number Extension

Fax
Area code Number

E-mail address

1-2 Did another company other than a holding company own more than 50 percent of your company during 2009?

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

Name of owner

EIN of owner (9 digits)

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

Is the owner a U.S. company?

☐ Yes ➔ **Please follow the instructions on page 3 for "Partial-year reporters"**

☐ No ➔ **Please follow the instructions on page 3 for "Foreign-owned companies"**

☐ No

1-3 **Has your company ceased operations?**

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

Date your company ceased operations (MM) (DD) (YYYY)

Please follow the instructions on page 3 for "Partial-year reporters"

☐ No

1-4 **Did your company own more than 50 percent of any company operations or subsidiaries outside the 50 United States and D.C. during 2009?**

☐ Yes ➔ **Include data for these operations/subsidiaries in your survey responses**

☐ No

1-5 **Did your company have discontinued operations in 2009?**

☐ Yes ➔ **Include data for these operations in your survey responses**

☐ No

1-6 **What business code from the list below or the codes on pages 29-31 accounts for the largest share of your company's 2009 R&D activities worldwide?**

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 29-31 that best applies to your company.

Business code with most R&D activity

Business Code (see pages 29-31)	Description

1-7 **What was the amount of your company's worldwide net sales and operating revenues during 2009?**

Include:
- Sales and operating revenues from discontinued operations

Exclude:
- Non-operating income such as gains on disposal of assets

$Bil. Mil. Thou.

1-8 **How much of the amount reported in Question 1-7 was attributable to or originated from domestic operations?**

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

$Bil.	Mil.	Thou.

1-9 **How much of the 2009 net sales and operating revenue amounts was for the business code reported in Question 1-6:**
(1) Worldwide net sales and operating revenues reported in Question 1-7
(2) Domestic net sales and operating revenues reported in Question 1-8

Business Code	(1) Worldwide net sales and operating revenues			(2) Domestic net sales and operating revenues		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

Innovation

1-10 **Did your company introduce any of the following during the three-year period, 2007 to 2009?**

a. New or significantly improved goods (excluding the simple resale of new goods purchased from others and changes of a solely aesthetic nature) . . . . . ☐ Yes ☐ No

b. New or significantly improved services. . . . . ☐ Yes ☐ No

c. New or significantly improved methods of manufacturing or producing goods or services. . . . . ☐ Yes ☐ No

d. New or significantly improved logistics, delivery, or distribution methods for your inputs, goods, or services. . . . . ☐ Yes ☐ No

e. New or significantly improved support activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing . . . . . ☐ Yes ☐ No

1-11 **If you answered "yes" to either 1-10, line a, or 1-10, line b, were any of those new or significantly improved goods or services:**

a. New to one of your markets? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services to one of your markets before your competitors? (It may have been available in other markets)

b. Only new to your company? . . . . . ☐ Yes ☐ No

Your company introduced new or significantly improved goods or services that were already available from your competitors in your markets.

1-12 Using the definitions above, please give the percentage of your total sales in 2009 from:

a. New or significantly improved goods and services introduced during 2007 to 2009 that were new to one of your markets?	%
b. New or significantly improved goods and services introduced during 2007 to 2009 that were only new to your company?	%
c. Goods and services that were unchanged or only marginally modified during 2007 to 2009 (include the resale of new goods or services purchased from other enterprises)	%
d. **Total sales in 2009**	1 0 0 %

1-13 – 1-15 Not applicable to this form

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.

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 2009?

If your company is publicly traded, this amount is equivalent to that disclosed on SEC Form 10-K as defined by FASB Statement No. 2, "Accounting for Research and Development Costs."
If your company is foreign-owned, refer to the instructions on page 3. Additional guidance, such as for **privately-owned companies,** is available online at www.census.gov/econhelp/brdis.

$Bil. Mil. Thou.

2-2 Does the amount reported in Question 2-1 include any of the following costs?

a. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements . . . . . ☐ Yes ☐ No

b. R&D paid for by government or private foundation grants. . . . . ☐ Yes ☐ No

c. Technical services not an integral part of an R&D project (such as product support provided by R&D employees). . . . . ☐ Yes ☐ No

d. Bid and proposal costs. . . . . ☐ Yes ☐ No

e. Expense your company claimed resulting from the acquisition of another company with unfinished R&D projects (In-process R&D) . . . . . ☐ Yes ☐ No

2-3 If you answered "Yes" to any of the costs in Question 2-2, what was the amount of these costs that were included in your response to Question 2-1?

$Bil. Mil. Thou.

2-4 Subtract 2-3 from 2-1 and enter the result here. This is the total R&D paid for by your company in 2009.

$Bil. Mil. Thou.

2-5 Was the amount entered in Question 2-4 greater than zero?

☐ Yes ➔ **Continue with Question 2-7**

☐ No ➔ **Skip to Section 3 on page 12**

2-6 Not applicable to this form

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

Business Code (see page 5) | $Bil. | Mil. | Thou.

2-8 **Of the amount reported in Question 2-4, what costs were incurred by your company in the following countries?**

	$Bil.	Mil.	Thou.
a. Domestic U.S.			
b. All other countries (including Puerto Rico)			
c. **Total** (equals Question 2-4)			

2-9 **Copy the amount from Question 2-8, line a. This is the total domestic R&D paid for by your company in 2009.**

$Bil. | Mil. | Thou.

2-10 **Copy the amount reported from Question 2-8, line b. This is the total foreign R&D paid for by your company in 2009.**

$Bil. | Mil. | Thou.

2-11 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company in 2009 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									
c. Temporary staffing including on-site consultants									
h. Payments to business partners for collaborative R&D									
i. Purchased R&D services									
l. All other costs									
m. **Total**									
	Total equals Question 2-9			*Total equals Question 2-10*			*Total equals Question 2-4*		

2-12 **Add 2-11, lines h and i for each column, and enter the result here. This is R&D performed by others.**

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-13 – **2-15** **Not applicable to this form**

2-16 **Subtract 2-12, column 1, from 2-9 and enter the result here. This is the domestic R&D paid for and performed by your company in 2009.**

Domestic		
$Bil.	Mil.	Thou.

2-17 **In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D reported in Question 2-16 and how much of that R&D was performed in this state?**

		$Bil.	Mil.	Thou.
State				

2-18 **At what domestic location did your company perform the largest dollar amount of R&D in 2009?**

Address 1

Address 2

City	State	ZIP

2-19 **How much of the amount reported in Question 2-16 was from the location identified in Question 2-18?**

$Bil.	Mil.	Thou.

2-20 **How much of the amount reported in Question 2-16 was for the business code reported in Question 2-7?**

Business Code (see page 5)		$Bil.	Mil.	Thou.

2-21 – **2-23** **Not applicable to this form**

Projected R&D for 2010

2-24 **What are your company's projected 2010 costs for (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by your company?**

NOTE: This question is the 2010 projection for what is reported in Question 2-11, line m.

(1) Domestic			(2) Foreign			(3) Total Worldwide		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

2-25 **How much of the amount reported in Question 2-24, column 1, is for projected purchased R&D services and projected payments to business partners for collaborative R&D?**

Domestic		
$Bil.	Mil.	Thou.

Capital Expenditures

2-26 **What was the amount of your company's capital expenditures in the domestic United States in 2009?**

$Bil.	Mil.	Thou.

2-27 **How much of the amount reported in Question 2-26 was for R&D operations?**

$Bil.	Mil.	Thou.

2-28 – **2-31** **Not applicable to this form**

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.

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.

Foreign-owned companies:
If your foreign owner pays or reimburses your company for R&D services, the costs for this R&D should be included in your responses in this section.

3-1 **What were your company's total worldwide costs (both direct and indirect) in 2009 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. Collaborative research and development that was reimbursed by business partners, such as through cost-sharing agreements			
b. R&D paid for by government or private foundation grants			
c. Defense R&D services provided to the government and/or government contractors			
d. Medical nonclinical R&D services provided to others not owned by your company			
e. Phase I-III medical clinical trial services provided to others not owned by your company (include pass-through costs)			
f. Non-defense custom software development and/or computer systems design for others not owned by your company			
g. Developing, producing, and testing prototypes of customer's products prior to their introduction to the market (excluding defense-related prototyping reported in line c)			
h. All other R&D services provided to others not owned by your company			
i. **Total**			

Exclude:
- Software development that does not depend on a scientific or technological advance such as adding functionality to existing application programs, debugging systems, and adapting existing software

3-2 **Copy the amount from Question 3-1, line i. This is the total R&D paid for by others in 2009.**

$Bil.	Mil.	Thou.

3-3 **Was the amount entered in Question 3-2 greater than zero?**

☐ Yes ➔ **Continue with Question 3-5**

☐ No ➔ **Skip to Section 4 on page 18**

R&D paid for by others

3-4 **Not applicable to this form**

3-5 **Of the amount reported in Question 3-2, what costs were incurred by your company in the following countries?**

	$Bil.	Mil.	Thou.
a. Domestic U.S.			
b. All other countries (including Puerto Rico)			
c. **Total** (equals Question 3-2)			

3-6 **Copy the amount from Question 3-5, line a. This is the total domestic R&D paid for by others in 2009.**

$Bil.	Mil.	Thou.

3-7 **Copy the amount from Question 3-5, line b. This is the total foreign R&D paid for by others in 2009.**

$Bil.	Mil.	Thou.

3-8 **How much of the (1) domestic, (2) foreign, and (3) total worldwide R&D paid for by others in 2009 was for each of the following types of costs?**

	(1) Domestic $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.
a. Salaries, wages and fringe benefits			
c. Temporary staffing including on-site consultants			
h. Payments to business partners for collaborative R&D			
i. Purchased R&D services			
l. All other costs			
m. **Total**			
	Total equals Question 3-6	*Total equals Question 3-7*	*Total equals Question 3-2*

3-9 **Add 3-8, 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 $Bil. Mil. Thou.	(2) Foreign $Bil. Mil. Thou.	(3) Total Worldwide $Bil. Mil. Thou.

3-10 – 3-12 **Not applicable to this form**

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

3-13 **Subtract 3-9, column 1, from 3-6 and enter the result here. This is the domestic R&D performed by your company that was paid for by others.**

$Bil. Mil. Thou.

3-14 **Not applicable to this form**

3-15 **How much of the amount reported in Question 3-13 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. develops guidance systems 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 c because the Dept. of Defense was the original source of funds.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States			
b. Other companies located outside the United States			
c. U.S. federal government agencies or laboratories			
d. U.S. state government agencies or laboratories			
e. Foreign government agencies or laboratories			
f. All other organizations inside the United States			
g. All other organizations located outside the United States			
h. **Total** (equals Question 3-13)			

3-16 – **3-17** **Not applicable to this form**

3-18 **Copy the amount from Question 3-15, line c. This is domestic R&D performed by your company that was paid for by the U.S. federal government.**

$Bil.	Mil.	Thou.

3-19 **How much of the amount reported in Question 3-18 was paid for by the following agencies?**

	$Bil.	Mil.	Thou.
a. Department of Defense			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. All other			
f. **Total** (equals Question 3-18)			

3-20 **Subtract 3-18 from 3-13 and enter the result here. This is the domestic R&D performed by your company that was paid for by nonfederal sources.**

$Bil.	Mil.	Thou.

3-21 **In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D paid for by others in 2009?**

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 3-18
(2) Domestic R&D paid for by nonfederal sources reported in Question 3-20
(3) Total domestic R&D performed by your company that was paid for by others reported in Question 3-13

(1) Federal			(2) Nonfederal			(3) Total		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

Projected R&D paid for by others in 2010

3-22 **What are your company's projected 2010 costs for R&D that will be paid for by others?**

NOTE: This question is the 2010 projection for what is reported in Question 3-2.

$Bil. Mil. Thou.

3-23 **How much of the projected costs in 2010 for R&D that will be paid for by others reported in Question 3-22 will be performed by your company in the United States?**

NOTE: This question is the 2010 projection for what is reported in Question 3-13.

$Bil. Mil. Thou.

3-24 **How much of the projected costs in 2010 for domestic R&D performed by your company that will be paid for by others reported in Question 3-23 will be paid for by the U.S. federal government?**

NOTE: This question is the 2010 projection for what is reported in Question 3-18.

$Bil. Mil. Thou.

3-25 – 3-27 **Not applicable to this form**

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.

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 total worldwide 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 2009.**

$Bil. Mil. Thou.

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

☐ Yes ➔ **Continue with Question 4-6**

☐ No ➔ **Skip to Section 5 on page 23**

4-3 – **4-5** **Not applicable to this form**

4-6 **What percentage of the amount reported in Question 4-1 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?**

Exclude
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates.

Example: In 2009 Company B used a portion of its R&D to explore the potential use of a new heat-conducting material in its cookware products. Because this technology had not been used previously in the cookware industry, Company B should include that R&D in this question.

%

4-7 **What percentage of the amount reported in Question 4-1 was for R&D agreements?**

R&D agreements involve two or more parties pooling resources and expertise to undertake R&D and share in any resulting intellectual property. R&D agreements involve shared risk and shared reward.

%

4-8 – **4-14** **Not applicable to this form**

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

4-15 **Copy the amount from Question 2-16. This is the domestic R&D paid for and performed by your company in 2009.**

$Bil. Mil. Thou.

4-16 How much of the amount reported in Question 4-15 was for the following categories?

	$Bil.	Mil.	Thou.
a. Research—planned, systematic pursuit of new knowledge or understanding			
b. Development—systematic use of research and practical experience to produce new or significantly improved goods, services, or processes			
c. **Total** (equals Question 4-15)			

4-17 If you reported any research in Question 4-16, line a, how much of that research was for the following categories?

	$Bil.	Mil.	Thou.
a. Applied research—activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research—activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use			
c. **Total** (equals Question 4-16, line a)			

Areas of application for domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-18 to 4-22.

4-18 What percentage of the amount reported in Question 4-15 had defense applications, including military applications and general security-related R&D? %

4-19 What percentage of the amount reported in Question 4-15 had health or medical applications? %

4-20 What percentage of the amount reported in Question 4-15 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 2009, 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. %

4-21 What percentage of the amount reported in Question 4-15 had environmental protection applications, including pollution abatement R&D? %

4-22 What percentage of the amount reported in Question 4-15 had agricultural applications? %

Technology focus of domestic R&D paid for and performed by your company

NOTE: You may report the same R&D in multiple areas for Questions 4-23 to 4-31.

4-23 **What percentage of the amount reported in Question 4-15 was for software products?** ___ %

4-24 **What percentage of the amount reported in Question 4-15 was for software embedded in other projects or products?** ___ %

4-25 – **4-28** **Not applicable to this form**

4-29 **What percentage of the amount reported in Question 4-15 was for biotechnology—the use of cellular and bio-molecular processes to solve problems or make useful products?** ___ %

4-30 **What percentage of the amount reported in Question 4-15 was for nanotechnology—the science and technology involving work at the nanometer scale?** ___ %

4-31 **What percentage of the amount reported in Question 4-15 was for social sciences—the application of scientific methods to the study of human aspects of the world, including such disciplines as economics and psychology?** ___ %

4-32 – **4-36** **Not applicable to this form**

Activities with academia

4-37 **Did your company perform any of the following activities with universities, students, or academic faculty in 2009?**

a. Hired academic consultants for short-term projects in science and engineering . . . . . ☐ Yes ☐ No

b. Hosted student interns pursuing undergraduate or graduate degrees in science or engineering for at least one month. . . . . ☐ Yes ☐ No

c. Hosted post-doctoral fellows in science or engineering for at least one month . . . . . ☐ Yes ☐ No

d. Had scientists or engineers from your company who served as visiting scientists or engineers at a college or university for at least one month. . . . . ☐ Yes ☐ No

e. Made monetary gifts to universities or colleges that were restricted to supporting R&D . . . . . ☐ Yes ☐ No

Company characteristics

4-38 Were the following statements true for your company in 2009?

a. This company has been in business for less than 5 years as of December 31, 2009 . . . . . ☐ Yes ☐ No

b. This company's primary mission in 2009 was to commercialize science/technology discovered or developed by academic researchers. . ☐ Yes ☐ No

c. This company received venture capital funding in 2009 . . . . . ☐ Yes ☐ No

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

4-39 Copy the amount from Question 3-9. This is the domestic R&D performed by your company that was paid for by others.

