



Annual Business Survey: Tables for Data Year 2017

Detailed Statistical Tables | NSF 21-303 | November 24, 2020

General Notes	2
Data Tables	3
Technical Notes	178
Technical Tables	188
Acknowledgments and Suggested Citation	194
Contact Us	195

General Notes

The Annual Business Survey (ABS) is the primary source of information on domestic research and development expenditures and the R&D workforce for companies with one to nine employees operating in the 50 U.S. states and the District of Columbia. The survey is conducted by the U.S. Census Bureau in accordance with an interagency agreement with the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation. In addition to R&D, the ABS collects data on innovation, technology, intellectual property, and business owner characteristics. The first year of data collection for the ABS is 2017.

The statistical tables included in this report supplement analytical InfoBriefs from NCSES, available at <https://nces.nsf.gov/pubs/nsf21302/>.

The target population for the ABS consists of companies with at least one establishment physically located in the United States that are in business during the survey year and data collection period and have receipts of \$1,000 or more.

The ABS includes questions from multiple reference periods. For the first cycle of the ABS the title of the survey used the reference year (2017). However, subsequent cycles of the ABS will use the collection year rather than reference year in the survey title. So the second cycle of the ABS will be referred to as the 2019 ABS and will include data for the reference year 2018.

The 2017 ABS sampling universe was constructed from the final 2016 Business Register. The Business Register is the Census Bureau's comprehensive database of U.S. business establishments and companies, and combines data from business tax returns with data collected in the Economic Census and other Census Bureau surveys. The 2016 Business Register includes sole proprietorships, partnerships, and corporations reporting business activity to the Internal Revenue Service (IRS).

Data Tables

Survey aggregate estimates: 2017

Table Title

- | | |
|---|--|
| 1 | Annual Business Survey aggregate R&D estimates for companies with 1–9 employees, by questionnaire reference and company size: 2017 |
|---|--|

Total R&D cost, by industry, employment size, sex, and race and ethnicity: 2017

Table Title

- | | |
|-----|--|
| 2 | Total R&D cost for companies with 1–9 employees, by selected industry and company size: 2017 |
| 3 | Total R&D cost for companies with 1–9 employees, by firm classification of sex and company size: 2017 |
| 4 | Total R&D cost for companies with 1–9 employees, by firm classification of race and ethnicity and company size: 2017 |
| 5-1 | Total R&D cost for companies with 1–9 employees, by selected industry and R&D program size: 2017 |
| 5-2 | Total R&D cost for companies with 1–4 employees, by selected industry and R&D program size: 2017 |
| 5-3 | Total R&D cost for companies with 5–9 employees, by selected industry and R&D program size: 2017 |
| 6-1 | Total R&D cost for companies with 1–9 employees, by selected industry and source of funds: 2017 |
| 6-2 | Total R&D cost for companies with 1–4 employees, by selected industry and source of funds: 2017 |
| 6-3 | Total R&D cost for companies with 5–9 employees, by selected industry and source of funds: 2017 |
| 7-1 | Total R&D cost for companies with 1–9 employees, by selected industry and type of R&D: 2017 |
| 7-2 | Total R&D cost for companies with 1–4 employees, by selected industry and type of R&D: 2017 |
| 7-3 | Total R&D cost for companies with 5–9 employees, by selected industry and type of R&D: 2017 |
| 8-1 | Total R&D cost for companies with 1–9 employees, by selected industry and type of cost: 2017 |
| 8-2 | Total R&D cost for companies with 1–4 employees, by selected industry and type of cost: 2017 |
| 8-3 | Total R&D cost for companies with 5–9 employees, by selected industry and type of cost: 2017 |

Total R&D paid to others: 2017

Table Title

- | | |
|-----|--|
| 9-1 | Total R&D paid for by the company and performed by others for companies with 1–9 employees, by selected industry and type of R&D performer: 2017 |
| 9-2 | Total R&D paid to others, for companies with 1–4 employees, by selected industry and type of R&D performer: 2017 |

Table Title

9-3 Total R&D paid to others, for companies with 5–9 employees, by selected industry and type of R&D performer: 2017

Total sales and R&D: 2017

Table Title

10 Total sales and R&D as a percentage of total sales for companies with 1–9 employees, by selected industry and company size: 2017

Total R&D cost, by state: 2017

Table Title

11 Total R&D cost for companies with 1–9 employees, by state and company size: 2017

12 Total R&D cost for companies with 1–9 employees, by state and source of funds: 2017

R&D employees: 2017

Table Title

13 R&D employees for companies with 1–9 employees, by selected industry and company size: 2017

14 R&D employees for companies with 1–9 employees, by selected industry and sex: 2017

15 R&D employees for companies with 1–9 employees, by selected industry and domestic or foreign: 2017

16 Domestic R&D employees for companies with 1–9 employees, by selected industry and R&D occupation: 2017

17 Domestic R&D researchers for companies with 1–9 employees, by selected industry and education level: 2017

R&D tax credit: 2017

Table Title

18-1 Tax credit for research activities for companies with R&D expenditures and 1–9 employees, by industry: 2017

18-2 Tax credit for research activities for companies with R&D expenditures and 1–4 employees, by industry: 2017

18-3 Tax credit for research activities for companies with R&D expenditures and 5–9 employees, by industry: 2017

Product innovation: 2015–17

Table Title

19 Product innovation in companies, by industry: 2015–17

20 Product innovation in companies, by company size: 2015–17

21 Product innovation in companies, by firm classification of sex: 2015–17

Table Title

22 Product innovation in companies, by firm classification of race and ethnicity: 2015–17

Process innovation: 2015–17

Table Title

23 Process innovation in companies, by industry: 2015–17

24 Process innovation in companies, by company size: 2015–17

25 Process innovation in companies, by firm classification of sex: 2015–17

26 Process innovation in companies, by firm classification of race and ethnicity: 2015–17

Marketing innovation: 2015–17

Table Title

27 Marketing innovation in companies, by industry: 2015–17

28 Marketing innovation in companies, by company size: 2015–17

29 Marketing innovation in companies, by firm classification of sex: 2015–17

30 Marketing innovation in companies, by firm classification of race and ethnicity: 2015–17

Organizational innovation: 2015–17

Table Title

31 Organizational innovation in companies, by industry: 2015–17

32 Organizational innovation in companies, by company size: 2015–17

33 Organizational innovation in companies, by firm classification of sex: 2015–17

34 Organizational innovation in companies, by firm classification of race and ethnicity: 2015–17

Product or process innovation: 2015–17

Table Title

35 Product or process innovation in companies, by industry: 2015–17

36 Product or process innovation in companies, by company size: 2015–17

37 Product or process innovation in companies, by firm classification of sex: 2015–17

38 Product or process innovation in companies, by firm classification of race and ethnicity: 2015–17

Marketing or organizational innovation: 2015–17

Table Title

39	Marketing or organizational innovation in companies, by industry: 2015–17
40	Marketing or organizational innovation in companies, by company size: 2015–17
41	Marketing or organizational innovation in companies, by firm classification of sex: 2015–17
42	Marketing or organizational innovation in companies, by firm classification of race and ethnicity: 2015–17

All innovation: 2015–17

Table Title

43	Innovating companies, by industry: 2015–17
44	Innovating companies, by company size: 2015–17
45	Innovating companies, by firm classification of sex: 2015–17
46	Innovating companies, by firm classification of race and ethnicity: 2015–17

Product innovation and R&D activity: 2015–17

Table Title

47	Product innovation in companies, by industry and R&D activity: 2015–17
48	Product innovation in companies, by company size and R&D activity: 2015–17
49	Product innovation in companies, by firm classification of sex and R&D activity: 2015–17
50	Product innovation in companies, by firm classification of race and ethnicity and R&D activity: 2015–17

Process innovation and R&D activity: 2015–17

Table Title

51	Process innovation in companies, by industry and R&D activity: 2015–17
52	Process innovation in companies, by company size and R&D activity: 2015–17
53	Process innovation in companies, by firm classification of sex and R&D activity: 2015–17
54	Process innovation in companies, by firm classification of race and ethnicity and R&D activity: 2015–17