$Bil.	Mil.	Thou.

4-40 Was the amount entered in Question 4-39 greater than zero?

☐ Yes ➔ **Continue with Question 4-41**

☐ No ➔ **Skip to Section 5 on page 23**

4-41 How much of the amount reported in Question 4-39 was for the following categories?

	$Bil.	Mil.	Thou.
a. Research—planned, systematic pursuit of new knowledge or understanding			
b. Development—systematic use of research and practical experience to produce new or significantly improved goods, services, or processes.			
c. **Total** (equals Question 4-39)			

4-42 If you reported any research in Question 4-41, line a, how much of that research was for the following categories?

	$Bil.	Mil.	Thou.
a. Applied research—activity aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research—activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.			
c. **Total** (equals Question 4-41, line a)			

4-43 – 4-44 Not applicable to this form

NOTE: You may report the same R&D in multiple areas for Questions 4-45 to 4-49.

4-45 **What percentage of the amount reported in Question 4-39 had defense applications, including military applications and general security-related R&D?** ___ %

4-46 **What percentage of the amount reported in Question 4-39 had health or medical applications?** ___ %

4-47 **What percentage of the amount reported in Question 4-39 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?** ___ %

4-48 **What percentage of the amount reported in Question 4-39 had environmental protection applications, including pollution abatement R&D?** ___ %

4-49 **What percentage of the amount reported in Question 4-39 had agricultural applications?** ___ %

4-50 – **4-57** **Not applicable to this form**

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.

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.

5-1 What was the total number of worldwide employees working at your company for the pay period that included March 12, 2009?

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 R&D employees?

Include:
- All employees who work on R&D or who provide direct support to R&D
- Both employees working on R&D that is paid for by your company as well as employees working on R&D that is paid for by others

Exclude:
- Employees who provide indirect support to R&D, such as corporate personnel security guards, and cafeteria workers

Number

5-3 – 5-5 Not applicable to this form

Domestic R&D employees

5-6 How many of the employees reported in Question 5-1 were employees of your company's domestic operations?

Include:
- All employees whose payroll was reported on IRS Form 941, Employer's Quarterly Federal Tax Return
- Both employees working on R&D that is paid for by your company as well as employees working on R&D that is paid for by others

Number

5-7 How many of the employees reported in Question 5-6 were R&D employees?

Include:
- All employees who work on R&D or who provide direct support to R&D
- Both employees working on R&D that is paid for by your company as well as employees working on R&D that is paid for by others

Exclude:
- Employees who provide indirect support to R&D, such as corporate personnel or security guards, and cafeteria workers

Number

5-8 **How many of the employees reported in Question 5-7 were (1) female employees, (2) male employees, and (3) total employees, working in the occupations listed below?**

	(1) Female Employees	(2) Male Employees	(3) Total Employees
a. Engineers and their managers			
b. Scientists and their managers (not already reported in line a)			
c. Technicians and technologists.			
d. Support staff (clerical and other).			
e. **Total domestic R&D employees**.			
			Total equals Question 5-7

5-9 **Add lines a and b from Question 5-8, column 3. This is the number of domestic R&D scientists and engineers and their managers in 2009.**

Number

5-10 **How many of the employees reported in Question 5-9 had the following level of education?**

Note: Report using the highest degree attained by each employee.

	Number
a. PhD (excluding MD, JD, and EdD)	
b. Other college degrees	
c. All other.	
d. **Total**.	
	Total equals Question 5-9

5-11 **Not applicable to this form**

Full-time equivalents (FTEs)

5-12 What was the number of domestic full-time equivalent (FTE) scientists and engineers engaged in R&D activities for the pay period that included March 12, 2009?

Full-time equivalents account for R&D scientists and engineers who do not work full-time and R&D scientists and engineers who do not work on R&D activities full-time. For example, a scientist or engineer who works half-time would be counted as one employee on a headcount basis but as one-half (½) an FTE employee. Similarly, a full-time employee who devotes 25% of their time to R&D would be counted as one quarter (¼) an R&D FTE employee. The number of FTEs and the headcount may differ for your company.

Number

5-13 How many FTEs reported in question 5-12 were engaged in R&D activities funded by U.S. federal government grants or contracts for the pay period that included March 12, 2009?

Number

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 intellectual property related activities.

What does this section cover?
This section requests information about intellectual property and technology transfer activities such as:
- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property

Are responses to this survey confidential?
Yes. Your responses are completely confidential under Title 13, United States Code, and are seen only by persons sworn to uphold the confidentiality of Census Bureau information. Data provided will be used only to publish summary statistics that do not identify individual companies. Title 13 also provides that copies of reports retained in your files are immune from legal process. In addition, reported data are exempt from requests made under the Freedom of Information Act.

Patents

6-1 **How many patents did your company apply for in 2009 from the U.S. Patent and Trademark Office (USPTO)?** — Number

6-2 **What percentage of the patent applications reported in Question 6-1 has your company applied for or plans to apply for in foreign jurisdictions?** — %

6-3 **What percentage of the patent applications reported in Question 6-1 was for inventions that originated within your company's organized R&D activities?** — %

6-4 **How many patents were issued to your company in 2009 by the USPTO?** — Number

6-5 **What percentage of your company's inventions considered for patenting in 2009 resulted in patent applications?** — %

Patent licensing

6-6 **What was the amount of your company's patent licensing revenue in 2009?**

$Bil. Mil. Thou.

6-7 **How many new agreements did your company enter into during 2009 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 2009?**

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–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 2009, how important to your company were the following types of intellectual property protection?

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance)	☐	☐	☐
c. Trademarks	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

6-10 – 6-12 Not applicable to this form

Reporting information

7-1 Is the information in this section reported for the 2009 calendar year?

☐ Yes

☐ No → **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

7-2 Approximately how long did it take to complete this survey?

Hours : Minutes

7-3 Please list the names and titles of the persons who provided data for this survey.

Name	Title

Business codes
(used in Sections 1, 2, and 3)

Aerospace & Defense

33641 Aircraft manufacturing
33642 Aircraft engine and engine parts manufacturing
33643 Other aircraft parts and auxiliary equipment manufacturing
33644 Guided missiles, space vehicles, and parts manufacturing
32602 Inflatable plastic boats manufacturing
32603 Inflatable rubber boats manufacturing
33692 Military armored vehicle, tank, and tank components manufacturing
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33661 Ship and boat building

Automobiles, Motorcycles, & Components

33610 Motor vehicles manufacturing
33620 Motor vehicle body and trailer manufacturing
33630 Motor vehicle parts manufacturing
33691 Motorcycle, bicycle, and parts manufacturing
33699 All other transportation equipment manufacturing

Capital Goods

33430 Audio and video equipment manufacturing
33332 Commercial, service industry, temperature control, and airflow control machinery manufacturing
33312 Construction machinery manufacturing
23600 Construction of buildings
33360 Engine, turbine, and power transmission equipment manufacturing
33200 Fabricated metal products manufacturing
33311 Farm machinery and equipment manufacturing
23700 Heavy and civil engineering construction
33322 Industrial machinery manufacturing, except semiconductor machinery
33390 Metalworking and other general purpose machinery manufacturing
33313 Mining machinery and equipment manufacturing
33331 Photographic and photocopying equipment manufacturing
33651 Railroad rolling stock manufacturing
33661 Ship and boat building
23800 Specialty trade contractors

Commercial and Professional Services (including contract research)

54120 Accounting, tax preparation, bookkeeping, and payroll services
54180 Advertising and related services
54130 Architectural, engineering, and related services
56140 Business support services
53240 Commercial and industrial machinery and equipment rental and leasing
54162 Executive search consulting services
54110 Legal services
54161 Management, scientific, and technical consulting services (except executive search consulting services)
56191 Office administrative, facilities, employment, and other support services
32300 Printing and related support activities
56290 Remediation and other waste management services
54173 Research & development services in biotechnology
54174 Research & development services in physical, engineering, and life sciences (except biotechnology)
54172 Research & development services in social sciences and humanities
54140 Specialized design services
56150 Travel arrangement and reservation services
56210 Waste collection, treatment, and disposal

Consumer Goods & Services

71300 Amusement, gambling, and recreation industries
31501 Apparel manufacturing (except embroidery contractors)
33430 Audio and video equipment manufacturing
81110 Automotive repair and maintenance
31210 Beverage manufacturing
51520 Cable and other subscription programming (except Internet)
62440 Child day care services
44800 Clothing and clothing accessories stores
23600 Construction of buildings
53220 Consumer goods and general rental centers
61100 Educational services
33500 Electrical equipment, appliances, and components manufacturing
45410 Electronic shopping and mail-order houses
44300 Electronics and appliance stores
31502 Embroidery contractors
44500 Food and beverage stores
31100 Food manufacturing
72200 Food services and drinking places
33700 Furniture and related products manufacturing
45200 General merchandise stores
32602 Inflatable plastic boats manufacturing
32603 Inflatable rubber boats manufacturing
51600 Internet publishing and broadcasting
56160 Investigation, security, and services to buildings and dwellings
31600 Leather and allied products manufacturing
51200 Motion picture and sound recording (except Internet)
44100 Motor vehicle and parts dealers
51110 Newspaper, periodical, book, and directory publishers (except internet)
81200 Personal care, death care, laundry, and other personal services
33331 Photographic and photocopying equipment manufacturing
51510 Radio and television broadcasting (except Internet)
81190 Repair and maintenance, except automotive
32591 Soap, cleaning compound, and toilet preparations manufacturing
62400 Social assistance (except child day care services)
31301 Textile mill products
31302 Textile product mills
31220 Tobacco manufacturing
56150 Travel arrangement and reservation services
72100 Traveler accommodation service

Energy

21210 Coal mining
22110 Electric power generation, transmission, and distribution
21100 Oil and gas extraction
33314 Oil and gas field machinery and equipment manufacturing
32400 Petroleum and coal products manufacturing
48610 Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas
48620 Pipeline transportation of natural gas
21320 Support activities for oil and gas operations
21310 Support activities for solid mineral operations

Financials

52230 Activities related to credit intermediation
52420 Agencies, brokerages, and other insurance related activities
52210 Depository credit intermediation
52501 Funds, trusts, and other financial vehicles (except REITs leasing real estate properties or underwriting or investing in mortgages)
52410 Insurance carriers
52100 Monetary authorities-central bank
52220 Nondepository credit intermediation
53100 Real estate
52502 REIT, hybrid or equity, primarily leasing residential buildings and dwellings
52503 REIT, hybrid or equity, primarily leasing nonresidential buildings
52504 REIT, hybrid or equity, primarily leasing miniwarehouses or self-storage units
52505 REIT, hybrid or equity, primarily leasing other real estate property (Not listed elsewhere)
52506 REIT, hybrid or equity, primarily underwriting or investing in mortgages
52300 Securities, commodity contracts, and other financial investments and related activities

Health Care

33451 Electromedical, electrotherapeutic and irradiation apparatus manufacturing
62210 General medical and surgical hospitals
62160 Home health care services
32542 In-vitro diagnostic substances manufacturing
33912 Laboratory distilling equipment manufacturing
33913 Laboratory freezer manufacturing
33914 Laboratory furnaces and ovens manufacturing
33915 Laboratory scales and balances manufacturing
33916 Laboratory centrifuges
33917 Laboratory furniture
33918 Laboratory apparatus (Not listed elsewhere)
62150 Medical and diagnostic laboratories
33911 Medical equipment and supplies manufacturing (except laboratory apparatus)
62300 Nursing and residential care facilities
62120 Offices of dentists and other health practitioners
62110 Offices of physicians
62190 Outpatient care centers and other ambulatory health care services
32541 Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
62220 Psychiatric, substance abuse, and specialty hospitals
54173 Research & development services in biotechnology
54174 Research & development services in physical, engineering, and life sciences (except biotechnology)

Information Technology - Goods and Services

51812 Broadband internet service providers (e.g., cable, DSL)
33429 Communication equipment manufacturing, except broadcasting, wireless, and telephone apparatus
33424 Communications signal testing and evaluation equipment manufacturing
54150 Computer systems design and related services
33410 Computers and peripheral equipment manufacturing
51820 Data processing, hosting, and related services
33500 Electrical equipment, appliances, and components manufacturing
51900 Information services (Not listed elsewhere)
51813 Internet service providers using client-supplied telecommunications connections (e.g., dial-up, ISPs)
51600 Internet publishing and broadcasting
33460 Manufacturing and reproducing magnetic and optical media manufacturing
33459 Measuring and control instruments manufacturing (Not listed elsewhere)
33423 Radio and television broadcasting and wireless communications equipment manufacturing (except signal testing and evaluation equipment manufacturing)
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33440 Semiconductor and other electronic components manufacturing
33321 Semiconductor machinery manufacturing
51120 Software publishers (except Internet)
33421 Telephone apparatus manufacturing
51811 Web search portals

Materials

32510 Basic chemicals manufacturing
32790 Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing
32710 Clay and glass products manufacturing
33150 Ferrous and nonferrous foundries
33110 Iron and steel mills, ferroalloy, and steel product from purchased steel
21220 Metal ore mining
33130 Nonferrous metals production and processing
21230 Nonmetallic mineral mining and quarrying
32592 Paint, adhesive, and other chemical manufacturing
32200 Paper manufacturing
32530 Pesticide, fertilizer, and other agricultural chemical manufacturing
32601 Plastics and rubber products manufacturing (except inflatable boats and rubber tubing for mechanical use)
32520 Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing
32604 Rubber tubing for mechanical use manufacturing
32591 Soap, cleaning compound, and toilet preparations manufacturing
21320 Support activities for oil and gas operations

21310	Support activities for solid mineral operations
32100	Wood products manufacturing

Telecommunication Services

51750	Cable and other program distribution
51740	Satellite telecommunications
51730	Telecommunications resellers
51790	Telecommunications services (Not listed elsewhere)
51710	Wired telecommunications carriers (except cable and broadband internet)
51720	Wireless telecommunications carriers (except satellite)

Transportation

48100	Air transportation
53210	Automotive equipment rental and leasing
49200	Couriers and messengers
48200	Rail transportation
48700	Scenic and sightseeing transportation
48800	Support activities for transportation
48500	Transit and ground passenger transportation
48400	Truck transportation
49300	Warehousing and storage
48300	Water transportation

Utilities

22110	Electric power generation, transmission, and distribution
22120	Natural gas distribution
56290	Remediation and other waste management services
56210	Waste collection, treatment, and disposal
22130	Water, sewage, and other systems

Business Codes Not Elsewhere Classified

81390	Business, professional, labor, political, and similar organizations
53300	Lessors of nonfinancial intangible assets
55100	Management of companies and enterprises
42300	Merchant wholesalers, durable goods
42400	Merchant wholesalers, nondurable goods
33990	Miscellaneous manufacturing (not listed elsewhere)
71200	Museums, historical sites, and similar institutions
45490	Nonstore retailers, except electronic shopping and mail-order houses
71100	Performing arts, spectator sports, and related industries
54190	Professional, scientific, and technical services (not listed elsewhere)
81310	Religious, grantmaking, social advocacy, civic, and social organizations
45990	Retail trade stores, including gasoline stations (not listed elsewhere)
42500	Wholesale electronic markets and agents and brokers

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 12 hours to complete this form, with 6.9 hours being the average. This includes time to read instructions, develop or assemble material, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912,
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2009 Business R&D and Innovation Survey** ~

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

11018017

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

FORM
BRDI-1 (12-17-2008) Draft 18

2008 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report electronically:
www.census.gov/econhelp/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:

- www.census.gov/econhelp/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.

Thank You – Your Response is Important

The Business R&D and Innovation Survey will provide valuable information for U.S. policy makers as well as industry and academic data users. Better information about R&D and innovation in the U.S. business sector will help leaders make better decisions to strengthen American competitiveness.

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

What does this survey ask?

This survey asks questions about your company's **R&D expenses** as well as R&D that is paid for by customers, the government, and other organizations that are not owned by your company (**funded R&D**). This survey also requests data on your company's R&D employees and intellectual property.

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

Section 1: Company Information p.3

- Asks for information about your company's ownership, business(es), and revenue
- All companies must complete this section to determine whether they are required to complete the rest of the survey

Section 2: R&D Paid for by Your Company (R&D Expense) p.11

- Asks for information about your company's R&D expense and capital expenditures for R&D
- Best answered by persons with knowledge of your company's accounting concepts and with access to financial records

Section 3: Management and Strategy of R&D Expense p.21

- Asks for strategic and technical information about your company's R&D expense reported in Section 2
- Best answered by persons with first-hand knowledge of R&D operations, such as a VP of research

Section 4: R&D Funded or Paid for by Others p.29

- Asks for information about R&D that is paid for by others, such as that paid for by customers or partners
- Best answered by persons with knowledge of your company's financial records related to contracts and grants

Section 5: R&D Human Resources p.43

- Asks for information about your company's R&D employees
- Best answered by persons with knowledge of your company's human resources records

Section 6: Intellectual Property, Technology Transfer, and Innovation p.49

- Asks for information about intellectual property, patents, technology transfer activities such as patent licensing, and actions taken to improve company performance
- Best answered by persons with knowledge of your company's patenting, licensing, and general business strategy

Are electronic copies of this survey form available?

You can download PDF copies of this survey from our website: **www.census.gov/econhelp/brdis**. Downloaded forms are for coordination purposes only and should not be returned to the Census Bureau because they lack the unique barcodes that appear on the form that was mailed to your company.

SECTION 1

Company Information

General Instructions

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. It includes 1) activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use (basic research); 2) activity 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).

The term Research and Development 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

Can I file this survey electronically?

Yes. You may submit your report by mail or electronically via Census Taker, a web-based form.

How to file electronically

(1) Go to **www.census.gov/econhelp/brdis**
(2) Click on Report Online
(3) Follow the online instructions to log in and respond to this survey

Advantages

- Reduced time and expense to report
- Improved quality through automatic data checks
- Data are saved to secure Census Bureau servers as you complete the form. You can exit the form and resume at a later time without losing your data.
- Save a paper or electronic version of your completed form

Security

- Your information is encrypted at all times
- No cookies are used
- No plug-ins or downloaded software is required

How do I obtain additional information?

Our website **www.census.gov/econhelp/brdis** has the following information:

- More detailed general information about the Business R&D and Innovation Survey
- Frequently asked questions
- Sample questionnaires
- Worksheets for each section in a format that can be saved and emailed

How do I obtain copies of the final data reports?

Data from this survey, as well as other sources of information on science and technology, are available at the National Science Foundation's website: www.nsf.gov/statistics/.

How should dollar amounts be reported?

Report all dollar amounts rounded to the nearest thousand.

	$Bil.	Mil.	Thou.
Example: If figure is $179,125,628.00 report:		1 7 9	1 2 6

To speak with a survey analyst, call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)

1•1 **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, but he or she will be able to request information from other knowledgeable resources within your company. The survey coordinator may be assigned by your company's CEO or another person with oversight of or access to your company's R&D, accounting, human resources, and legal organizations.

Name

Title

Telephone — Area code — Number — Extension

Fax — Area code — Number

E-mail address

1•2 **Did your company cease operations prior to April 1, 2008?**

☐ Yes ➔ **Stop here and return the survey form to the U.S. Census Bureau.** Alternatively, you may report online at: www.census.gov/econhelp/brdis.

☐ No ➔ **Continue with Question 1•3**

1•3 **Did another U.S. company own more than 50 percent of your company during 2008?**

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

Name of owner

EIN of owner (9 digits)

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

If your company was purchased before April 1, 2008, stop here. Return this survey to the U.S. Census Bureau or report online at: www.census.gov/econhelp/brdis.

☐ No ➔ **Continue with Question 1•4**

1•4 **Did your company do any of the following during 2008?**

- Incur R&D expenses OR
- Perform R&D that was funded or paid for by others not owned by your company, such as:
  - R&D performed under contract for another company
  - R&D funded by a government grant

☐ Yes ➔ **Complete the rest of this survey beginning with Question 1•5**

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

☐ No ➔ **Skip to Section 6, page 49**

Business Codes

1•5 **Do the business code(s) listed below reflect all applicable codes from the list on pages 8-9 in which your company operated worldwide during 2008?**

Why are these codes needed?
The codes below are needed to report your sales for Question 1·8. They are also used in Section 2 and Section 4 to collect R&D information.

How did we decide on these codes for your company?
We selected the codes using payroll and receipts data contained in our database for your company's domestic establishments and research on your company's global businesses. The codes and descriptions are based on groups of industries from the North American Industry Classification System (NAICS) selected specifically for this form.

NOTE: If you have no business codes printed below, please refer to the list on pages 8-9 and write in the codes that apply to your company.

☐ Yes ➔ **Continue with Question 1•6**

☐ No ➔ **Draw a line through codes that are incorrect. As needed, enter additional codes and descriptions from pages 8 and 9 in the spaces provided.**

Business Code (see pages 8-9)	Description

1•6 **What was the amount of your company's worldwide net sales and operating revenues–the value of goods and services sold during the year, net of discounts, returns, and allowances– during 2008?**

Include:
- Sales and operating revenues for discontinued operations

Exclude:
- Non-operating income (i.e. dividends, interest)
- Excise, sales, and other revenue based taxes

$Bil.	Mil.	Thou.

1•7 **How much of the 2008 worldwide net sales and operating revenues reported in Question 1•6 was from domestic operations?**

Include:
- Operating revenues and sales to foreign subsidiaries

$Bil.	Mil.	Thou.

1•8 **How much of the 2008 sales and operating revenue amounts was for each business code listed or amended on page 6 of this form:**
(1) Worldwide net sales and operating revenues reported in Question 1•6
(2) Domestic net sales and operating revenues reported in Question 1•7

	Business Code (see page 6)	(1) Worldwide sales and revenues			(2) Domestic sales and revenues		
		$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.	Less eliminations–sales and revenues that are eliminated in order to consolidate the business codes						
j.	**Total**						
		Total equals Question 1·6			*Total equals Question 1·7*		

1•9 **Approximately how long did it take to complete Section 1?**

Hours

Business codes
(used in Sections 1, 2, and 4)

Aerospace & Defense

33641 Aircraft manufacturing
33642 Aircraft engine and engine parts manufacturing
33643 Other aircraft parts and auxiliary equipment manufacturing
33644 Guided missiles, space vehicles, and parts manufacturing
33692 Military armored vehicle, tank, and tank components manufacturing
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33660 Ship and boat building

Automobiles, Motorcycles, & Components

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33620 Motor vehicle body and trailer manufacturing
33630 Motor vehicle parts manufacturing
33691 Motorcycle, bicycle, and parts manufacturing
33699 All other transportation equipment manufacturing

Capital Goods

33430 Audio and video equipment manufacturing
33330 Commercial, service industry, temperature control, and airflow control machinery manufacturing
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23600 Construction of buildings
33360 Engine, turbine, and power transmission equipment manufacturing
33200 Fabricated metal products manufacturing
33311 Farm machinery and equipment manufacturing
23700 Heavy and civil engineering construction
33322 Industrial machinery manufacturing, except semiconductor machinery
33390 Metalworking and other general purpose machinery manufacturing
33313 Mining machinery and equipment manufacturing
33651 Railroad rolling stock manufacturing
33660 Ship and boat building
23800 Specialty trade contractors

Commercial and Professional Services (including contract research)

54120 Accounting, tax preparation, bookkeeping, and payroll services
54180 Advertising and related services
54130 Architectural, engineering, and related services
56140 Business support services
53240 Commercial and industrial machinery and equipment rental and leasing
54110 Legal services
54160 Management, scientific, and technical consulting services
56190 Office administrative, facilities, employment, and other support services
32300 Printing and related support activities
56290 Remediation and other waste management services
54170 Research & development services
54140 Specialized design services
56150 Travel arrangement and reservation services

Consumer Goods & Services

71300 Amusement, gambling, and recreation industries
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51200 Motion picture and sound recording (except Internet)
44100 Motor vehicle and parts dealers
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81200 Personal care, death care, laundry, and other personal services
51510 Radio and television broadcasting (except Internet)
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62400 Social assistance (except child day care services)
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31220 Tobacco manufacturing
72100 Traveler accommodation services

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22110 Electric power generation, transmission, and distribution
21100 Oil and gas extraction
33313 Oil and gas field machinery and equipment manufacturing
32400 Petroleum and coal products manufacturing
48610 Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas
56150 Travel arrangement and reservation services

Financials

52230 Activities related to credit intermediation
52420 Agencies, brokerages, and other insurance related activities
52210 Depository credit intermediation
52500 Funds, trusts, and other financial vehicles
52410 Insurance carriers
52100 Monetary authorities-central bank
52220 Nondepository credit intermediation

53100 Real estate
52300 Securities, commodity contracts, and other financial investments and related activities

Health Care

33451 Electromedical, electrotherapeutic and irradiation apparatus manufacturing
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62160 Home health care services
32543 In-vitro diagnostic substances manufacturing
62150 Medical and diagnostic laboratories
33910 Medical equipment and supplies manufacturing
62300 Nursing and residential care facilities
62120 Offices of dentists and other health practitioners
62110 Offices of physicians
62190 Outpatient care centers and other ambulatory health care services
32541 Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
62220 Psychiatric, substance abuse, and specialty hospitals
54170 Research & development services

Information Technology - Goods and Services

33429 Communication equipment manufacturing, except broadcasting, wireless, and telephone apparatus
54150 Computer systems design and related services
33410 Computers and peripheral equipment manufacturing
51820 Data processing, hosting, and related services
33500 Electrical equipment, appliances, and components manufacturing
51900 Information services (not elsewhere listed in this category)
51810 Internet service providers and web search portals
33460 Manufacturing and reproducing magnetic and optical media manufacturing
33459 Measuring and control instruments manufacturing (not listed elsewhere in this category)
33422 Radio and television broadcasting and wireless communications equipment manufacturing
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33440 Semiconductor and other electronic components manufacturing
33321 Semiconductor machinery manufacturing
51120 Software
33421 Telephone apparatus manufacturing

Materials

32511 Basic chemicals manufacturing
32790 Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing
32710 Clay and glass products manufacturing
33150 Ferrous and nonferrous foundries
33110 Iron and steel mills, ferroalloy, and steel product from purchased steel
21220 Metal ore mining
33130 Nonferrous metals production and processing
21230 Nonmetallic mineral mining and quarrying
32592 Paint, adhesive, and other chemical manufacturing
32200 Paper manufacturing
32530 Pesticide, fertilizer, and other agricultural chemical manufacturing
32600 Plastics and rubber products manufacturing
32512 Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing
32591 Soap, cleaning compound, and toilet preparations manufacturing
21310 Support activities for solid mineral operations
32100 Wood products manufacturing

Telecommunication Service

51750 Cable and other program distribution
51740 Satellite telecommunications
51710 Wired telecommunications carriers
51720 Wireless telecommunications carriers (except satellite)
51790 Telecommunications services (not listed elsewhere)

Transportation

48100 Air transportation
53210 Automotive equipment rental and leasing
49200 Couriers and messengers
48200 Rail transportation
48700 Scenic and sightseeing transportation
48800 Support activities for transportation
48500 Transit and ground passenger transportation
48400 Truck transportation
49300 Warehousing and storage
48300 Water transportation

Utilities

22110 Electric power generation, transmission, and distribution
22120 Natural gas distribution
56290 Remediation and other waste management services
56210 Waste collection, treatment, and disposal
22130 Water, sewage, and other systems

Business Codes Not Elsewhere Classified

53300 Lessors of nonfinancial intangible assets
55100 Management of companies and enterprises
42300 Merchant wholesalers, durable goods
42400 Merchant wholesalers, nondurable goods
33990 Miscellaneous manufacturing (not listed elsewhere)
71200 Museums, historical sites, and similar institutions
45490 Nonstore retailers, except electronic shopping and mail-order houses
71100 Performing arts, spectator sports, and related industries
54190 Professional, scientific, and technical services (not listed elsewhere)
45990 Retail trade stores, including gasoline stations (not listed elsewhere)
42500 Wholesale electronic markets and agents and brokers

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SECTION 2

R&D Paid for by Your Company (R&D Expense)

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.

SECTION 2

SECTION 2 – R&D Paid for by Your Company (R&D Expense)

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.

What is the reporting unit?

The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership. Also, include data for discontinued operations.

NOTE: If your company is owned by a non-U.S. company, do not include data for your foreign owner or for any other affiliated companies not owned by your company.

What does "R&D performed by your company" mean?

This section uses two different concepts to collect information about your company's R&D: an accounting concept, R&D expense, and a physical concept, R&D performed by your company. The amount of R&D reported using these two concepts may differ.

Report R&D expense according to accounting definitions used by your company. For more information refer to Financial Accounting Standards Board (FASB) Statement of Accounting Standards No. 2 (Accounting for Research and Development Costs). For this survey, report R&D expense even if the amount is not considered material to your company.

R&D performed by your company includes all costs for R&D performed by your company's full-time, part-time, and temporary employees. It excludes costs for R&D performed by others not owned by your company, such as contract research organizations, universities, and federal laboratories.

What do the terms "worldwide" and "domestic" mean?

The term "worldwide" refers to all geographic locations, including the United States. The term "domestic" refers to the 50 United States and the District of Columbia only.

How should dollar amounts be reported?

Report all dollar amounts rounded to the nearest thousand.

	$Bil.	Mil.	Thou.
Example: If figure is $179,125,628.00 report:		1 7 9	1 2 6

Are estimates acceptable?

Yes, estimates are acceptable. Please report all items to the best of your ability.

How should I answer a question that does not apply to my company?

Enter "0" if a question or category does not apply to your company.

What time period should be reported?

Report data for calendar year 2008, if possible, or for your company's fiscal year ending between April 2008 and March 2009.

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

To speak with a survey analyst, call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)

SECTION 2

2•1 **What was the total worldwide R&D expense for your company (including all domestic R&D expenses) in 2008?**

$Bil.	Mil.	Thou.

Include:
- R&D expenses for all foreign and domestic subsidiaries and divisions owned by your company
- R&D services purchased from others, including medical clinical trials
- R&D in social sciences–the application of scientific methods to the study of the human aspects of the world, including such disciplines as economics and psychology
- R&D expenses for discontinued operations

Exclude:
- R&D costs paid for by others not owned by your company (these costs are reported in Section 4), such as:
  - Costs for customer-sponsored R&D
  - Costs associated with contract services your company provides to others
  - Costs for R&D funded by government grants/contracts
  - Costs reimbursed by business partners, such as through cost-sharing agreements
- R&D costs paid for by your foreign owner, if your company is foreign-owned
- Capital expenditures for R&D (report domestic capital expenditures for R&D in Question 2·15)
- Market and advertising research
- R&D from acquired companies prior to acquisition (in-process R&D)
- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Independent research and development (IR&D) costs for which your company anticipates reimbursement by the U.S. federal government through indirect charges on government contracts (these costs are reported in Section 4)

2•2 **Was the amount entered in Question 2•1 greater than zero?**

☐ Yes → **Continue with Question 2•3**

☐ No → **Skip to Section 4**

2•3 **How much of the 2008 worldwide R&D expense reported in Question 2•1 was for R&D performed by your company and how much was for R&D performed by others not owned by your company?**

	$Bil.	Mil.	Thou.
a. R&D performed by your company.			
b. R&D performed by others not owned by your company, such as contract research organizations, universities, and government labs.			
c. **Total** (equals Question 2·1)			

Include:
- All costs for R&D performed by your company's full-time, part-time, and temporary employees

Include:
- If your company is foreign-owned, include your R&D expense that paid for R&D performed by your foreign owner

SECTION 2

2•4 **How much of the 2008 worldwide R&D expense reported in Question 2•1 was for gross annual payroll–wages and salaries of employees excluding the cost of fringe benefits?**

$Bil.	Mil.	Thou.