Product or process innovation and R&D activity: 2015–17

Table Title

55	Product or process innovation in companies, by industry and R&D activity: 2015–17
----	---

Table Title

56	Product or process innovation in companies, by company size and R&D activity: 2015–17
57	Product or process innovation in companies, by firm classification of sex and R&D activity: 2015–17
58	Product or process innovation in companies, by firm classification of race and ethnicity and R&D activity: 2015–17
59	Product or process innovation in companies, by innovation activity and company size: 2015–17

Innovation and factors that interfere with innovation: 2015–17

Table Title

60	Innovating companies, by factors interfering with innovation and company size: 2015–17
61	Non-innovating companies that considered innovating, by factors preventing innovation and company size: 2015–17
62	Non-innovating companies with no compelling reason to innovate, by reasons for not innovating and company size: 2015–17

Innovation and regulations: 2015–17

Table Title

63-1	Innovating companies, by effect of regulations or legislation on innovation: 2015–17
63-2	Innovating companies, by effect of regulations or legislation on innovation, for companies with 1–9 employees: 2015–17
63-3	Innovating companies, by effect of regulations or legislation on innovation, for companies with 10 or more employees: 2015–17

Innovation and partnerships: 2015–17

Table Title

64	Innovating companies, by type and location of cooperation partner, by company size: 2015–17
65	Companies with abandoned or suspended innovation activity, by industry: 2015–17
66	Companies with abandoned or suspended innovation activity, by company size: 2015–17
67	Product or process innovation in companies with abandoned or suspended innovation, by R&D activity: 2015–17

Incomplete but ongoing innovation: 2015–17

Table Title

68	Companies with incomplete but ongoing innovation activity, by industry: 2017
69	Companies with incomplete but ongoing innovation activity, by company size: 2017
70	Product or process innovation in companies with incomplete but ongoing innovation activity, by R&D activity: 2017

New-to-market or new-to-business product innovation: 2015–17

Table Title

71	Companies with new-to-market product innovation, by industry: 2015–17
72	Companies with new-to-market product innovation, by company size: 2015–17
73	Companies with new-to-market product innovation, by R&D activity: 2015–17
74	Companies with new-to-business product innovation, by industry: 2015–17
75	Companies with new-to-business product innovation, by company size: 2015–17
76	Companies with new-to-business product innovation, by R&D activity: 2015–17

Innovation and public support: 2015–17

Table Title

77	Product or process innovation in companies with public support, by industry: 2015–17
78	Product or process innovation in companies with public support, by company size: 2015–17
79	Product or process innovation in companies with public support, by R&D activity: 2015–17
80	Product innovation in companies with public support, by industry: 2015–17
81	Product innovation in companies with public support, by company size: 2015–17
82	Product innovation in companies with public support, by R&D activity: 2015–17
83	Process innovation in companies with public support, by industry: 2015–17
84	Process innovation in companies with public support, by company size: 2015–17
85	Process innovation in companies with public support, by R&D activity: 2015–17

Intellectual property: 2017

Table Title

86-1	Patenting companies and total number of patent applications and patents currently owned, by industry: 2017
------	--

Table Title

86-2	Patenting companies and total number of patent applications and patents currently owned for companies with 1–9 employees, by industry: 2017
86-3	Patenting companies and total number of patent applications and patents currently owned for companies with 10 or more employees, by industry: 2017
87-1	Companies participating in intellectual property transfer activities: 2017
87-2	Companies participating in intellectual property transfer activities, for companies with 1–9 employees: 2017
87-3	Companies participating in intellectual property transfer activities, for companies with 10 or more employees: 2017
88-1	Product or process innovation in companies participating in intellectual property transfer activities, by R&D activity: 2017
88-2	Product or process innovation in companies participating in intellectual property transfer activities for companies with 1–9 employees, by R&D activity: 2017
88-3	Product or process innovation in companies participating in intellectual property transfer activities for companies with 10 or more employees, by R&D activity: 2017

Importance of intellectual property: 2017

Table Title

89-1	Importance of intellectual property protection, by type: 2017
89-2	Importance of intellectual property protection for companies with 1–9 employees, by type: 2017
89-3	Importance of intellectual property protection for companies with 10 or more employees, by type: 2017
90	Importance of utility patents, by industry: 2017
91	Importance of utility patents, by company size: 2017
92	Importance of design patents, by industry: 2017
93	Importance of design patents, by company size: 2017
94	Importance of trademarks, by industry: 2017
95	Importance of trademarks, by company size: 2017
96	Importance of copyrights, by industry: 2017
97	Importance of copyrights, by company size: 2017
98	Importance of trade secrets, by industry: 2017
99	Importance of trade secrets, by company size: 2017
100	Importance of nondisclosure agreements, by industry: 2017

Table Title

101 Importance of nondisclosure agreements, by company size: 2017

Technology: 2017

Table Title

102-1 Digital share of business activity for all companies, by type: 2017

102-2 Digital share of business activity for companies with 1–9 employees, by type: 2017

102-3 Digital share of business activity for companies with 10 or more employees, by type: 2017

103-1 Cloud service purchases share for all companies, by IT function: 2017

103-2 Cloud service purchases share for companies with 1–9 employees, by IT function: 2017

103-3 Cloud service purchases share for companies with 10 or more employees, by IT function: 2017

104-1 Use of business technologies, by type: 2017

104-2 Use of business technologies for companies with 1–9 employees, by type: 2017

104-3 Use of business technologies, by type, for companies with 10 or more employees: 2017

TABLE 1

Annual Business Survey aggregate R&D estimates for companies with 1–9 employees, by questionnaire reference and company size: 2017

(Thousands of U.S. dollars)

Company and financial information	All companies	1–4 employees	5–9 employees
Total R&D cost	6,655,717	3,525,771	3,129,946
R&D for salaries, wages, and fringe benefits	3,656,750	1,895,125	1,761,625
R&D for expensed machinery and equipment (not capitalized)	256,952	153,000	103,952
R&D for materials and supplies	583,126	319,901	263,224
R&D for payments to business partners for collaborative R&D	361,014	228,498	132,516
R&D for purchased R&D services	604,337	285,706	318,632
R&D for depreciation on R&D property and equipment	91,733	51,480	40,253
R&D for other costs	1,101,806	592,061	509,745
R&D paid for by company	5,345,991	2,806,839	2,539,152
R&D paid for by foreign owner	195,846	94,969	100,877
R&D paid for by another U.S. business	235,492	162,868	72,625
R&D paid for other businesses located outside the United States	73,188	46,658	26,530
R&D paid for by U.S. university or college	17,742	11,093	6,649
R&D paid for by U.S. nonprofit organization	15,548	10,015	5,533
R&D paid for by U.S. federal government	697,014	341,752	355,263
R&D paid for by U.S. state or local government	21,483	13,568	7,915
R&D paid for by other sources	53,412	38,009	15,403
R&D paid by company and performed by others	965,351	514,204	451,147
R&D paid for basic research	921,124	478,702	442,423
R&D paid for applied research	2,230,773	1,265,002	965,771
R&D paid for development	3,503,820	1,782,067	1,721,753

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States. R&D data are tabulated only for records reporting \$50,000 or more in R&D expenditures.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 2