2•5 **How much of the worldwide R&D expense for R&D performed by others not owned by your company, reported in Question 2•3, line b, was performed by the following types of organizations?**

	$Bil.	Mil.	Thou.
a. Companies located inside the United States			
b. Companies located outside the United States			
c. U.S. federal government agencies or laboratories			
d. U.S. state and local government agencies or laboratories			
e. Foreign government agencies or laboratories			
f. Universities, colleges, and academic researchers (including principal investigators) located inside the United States			
g. Universities, colleges, and academic researchers (including principal investigators) located outside the United States			
h. All other organizations			
i. **Total R&D performed by others** (equals Question 2·3, line b)			

2•6 **How much of the R&D performed by your company in 2008 reported in Question 2•3, line a, was performed in the countries listed below?**

R&D performed by your company by country should reflect the actual location where your company performed R&D.

	$Bil.	Mil.	Thou.
a. United States (domestic)			
b. Puerto Rico			
c. Canada			
d. China			
e. France			
f. Germany			
g. India			
h. Ireland			
i. Israel			
j. Italy			
k. Japan			
l. Russia			
m. Singapore			
n. South Korea			

Question continues on next page

2•6 **(Continued)**

	$Bil.	Mil.	Thou.
o. Sweden			
p. United Kingdom			
q. All other			
r. **Total** (equals Question 2·3, line a)			

2•7 **How much of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was paid for by your company's foreign operations or foreign subsidiaries?**

$Bil.	Mil.	Thou.

2•8 **How much of the domestic R&D performed by your company reported in Question 2•6, line a, was for the following types of costs?**

	$Bil.	Mil.	Thou.
a. Gross annual payroll–wages and salaries of R&D employees and officers excluding fringe benefits			
b. Employer's cost for fringe benefits			
c. Stock-based compensation			
d. Temporary staffing and leased employees			
e. Expensed equipment			
f. Materials and supplies			
g. Lease and rental payments			
h. Depreciation and amortization on R&D property and equipment			
i. All other costs			
j. **Total** (equals Question 2·6, line a)			

Include:
- Disability benefits
- Life and medical insurance
- Paid holidays, time off benefits, vacation, annual, sick, and maternity leave
- Retirement benefits, pension, and social security contributions

Include:
- Costs paid to Professional Employer Organizations (PEOs) and staffing agencies for personnel
- All charges for payroll, benefits, and services

SECTION 2

SECTION 2

2•9 **How much of the domestic R&D performed by your company reported in Question 2•6, line a, was performed in each state (including the District of Columbia) in 2008?**

	$Bil.	Mil.	Thou.
Alabama			
Alaska			
Arizona			
Arkansas			
California			
Colorado			
Connecticut			
Delaware			
District of Columbia			
Florida			
Georgia			
Hawaii			
Idaho			
Illinois			
Indiana			
Iowa			
Kansas			
Kentucky			
Louisiana			
Maine			
Maryland			

	$Bil.	Mil.	Thou.
Massachusetts			
Michigan			
Minnesota			
Mississippi			
Missouri			
Montana			
Nebraska			
Nevada			
New Hampshire			
New Jersey			
New Mexico			
New York			
North Carolina			
North Dakota			
Ohio			
Oklahoma			
Oregon			
Pennsylvania			
Rhode Island			
South Carolina			
South Dakota			

Question continues on next page

2•9 **(Continued)**

	$Bil.	Mil.	Thou.		$Bil.	Mil.	Thou.
Tennessee				Washington			
Texas				West Virginia			
Utah				Wisconsin			
Vermont				Wyoming			
Virginia				**Total** (equals Question 2·6, line a)			

2•10 **At what domestic location did your company perform the largest dollar amount of R&D in 2008?**

Address 1

Address 2

City **State** **ZIP**

2•11 **How much of the domestic R&D performed by your company reported in Question 2•6, line a, was from the location identified in Question 2•10?**

$Bil.	Mil.	Thou.

SECTION 2

SECTION 2

R&D by business code

2•12 How much of the worldwide R&D expense reported in Question 2•1 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)	Worldwide R&D expense $Bil.	Mil.	Thou.
a.				
b.				
c.				
d.				
e.				
f.				
g.				
h.				
i.	**Total** (equals Question 2·1)			

2•13 How much of the worldwide R&D expense reported in Question 2•1 was a domestic R&D expense–R&D paid for by your company's domestic operations?

$Bil.	Mil.	Thou.

SECTION 2

2•14 **How much of the worldwide R&D expense for each business code reported in Question 2•12 was:**
(1) Domestic R&D expense reported in Question 2•13
(2) Domestic R&D performed by your company reported in Question 2•6, line a

	Business Code (see page 6)	(1) Domestic R&D expense			(2) Domestic R&D performed by your company		
		$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.	**Total**						
		Total equals Question 2·13			*Total equals Question 2·6, line a*		

2•15 **How much of your company's <u>domestic capital expenditures</u> in 2008 was for R&D operations?**

$Bil.	Mil.	Thou.

2•16 **How much of the <u>domestic capital expenditures</u> for R&D operations reported in Question 2•15 was for the following categories?**

	$Bil.	Mil.	Thou.
a. Structures			
b. Equipment			
c. Capitalized software			
d. All other capital expenditures for R&D operations			
e. **Total domestic capital expenditures for R&D** (equals Question 2·15)			

SECTION 2

2•17 What is your company's projected 2009 worldwide R&D expense for the following categories?

NOTE: The total for this question is the 2009 projection of what is reported in question 2·1.

	$Bil.	Mil.	Thou.
a. R&D performed by your company at domestic locations			
b. R&D performed by your company at foreign locations			
c. R&D performed by others not owned by your company, such as contract research organizations, universities, and government labs			
d. **Total projected worldwide R&D expense for 2009**			

Include:
- If your company is foreign-owned, include your R&D expense that paid for R&D performed by your foreign owner

Reporting information

2•18 Is the information in this section reported on a calendar year basis?

☐ Yes ➔ **Continue**

☐ No ➔ **Enter time period covered below:**

	(MM)	(YYYY)		(MM)	(YYYY)
From			To		

2•19 Approximately how long did it take to complete Section 2?

Hours

2•20 Please list the names and titles of the persons who provided data for this section.

Name	Title

SECTION 3

Management and Strategy of R&D Expense

Who should answer this section?

Persons familiar with the technical, managerial, and strategic aspects of your company's R&D should complete this section.

In order to complete this section, you will need to copy your company's answers from Questions 2·1, 2·4, and 2·6 in Section 2 to Questions 3·1, 3·2, and 3·3.

SECTION 3 – Management and Strategy of R&D Expense

What does this section cover?

This section requests information about the characteristics of the R&D expenses your company reported in Section 2. This section requests information about your company's worldwide consolidated R&D and R&D your company performs in the domestic United States. Similar information about R&D funded or paid for by others not owned by your company, such as costs for customer-sponsored R&D and R&D funded by government grants/contracts, is requested in Section 4.

What is the reporting unit?

The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership. Also, include data for discontinued operations.

NOTE: If your company is owned by a non-U.S. company, do not include data for your foreign owner or for any other affiliated companies not owned by your company.

What does "R&D performed by your company" mean?

This section uses two different concepts to collect information about your company's R&D: an accounting concept, R&D expense, and a physical concept, R&D performed by your company. The amount of R&D reported using these two concepts may differ.

R&D expense is based on accounting definitions used by your company. For more information refer to Financial Accounting Standards Board (FASB) Statement of Accounting Standards No. 2 (Accounting for Research and Development Costs). For this survey, report R&D expense even if the amount is not considered material to your company.

R&D performed by your company includes all costs for R&D performed by your company's full-time, part-time, and temporary employees. It excludes costs for R&D performed by others not owned by your company, such as contract research organizations, universities, and federal laboratories.

What do the terms "worldwide" and "domestic" mean?

The term "worldwide" refers to all geographic locations, including the United States. The term "domestic" refers to the 50 United States and the District of Columbia only.

How should dollar amounts be reported?

Report all dollar amounts rounded to the nearest thousand.

	$Bil.	Mil.	Thou.
Example: If figure is $179,125,628.00 report:		1 7 9	1 2 6

Are estimates acceptable?

Yes, estimates are acceptable. Please report all items to the best of your ability.

How should I answer a question that does not apply to my company?

Enter "0" if a question or category does not apply to your company.

What time period should be reported?

Report data for calendar year 2008, if possible, or for your company's fiscal year ending between April 2008 and March 2009.

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

To speak with a survey analyst, call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)

3•1 **Copy the amount reported in Question 2•1–your company's worldwide R&D expense in 2008.**

$Bil.	Mil.	Thou.

3•2 **Copy the amount reported in Question 2•6, line a–R&D expense performed by your company in the domestic United States in 2008.**

$Bil.	Mil.	Thou.

3•3 **Copy the amount reported in Question 2•3, line b–2008 R&D performed by others not owned by your company, such as contract research organizations, universities, or government labs.**

$Bil.	Mil.	Thou.

Worldwide R&D expense

3•4 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was directed toward business areas or product lines in which your company had no revenues before 2008?**

Example: Company A is an automobile manufacturer. In 2008, it began R&D on the company's first motorcycle. Because Company A had no previous revenues for motorcycles, it is a new business area for the company. The expense for this R&D is included in the calculation for this question.

Percent	
	%

3•5 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 involved science/technology that your company had not used in projects before 2008?**

Example: Company B is an automobile manufacturer. In 2008, it began to explore using hydrogen fuel cells in its vehicles. Because Company B had not used this technology before 2008, it is new for the company. The expense for this R&D is included in the calculation for this question.

Percent	
	%

3•6 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was both directed toward business areas or product lines in which your company had no revenues before 2008 and involved science/technology that had not been used by your company in other projects before 2008?**

Example: Company C is an automobile manufacturer. In 2008, it began a project to develop the company's first motorcycle. At the same time, C begins to explore using hydrogen fuel cell technology in its vehicles–including motorcycles. Because motorcycle manufacturing is a new business area for C and the company had no experience with hydrogen fuel cell technology before 2008, it would include the hydrogen fuel cell R&D related to its motorcycle project in the calculation for this question.

Percent	
	%

3•7 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?**

Exclude

- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates

Example: Company D manufactures cookware. In 2008, it devotes 10% of its R&D expense to exploring the potential use in its products of a heat-conducting material currently used only by the aerospace industry. The remainder of D's R&D is focused on improving products and technology already used in the cookware market. Company D reports 10% for this question.

Percent	
	%

SECTION 3

Worldwide R&D agreements

3•8 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was for R&D agreements?**

R&D agreements involve two or more parties pooling resources and expertise to undertake R&D and share in any resulting intellectual property. R&D agreements involve shared risk and shared reward.

Percent ____ %

3•9 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was for R&D agreements with for-profit companies?**

Percent ____ %

3•10 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was for R&D agreements with U.S. federal government agencies or laboratories?**

Percent ____ %

3•11 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was for R&D agreements with universities, colleges, and academic researchers, including individual principal investigators?**

Percent ____ %

3•12 **What percentage of the worldwide R&D expense in 2008 reported in Question 3•1 was for R&D agreements with nonprofit organizations other than universities and colleges?**

Percent ____ %

3•13 **In 2008, how many new R&D agreements did your company enter into?**

Number ____

3•14 **Did the new R&D agreements reported in Question 3•13 involve agreements with the following types of organizations?**

a. For-profit companies located inside the United States . . . . . ☐ Yes ☐ No

b. For-profit companies located outside the United States . . . . . ☐ Yes ☐ No

c. U.S. federal government agencies or laboratories. . . . . ☐ Yes ☐ No

d. Universities, colleges, and academic researchers, including individual principal investigators. . . . . ☐ Yes ☐ No

e. Foreign government agencies or laboratories. . . . . ☐ Yes ☐ No

3•15 **Did the new R&D agreements reported in Question 3•13 involve agreements with the following?**

a. Customers . . . . . ☐ Yes ☐ No

b. Vendors/suppliers . . . . . ☐ Yes ☐ No

c. Competitors . . . . . ☐ Yes ☐ No

Characteristics of domestic R&D performed by your company that was part of your R&D expense

For questions 3•16 through 3•39, the reported amounts exclude R&D funded or paid by others, which is reported in Section 4.

3•16 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for the following categories?

	Percent
a. Research-planned, systematic pursuit of new knowledge or understanding.	%
b. Development–systematic use of research and practical experience to produce new or significantly improved goods, services, or processes.	%
c. **Total**.	1 0 0 %

3•17 If you reported any research in Question 3•16, line a, what percentage of that research was for the following categories?

	Percent
a. Applied research–activity aimed at solving a specific problem or meeting a specific commercial objective	%
b. Basic research–activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use	%
c. **Total**.	1 0 0 %

3•18 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was directed toward business areas or product lines in which your company had no revenues before 2008?

Example: Company E is an automobile manufacturer. In 2008, it began R&D at its U.S. facilities on the company's first motorcycle. Because Company E had no previous revenues for motorcycles, it is a new business area for the company. The costs for this R&D are included in the calculation for this question.

Percent: %

3•19 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 involved science/technology that your company had not used in projects before 2008?

Example: Company F is an automobile manufacturer. In 2008, it began to explore using hydrogen fuel cells in its vehicles at its U.S. R&D facility. Because Company F had not used this technology before 2008, it is new for the company. The costs for this R&D are included in the calculation for this question.

Percent: %

3•20 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was both directed toward business areas or product lines in which your company had no revenues before 2008 and involved science/technology that had not been used by your company in other projects before 2008?

Example: Company G is an automobile manufacturer. In 2008, it began a project to develop the company's first motorcycle. At the same time, G begins to explore using hydrogen fuel cell technology in its vehicles–including motorcycles–at its U.S. R&D facility. Because motorcycle manufacturing is a new business area for G and the company had no experience with hydrogen fuel cell technology before 2008, it would include the hydrogen fuel cell R&D related to its motorcycle project in the calculation for this question.

Percent: %

SECTION 3

SECTION 3

3•21 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?

Exclude:
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates.

Example: Company H manufactures cookware. In 2008, 10% of its domestic R&D performed by its company is for exploring the potential use in its products of a heat-conducting material currently used only by the aerospace industry. The remainder of H's domestic R&D performed by its company is focused on improving products and technology already used in the cookware market. Company H reports 10% for this question.

Percent ____ %

Areas of application for domestic R&D performed by your company

3•22 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 had defense applications, including military applications and general security-related R&D?

Percent ____ %

3•23 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 had health or medical applications?

Percent ____ %

3•24 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?

Example: Company I is a semiconductor manufacturer. Its products are not designed specifically for energy applications, but 10% of its domestic R&D performed by its company is focused on improving the energy efficiency of its products. Based on this, Company I reports "10%" for this question.

Percent ____ %

3•25 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 had environmental protection applications, including pollution abatement R&D?

Percent ____ %

3•26 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 had agricultural applications?

Percent ____ %

Technology focus of domestic R&D performed by your company

3•27 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for software products?

Percent ____ %

3•28 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for software embedded in other projects or products?

Percent ____ %

3•29 What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for the development of new or significantly improved processes?