Total R&D cost for companies with 1–9 employees, by selected industry and company size: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	All companies		1–4 employees		5–9 employees	
		Companies (number)	Amount	Companies (number)	Amount	Companies (number)	Amount
All selected industries	31–33, 42, 51, 5413, 5415, 5417	18,395	6,655,717	13,003	3,525,771	5,392	3,129,946
Manufacturing industries	31–33	2,580	751,892	1,890	471,715	689	280,177
Food, beverage, and tobacco products	311–12	40	10,136	34	7,401	6	2,735
Textile, apparel, and leather products	313–16	10	2,225	7	560	S	S
Wood products	321	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0
Petroleum and coal products	324	S	S	0	0	S	S
Chemicals	325	455	192,475	348	139,728	107	52,747
Pharmaceuticals and medicines	3254	143	103,345	107	64,315	36	39,030
Chemicals, excluding pharmaceuticals	other 325	312	89,130	241	75,413	71	13,717
Plastics and rubber products	326	32	9,654	12	1,022	20	8,632
Nonmetallic mineral products	327	6	1,836	0	0	6	1,836
Primary metals	331	3	1,080	3	1,080	0	0
Fabricated metal products	332	16	4,414	14	4,264	S	S
Machinery	333	316	49,607	188	21,631	128	27,976
Computer and electronic products	334	1,133	344,800	832	199,930	301	144,870
Semiconductor and other electronic components	3344	253	43,626	209	31,133	44	12,493
Navigational, measuring, electromedical, and control instruments	3345	592	241,129	450	144,602	142	96,527
Other computer and electronic products	other 334	288	60,045	173	24,195	115	35,850
Electrical equipment, appliances, and components	335	144	40,142	132	29,384	12	10,757
Transportation equipment	336	88	14,281	74	12,226	14	2,055
Aerospace products and parts	3364	17	7,326	16	6,670	S	S
Other transportation equipment	other 336	70	6,954	58	5,556	12	1,398
Furniture and related products	337	0	0	0	0	0	0
Miscellaneous manufacturing	339	335	80,481	245	54,487	90	25,993
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	15,816	5,903,825	11,112	3,054,056	4,703	2,849,769
Wholesale trade	42	256	115,357	125	35,943	132	79,414
Information	51	1,972	738,905	1,254	350,872	719	388,034
Software publishers	5112	1,430	461,838	891	245,797	540	216,041
Information, excluding software publishers	51 (excluding 5112)	542	277,067	363	105,075	179	171,992
Architectural, engineering, and related services	5413	945	461,192	615	245,046	330	216,146
Computer systems design and related services	5415	9,220	2,240,695	6,802	1,336,568	2,418	904,128
Scientific research and development services	5417	3,423	2,347,675	2,318	1,085,628	1,105	1,262,048
Research and development in nanotechnology	541713	654	329,418	470	176,017	184	153,402
Research and development in biotechnology (except nanobiotechnology)	541714	814	806,891	547	350,746	268	456,145

TABLE 2

Total R&D cost for companies with 1–9 employees, by selected industry and company size: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	All companies		1–4 employees		5–9 employees	
		Companies (number)	Amount	Companies (number)	Amount	Companies (number)	Amount
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	1,801	1,163,300	1,185	533,107	616	630,193
Social sciences and humanities research and development	541720	143	45,483	111	25,014	33	20,469

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 3

Total R&D cost for companies with 1–9 employees, by firm classification of sex and company size: 2017

(Thousands of U.S. dollars)

Sex of owners	All companies		1–4 employees		5–9 employees	
	Companies (number)	Amount	Companies (number)	Amount	Companies (number)	Amount
All companies	18,395	6,655,717	13,003	3,525,771	5,392	3,129,946
Female majority owned	2,028	594,492	1,449	354,805	578	239,687
Male majority owned	13,899	4,647,110	9,814	2,542,062	4,085	2,105,048
Equally owned by male and female	1,559	443,980	1,260	276,307	299	167,672
Unclassifiable	909	i 970,134	i 479	i 352,596	i 430	i 617,539

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

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 4

Total R&D cost for companies with 1–9 employees, by firm classification of race and ethnicity and company size: 2017

(Thousands of U.S. dollars)

Race and ethnicity of owners	All companies		1–4 employees		5–9 employees	
	Companies (number)	Amount	Companies (number)	Amount	Companies (number)	Amount
All companies	18,395	6,655,717	13,003	3,525,771	5,392	3,129,946
Race						
White	13,470	4,385,532	9,459	2,394,629	4,011	1,990,903
Asian	3,556	1,166,418	2,733	710,073	823	456,345
Black or African American	218	44,676	146	28,620	72	16,056
American Indian or Alaska Native	93	15,064	74	13,062	19	2,002
Native Hawaiian or Other Pacific Islander	4	1,089	3	691	S	S
Ethnicity						
Hispanic or Latino	403	100,872	329	78,948	74	21,924
Equally Hispanic/ Not Hispanic or Latino	110	34,681	86	24,633	25	10,048
Not Hispanic or Latino	16,973	5,550,029	12,109	3,069,594	4,864	2,480,435
Minority status						
Minority	4,284	1,353,643	3,312	854,566	972	499,077
Equally minority/ nonminority	417	188,775	281	62,757	136	126,017
Nonminority	12,785	4,143,165	8,931	2,255,851	3,854	1,887,313
Unclassifiable	909	i 970,134	i 479	i 352,596	i 430	i 617,539

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

Note(s):

Detail may not add to total because of rounding. Companies may be included in one or more race and ethnicity category. Companies classified as minority-owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 5-1

Total R&D cost for companies with 1–9 employees, by selected industry and R&D program size: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	R&D program size (total)				
		Total	\$50,000– \$100,000	\$100,000– \$499,999	\$500,000– \$999,999	\$1 million or more
All selected industries	31–33, 42, 51, 5413, 5415, 5417	6,655,717	313,614	2,032,668	1,583,168	2,726,267
Manufacturing industries	31–33	751,892	54,372	276,801	186,786	233,932
Food, beverage, and tobacco products	311–12	10,136	0	6,068	1,689	S
Textile, apparel, and leather products	313–16	2,225	560	0	S	0
Wood products	321	0	0	0	0	0
Paper	322	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0
Petroleum and coal products	324	S	0	0	S	0
Pharmaceuticals and medicines	3254	103,345	1,971	19,007	13,027	69,341
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	89,130	5,544	29,405	34,416	19,765
Plastics and rubber products	326	9,654	787	2,453	S	5,614
Nonmetallic mineral products	327	1,836	0	1,836	0	0
Primary metals	331	1,080	0	1,080	0	0
Fabricated metal products	332	4,414	240	4,174	0	0
Machinery	333	49,607	7,694	28,607	13,306	0
Computer and electronic products	334	344,800	24,183	111,944	94,452	114,220
Electrical equipment, appliances, and components	335	40,142	735	27,812	0	11,594
Transportation equipment	336	14,281	2,989	7,028	2,092	S
Furniture and related products	337	0	0	0	0	0
Miscellaneous manufacturing	339	80,481	9,668	37,385	24,579	8,848
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	5,903,825	259,242	1,755,867	1,396,382	2,492,335
Wholesale trade	42	115,357	514	43,009	21,292	50,543
Information	51	738,905	24,118	221,002	173,104	320,681
Software publishers	5112	461,838	19,770	174,734	111,760	155,574
Information, excluding software publishers	51 (excluding 5112)	277,067	4,348	46,268	61,344	165,107
Architectural, engineering, and related services	5413	461,192	9,077	104,478	123,334	224,304
Computer systems design and related services	5415	2,240,695	194,084	1,001,553	609,958	435,100
Scientific research and development services	5417	2,347,675	31,448	385,825	468,694	1,461,708

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 5-2

Total R&D cost for companies with 1–4 employees, by selected industry and R&D program size: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	R&D program size (total)				
		Total	\$50,000– \$100,000	\$100,000– \$499,999	\$500,000– \$999,999	\$1 million or more
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,525,771	261,757	1,423,727	858,342	981,945
Manufacturing industries	31–33	471,715	45,744	194,717	117,292	113,961
Food, beverage, and tobacco products	311–12	7,401	0	5,712	1,689	0
Textile, apparel, and leather products	313–16	560	560	0	0	0
Wood products	321	0	0	0	0	0
Paper	322	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0
Petroleum and coal products	324	0	0	0	0	0
Pharmaceuticals and medicines	3254	64,315	1,867	14,537	9,307	38,603
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	75,413	5,428	17,005	33,214	19,765
Plastics and rubber products	326	1,022	609	413	0	0
Nonmetallic mineral products	327	0	0	0	0	0
Primary metals	331	1,080	0	1,080	0	0
Fabricated metal products	332	4,264	S	4,174	0	0
Machinery	333	21,631	6,430	12,939	2,262	0
Computer and electronic products	334	199,930	19,859	78,291	49,864	51,915
Electrical equipment, appliances, and components	335	29,384	735	27,143	0	S
Transportation equipment	336	12,226	2,440	6,372	S	S
Furniture and related products	337	0	0	0	0	0
Miscellaneous manufacturing	339	54,487	7,725	27,050	19,712	0
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	3,054,056	216,013	1,229,009	741,050	867,984
Wholesale trade	42	35,943	440	16,297	19,207	0
Information	51	350,872	20,340	126,506	71,648	132,377
Software publishers	5112	245,797	16,416	93,147	33,143	103,091
Information, excluding software publishers	51 (excluding 5112)	105,075	3,924	33,359	38,506	29,286
Architectural, engineering, and related services	5413	245,046	7,231	74,916	61,447	101,452
Computer systems design and related services	5415	1,336,568	160,786	717,999	333,130	124,652
Scientific research and development services	5417	1,085,628	27,216	293,292	255,617	509,503

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 5-3

Total R&D cost for companies with 5–9 employees, by selected industry and R&D program size: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	R&D program size (total)				
		Total	\$50,000– \$100,000	\$100,000– \$499,999	\$500,000– \$999,999	\$1 million or more
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,129,946	51,857	608,941	724,826	1,744,322
Manufacturing industries	31–33	280,177	8,628	82,084	69,493	119,971
Food, beverage, and tobacco products	311–12	2,735 r	0	357 r	0	S
Textile, apparel, and leather products	313–16	S	0	0	S	0
Wood products	321	0	0	0	0	0
Paper	322	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0
Petroleum and coal products	324	S	0	0	S	0
Pharmaceuticals and medicines	3254	39,030	S	4,470 r	3,719 r	30,738
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	13,717	S	12,399	S	0
Plastics and rubber products	326	8,632 r	S	2,040 r	S	5,614 r
Nonmetallic mineral products	327	1,836 r	0	1,836 r	0	0
Primary metals	331	0	0	0	0	0
Fabricated metal products	332	S	S	0	0	0
Machinery	333	27,976	1,264 r	15,668	11,044 r	0
Computer and electronic products	334	144,870	4,324	33,653	44,588	62,305 r
Electrical equipment, appliances, and components	335	10,757 r	0	669 r	0	10,088 r
Transportation equipment	336	2,055	549 r	S	S	0
Furniture and related products	337	0	0	0	0	0
Miscellaneous manufacturing	339	25,993	1,943 r	10,335	4,867 r	8,848 r
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	2,849,769	43,229	526,857	655,332	1,624,351
Wholesale trade	42	79,414	S	26,712	2,085 r	50,543 r
Information	51	388,034	3,778	94,496	101,456	188,304
Software publishers	5112	216,041	3,354	81,587	78,618	52,483 r
Information, excluding software publishers	51 (excluding 5112)	171,992 r	424 r	12,909	22,838	135,821 r
Architectural, engineering, and related services	5413	216,146	1,846 r	29,562	61,887	122,851
Computer systems design and related services	5415	904,128	33,298	283,554	276,828	310,447
Scientific research and development services	5417	1,262,048	4,232	92,534	213,077	952,205

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 6-1

Total R&D cost for companies with 1–9 employees, by selected industry and source of funds: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
All selected industries	31–33, 42, 51, 5413, 5415, 5417	6,655,717	5,345,991	195,846	235,492	73,188	17,742	15,548	697,014	21,483	53,412
Manufacturing industries	31–33	751,892	649,155	8,233	17,765	2,940	722	2,556	63,218	1,664	5,639
Food, beverage, and tobacco products	311–12	10,136	10,136	0	0	0	0	0	0	0	0
Textile, apparel, and leather products	313–16	2,225	2,225	0	0	0	0	0	0	0	0
Wood products	321	0	0	0	0	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0	0	0	0	0
Petroleum and coal products	324	S	0	0	0	0	0	0	S	0	0
Pharmaceuticals and medicines	3254	103,345	90,699	1,793	5,598	S	S	2,556	1,466	S	S
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	89,130	86,141	0	S	S	40	0	2,643	129	0
Plastics and rubber products	326	9,654	9,654	0	0	0	0	0	0	0	0
Nonmetallic mineral products	327	1,836	1,340	0	S	0	0	0	S	0	0
Primary metals	331	1,080	1,080	0	0	0	0	0	0	0	0
Fabricated metal products	332	4,414	4,414	0	0	0	0	0	0	0	0
Machinery	333	49,607	42,781	0	2,305	184	343	0	3,236	758	0
Computer and electronic products	334	344,800	283,410	5,074	6,813	1,985	263	0	41,571	408	5,276
Electrical equipment, appliances, and components	335	40,142	30,839	1,366	1,234	0	0	0	6,702	0	0
Transportation equipment	336	14,281	11,966	0	1,693	0	0	0	S	0	0
Furniture and related products	337	0	0	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	80,481	74,467	0	0	0	0	0	5,735	S	249
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	5,903,825	4,696,836	187,613	217,727	70,248	17,020	12,992	633,796	19,819	47,773
Wholesale trade	42	115,357	102,099	6,929	S	4,437	552	0	947	305	0
Information	51	738,905	693,570	17,980	2,530	4,945	85	0	18,970	242	584
Software publishers	5112	461,838	438,435	7,860	1,624	4,031	85	0	8,977	242	584

TABLE 6-1

Total R&D cost for companies with 1–9 employees, by selected industry and source of funds: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
Information, excluding software publishers	51 (excluding 5112)	277,067	255,135	10,119 r	906 r	914 r	0	0	9,993 r	0	0
Architectural, engineering, and related services	5413	461,192	279,823	15,939	27,604	8,426 r	3,406 r	0	106,732	5,901	13,361 r
Computer systems design and related services	5415	2,240,695	2,015,120	13,750	95,499	27,349	1,973 r	4,746	57,481	2,252 r	22,527
Scientific research and development services	5417	2,347,675	1,606,224	133,015	92,006	25,093	11,005	8,246	449,666	11,120	11,302

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 6-2

Total R&D cost for companies with 1–4 employees, by selected industry and source of funds: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,525,771	2,806,839	94,969	162,868	46,658	11,093	10,015	341,752	13,568	38,009
Manufacturing industries	31–33	471,715	404,529	1,664 r	12,146	2,872	371	2,556 r	40,874	1,142	5,561 r
Food, beverage, and tobacco products	311–12	7,401	7,401	0	0	0	0	0	0	0	0
Textile, apparel, and leather products	313–16	560 r	560 r	0	0	0	0	0	0	0	0
Wood products	321	0	0	0	0	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0	0	0	0	0
Petroleum and coal products	324	0	0	0	0	0	0	0	0	0	0
Pharmaceuticals and medicines	3254	64,315	59,397	0	386	S	S	2,556 r	743	S	S
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	75,413	73,326	0	S	0	32 r	0	1,816	129 r	0
Plastics and rubber products	326	1,022	1,022	0	0	0	0	0	0	0	0
Nonmetallic mineral products	327	0	0	0	0	0	0	0	0	0	0
Primary metals	331	1,080 r	1,080 r	0	0	0	0	0	0	0	0
Fabricated metal products	332	4,264	4,264	0	0	0	0	0	0	0	0
Machinery	333	21,631	16,006	0	2,011 r	184 r	0	0	2,844 r	586 r	0
Computer and electronic products	334	199,930	163,004	S	6,712	1,985 r	263 r	0	22,413	S	5,197 r
Electrical equipment, appliances, and components	335	29,384	20,082	1,366 r	1,234 r	0	0	0	6,702 r	0	0
Transportation equipment	336	12,226	9,911	0	1,693 r	0	0	0	S	0	0
Furniture and related products	337	0	0	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	54,487	48,474	0	0	0	0	0	5,735 r	S	249 r
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	3,054,056	2,402,309	93,306	150,722	43,786	10,722	7,459	300,878	12,426	32,449
Wholesale trade	42	35,943	23,967	6,929 r	S	4,406 r	552 r	0	0	0	0
Information	51	350,872	314,070	17,966	1,589 r	4,474	85 r	0	11,863 r	242 r	584 r
Software publishers	5112	245,797	224,341	7,846 r	682	3,560 r	85 r	0	8,456 r	242 r	584 r

TABLE 6-2

Total R&D cost for companies with 1–4 employees, by selected industry and source of funds: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
Information, excluding software publishers	51 (excluding 5112)	105,075	89,729	10,119 r	906 r	914 r	0	0	3,407 r	0	0
Architectural, engineering, and related services	5413	245,046	160,537	9,497 r	19,766	354	1,013 r	0	37,223 r	3,293	13,361 r
Computer systems design and related services	5415	1,336,568	1,152,707	7,805	84,716	26,012	1,823 r	4,286 r	44,104	2,093 r	13,022 r
Scientific research and development services	5417	1,085,628	751,028	51,108	44,563	8,540	7,248	3,173	207,688	6,798	5,482