Percent ____ %

3•30 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for medical clinical trials?**

Percent ____ %

3•31 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for the production of prototypes?**

Percent ____ %

3•32 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for the operation of pilot plants?**

Percent ____ %

3•33 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for biotechnology–the use of cellular and bio-molecular processes to solve problems or make useful products?**

Percent ____ %

3•34 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for nanotechnology–science and technology involving work at the nanometer scale?**

Percent ____ %

3•35 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 3•2 was for social sciences–the application of scientific methods to the study of human aspects of the world, including such disciplines as economics and psychology?**

Percent ____ %

R&D performed by others

3•36 **What percentage of the R&D performed by others not owned by your company reported in Question 3•3 was for the following categories?**

Percent

a. Research-planned, systematic pursuit of new knowledge or understanding. . . . . ____ %

b. Development–systematic use of research and practical experience to produce new or significantly improved goods, services, or processes. . . . . ____ %

c. **Total** . . . . . 1 0 0 %

3•37 **If you reported any research in Question 3•36, line a, what percentage of that research was for the following categories?**

Percent

a. Applied research–activity aimed at solving a specific problem or meeting a specific commercial objective . . . . . ____ %

b. Basic research–activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use . . . . . ____ %

c. **Total** . . . . . 1 0 0 %

3•38 **What percentage of the R&D performed by others reported in Question 3•3 was for medical clinical trials?**

Percent ____ %

3•39 **What percentage of the R&D performed by others reported in Question 3•3 was for the production of prototypes?**

Percent ____ %

SECTION 3

SECTION 3

Activities with academia

3•40 Did your company perform any of the following activities with universities, students, or academic faculty in 2008?

a. Hired academic consultants for short-term projects in science and engineering . . . . . ☐ Yes ☐ No

b. Hosted student interns pursuing undergraduate or graduate degrees in science or engineering for at least one month. . . . . ☐ Yes ☐ No

c. Hosted post-doctoral fellows in science or engineering for at least one month . . . . . ☐ Yes ☐ No

d. Scientists or engineers from your company that served as visiting scientists or engineers at a college or university for at least one month. . . . . ☐ Yes ☐ No

e. Made monetary gifts to universities or colleges that were restricted to supporting R&D . . . . . ☐ Yes ☐ No

Company characteristics

3•41 Were the following statements true for your company in 2008?

a. This company has been in business for fewer than 5 years as of December 31, 2008 . . . . . ☐ Yes ☐ No

b. This company's primary mission in 2008 was to commercialize science/technology discovered or developed by academic researchers. . ☐ Yes ☐ No

c. This company received venture capital funding in 2008 . . . . . ☐ Yes ☐ No

Reporting information

3•42 Is the information in this section reported on a calendar year basis?

☐ Yes ➔ **Continue**

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

3•43 Approximately how long did it take to complete Section 3? Hours

3•44 Please list the names and titles of the persons who provided data for this section.

Name	Title

SECTION 4

R&D Funded or Paid for by Others

Who should answer this section?

Persons familiar with accounting concepts and with access to financial records related to your company's R&D activities that are funded or paid for by others (funded R&D), including R&D paid for by customers and R&D supported by government contracts and grants should complete this section.

Please answer Questions 4·1 to 4·3 to see if your company should fill out this section.

SECTION 4 – R&D Funded or Paid for by Others

What does this section cover?

This section requests information about your company's R&D activities that are funded or paid for by others not owned by your company (funded R&D). R&D reported in Section 2 should not be included in responses to this section.

What is the reporting unit?

The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership. Also, include data for discontinued operations.

NOTE: If your company is owned by a non-U.S. company, you should report the cost of R&D reimbursed by both your foreign owner and other affiliated companies not owned by your company in this section.

What is funded R&D?

Funded R&D is R&D your company performs that is funded or paid for by others not owned by your company. Examples of funded R&D include R&D performed under contract for a customer, R&D supported by a government grant, and R&D that is performed under a reimbursable agreement with business partners.

Because the costs for this work are not paid for by your company, they are not accounted for as R&D expenses, even though the nature of the work may be identical to other activities that are accounted for as R&D expenses by your company.

What do the terms "worldwide" and "domestic" mean?

The term "worldwide" refers to all geographic locations, including the United States. The term "domestic" refers to the 50 United States and the District of Columbia only.

How should dollar amounts be reported?

Report all dollar amounts rounded to the nearest thousand.

	$Bil.	Mil.	Thou.
Example: If figure is $179,125,628.00 report:		1 7 9	1 2 6

Are estimates acceptable?

Yes, estimates are acceptable. Please report all items to the best of your ability.

How should I answer a question that does not apply to my company?

Enter "0" if a question or category does not apply to your company.

What time period should be reported?

Report data for calendar year 2008, if possible, or for your company's fiscal year ending between April 2008 and March 2009.

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

To speak with a survey analyst, call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)

Worldwide R&D performed by your company

4•1 **What were your company's total worldwide costs in 2008 for R&D that was funded or paid for by others not owned by your company?**

$Bil.	Mil.	Thou.

Include:
- Cost of sales and indirect costs, such as overhead for contract R&D services provided to others not owned by your company
- R&D costs paid for by your foreign owner, if your company is foreign-owned
- Costs for R&D supported by grants from government agencies or private foundations
- Costs paid for by others for the development, production, and testing of prototypes prior to their introduction to the market
- Costs paid for by others for phase I - III medical clinical trials of medical products
- Independent research and development (IR&D) costs for which your company anticipates reimbursement by the U.S. federal government through indirect charges on government contracts
- Costs reimbursed by business partners, such as through cost-sharing agreements

Exclude:
- Costs accounted for as R&D expenses by your company (reported in Section 2)
- Payments in excess of the actual cost of the R&D (such as profits or fees)
- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Costs for routine testing of products currently on the market
- Costs for phase IV medical clinical trials or other post-marketing testing performed for medical products
- Costs for R&D performed by FFRDCs (Federally Funded Research and Development Centers) your company administers
- Bid and proposal (B&P) costs

4•2 **How much of the 2008 worldwide costs reported in Question 4•1 for R&D that was funded or paid for by others not owned by your company was for R&D performed by your company and how much was for R&D performed by others not owned by your company, such as subcontractors or subgrantees?**

	$Bil.	Mil.	Thou.
a. R&D performed by your company			
b. R&D performed by others not owned by your company, such as subcontractors or subgrantees			
c. **Total** (equals Question 4·1)			

Include:
- All costs for R&D performed by your company's full-time, part-time, and temporary employees

4•3 **Was the amount entered in Question 4•2, line a, greater than zero?**

☐ Yes → **Continue with Question 4•4**

☐ No → **Skip to Section 5**

SECTION 4

4•4 **How much of the 2008 worldwide R&D performed by your company that was funded by others reported in Question 4•2, line a, was performed in the countries listed below?**

	$Bil.	Mil.	Thou.
a. United States (domestic)			
b. Puerto Rico			
c. Canada			
d. China			
e. France			
f. Germany			
g. India			
h. Ireland			
i. Israel			
j. Italy			
k. Japan			
l. Russia			
m. Singapore			
n. South Korea			
o. Sweden			
p. United Kingdom			
q. All other			
r. **Total** (equals Question 4·2, line a)			

Domestic R&D performed by your company that was funded by others

4•5 **How much of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was for each business code listed or amended on page 6 of this form?**

Allocate R&D that is applicable to more than one business code on a reasonable basis. Allocation in proportion to operating revenues is acceptable unless some alternative allocation basis is more appropriate.

	Business Code (see page 6)	$Bil.	Mil.	Thou.
a.				
b.				
c.				
d.				
e.				
f.				
g.				

Question continues on next page

SECTION 4

4•5 **(Continued)**

	Business Code (see page 6)	$Bil.	Mil.	Thou.
h.				
i. **Total** (equals Question 4·4, line a)				

4•6 **How much of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was for the following types of costs?**

	$Bil.	Mil.	Thou.
a. Gross annual payroll–wages and salaries of R&D employees and officers excluding fringe benefits			
b. Employer's cost for fringe benefits			
c. Stock-based compensation			
d. Temporary staffing and leased employees			
e. Expensed equipment			
f. Materials and supplies			
g. Lease and rental payments			
h. Depreciation and amortization on R&D property and equipment			
i. All other costs			
j. **Total** (equals Question 4·4, line a)			

Include:
- Disability benefits
- Life and medical insurance
- Paid holidays, time off benefits, vacation, annual, sick, and maternity leave
- Retirement benefits, pension, and social security contributions

Include:
- Costs paid to Professional Employer Organizations (PEOs) and staffing agencies for personnel
- All charges for payroll, benefits, and services

SECTION 4

4•7 **How much of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was performed under each of the following types of agreements?**

	$Bil.	Mil.	Thou.
a. Contracts (include direct or prime contracts and subcontracts)			
b. Grants, reimbursements, and all other agreements			
c. **Total** (equals Question 4·4, line a)			

4•8 **How much of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was funded by each of the following?**

Include
- If your company is a subcontractor or subgrantee, report the original source of funding

Example: Company K is a car manufacturer and Company L is a glass manufacturer. In 2008, Company K is awarded a U.S. federal government contract to develop a new type of armored car. Company K performs some of the R&D itself and subcontracts the development of the car's bulletproof glass windshield to Company L. Both Company K and Company L would include their R&D costs for this project in the calculation for line c of this question.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States.			
b. Other companies located outside the United States			
c. U.S. federal government agencies or laboratories			
d. U.S. state government agencies or laboratories (50 United States and D.C.)			
e. Foreign government agencies or laboratories			
f. All other organizations inside the United States.			
g. All other organizations located outside the United States			
h. **Total** (equals Question 4·4, line a).			

SECTION 4

4•9 **How much of the R&D funded by other companies reported in Question 4•8, lines a and b, was funded by the following types of companies?**

	$Bil.	Mil.	Thou.
a. Aerospace			
b. Computer products			
c. Electronic products			
d. Motor vehicles			
e. Petrochemicals			
f. Pharmaceuticals			
g. All other companies			
h. **Total** (equals Question 4·8, lines a and b)			

4•10 **How much of the R&D funded by U.S. federal government agencies or laboratories reported in Question 4•8, line c, was funded by the following agencies?**

	$Bil.	Mil.	Thou.
a. Department of Defense			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. All other			
f. **Total** (equals Question 4·8, line c)			

4•11 **How much of the 2008 worldwide R&D reported in Question 4•1 was independent research and development (IR&D) costs for which your company anticipates reimbursement by the U.S. federal government through indirect charges on government contracts?**

$Bil.	Mil.	Thou.

SECTION 4

4•12 **How much of the following three funded R&D amounts was performed in each state (including D.C.):**
(1) 2008 R&D funded by the U.S. federal government reported in Question 4•8, line c
(2) 2008 R&D funded by all nonfederal sources
(3) 2008 total domestic R&D performed by your company that was funded by others reported in Question 4•4, line a

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Alabama									
Alaska									
Arizona									
Arkansas									
California									
Colorado									
Connecticut . . .									
Delaware									
District of Columbia									
Florida									
Georgia									
Hawaii									
Idaho									
Illinois									
Indiana.									
Iowa.									
Kansas									
Kentucky									
Louisiana									

Question continues on next page

SECTION 4

4•12 (Continued)

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
Maine.									
Maryland									
Massachusetts									
Michigan									
Minnesota									
Mississippi									
Missouri.									
Montana.									
Nebraska									
Nevada									
New Hampshire									
New Jersey . . .									
New Mexico. . .									
New York.									
North Carolina									
North Dakota. . .									
Ohio									
Oklahoma									
Oregon									
Pennsylvania. . .									
Rhode Island. . .									

Question continues on next page

SECTION 4

4•12 **(Continued)**

	(1) Federal			(2) Nonfederal			(3) Total		
	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.
South Carolina									
South Dakota . .									
Tennessee									
Texas									
Utah									
Vermont									
Virginia									
Washington. . . .									
West Virginia. . .									
Wisconsin									
Wyoming									
Total.									
	Total equals Question 4·8, line c						*Total equals Question 4·4, line a*		

4•13 **What are your company's worldwide projected costs in 2009 for R&D performed by your company that will be paid for by others?**

$Bil.	Mil.	Thou.

4•14 **How much of the projected costs in 2009 for R&D performed by your company that will be paid for by others reported in Question 4•13 will be performed in the domestic United States?**

$Bil.	Mil.	Thou.

4•15 **How much of the projected costs in 2009 for domestic R&D performed by your company that will be paid for by others reported in Question 4•14 will be paid for by U.S. federal government agencies?**

$Bil.	Mil.	Thou.

SECTION 4

Characteristics of domestic R&D performed by your company that was funded by others

4•16 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was for the following categories?

	Percent
a. Research-planned, systematic pursuit of new knowledge or understanding.	%
b. Development–systematic use of research and practical experience to produce new or significantly improved goods, services, or processes.	%
c. **Total**.	1 0 0 %

4•17 If you reported any research in Question 4•16, line a, what percentage of that research was for the following categories?

	Percent
a. Applied research–activity aimed at solving a specific problem or meeting a specific commercial objective	%
b. Basic research–activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use	%
c. **Total**.	1 0 0 %

4•18 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was for medical clinical trials (phases I, II, and III)? Percent ____ %

4•19 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was for the production of prototypes? Percent ____ %

4•20 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had defense applications, including military applications and general security-related R&D? Percent ____ %

4•21 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had health or medical applications? Percent ____ %

4•22 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?

Example: Company L is a semiconductor manufacturer. Its products are not designed specifically for energy applications, but 10% of its domestic R&D performed by its company is focused on improving the energy efficiency of its products. Based on these facts, Company L reports "10%" for this question.

Percent ____ %

4•23 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had environmental protection applications, including pollution abatement R&D? Percent ____ %

SECTION 4

4•24 **What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had agricultural applications?**

Percent ____ %

Characteristics of domestic R&D performed by your company that was funded by the U.S. federal government

4•25 **What percentage of the domestic R&D performed by your company funded by U.S. federal government agencies or laboratories reported in Question 4•8, line c, was for the following categories?**

Percent

a. Research-planned, systematic pursuit of new knowledge or understanding. . . . . ____ %

b. Development–systematic use of research and practical experience to produce new or significantly improved goods, services, or processes. . . . . ____ %

c. **Total**. . . . . **1 0 0** %

4•26 **If you reported any research in Question 4•25, line a, what percentage of that research was for the following categories?**

Percent

a. Applied research–activity aimed at solving a specific problem or meeting a specific commercial objective . . . . . ____ %

b. Basic research–activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use . . . . . ____ %

c. **Total**. . . . . **1 0 0** %

4•27 **What percentage of the domestic R&D performed by your company that was funded by U.S. federal government agencies or laboratories reported in Question 4•8, line c, was for the production of prototypes?**

Percent ____ %

SECTION 4

Reporting information

4•28 Is the information in this section reported on a calendar year basis?

☐ Yes ➔ **Continue**

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

4•29 Approximately how long did it take to complete Section 4?

Hours

4•30 Please list the names and titles of the persons who provided data for this section.

Name	Title

SECTION 4

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SECTION 5

R&D 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.

SECTION 5 – R&D Human Resources

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.

What is the reporting unit?
The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership. Also, include data for discontinued operations.

NOTE: If your company is owned by a non-U.S. company, do not include data for your foreign owner or for any other affiliated companies not owned by your company.

Who are R&D employees?
R&D employees include all employees providing direct support to either R&D paid for by your company ***or*** R&D paid for by others not owned by your company, such as R&D your company performs under a grant or contract. Include scientists and engineers working on R&D as well as R&D managers, technicians, administrators, clerical staff, and interns providing direct support to R&D.

R&D employees do not include staff providing indirect support, such as security guards and cafeteria workers. Leased employees, temps, and on-site consultants should not be counted as R&D employees.

What is a full-time equivalent (FTE)?
A full-time equivalent takes into account employees who do not work full-time or for employees who do not work on R&D activities full-time. For example, an employee who works half-time would be counted as one employee on a headcount basis but as one-half (½) an FTE employee. Similarly, a full-time employee hired in June would be counted as one-half (½) an FTE employee. The number of FTEs and the headcount may differ for your company.