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 6-3

Total R&D cost for companies with 5–9 employees, by selected industry and source of funds: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,129,946	2,539,152	100,877	72,625	26,530	6,649	5,533	355,263	7,915	15,403
Manufacturing industries	31–33	280,177	244,626	6,570	5,619	S	351	0	22,344	522	S
Food, beverage, and tobacco products	311–12	2,735	2,735	0	0	0	0	0	0	0	0
Textile, apparel, and leather products	313–16	S	S	0	0	0	0	0	0	0	0
Wood products	321	0	0	0	0	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0	0	0	0	0
Petroleum and coal products	324	S	0	0	0	0	0	0	S	0	0
Pharmaceuticals and medicines	3254	39,030	31,302	1,793	5,212	0	0	0	723	0	0
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	13,717	12,815	0	0	S	S	0	827	0	0
Plastics and rubber products	326	8,632	8,632	0	0	0	0	0	0	0	0
Nonmetallic mineral products	327	1,836	1,340	0	S	0	0	0	S	0	0
Primary metals	331	0	0	0	0	0	0	0	0	0	0
Fabricated metal products	332	S	S	0	0	0	0	0	0	0	0
Machinery	333	27,976	26,775	0	294	0	343	0	392	171	0
Computer and electronic products	334	144,870	120,406	4,777	101	0	0	0	19,158	350	S
Electrical equipment, appliances, and components	335	10,757	10,757	0	0	0	0	0	0	0	0
Transportation equipment	336	2,055	2,055	0	0	0	0	0	0	0	0
Furniture and related products	337	0	0	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	25,993	25,993	0	0	0	0	0	0	0	0
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	2,849,769	2,294,527	94,307	67,005	26,462	6,298	5,533	332,919	7,393	15,325
Wholesale trade	42	79,414	78,132	0	0	S	0	0	947	305	0
Information	51	388,034	379,500	14	941	471	0	0	7,108	0	0
Software publishers	5112	216,041	214,095	14	941	471	0	0	521	0	0

TABLE 6-3

Total R&D cost for companies with 5–9 employees, by selected industry and source of funds: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
Information, excluding software publishers	51 (excluding 5112)	171,992 r	165,406 r	0	0	0	0	0	6,587 r	0	0
Architectural, engineering, and related services	5413	216,146	119,285	6,442	7,838	8,071 r	2,392 r	0	69,509	2,608 r	0
Computer systems design and related services	5415	904,128	862,413	5,945	10,783	1,337 r	149 r	460	13,377	159 r	9,505 r
Scientific research and development services	5417	1,262,048	855,197	81,906	47,443	16,553	3,757	5,073	241,978	4,322	5,819

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 7-1

Total R&D cost for companies with 1–9 employees, by selected industry and type of R&D: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Basic research	Applied research	Development
All selected industries	31–33, 42, 51, 5413, 5415, 5417	6,655,717	921,124	2,230,773	3,503,820
Manufacturing industries	31–33	751,892	73,593	267,708	410,590
Food, beverage, and tobacco products	311–12	10,136	1,794 r	5,297	3,045 r
Textile, apparel, and leather products	313–16	2,225 r	0	1,779 r	447 r
Wood products	321	0	0	0	0
Paper	322	0	0	0	0
Printing and related support activities	323	0	0	0	0
Petroleum and coal products	324	S	S	S	S
Pharmaceuticals and medicines	3254	103,345	6,883	34,723	61,740 r
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	89,130	9,823	49,709	29,598
Plastics and rubber products	326	9,654 r	765	6,118 r	2,771
Nonmetallic mineral products	327	1,836 r	122	490 r	1,224 r
Primary metals	331	1,080 r	0	216 r	864 r
Fabricated metal products	332	4,414	423 r	1,553 r	2,439 r
Machinery	333	49,607	9,640	16,822	23,145
Computer and electronic products	334	344,800	31,870	103,539	209,391
Electrical equipment, appliances, and components	335	40,142	3,131	20,152	16,859
Transportation equipment	336	14,281	2,097	3,792	8,392
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	80,481	6,932	23,442	50,107
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	5,903,825	847,531	1,963,064	3,093,230
Wholesale trade	42	115,357	34,818	31,310	49,230
Information	51	738,905	122,680	158,111	458,114
Software publishers	5112	461,838	60,041	108,831	292,967
Information, excluding software publishers	51 (excluding 5112)	277,067	62,639 r	49,281	165,147
Architectural, engineering, and related services	5413	461,192	56,320	207,314	197,559
Computer systems design and related services	5415	2,240,695	305,244	667,947	1,267,505
Scientific research and development services	5417	2,347,675	328,470	898,383	1,120,822

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 7-2

Total R&D cost for companies with 1–4 employees, by selected industry and type of R&D: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Basic research	Applied research	Development
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,525,771	478,702	1,265,002	1,782,067
Manufacturing industries	31–33	471,715	47,212	177,447	247,056
Food, beverage, and tobacco products	311–12	7,401	1,794 r	5,262	345 r
Textile, apparel, and leather products	313–16	560 r	0	280 r	280 r
Wood products	321	0	0	0	0
Paper	322	0	0	0	0
Printing and related support activities	323	0	0	0	0
Petroleum and coal products	324	0	0	0	0
Pharmaceuticals and medicines	3254	64,315	1,858	17,859	44,598 r
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	75,413	6,274	44,547	24,592
Plastics and rubber products	326	1,022	396 r	147	479
Nonmetallic mineral products	327	0	0	0	0
Primary metals	331	1,080 r	0	216 r	864 r
Fabricated metal products	332	4,264	423 r	1,553 r	2,289 r
Machinery	333	21,631	3,673	6,027	11,932
Computer and electronic products	334	199,930	23,862	72,049	104,019
Electrical equipment, appliances, and components	335	29,384	3,064	10,063	16,257
Transportation equipment	336	12,226	1,776 r	3,581	6,870
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	54,487	4,093 r	15,862	34,532
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	3,054,056	431,490	1,087,555	1,535,011
Wholesale trade	42	35,943	5,697	13,127 r	17,120 r
Information	51	350,872	46,389	90,977	213,505
Software publishers	5112	245,797	32,560	67,335	145,902
Information, excluding software publishers	51 (excluding 5112)	105,075	13,830 r	23,643	67,603
Architectural, engineering, and related services	5413	245,046	34,062	114,660	96,324
Computer systems design and related services	5415	1,336,568	199,561	410,117	726,890
Scientific research and development services	5417	1,085,628	145,780	458,674	481,173

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 7-3

Total R&D cost for companies with 5–9 employees, by selected industry and type of R&D: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Basic research	Applied research	Development
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,129,946	442,423	965,771	1,721,753
Manufacturing industries	31–33	280,177	26,381	90,261	163,534
Food, beverage, and tobacco products	311–12	2,735 r	0	36 r	2,700 r
Textile, apparel, and leather products	313–16	S	0	S	S
Wood products	321	0	0	0	0
Paper	322	0	0	0	0
Printing and related support activities	323	0	0	0	0
Petroleum and coal products	324	S	S	S	S
Pharmaceuticals and medicines	3254	39,030	5,024 r	16,864 r	17,142
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	13,717	3,549	5,162	5,005
Plastics and rubber products	326	8,632 r	369 r	5,971 r	2,292
Nonmetallic mineral products	327	1,836 r	122	490 r	1,224 r
Primary metals	331	0	0	0	0
Fabricated metal products	332	S	0	0	S
Machinery	333	27,976	5,967 r	10,795	11,214
Computer and electronic products	334	144,870	8,008	31,489	105,372 r
Electrical equipment, appliances, and components	335	10,757 r	67 r	10,088 r	602 r
Transportation equipment	336	2,055	321	212	1,522
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	25,993	2,839	7,580	15,574
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	2,849,769	416,041	875,509	1,558,219
Wholesale trade	42	79,414	29,121	18,183 r	32,110 r
Information	51	388,034	76,290 r	67,134	244,609
Software publishers	5112	216,041	27,481	41,496	147,065
Information, excluding software publishers	51 (excluding 5112)	171,992 r	48,810 r	25,638	97,545
Architectural, engineering, and related services	5413	216,146	22,258	92,654	101,235
Computer systems design and related services	5415	904,128	105,682	257,830	540,615
Scientific research and development services	5417	1,262,048	182,690	439,708	639,650

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 8-1

Total R&D cost for companies with 1–9 employees, by selected industry and type of cost: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Salaries, wages, and fringe benefits	Expensed machinery and equipment	Materials and supplies	Payments to business partners for collaborative R&D	Purchased R&D service	Depreciation on R&D property and equipment	Other
All selected industries	31–33, 42, 51, 5413, 5415, 5417	6,655,717	3,656,750	256,952	583,126	361,014	604,337	91,733	1,101,806
Manufacturing industries	31–33	751,892	351,801	54,542	128,516	34,108	71,400	10,118	101,407
Food, beverage, and tobacco products	311–12	10,136	4,358	456 r	2,464	1,534 r	432 r	0	892
Textile, apparel, and leather products	313–16	2,225 r	778 r	0	584 r	56 r	56 r	278 r	473 r
Wood products	321	0	0	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0	0	0
Petroleum and coal products	324	S	S	S	S	0	0	0	S
Pharmaceuticals and medicines	3254	103,345	31,659	13,209 r	18,871 i	5,923 r	17,168	2,067 r	14,448
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	89,130	34,927	5,266	33,312	1,954	4,205	1,229	8,237
Plastics and rubber products	326	9,654 r	3,624	639 r	712	291 r	494 r	0	3,896 r
Nonmetallic mineral products	327	1,836 r	708	276 r	535 r	S	S	62 r	80 r
Primary metals	331	1,080 r	378 r	324 r	108 r	216 r	54 r	0	0
Fabricated metal products	332	4,414	2,340	441 r	1,030 r	0	136	133 r	334 r
Machinery	333	49,607	27,688	4,213	10,327	315	1,189 r	297 r	5,579
Computer and electronic products	334	344,800	182,195	19,709	44,075	14,397	35,237 r	2,559	46,628
Electrical equipment, appliances, and components	335	40,142	20,360	3,556	5,544	4,365	1,434	808 r	4,076
Transportation equipment	336	14,281	7,217	1,473	2,832	244	804	591	1,119
Furniture and related products	337	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	80,481	35,082	4,859 r	8,046	4,642	10,186 r	2,095	15,571
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	5,903,825	3,304,949	202,410	454,610	326,906	532,938	81,615	1,000,398
Wholesale trade	42	115,357	54,299	3,140	8,760	11,544 r	19,987 r	898	16,731
Information	51	738,905	493,464	18,264	21,849	23,872	24,890	2,117	154,448
Software publishers	5112	461,838	335,042	13,279	15,550	9,905	21,346	1,802	64,914

TABLE 8-1

Total R&D cost for companies with 1–9 employees, by selected industry and type of cost: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Salaries, wages, and fringe benefits	Expensed machinery and equipment	Materials and supplies	Payments to business partners for collaborative R&D	Purchased R&D service	Depreciation on R&D property and equipment	Other		
Information, excluding software publishers	51 (excluding 5112)	277,067	158,422	4,985	6,299	13,968	r	3,544	315	89,534	r
Architectural, engineering, and related services	5413	461,192	240,126	32,890	59,695	18,123		14,683	7,760	87,915	
Computer systems design and related services	5415	2,240,695	1,590,299	71,521	85,833	66,320		67,086	25,196	334,439	
Scientific research and development services	5417	2,347,675	926,761	76,594	278,473	207,046		406,292	45,643	406,865	

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 8-2

Total R&D cost for companies with 1–4 employees, by selected industry and type of cost: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Salaries, wages, and fringe benefits	Expensed machinery and equipment	Materials and supplies	Payments to business partners for collaborative R&D	Purchased R&D service	Depreciation on R&D property and equipment	Other
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,525,771	1,895,125	153,000	319,901	228,498	285,706	51,480	592,061
Manufacturing industries	31–33	471,715	206,015	39,902	87,129	24,479	41,680	7,177	65,333
Food, beverage, and tobacco products	311–12	7,401	3,121	456	2,393	345	432	0	654
Textile, apparel, and leather products	313–16	560	112	0	168	56	56	28	140
Wood products	321	0	0	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0	0	0
Petroleum and coal products	324	0	0	0	0	0	0	0	0
Pharmaceuticals and medicines	3254	64,315	18,037	12,796	11,422	5,817	4,961	1,950	9,332
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	75,413	27,192	4,195	30,769	1,421	3,529	855	7,452
Plastics and rubber products	326	1,022	529	S	88	S	28	0	351
Nonmetallic mineral products	327	0	0	0	0	0	0	0	0
Primary metals	331	1,080	378	324	108	216	54	0	0
Fabricated metal products	332	4,264	2,303	404	992	0	136	95	334
Machinery	333	21,631	11,147	1,729	4,412	193	445	9	3,696
Computer and electronic products	334	199,930	98,730	11,458	25,756	8,153	27,178	1,480	27,174
Electrical equipment, appliances, and components	335	29,384	13,635	2,884	4,201	3,861	929	303	3,571
Transportation equipment	336	12,226	6,511	1,425	2,113	41	549	591	996
Furniture and related products	337	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	54,487	24,320	4,217	4,707	4,363	3,382	1,865	11,633
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	3,054,056	1,689,109	113,099	232,773	204,019	244,025	44,303	526,728
Wholesale trade	42	35,943	14,193	1,632	6,499	4,156	2,729	477	6,257
Information	51	350,872	249,597	6,783	9,326	14,515	14,992	1,191	54,468
Software publishers	5112	245,797	178,522	3,044	4,826	5,485	12,310	893	40,717

TABLE 8-2

Total R&D cost for companies with 1–4 employees, by selected industry and type of cost: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Salaries, wages, and fringe benefits	Expensed machinery and equipment	Materials and supplies	Payments to business partners for collaborative R&D	Purchased R&D service	Depreciation on R&D property and equipment	Other	
Information, excluding software publishers	51 (excluding 5112)	105,075	71,075	3,739	4,500	9,030	2,681	r	298	13,751
Architectural, engineering, and related services	5413	245,046	119,199	21,814	35,577	9,056	5,132		5,115	49,153
Computer systems design and related services	5415	1,336,568	892,840	43,945	52,459	52,302	48,786		15,822	230,414
Scientific research and development services	5417	1,085,628	413,280	38,925	128,911	123,991	172,386		21,698	186,436

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 8-3

Total R&D cost for companies with 5–9 employees, by selected industry and type of cost: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Salaries, wages, and fringe benefits	Expensed machinery and equipment	Materials and supplies	Payments to business partners for collaborative R&D	Purchased R&D service	Depreciation on R&D property and equipment	Other
All selected industries	31–33, 42, 51, 5413, 5415, 5417	3,129,946	1,761,625	103,952	263,224	132,516	318,632	40,253	509,745
Manufacturing industries	31–33	280,177	145,786	14,641	41,387	9,629	29,719	2,941	36,075
Food, beverage, and tobacco products	311–12	2,735 r	1,237 r	0	71 r	S	0	0	S
Textile, apparel, and leather products	313–16	S	S	0	S	0	0	S	S
Wood products	321	0	0	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0	0	0
Petroleum and coal products	324	S	S	S	S	0	0	0	S
Pharmaceuticals and medicines	3254	39,030	13,623	413	7,449 r	106	12,207	117	5,116 r
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	13,717	7,735	1,071 r	2,543	533	676	373 r	786
Plastics and rubber products	326	8,632 r	3,094	625 r	624	278 r	465 r	0	3,545 r
Nonmetallic mineral products	327	1,836 r	708	276 r	535 r	S	S	62 r	80 r
Primary metals	331	0	0	0	0	0	0	0	0
Fabricated metal products	332	S	S	S	S	0	0	S	0
Machinery	333	27,976	16,541 r	2,484 r	5,915	123 r	744 r	288 r	1,882 r
Computer and electronic products	334	144,870	83,465	8,251 r	18,319	6,244 r	8,058 r	1,079	19,454
Electrical equipment, appliances, and components	335	10,757 r	6,724 r	672 r	1,343 r	504 r	504 r	504 r	504 r
Transportation equipment	336	2,055	707	48 r	720	203	S	0	123
Furniture and related products	337	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	25,993	10,762	642 r	3,339	279 r	6,804 r	230 r	3,938 r
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	2,849,769	1,615,839	89,311	221,838	122,887	288,912	37,312	473,670
Wholesale trade	42	79,414	40,106	1,508	2,261	7,388 r	17,257 r	421	10,474
Information	51	388,034	243,867	11,481	12,523	9,357	9,898	926	99,980 r
Software publishers	5112	216,041	156,520	10,235 r	10,724	4,420 r	9,035	909	24,197