What do the terms "worldwide" and "domestic" mean?
The term "worldwide" refers to all geographic locations, including the United States. The term "domestic" refers to the 50 United States and the District of Columbia only.

Are estimates acceptable?
Yes, estimates are acceptable. Please report all items to the best of your ability.

How should I answer a question that does not apply to my company?
Enter "0" if a question or category does not apply to your company.

What time period should be reported?
Report data for calendar year 2008, if possible, or for your company's fiscal year ending between April 2008 and March 2009.

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

To speak with a survey analyst, call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)

Worldwide employees

5•1 **What was the total number of employees working at your company worldwide for the pay period that included March 12, 2008?**

Include:
- For the domestic employees, all employees whose payroll was reported on IRS Form 941, Employer's Quarterly Federal Tax Return
- Employees in all activities during the pay period that includes March 12, 2008
- Employees on paid sick leave, paid holidays, and paid vacations during the pay period that included March 12, 2008

Exclude:
- Leased or temporary employees and on-site consultants

Number

5•2 **How many of your company's total worldwide employees reported in Question 5•1 were R&D employees?**

Include:
- R&D scientists, engineers, managers, technicians, administrators, clerical staff, and interns

Exclude:
- Staff providing indirect support, such as security guards and cafeteria workers

Number

5•3 **How many of the worldwide R&D employees reported in Question 5•2 were (1) female employees, (2) male employees, and (3) total employees, working in the R&D occupations listed below?**

	(1) Female Employees	(2) Male Employees	(3) Total Employees
a. R&D engineers and their managers			
b. R&D scientists and their managers (not already reported in line a)			
c. R&D technicians and technologists			
d. R&D support staff (clerical and other)			
e. **Total worldwide R&D employees**			

Total equals Question 5·2

5•4 **Of the total worldwide R&D scientists and engineers and their managers reported in Question 5•3, lines a and b, how many had the following as their highest educational degree?**

	Number
a. PhD (including EngD, ScD, excluding MD, JD, and EdD)	
b. Other college degrees	
c. All other	
d. **Total worldwide R&D scientists and engineers** (equals Question 5·3, lines a and b)	

SECTION 5

Domestic employees

5•5 **How many of the worldwide employees reported in Question 5•1 were domestic employees–employed by your company's domestic operations?**

Include:
- All employees whose payroll was reported on IRS Form 941, Employer's Quarterly Federal Tax Return
- Employees on paid sick leave, paid holidays, and paid vacations during the pay period that included March 12, 2008

Number

5•6 **How many of your company's total domestic employees reported in Question 5•5 were R&D employees?**

Include:
- R&D scientists, engineers, managers, technicians, administrators, clerical staff, and interns

Exclude:
- Staff providing indirect support, such as security guards and cafeteria workers

Number

5•7 **How many of the domestic R&D employees reported in Question 5•6 were (1) female employees, (2) male employees, and (3) total employees, working in the R&D occupations listed below?**

	(1) Female Employees	(2) Male Employees	(3) Total Employees
a. R&D engineers and their managers			
b. R&D scientists and their managers (not already reported in line a)			
c. R&D technicians and technologists			
d. R&D support staff (clerical and other)			
e. **Total domestic R&D employees**			

Total equals Question 5·6

5•8 **Of the total domestic R&D scientists and engineers and their managers reported in Question 5•7, lines a and b, how many had the following as their highest educational degree?**

	Number
a. PhD (including EngD, ScD, excluding MD, JD, and EdD)	
b. Other college degrees	
c. All other	
d. **Total domestic R&D scientists and engineers** (equals Question 5·7, lines a and b)	

SECTION 5

5•9 **How many of the domestic R&D scientists and engineers and their managers reported in Question 5•7, lines a and b, were non-U.S. citizens employed in the United States under a temporary visa, such as H-1B or L-1?**

Number

Full-time equivalents (FTEs)

5•10 **What was the number of domestic full-time equivalent (FTE) scientists and engineers engaged in R&D activities during 2008?**

Full-time equivalents account for R&D scientists and engineers who do not work full-time and R&D scientists and engineers who do not work on R&D activities full-time. For example, a scientist or engineer who works half-time would be counted as one employee on a headcount basis but as one-half (½) an FTE employee. Similarly, a full-time employee hired in June would be counted as one-half (½) an FTE employee. The number of FTEs and the headcount may differ for your company.

Number

5•11 **How many of the domestic R&D FTE scientists and engineers reported in Question 5•10 were engaged in R&D activities funded by U.S. federal government grants or contracts during 2008?**

Number

Reporting information

5•12 **Is the information in this section reported on a calendar year basis?**

☐ Yes → **Continue**

☐ No → **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

5•13 **Approximately how long did it take to complete Section 5?**

Hours

5•14 **Please list the names and titles of the persons who provided data for this section.**

Name	Title

SECTION 5

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SECTION 6

Intellectual Property, Technology Transfer, and Innovation

Who should answer this section?

Persons with an understanding of your company's general business strategy and knowledge of your company's patenting, licensing, and other intellectual property related activities should complete this section.

SECTION 6 – Intellectual Property, Technology Transfer, and Innovation

What does this section cover?

This section requests information about intellectual property, technology transfer activities, and actions taken to improve company performance, such as:

- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property
- Innovation activity

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 firms. 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.

What is the reporting unit?

The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership. Also, include data for discontinued operations.

NOTE: If your company is owned by a non-U.S. company, do not include data for your foreign owner or for any other affiliated companies not owned by your company.

How should dollar amounts be reported?

Report all dollar amounts rounded to the nearest thousand.

	$Bil.	Mil.	Thou.
Example: If figure is $179,125,628.00 report:		1 7 9	1 2 6

Are estimates acceptable?

Yes, estimates are acceptable. Please report all items to the best of your ability.

How should I answer a question that does not apply to my company?

Enter "0" if a question or category does not apply to your company.

What time period should be reported?

Report data for calendar year 2008, if possible, or for your company's fiscal year ending between April 2008 and March 2009.

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

SECTION 6

To speak with a survey analyst, call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)

6•1 **Did your company introduce any of the following during the three-year period, 2006 to 2008?**

a. New or significantly improved goods (excluding the simple resale of new goods purchased from others and changes of a solely aesthetic nature) . . . . . ☐ Yes ☐ No

b. New or significantly improved services. . . . . ☐ Yes ☐ No

c. New or significantly improved methods of manufacturing or producing goods or services. . . . . ☐ Yes ☐ No

d. New or significantly improved logistics, delivery, or distribution methods for your inputs, goods, or services. . . . . ☐ Yes ☐ No

e. New or significantly improved support activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing . . . . . ☐ Yes ☐ No

Patents

6•2 **How many patents did your company apply for in 2008 from the U.S. Patent and Trademark Office (USPTO)?** Number

6•3 **What percentage of the patent applications reported in Question 6•2 has your company applied for or plans to apply for in foreign jurisdictions?** Percent %

6•4 **What percentage of the patent applications reported in Question 6•2 was for inventions that originated within your company's organized R&D activities?** Percent %

6•5 **How many patents were issued to your company in 2008 by the USPTO?** Number

6•6 **What percentage of your company's inventions considered for patenting in 2008 resulted in patent applications?** Percent %

Patent licensing

6•7 **In 2008, what was the amount of your company's revenue from patents licensed to others not owned by your company?**

$Bil.	Mil.	Thou.

6•8 **How many new agreements did your company enter into during 2008 to license patents to others not owned by your company?** Number

SECTION 6

Intellectual property transfer activities

6•9 Did your company perform the following activities in 2008?

a. Transferred intellectual property to others not owned by your company through participation in technical assistance or "know how" agreements . . . . . ☐ Yes ☐ No

b. Received intellectual property from others not owned by your company through participation in technical assistance or "know how" agreements . . . . . ☐ Yes ☐ No

c. Transferred intellectual property to a spin-off or spin-out of your company . . . . . ☐ Yes ☐ No

d. Received intellectual property 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 intellectual property . . . . . ☐ Yes ☐ No

f. Acquired any financial interest in another company in order to gain access to their intellectual property . . . . . ☐ Yes ☐ No

g. Participated in cross-licensing agreements–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 intellectual property 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 intellectual property not owned by your company. . . . . ☐ Yes ☐ No

Intellectual property protection

6•10 During 2008, how important to your company were the following types of intellectual property protection?

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance).	☐	☐	☐
c. Trademarks.	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

SECTION 6

Reporting information

6•11 Is the information in this section reported on a calendar year basis?

☐ Yes ➔ **Continue**

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

6•12 Approximately how long did it take to complete Section 6?

Hours

6•13 Please list the names and titles of the persons who provided data for this section.

Name	Title

SECTION 6

Please provide your comments in the space for "Remarks" on the back cover.

Please provide your comments in the space for "Remarks" on the back cover.

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 14.9 hours being the average. This includes time to read instructions, develop or assemble material, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912,
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2008 Business R&D and Innovation Survey** ~

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

11028016

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

FORM
BRDI-1A (01-06-2009)

2008 BUSINESS R&D AND INNOVATION SURVEY

OMB No. 0607-0912: Approval Expires 10/31/2011

DUE DATE:

Report electronically:
www.census.gov/econhelp/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:

- www.census.gov/econhelp/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.

Thank You – Your Response is Important

The Business R&D and Innovation Survey will provide valuable information for U.S. policy makers as well as industry and academic data users. Better information about R&D and innovation in the U.S. business sector will help leaders make better decisions to strengthen American competitiveness.

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 ~

Overview

What does this survey ask?

This survey asks questions about your company's **R&D expenses** as well as R&D that is paid for by customers, the government, and other organizations that are not owned by your company (**funded R&D**). This survey also requests data on your company's R&D employees and intellectual property.

The Business R&D and Innovation Survey is divided into sections. Each section asks questions about different aspects of R&D and innovation at your company. It may be necessary to collaborate with colleagues in different departments within your company for each section. The sections cover the following topical areas:

Questions 1•2 to 1•8: Company Information

- Asks for information about your company's ownership, business(es), and revenue
- **All companies must complete Questions 1•2, 1•3, and 1•4** to determine whether they are required to complete the rest of the survey

Questions 2•1 to 2•17: R&D Paid for by Your Company (R&D Expense)

- Asks for information about R&D expenses–R&D funded or paid for by your company
- Best answered by persons with knowledge of your company's financial records
- Best answered by persons with first-hand knowledge of R&D operations, such as a VP of research

Questions 3•1 to 3•44: Management and Strategy of R&D Expense

- Asks for strategic and technical information about your company's R&D expense reported in Section 2
- Best answered by persons familiar with first-hand knowledge of R&D operations, such as a VP of research

Questions 4•1 to 4•30: R&D Funded or Paid for by Others

- Asks for information about R&D that is paid for by others, such as that paid for by customers or partners
- Best answered by persons with knowledge of your company's financial records related to contracts and grants

Questions 5•1 to 5•14: R&D Human Resources

- Asks for information about your company's R&D employees
- Best answered by persons with knowledge of your company's human resources records

Questions 6•1 to 6•13: Intellectual Property, Technology Transfer, and Innovation

- Asks for information about intellectual property, patents, technology transfer activities, such as patent licensing, and actions taken to improve company performance
- Best answered by persons with knowledge of your company's patenting, licensing, and general business strategy

Questions 7•1 to 7•3: Reporting Information

- Asks for information about completing this form, including hours spent on the form

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. It includes 1) activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use (basic research); 2) activity 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).

The term Research and Development 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

How do I obtain additional information?

Our website **www.census.gov/econhelp/brdis** has the following information:

- More detailed general information about the Business R&D and Innovation Survey
- Frequently asked questions
- Sample questionnaires

General Instructions

Can I file this survey electronically?

Yes. You may submit your report by mail or electronically via Census Taker, a web-based form.

How to file electronically

(1) Go to **www.census.gov/econhelp/brdis**
(2) Click on Report Online
(3) Follow the online instructions to log in and respond to this survey

Advantages

- Reduced time and expense to report
- Improved quality through automatic data checks
- You can exit the form and resume at a later time without losing your data
- Save a paper or electronic version of your completed form
- Your information is encrypted at all times
- No plug-ins or downloaded software is required

What is the reporting unit?

The reporting unit is your company, including all subsidiaries and divisions. Include operations of subsidiary companies where there is more than 50 percent ownership. Also, include data for discontinued operations.

NOTE: If your company is owned by a non-U.S. company, do not include data for your foreign owner or for any other affiliated companies not owned by your company.

What do the terms "worldwide" and "domestic" mean?

The term "worldwide" refers to all geographic locations, including the United States. The term "domestic" refers to the 50 United States and the District of Columbia only.

How should dollar amounts be reported?

Report all dollar amounts rounded to the nearest thousand.
Do not use slashes through 0's or 7's, when entering numeric data.

	$Bil.		Mil.			Thou.		
Example: If figure is $179,125,628.00 report:			1	7	9	1	2	6

Are estimates acceptable?

Yes, estimates are acceptable. Please report all items to the best of your ability.

How should I answer a question that does not apply to my company?

Enter "0" if a question or category does not apply to your company.

What time period should be reported?

Report data for calendar year 2008, if possible, or for your company's fiscal year ending between April 2008 and March 2009.

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

How do I obtain copies of the final data reports?

Data from this survey, as well as other sources of information on science and technology, are available at the National Science Foundation's website: www.nsf.gov/statistics/.

To speak with a survey analyst, call 1-800-772-7851, option "5" (8 a.m. – 5 p.m. EST, M-F)

Company Information

1•1 **Not applicable to this form**

1•2 **Did your company cease operations prior to April 1, 2008?**

☐ Yes ➔ **Stop here and return the survey form to the U.S. Census Bureau.**
Alternatively, you may report online at: www.census.gov/econhelp/brdis.

☐ No ➔ **Continue with Question 1•3**

1•3 **Did another U.S. company own more than 50 percent of your company during 2008?**

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

Name of owner

EIN of owner (9 digits)

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

If your company was purchased before April 1, 2008, stop here. Return this survey to the U.S. Census Bureau or report online at: www.census.gov/econhelp/brdis.

☐ No ➔ **Continue with Question 1•4**

1•4 **Did your company do any of the following during 2008?**
- Incur R&D expenses OR
- Perform R&D that was funded or paid for by others not owned by your company, such as:
  - R&D performed under contract for another company
  - R&D funded by a government grant

See Page 2 for the definition of R&D.

☐ Yes ➔ **Complete the rest of this survey beginning with Question 1•5**

NOTE: If your company was either purchased or ceased operations between April 1 and December 31, 2008, complete the survey for the time period from January 1, 2008 to the date of purchase or the date your company ceased operations.

☐ No ➔ **Skip to Question 6•1 on page 23**

1•5 **Using the business code(s) in the boxes below this question, or the codes on pages 6-7, please select the code that accounts for the largest share of your company's 2008 R&D activities worldwide.**

Business code with most R&D activity

Why is this code needed?
This code is needed to report your sales for Question 1·8. It is also used in Question 2·14 to report R&D information.
How did we decide on the codes listed below for your company?
We selected the codes using payroll and receipts data contained in our database for your company's domestic establishments. The codes and descriptions are based on groups of industries from the North American Industry Classification System (NAICS) selected specifically for this form.

NOTE: If you have no business codes printed below, please refer to the list on pages 6-7 to find the code that best answers this question for your company.

Business Code (see pages 6-7)	Description

1•6 **What was the amount of your company's worldwide net sales and operating revenues–the value of goods and services sold during the year, net of discounts, returns, and allowances–during 2008?**

Include:
- Sales and operating revenues for discontinued operations

Exclude:
- Non-operating income (i.e. dividends, interest)
- Excise, sales, and other revenue based taxes

$Bil. Mil. Thou.