TABLE 8-3

Total R&D cost for companies with 5–9 employees, by selected industry and type of cost: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	Salaries, wages, and fringe benefits	Expensed machinery and equipment	Materials and supplies	Payments to business partners for collaborative R&D	Purchased R&D service	Depreciation on R&D property and equipment	Other
Information, excluding software publishers	51 (excluding 5112)	171,992 r	87,347	1,246 r	1,799 r	4,938 r	863 r	17 r	75,783 r
Architectural, engineering, and related services	5413	216,146	120,927	11,077	24,118	9,067	9,550 r	2,645	38,762
Computer systems design and related services	5415	904,128	697,459	27,576	33,373	14,019	18,301	9,375	104,025
Scientific research and development services	5417	1,262,048	513,481	37,670	149,562	83,055	233,906	23,945	220,428

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 9-1

Total R&D paid for by the company and performed by others for companies with 1–9 employees, by selected industry and type of R&D performer: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	R&D paid for by the company and performed by another U.S. business	R&D paid for by the company and performed by a U.S. university or college	R&D paid for by the company and performed by other organizations
All selected industries	31–33, 42, 51, 5413, 5415, 5417	965,351	559,973	103,603	159,621
Manufacturing industries	31–33	105,507	75,143	11,526	7,312
Food, beverage, and tobacco products	311–12	1,966	1,966	0	0
Textile, apparel, and leather products	313–16	112	56	0	56
Wood products	321	0	0	0	0
Paper	322	0	0	0	0
Printing and related support activities	323	0	0	0	0
Petroleum and coal products	324	0	0	0	0
Pharmaceuticals and medicines	3254	23,091	18,999	1,230	780
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	6,159	3,295	1,616	258
Plastics and rubber products	326	785	S	0	S
Nonmetallic mineral products	327	S	0	0	0
Primary metals	331	270	0	0	270
Fabricated metal products	332	136	S	0	134
Machinery	333	1,504	1,341	0	0
Computer and electronic products	334	49,633	33,306	6,407	4,814
Electrical equipment, appliances, and components	335	5,799	2,920	886	208
Transportation equipment	336	1,048	111	0	483
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	14,828	13,120	1,388	295
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	859,844	484,830	92,076	152,309
Wholesale trade	42	31,530	26,744	4,329	409
Information	51	48,762	33,808	102	8,061
Software publishers	5112	31,250	22,210	78	6,381
Information, excluding software publishers	51 (excluding 5112)	17,512	11,598	25	1,680
Architectural, engineering, and related services	5413	32,806	24,553	3,144	1,819
Computer systems design and related services	5415	133,407	48,979	3,278	43,662
Scientific research and development services	5417	613,339	350,745	81,222	98,358

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 9-2

Total R&D paid to others, for companies with 1–4 employees, by selected industry and type of R&D performer: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	R&D paid for by the company and performed by another U.S. business	R&D paid for by the company and performed by a U.S. university or college	R&D paid for by the company and performed by other organizations
All selected industries	31–33, 42, 51, 5413, 5415, 5417	514,204	285,637	67,082	86,974
Manufacturing industries	31–33	66,159	49,176	7,571	6,145
Food, beverage, and tobacco products	311–12	777	777	0	0
Textile, apparel, and leather products	313–16	112	56	0	56
Wood products	321	0	0	0	0
Paper	322	0	0	0	0
Printing and related support activities	323	0	0	0	0
Petroleum and coal products	324	0	0	0	0
Pharmaceuticals and medicines	3254	10,779	8,776	808	780
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	4,949	2,910	1,566	178
Plastics and rubber products	326	41	S	0	S
Nonmetallic mineral products	327	0	0	0	0
Primary metals	331	270	0	0	270
Fabricated metal products	332	136	S	0	134
Machinery	333	638	474	0	0
Computer and electronic products	334	35,331	28,114	2,935	3,727
Electrical equipment, appliances, and components	335	4,790	1,912	886	208
Transportation equipment	336	591	78	0	483
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	7,745	6,050	1,376	295
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	448,044	236,461	59,510	80,829
Wholesale trade	42	6,885	2,146	4,329	409
Information	51	29,507	19,677	85	5,782
Software publishers	5112	17,796	12,329	60	4,102
Information, excluding software publishers	51 (excluding 5112)	11,711	7,348	25	1,680
Architectural, engineering, and related services	5413	14,188	10,721	970	1,568
Computer systems design and related services	5415	101,087	33,820	2,845	32,640
Scientific research and development services	5417	296,377	170,097	51,282	40,430

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 9-3

Total R&D paid to others, for companies with 5–9 employees, by selected industry and type of R&D performer: 2017

(Thousands of U.S. dollars)

Industry	NAICS code	Total	R&D paid for by the company and performed by another U.S. business	R&D paid for by the company and performed by a U.S. university or college	R&D paid for by the company and performed by other organizations
All selected industries	31–33, 42, 51, 5413, 5415, 5417	451,147	274,336	36,521	72,647
Manufacturing industries	31–33	39,348	25,967	3,955 r	1,167
Food, beverage, and tobacco products	311–12	S	S	0	0
Textile, apparel, and leather products	313–16	0	0	0	0
Wood products	321	0	0	0	0
Paper	322	0	0	0	0
Printing and related support activities	323	0	0	0	0
Petroleum and coal products	324	0	0	0	0
Pharmaceuticals and medicines	3254	12,313	10,223	421 r	0
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	1,209	385	50	79
Plastics and rubber products	326	743 r	0	0	0
Nonmetallic mineral products	327	S	0	0	0
Primary metals	331	0	0	0	0
Fabricated metal products	332	0	0	0	0
Machinery	333	866 r	866 r	0	0
Computer and electronic products	334	14,302	5,192 r	3,471 r	1,087
Electrical equipment, appliances, and components	335	1,009 r	1,009 r	0	0
Transportation equipment	336	458	S	0	0
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	7,083 r	7,070 r	12 r	0
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	411,799	248,369	32,566	71,480
Wholesale trade	42	24,645 r	24,598 r	0	0
Information	51	19,255	14,131 r	S	2,279 r
Software publishers	5112	13,455 r	9,881 r	S	2,279 r
Information, excluding software publishers	51 (excluding 5112)	5,801 r	4,250 r	0	0
Architectural, engineering, and related services	5413	18,618	13,832 r	2,175 r	251
Computer systems design and related services	5415	32,319	15,159	433 r	11,023 r
Scientific research and development services	5417	316,961	180,648	29,941	57,928

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 10

Total sales and R&D as a percentage of total sales for companies with 1–9 employees, by selected industry and company size: 2017

(Thousands of U.S. dollars and percent)

Industry	NAICS code	All companies		1–4 employees		5–9 employees	
		Total sales	R&D as percentage of total sales	Total sales	R&D as percentage of total sales	Total sales	R&D as percentage of total sales
All selected industries	31–33, 42, 51, 5413, 5415, 5417	18,204,887	37	9,042,681	39	9,162,205	34
Manufacturing industries	31–33	4,192,283	18	2,267,847	21	1,924,435	15
Food, beverage, and tobacco products	311–12	108,793	9	99,262	8	9,531	29
Textile, apparel, and leather products	313–16	15,954	14	13,231	4	S	S
Wood products	321	0	0	0	0	0	0
Paper	322	0	0	0	0	0	0
Printing and related support activities	323	0	0	0	0	0	0
Petroleum and coal products	324	0	0	0	0	0	0
Pharmaceuticals and medicines	3254	270,946	38	122,492	52	148,454	26
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	1,024,710	9	533,174	14	491,536	3
Plastics and rubber products	326	66,610	14	18,762	5	47,848	18
Nonmetallic mineral products	327	9,487	19	0	0	9,487	19
Primary metals	331	2,306	47	2,306	47	0	0
Fabricated metal products	332	13,107	34	12,901	33	S	S
Machinery	333	447,446	11	192,307	11	255,139	11
Computer and electronic products	334	1,686,095	20	903,654	22	782,442	18
Electrical equipment, appliances, and components	335	160,184	25	135,866	22	24,319	44
Transportation equipment	336	83,480	17	70,675	17	12,805	16
Furniture and related products	337	0	0	0	0	0	0
Miscellaneous manufacturing	339	303,163	26	163,217	33	139,947	19
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	14,012,604	42	6,774,834	45	7,237,770	39
Wholesale trade	42	1,093,238	11	514,402	7	578,836	14
Information	51	1,935,354	38	760,938	46	1,174,416	33
Software publishers	5112	1,365,323	34	554,250	44	811,073	27
Information, excluding software publishers	51 (excluding 5112)	570,031	49	206,688	51	363,343	47
Architectural, engineering, and related services	5413	835,848	55	398,501	62	437,347	49
Computer systems design and related services	5415	7,412,527	30	3,963,575	34	3,448,952	26
Scientific research and development services	5417	2,735,638	86	1,137,418	95	1,598,220	79