1•7 **How much of the 2008 worldwide net sales and operating revenues reported in Question 1•6 was from domestic operations?**

Include:
- Operating revenues and sales to foreign subsidiaries

$Bil. Mil. Thou.

1•8 **How much of the 2008 sales and operating revenue amounts was for the business code reported in Question 1•5:**
(1) Worldwide net sales and operating revenues reported in Question 1•6
(2) Domestic net sales and operating revenues reported in Question 1•7

Business Code	(1) Worldwide sales and revenues $Bil.	Mil.	Thou.	(2) Domestic sales and revenues $Bil.	Mil.	Thou.

Business codes

Aerospace & Defense

33641 Aircraft manufacturing
33642 Aircraft engine and engine parts manufacturing
33643 Other aircraft parts and auxiliary equipment manufacturing
33644 Guided missiles, space vehicles, and parts manufacturing
33692 Military armored vehicle, tank, and tank components manufacturing
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33660 Ship and boat building

Automobiles, Motorcycles, & Components

33610 Motor vehicles manufacturing
33620 Motor vehicle body and trailer manufacturing
33630 Motor vehicle parts manufacturing
33691 Motorcycle, bicycle, and parts manufacturing
33699 All other transportation equipment manufacturing

Capital Goods

33430 Audio and video equipment manufacturing
33330 Commercial, service industry, temperature control, and airflow control machinery manufacturing
33312 Construction machinery manufacturing
23600 Construction of buildings
33360 Engine, turbine, and power transmission equipment manufacturing
33200 Fabricated metal products manufacturing
33311 Farm machinery and equipment manufacturing
23700 Heavy and civil engineering construction
33322 Industrial machinery manufacturing, except semiconductor machinery
33390 Metalworking and other general purpose machinery manufacturing
33313 Mining machinery and equipment manufacturing
33651 Railroad rolling stock manufacturing
33660 Ship and boat building
23800 Specialty trade contractors

Commercial and Professional Services (including contract research)

54120 Accounting, tax preparation, bookkeeping, and payroll services
54180 Advertising and related services
54130 Architectural, engineering, and related services
56140 Business support services
53240 Commercial and industrial machinery and equipment rental and leasing
54110 Legal services
54160 Management, scientific, and technical consulting services
56190 Office administrative, facilities, employment, and other support services
32300 Printing and related support activities
56290 Remediation and other waste management services
54170 Research & development services
54140 Specialized design services
56150 Travel arrangement and reservation services

Consumer Goods & Services

71300 Amusement, gambling, and recreation industries
31500 Apparel manufacturing
33430 Audio and video equipment manufacturing
81110 Automotive repair and maintenance
31210 Beverage manufacturing
51520 Cable and other subscription programming (except Internet)
62440 Child day care services
44800 Clothing and clothing accessories stores
23600 Construction of buildings
53220 Consumer goods and general rental centers
61100 Educational services
33500 Electrical equipment, appliances, and components manufacturing
45410 Electronic shopping and mail-order houses
44300 Electronics and appliance stores
44500 Food and beverage stores
31100 Food manufacturing
72200 Food services and drinking places
33700 Furniture and related products manufacturing
45200 General merchandise stores
51600 Internet publishing and broadcasting
56160 Investigation, security, and services to buildings and dwellings
31600 Leather and allied products manufacturing
51200 Motion picture and sound recording (except Internet)
44100 Motor vehicle and parts dealers
51110 Newspaper, periodical, book, and directory publishers (except internet)
81200 Personal care, death care, laundry, and other personal services
51510 Radio and television broadcasting (except Internet)
81190 Repair and maintenance, except automotive
32591 Soap, cleaning compound, and toilet preparations manufacturing
62400 Social assistance (except child day care services)
31300 Textile mill products
31220 Tobacco manufacturing
72100 Traveler accommodation services

Energy

21210 Coal mining
22110 Electric power generation, transmission, and distribution
21100 Oil and gas extraction
33313 Oil and gas field machinery and equipment manufacturing
32400 Petroleum and coal products manufacturing
48610 Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas
56150 Travel arrangement and reservation services

Financials

52230 Activities related to credit intermediation
52420 Agencies, brokerages, and other insurance related activities
52210 Depository credit intermediation
52500 Funds, trusts, and other financial vehicles
52410 Insurance carriers
52100 Monetary authorities-central bank
52220 Nondepository credit intermediation

53100 Real estate
52300 Securities, commodity contracts, and other financial investments and related activities

Health Care

33451 Electromedical, electrotherapeutic and irradiation apparatus manufacturing
62210 General medical and surgical hospitals
62160 Home health care services
32543 In-vitro diagnostic substances manufacturing
62150 Medical and diagnostic laboratories
33910 Medical equipment and supplies manufacturing
62300 Nursing and residential care facilities
62120 Offices of dentists and other health practitioners
62110 Offices of physicians
62190 Outpatient care centers and other ambulatory health care services
32541 Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing
62220 Psychiatric, substance abuse, and specialty hospitals
54170 Research & development services

Information Technology - Goods and Services

33429 Communication equipment manufacturing, except broadcasting, wireless, and telephone apparatus
54150 Computer systems design and related services
33410 Computers and peripheral equipment manufacturing
51820 Data processing, hosting, and related services
33500 Electrical equipment, appliances, and components manufacturing
51900 Information services (not elsewhere listed in this category)
51810 Internet service providers and web search portals
33460 Manufacturing and reproducing magnetic and optical media manufacturing
33459 Measuring and control instruments manufacturing (not listed elsewhere in this category)
33422 Radio and television broadcasting and wireless communications equipment manufacturing
33452 Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing
33440 Semiconductor and other electronic components manufacturing
33321 Semiconductor machinery manufacturing
51120 Software
33421 Telephone apparatus manufacturing

Materials

32511 Basic chemicals manufacturing
32790 Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing
32710 Clay and glass products manufacturing
33150 Ferrous and nonferrous foundries
33110 Iron and steel mills, ferroalloy, and steel product from purchased steel
21220 Metal ore mining
33130 Nonferrous metals production and processing
21230 Nonmetallic mineral mining and quarrying
32592 Paint, adhesive, and other chemical manufacturing
32200 Paper manufacturing
32530 Pesticide, fertilizer, and other agricultural chemical manufacturing
32600 Plastics and rubber products manufacturing
32512 Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing
32591 Soap, cleaning compound, and toilet preparations manufacturing
21310 Support activities for solid mineral operations
32100 Wood products manufacturing

Telecommunication Service

51750 Cable and other program distribution
51740 Satellite telecommunications
51710 Wired telecommunications carriers
51720 Wireless telecommunications carriers (except satellite)
51790 Telecommunications services (not listed elsewhere)

Transportation

48100 Air transportation
53210 Automotive equipment rental and leasing
49200 Couriers and messengers
48200 Rail transportation
48700 Scenic and sightseeing transportation
48800 Support activities for transportation
48500 Transit and ground passenger transportation
48400 Truck transportation
49300 Warehousing and storage
48300 Water transportation

Utilities

22110 Electric power generation, transmission, and distribution
22120 Natural gas distribution
56290 Remediation and other waste management services
56210 Waste collection, treatment, and disposal
22130 Water, sewage, and other systems

Business Codes Not Elsewhere Classified

53300 Lessors of nonfinancial intangible assets
55100 Management of companies and enterprises
42300 Merchant wholesalers, durable goods
42400 Merchant wholesalers, nondurable goods
33990 Miscellaneous manufacturing (not listed elsewhere)
71200 Museums, historical sites, and similar institutions
45490 Nonstore retailers, except electronic shopping and mail-order houses
71100 Performing arts, spectator sports, and related industries
54190 Professional, scientific, and technical services (not listed elsewhere)
45990 Retail trade stores, including gasoline stations (not listed elsewhere)
42500 Wholesale electronic markets and agents and brokers

R&D Paid for by Your Company (R&D Expense)

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.

What does "R&D Expense" mean?

Report R&D expense according to accounting definitions used by your company. For more information refer to Financial Accounting Standards Board (FASB) Statement of Accounting Standards No.2 (Accounting for Research and Development Costs). For this survey, report R&D expense even if the amount is not considered material to your company.

See definitions of worldwide and domestic on page 3.

2•1 **What was the total worldwide R&D expense for your company (including all domestic R&D expenses) in 2008?**

$Bil. Mil. Thou.

Include:

- R&D expenses for all foreign and domestic subsidiaries and divisions owned by your company
- R&D services purchased from others, including medical clinical trials
- R&D in social sciences–the application of scientific methods to the study of the human aspects of the world, including such disciplines as economics and psychology
- R&D expenses for discontinued operations

Exclude:

- R&D costs paid for by others not owned by your company (these costs are reported in Question 4·1), such as:
  - Costs for customer-sponsored R&D
  - Costs associated with contract services your company provides to others
  - Costs for R&D funded by government grants/contracts
  - Costs reimbursed by business partners, such as through cost-sharing agreements
- R&D costs paid for by your foreign owner, if your company is foreign-owned
- Capital expenditures for R&D (report domestic capital expenditures for R&D in Question 2·15)
- Market and advertising research
- R&D from acquired companies prior to acquisition (in-process R&D)
- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Independent research and development (IR&D) costs for which your company anticipates reimbursement by the U.S. federal government through indirect charges on government contracts (these costs are reported in Question 4·1)

2•2 **Was the amount entered in Question 2•1 greater than zero?**

☐ Yes ➔ **Continue with Question 2•3**

☐ No ➔ **Skip to Question 4•1 on page 15**

What does "R&D performed by your company" mean?

R&D performed by your company includes all costs for R&D performed by your company's full-time, part-time, and temporary employees. It excludes costs for R&D performed by others not owned by your company, such as contract research organizations, universities, and federal laboratories.

2•3 **How much of the 2008 worldwide R&D expense reported in Question 2•1 was for R&D performed by your company and how much was for R&D performed by others not owned by your company?**

	$Bil.	Mil.	Thou.
a. R&D performed by your company			
b. R&D performed by others not owned by your company, such as contract research organizations, universities, and government labs			
c. **Total** (equals Question 2·1)			

Include:
- All costs for R&D performed by your company's full-time, part-time, and temporary employees

Include:
- If your company is foreign-owned, include your R&D expense that paid for R&D performed by your foreign owner

2•4 – **2•5** **Not applicable to this form**

2•6 **How much of the R&D performed by your company in 2008 reported in Question 2•3, line a, was performed in (a) the United States, and (b) all other countries?**

	$Bil.	Mil.	Thou.
a. United States (domestic)			
b. All other countries			
c. **Total** (equals Question 2·3, line a)			

2•7 **Not applicable to this form**

2•8 **How much of the domestic R&D performed by your company reported in Question 2•6, line a, was for the following types of costs?**

	$Bil.	Mil.	Thou.
a. Gross annual payroll–wages and salaries of R&D employees and officers excluding fringe benefits			
b. Employer's cost for fringe benefits			

Include:
- Disability benefits
- Life and medical insurance
- Paid holidays, time off benefits, vacation, annual, sick, and maternity leave
- Retirement benefits, pension, and social security contributions

	$Bil.	Mil.	Thou.
c. All other costs			
d. **Total** (equals Question 2·6, line a)			

2•9 **In which state (including the District of Columbia) did your company perform the largest dollar amount of 2008 R&D reported in Question 2•6, line a, and how much of that R&D was performed in this state?**

	$Bil.	Mil.	Thou.
State			

2•10 **At what domestic location did your company perform the largest dollar amount of R&D in 2008?**

Address 1

Address 2

City **State** **ZIP**

2•11 **How much of the domestic R&D performed by your company reported in Question 2•6, line a, was from the location identified in Question 2•10?**

$Bil.	Mil.	Thou.

2•12 **How much of the worldwide R&D expense reported in Question 2•1 was for the business code reported in Question 1•5?**

Business Code (see page 5)	$Bil.	Mil.	Thou.

2•13 **Not applicable to this form**

2•14 **How much of the worldwide R&D expense for the business code reported in Question 2•12 was domestic R&D performed by your company and reported in Question 2•6, line a?**

Business Code (see page 5) | $Bil. | Mil. | Thou.

2•15 **How much of your company's domestic capital expenditures in 2008 was for R&D operations?** | $Bil. | Mil. | Thou.

2•16 **Not applicable to this form**

2•17 **What is your company's projected 2009 worldwide R&D expense for the following categories?**

NOTE: The total for this question is the 2009 projection of what is reported in question 2·1.

	$Bil.	Mil.	Thou.
a. R&D performed by your company at domestic locations. . . .			
b. R&D performed by your company at foreign locations			
c. R&D performed by others not owned by your company, such as contract research organizations, universities, and government labs			
d. **Total projected worldwide R&D expense for 2009**			

Include:
- If your company is foreign-owned, include your R&D expense that paid for R&D performed by your foreign owner

2•18 – **2•20** **Not applicable to this form**

3•1 – 3•6 Not applicable to this form

NOTE: Questions 3•7–3•41 may require input from persons familiar with the management and strategy of your company's R&D

3•7 What percentage of the worldwide R&D expense in 2008 reported in Question 2•1 was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?

Exclude
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates

Example: Company D manufactures cookware. In 2008, it devotes 10% of its R&D expense to exploring the potential use in its products of a heat-conducting material currently used only by the aerospace industry. The remainder of D's R&D is focused on improving products and technology already used in the cookware market. Company D reports 10% for this question.

Percent ___ %

Worldwide R&D agreements

3•8 What percentage of the worldwide R&D expense in 2008 reported in Question 2•1 was for R&D agreements?

R&D agreements involve two or more parties pooling resources and expertise to undertake R&D and share in any resulting intellectual property. R&D agreements involve shared risk and shared reward.

Percent ___ %

3•9 – 3•15 Not applicable to this form

Characteristics of domestic R&D performed by your company that was part of your R&D expense

3•16 What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was for the following categories?

	Percent
a. Research-planned, systematic pursuit of new knowledge or understanding . . .	%
b. Development–systematic use of research and practical experience to produce new or significantly improved goods, services, or processes	%
c. **Total**	1 0 0 %

3•17 If you reported any research in Question 3•16, line a, what percentage of that research was for the following categories?

	Percent
a. Applied research–activity aimed at solving a specific problem or meeting a specific commercial objective.	%
b. Basic research–activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.	%
c. **Total**	1 0 0 %

3•18 – 3•20 Not applicable to this form

3•21 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was for R&D in science/technology new to the market(s) (i.e. first-to-market) in which your company operates?**

Exclude:
- R&D to improve upon, replicate, or adopt science/technology currently in use in the market(s) in which your company operates.

Example: Company H manufactures cookware. In 2008, 10% of its domestic R&D performed by its company is for exploring the potential use in its products of a heat-conducting material currently used only by the aerospace industry. The remainder of H's domestic R&D performed by its company is focused on improving products and technology already used in the cookware market. Company H reports 10% for this question.

Percent ___ %

Areas of application for domestic R&D performed by your company

3•22 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, had defense applications, including military applications and general security-related R&D?**

Percent ___ %

3•23 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, had health or medical applications?**

Percent ___ %

3•24 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?**

Example: Company I is a semiconductor manufacturer. Its products are not designed specifically for energy applications, but 10% of its domestic R&D performed by its company is focused on improving the energy efficiency of its products. Based on this, Company I reports "10%" for this question.

Percent ___ %

3•25 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, had environmental protection applications, including pollution abatement R&D?**

Percent ___ %

3•26 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, had agricultural applications?**

Percent ___ %

Technology focus of domestic R&D performed by your company

3•27 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was for software products?**

Percent ___ %

3•28 **What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was for software embedded in other projects or products?**

Percent ___ %

3•29 – 3•32 Not applicable to this form

3•33 What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was for biotechnology–the use of cellular and bio-molecular processes to solve problems or make useful products?

Percent ___ %

3•34 What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was for nanotechnology–science and technology involving work at the nanometer scale?

Percent ___ %

3•35 What percentage of the domestic R&D performed by your company in 2008 reported in Question 2•6, line a, was for social sciences–the application of scientific methods to the study of human aspects of the world, including such disciplines as economics and psychology?

Percent ___ %

3•36 – 3•39 Not applicable to this form

Activities with academia

3•40 Did your company perform any of the following activities with universities, students, or academic faculty in 2008?

a. Hired academic consultants for short-term projects in science and engineering . . . . . ☐ Yes ☐ No

b. Hosted student interns pursuing undergraduate or graduate degrees in science or engineering for at least one month. . . . . ☐ Yes ☐ No

c. Hosted post-doctoral fellows in science or engineering for at least one month . . . . . ☐ Yes ☐ No

d. Scientists or engineers from your company that served as visiting scientists or engineers at a college or university for at least one month. . . . . ☐ Yes ☐ No

e. Made monetary gifts to universities or colleges that were restricted to supporting R&D . . . . . ☐ Yes ☐ No

Company characteristics

3•41 Were the following statements true for your company in 2008?

a. This company has been in business for fewer than 5 years as of December 31, 2008 . . . . . ☐ Yes ☐ No

b. This company's primary mission in 2008 was to commercialize science/technology discovered or developed by academic researchers. . ☐ Yes ☐ No

c. This company received venture capital funding in 2008 . . . . . ☐ Yes ☐ No

3•42 – 3•44 Not applicable to this form

R&D Funded or Paid for by Others

What does this section cover?

This section requests information about your company's R&D activities that are funded or paid for by others not owned by your company (funded R&D). R&D reported in the last section should not be included in responses to this section.

Please answer Questions 4·1 to 4·3 to see if your company should fill out this section.

What is funded R&D?

Funded R&D is R&D your company performs that is funded or paid for by others not owned by your company. Examples of funded R&D include R&D performed under contract for a customer, R&D supported by a government grant, and R&D that is performed under a reimbursable agreement with business partners.

Because the costs for this work are not paid for by your company, they are not accounted for as R&D expenses, even though the nature of the work may be identical to other activities that are accounted for as R&D expenses by your company.

See definitions of worldwide and domestic on page 3.

Worldwide R&D performed by your company

4•1 **What were your company's total worldwide costs in 2008 for R&D that was funded or paid for by others not owned by your company?**

Include:
- Cost of sales and indirect costs, such as overhead for contract R&D services provided to others not owned by your company
- R&D costs paid for by your foreign owner, if your company is foreign-owned
- Costs for R&D supported by grants from government agencies or private foundations
- Costs paid for by others for the development, production, and testing of prototypes prior to their introduction to the market
- Costs paid for by others for phase I - III medical clinical trials of medical products
- Independent research and development (IR&D) costs for which your company anticipates reimbursement by the U.S. federal government through indirect charges on government contracts
- Costs reimbursed by business partners, such as through cost-sharing agreements

Exclude:
- Costs accounted for as R&D expenses by your company (reported in Question 2·1)
- Payments in excess of the actual cost of the R&D (such as profits or fees)
- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Costs for routine testing of products currently on the market
- Costs for phase IV medical clinical trials or other post-marketing testing performed for medical products
- Costs for R&D performed by FFRDCs (Federally Funded Research and Development Centers) your company administers
- Bid and proposal (B&P) costs

$Bil.	Mil.	Thou.

4•2 **How much of the 2008 worldwide costs reported in Question 4•1 for R&D that was funded or paid for by others not owned by your company was for R&D performed by your company and how much was for R&D performed by others not owned by your company, such as subcontractors or subgrantees?**

	$Bil.	Mil.	Thou.
a. R&D performed by your company			
b. R&D performed by others not owned by your company, such as subcontractors or subgrantees			
c. **Total** (equals Question 4·1)			

Include:
- All costs for R&D performed by your company's full-time, part-time, and temporary employees

4•3 **Was the amount entered in Question 4•2, line a, greater than zero?**

☐ Yes → **Continue with Question 4•4**

☐ No → **Skip to page 20**

4•4 **How much of the 2008 worldwide R&D performed by your company that was funded by others reported in Question 4•2, line a, was performed in (a) the United States, and (b) all other countries?**

	$Bil.	Mil.	Thou.
a. United States (domestic)			
b. All other countries			
c. **Total** (equals Question 4·2, line a)			

4•5 **Not applicable to this form**

4•6 **How much of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was for the following types of costs?**

	$Bil.	Mil.	Thou.
a. Gross annual payroll–wages and salaries of R&D employees and officers excluding fringe benefits			
b. Employer's cost for fringe benefits			
c. All other costs			
d. **Total** (equals Question 4•4, line a)			

Include:
- Disability benefits
- Life and medical insurance
- Paid holidays, time off benefits, vacation, annual, sick, and maternity leave
- Retirement benefits, pension, and social security contributions

4•7 **Not applicable to this form**

4•8 **How much of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was funded by each of the following?**

Include
- If your company is a subcontractor or subgrantee, report the original source of funding

Example: Company K is a car manufacturer and Company L is a glass manufacturer. In 2008, Company K is awarded a U.S. federal government contract to develop a new type of armored car. Company K performs some of the R&D itself and subcontracts the development of the car's bulletproof glass windshield to Company L. Both Company K and Company L would include their R&D costs for this project in the calculation for line c of this question.

	$Bil.	Mil.	Thou.
a. Other companies located inside the United States			
b. Other companies located outside the United States			
c. U.S. federal government agencies or laboratories			
d. U.S. state government agencies or laboratories (50 United States and D.C.)			
e. Foreign government agencies or laboratories			
f. All other organizations inside the United States			
g. All other organizations located outside the United States			
h. **Total** (equals Question 4•4, line a)			

4•9 **Not applicable to this form**

4•10 **How much of the R&D funded by U.S. federal government agencies or laboratories reported in Question 4•8, line c, was funded by the following agencies?**

	$Bil.	Mil.	Thou.
a. Department of Defense			
b. Department of Energy			
c. National Aeronautics and Space Administration			
d. National Institutes of Health			
e. All other			
f. **Total** (equals Question 4·8, line c)			

4•11 **Not applicable to this form**

4•12 **a. In which state (including the District of Columbia) did your company perform the largest dollar amount of R&D funded or paid for by others in 2008?**

State

b. How much of the following three funded R&D amounts was performed in the state reported above:

(1) 2008 R&D funded by the U.S. federal government reported in Question 4•8, line c

(2) 2008 R&D funded by all nonfederal sources

(3) 2008 total domestic R&D performed by your company that was funded by others reported in Question 4•4, line a

(1) Federal			(2) Nonfederal			(3) Total		
$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.	$Bil.	Mil.	Thou.

4•13 **What are your company's worldwide projected costs in 2009 for R&D performed by your company that will be paid for by others?**

$Bil.	Mil.	Thou.

4•14 **How much of the projected costs in 2009 for R&D performed by your company that will be paid for by others reported in Question 4•13 will be performed in the domestic United States?**

$Bil.	Mil.	Thou.

4•15 **How much of the projected costs in 2009 for domestic R&D performed by your company that will be paid for by others reported in Question 4•14 will be paid for by U.S. federal government agencies?**

$Bil.	Mil.	Thou.

Characteristics of domestic R&D performed by your company that was funded by others

4•16 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, was for the following categories?

	Percent
a. Research-planned, systematic pursuit of new knowledge or understanding . . .	%
b. Development–systematic use of research and practical experience to produce new or significantly improved goods, services, or processes	%
c. **Total**	1 0 0 %

4•17 If you reported any research in Question 4•16, line a, what percentage of that research was for the following categories?

	Percent
a. Applied research–activity aimed at solving a specific problem or meeting a specific commercial objective.	%
b. Basic research–activity aimed at acquiring new knowledge or understanding without specific immediate commercial application or use.	%
c. **Total**	1 0 0 %

4•18 – 4•19 Not applicable to this form

4•20 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had defense applications, including military applications and general security-related R&D?

Percent: %

4•21 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had health or medical applications?

Percent: %

4•22 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?

Example: Company L is a semiconductor manufacturer. Its products are not designed specifically for energy applications, but 10% of its domestic R&D performed by its company is focused on improving the energy efficiency of its products. Based on these facts, Company L reports "10%" for this question.

Percent: %

4•23 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had environmental protection applications, including pollution abatement R&D?

Percent: %

4•24 What percentage of the domestic R&D performed by your company that was funded by others reported in Question 4•4, line a, had agricultural applications?

Percent: %

4•25 – 4•30 Not applicable to this form

R&D Human Resources

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.

Who are R&D employees?

R&D employees include all employees providing direct support to either R&D paid for by your company ***or*** R&D paid for by others not owned by your company, such as R&D your company performs under a grant or contract. Include scientists and engineers working on R&D as well as R&D managers, technicians, administrators, clerical staff, and interns providing direct support to R&D.

R&D employees do not include staff providing indirect support, such as security guards and cafeteria workers. Leased employees, temps, and on-site consultants should not be counted as R&D employees.

What is a full-time equivalent (FTE)?

A full-time equivalent takes into account employees who do not work full-time or for employees who do not work on R&D activities full-time. For example, an employee who works half-time would be counted as one employee on a headcount basis but as one-half (½) an FTE employee. Similarly, a full-time employee hired in June would be counted as one-half (½) an FTE employee. The number of FTEs and the headcount may differ for your company.

See definitions of worldwide and domestic on page 3.

Worldwide employees

5•1 **What was the total number of employees working at your company worldwide for the pay period that included March 12, 2008?**

Include:
- For the domestic employees, all employees whose payroll was reported on IRS Form 941, Employer's Quarterly Federal Tax Return
- Employees in all activities during the pay period that includes March 12, 2008
- Employees on paid sick leave, paid holidays, and paid vacations during the pay period that included March 12, 2008

Exclude:
- Leased or temporary employees and on-site consultants

Number

5•2 **How many of your company's total worldwide employees reported in Question 5•1 were R&D employees?**

Include:
- R&D scientists, engineers, technicians, administrators, clerical staff, and interns
- Managers of R&D scientists and engineers

Exclude:
- Staff providing indirect support, such as security guards and cafeteria workers

Number

5•3 – **5•4** **Not applicable to this form**

Domestic employees

5•5 **How many of the worldwide employees reported in Question 5•1 were domestic employees–employed by your company's domestic operations?**

Include:
- All employees whose payroll was reported on IRS Form 941, Employer's Quarterly Federal Tax Return
- Employees on paid sick leave, paid holidays, and paid vacations during the pay period that included March 12, 2008

Number

5•6 **How many of your company's total domestic employees reported in Question 5•5 were R&D employees?**

Include:
- R&D scientists, engineers, technicians, administrators, clerical staff, and interns
- Managers of R&D scientists and engineers

Exclude:
- Staff providing indirect support, such as security guards and cafeteria workers

Number

5•7 **How many of the domestic R&D employees reported in Question 5•6 were (1) female employees, (2) male employees, and (3) total employees, working in the R&D occupations listed below?**

	(1) Female Employees	(2) Male Employees	(3) Total Employees
a. R&D engineers and their managers			
b. R&D scientists and their managers (not already reported in line a)			
c. R&D technicians and technologists.			
d. R&D support staff (clerical and other).			
e. **Total domestic R&D employees**.			

Total equals Question 5.6

5•8 **Of the total domestic R&D scientists and engineers and their managers reported in Question 5•7, lines a and b, how many had the following as their highest educational degree?**

	Number
a. PhD (including EngD, ScD, excluding MD, JD, and EdD)	
b. Other college degrees	
c. All other	
d. **Total domestic R&D scientists and engineers** (equals Question 5·7, lines a and b)	

5•9 **Not applicable to this form**

Full-time equivalents (FTEs)

5•10 **What was the number of domestic full-time equivalent (FTE) scientists and engineers engaged in R&D activities during 2008?**

Full-time equivalents account for R&D scientists and engineers who do not work full-time and R&D scientists and engineers who do not work on R&D activities full-time. For example, a scientist or engineer who works half-time would be counted as one employee on a headcount basis but as one-half (½) an FTE employee. Similarly, a full-time employee hired in June would be counted as one-half (½) an FTE employee. The number of FTEs and the headcount may differ for your company.

Number

5•11 **How many of the domestic R&D FTE scientists and engineers reported in Question 5•10 were engaged in R&D activities funded by U.S. federal government grants or contracts during 2008?**

Number

Intellectual Property, Technology Transfer, and Innovation

What does this section cover?

This section requests information about intellectual property, technology transfer activities, and actions taken to improve company performance, such as:

- Patents
- Patent licensing
- Protection of intellectual property
- Transfer of intellectual property
- Innovation activity

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 firms. 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.

6•1 **Did your company introduce any of the following during the three-year period, 2006 to 2008?**

a. New or significantly improved goods (excluding the simple resale of new goods purchased from others and changes of a solely aesthetic nature) . . . . . ☐ Yes ☐ No

b. New or significantly improved services. . . . . ☐ Yes ☐ No

c. New or significantly improved methods of manufacturing or producing goods or services. . . . . ☐ Yes ☐ No

d. New or significantly improved logistics, delivery, or distribution methods for your inputs, goods, or services. . . . . ☐ Yes ☐ No

e. New or significantly improved support activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing . . . . . ☐ Yes ☐ No

Patents

6•2 **How many patents did your company apply for in 2008 from the U.S. Patent and Trademark Office (USPTO)?**

Number

6•3 **What percentage of the patent applications reported in Question 6•2 has your company applied for or plans to apply for in foreign jurisdictions?**

Percent %

6•4 **What percentage of the patent applications reported in Question 6•2 was for inventions that originated within your company's organized R&D activities?**

Percent %

6•5 **How many patents were issued to your company in 2008 by the USPTO?**

Number

6•6 **What percentage of your company's inventions considered for patenting in 2008 resulted in patent applications?**

Percent %

Patent licensing

6•7 **In 2008, what was the amount of your company's revenue from patents licensed to others not owned by your company?**

$Bil. Mil. Thou.

6•8 **How many new agreements did your company enter into during 2008 to license patents to others not owned by your company?**

Number

Intellectual property transfer activities

6•9 Did your company perform the following activities in 2008?

a. Transferred intellectual property to others not owned by your company through participation in technical assistance or "know how" agreements . . . . . ☐ Yes ☐ No

b. Received intellectual property from others not owned by your company through participation in technical assistance or "know how" agreements . . . . . ☐ Yes ☐ No

c. Transferred intellectual property to a spin-off or spin-out of your company . . . . . ☐ Yes ☐ No

d. Received intellectual property 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 intellectual property . . . . . ☐ Yes ☐ No

f. Acquired any financial interest in another company in order to gain access to their intellectual property . . . . . ☐ Yes ☐ No

g. Participated in cross-licensing agreements–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 intellectual property 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 intellectual property not owned by your company. . . . . ☐ Yes ☐ No

Intellectual property protection

6•10 During 2008, how important to your company were the following types of intellectual property protection?

	Very important	Somewhat important	Not important
a. Utility patents (patents for invention)	☐	☐	☐
b. Design patents (patents for appearance)	☐	☐	☐
c. Trademarks	☐	☐	☐
d. Copyrights	☐	☐	☐
e. Trade secrets	☐	☐	☐
f. Mask works (copyright protection for semiconductor products)	☐	☐	☐

6•11 – 6•13 Not applicable to this form

Reporting information

7•1 Is the information in this survey reported on a calendar year basis?

☐ Yes ➔ **Continue**

☐ No ➔ **Enter time period covered below:**

From (MM) (YYYY) To (MM) (YYYY)

7•2 Approximately how long did it take to complete this survey? Hours

7•3 Please list the names and titles of the persons who provided data for this survey.

Name	Title

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 12 hours to complete this form, with 6.9 hours being the average. This includes time to read instructions, develop or assemble material, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0912,
U.S. Census Bureau
4600 Silver Hill Road
AMSD-3K138
Washington, D.C. 20233

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

~ **Thank you for completing your 2008 Business R&D and Innovation Survey** ~

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

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