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 11

Total R&D cost for companies with 1–9 employees, by state and company size: 2017

(Thousands of U.S. dollars)

State	All companies		1–4 employees		5–9 employees	
	Companies (number)	Amount	Companies (number)	Amount	Companies (number)	Amount
All states	18,395	6,655,717	13,003	3,525,771	5,392	3,129,946
Alabama	136	41,998	92	22,451	44	19,547
Alaska	10	1,762	S	S	S	S
Arizona	284	93,726	205	45,073	79	48,653
Arkansas	83	41,854	44	19,632	39	22,223
California	4,036	1,883,619	2,950	969,084	1,087	914,535
Colorado	551	212,766	351	105,448	200	107,319
Connecticut	247	76,256	157	40,008	90	36,248
Delaware	125	44,481	104	31,336	21	13,145
District of Columbia	47	31,798	23	8,204	24	23,594
Florida	942	289,938	684	216,993	259	72,944
Georgia	430	119,150	328	81,911	102	37,238
Hawaii	43	7,096	35	3,870	S	S
Idaho	45	8,927	27	4,494	18	4,433
Illinois	542	154,752	377	73,105	165	81,648
Indiana	200	40,120	131	18,893	69	21,227
Iowa	146	28,418	130	23,388	16	5,029
Kansas	113	30,652	79	19,543	34	11,109
Kentucky	136	24,491	81	11,900	55	12,591
Louisiana	90	30,128	58	16,438	32	13,690
Maine	57	20,348	26	10,555	31	9,793
Maryland	503	203,806	347	98,805	155	105,001
Massachusetts	859	383,529	561	168,926	298	214,603
Michigan	308	80,825	220	47,198	89	33,627
Minnesota	330	110,546	233	61,981	96	48,564
Mississippi	38	4,856	30	2,744	S	S
Missouri	175	56,914	113	40,134	62	16,780
Montana	82	17,957	62	13,106	20	4,851
Nebraska	60	8,451	37	4,383	23	4,068
Nevada	131	40,025	110	29,193	21	10,832
New Hampshire	122	36,500	64	13,552	58	22,948
New Jersey	879	257,043	650	164,268	229	92,775
New Mexico	123	37,502	70	11,538	52	25,964
New York	1,131	409,416	807	240,033	324	169,382
North Carolina	501	193,409	343	76,419	157	116,990
North Dakota	34	10,060	24	8,497	10	1,563
Ohio	511	149,355	352	113,361	159	35,994
Oklahoma	85	14,671	45	5,903	39	8,768
Oregon	325	198,541	178	44,516	147	154,025
Pennsylvania	583	242,738	432	102,264	151	140,475
Rhode Island	53	23,157	30	3,863	22	19,294
South Carolina	129	58,175	84	23,866	45	34,308
South Dakota	25	5,057	15	1,483	10	3,574
Tennessee	141	49,173	95	30,169	46	19,004
Texas	1,157	329,140	876	212,492	281	116,648
Utah	223	79,606	146	35,488	77	44,117
Vermont	32	7,375	29	6,846	S	S
Virginia	692	161,665	541	88,908	151	72,757
Washington	576	216,907	367	91,551	208	125,356
West Virginia	10	1,355	S	S	S	S

TABLE 11

Total R&D cost for companies with 1–9 employees, by state and company size: 2017

(Thousands of U.S. dollars)

State	All companies		1–4 employees		5–9 employees	
	Companies (number)	Amount	Companies (number)	Amount	Companies (number)	Amount
Wisconsin	269	62,366	217	47,261	51	15,105
Wyoming	31	12,602	27	11,969	S	S
Undistributed	16	10,717	S	S	14	9,725

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 12

Total R&D cost for companies with 1–9 employees, by state and source of funds: 2017

(Thousands of U.S. dollars)

State	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
All states	6,655,717	5,345,991	195,846	235,492	73,188	17,742	15,548	697,014	21,483	53,412
Alabama	41,998	28,046	S	1,643 r	0	S	0	11,619 r	0	0
Alaska	1,762	S	0	S	0	0	0	0	0	0
Arizona	93,726	81,966	0	1,455 r	605 r	596	S	8,574	S	0
Arkansas	41,854	30,699	0	S	0	S	0	S	S	0
California	1,883,619	1,553,847	71,553	62,240	37,153	1,899	2,190	131,544	1,458	21,734
Colorado	212,766	191,880	2,773 r	1,419	404 r	0	1,723 r	14,485	S	0
Connecticut	76,256	62,655	S	1,498 r	S	S	0	10,646	S	0
Delaware	44,481	40,604	0	S	811 r	0	0	S	S	0
District of Columbia	31,798	24,850	S	S	S	0	0	S	0	0
Florida	289,938	259,190	4,226	4,478	S	S	S	17,888	0	2,499 r
Georgia	119,150	99,582	S	4,101 r	2,511 r	701 r	S	11,546	S	586 r
Hawaii	7,096	4,390	0	S	0	S	S	S	S	0
Idaho	8,927	6,425	0	S	0	0	0	S	0	0
Illinois	154,752	129,157	S	3,064	0	S	S	18,694	0	0
Indiana	40,120	25,176	S	1,833 r	S	S	0	9,738 r	1,747 r	0
Iowa	28,418	25,060	0	S	0	S	0	2,988 r	S	S
Kansas	30,652	22,723	S	S	S	0	2,399 r	S	S	0
Kentucky	24,491	14,695	0	S	S	0	0	6,229	1,415 r	0
Louisiana	30,128	19,988	0	S	0	S	S	5,404	0	0
Maine	20,348	11,282	0	S	0	0	0	S	S	0
Maryland	203,806	146,939	S	7,739	S	S	S	34,947	S	S
Massachusetts	383,529	317,512	S	17,910	S	S	S	40,405	626	S
Michigan	80,825	53,880	S	5,074	1,806	S	S	16,339	S	S
Minnesota	110,546	98,102	S	1,593 r	0	S	S	2,764	S	S
Mississippi	4,856	4,280	0	400	S	0	0	S	0	0
Missouri	56,914	49,934	S	S	0	S	S	3,021	0	0
Montana	17,957	9,508	0	1,823	S	920 r	0	4,287	1,059 r	0
Nebraska	8,451	8,060	0	S	S	0	0	S	S	0
Nevada	40,025	36,965	0	1,614	S	S	0	S	0	0
New Hampshire	36,500	28,549	0	S	S	0	0	S	0	0
New Jersey	257,043	206,689	18,045	16,055 r	1,589 r	S	S	13,579	S	436 r
New Mexico	37,502	19,644	0	S	0	0	0	16,910 r	S	0
New York	409,416	319,535	4,767	17,156	12,524	1,790 r	163 r	48,565	1,510 r	3,406 r

TABLE 12

Total R&D cost for companies with 1–9 employees, by state and source of funds: 2017

(Thousands of U.S. dollars)

State	Total	Paid for by the company	Foreign owner	Another U.S. company	Other businesses outside the United States	U.S. university or college	U.S. nonprofit organization	U.S. federal government	U.S. state or local government	All other organizations outside the United States
North Carolina	193,409	118,190	8,710	9,654	S	S	S	54,218	S	0
North Dakota	10,060	6,652	0	0	S	0	0	S	0	0
Ohio	149,355	130,218	S	2,849	S	S	S	9,376	S	S
Oklahoma	14,671	12,186	0	S	0	0	0	S	S	0
Oregon	198,541	146,717	S	8,184	1,412	S	0	32,293	193 r	0
Pennsylvania	242,738	197,260	4,777 r	8,842	S	682	S	28,308	995	0
Rhode Island	23,157	23,026	0	S	0	0	0	S	0	0
South Carolina	58,175	52,919	0	S	0	0	S	S	S	0
South Dakota	5,057	4,541	0	S	0	0	S	S	0	0
Tennessee	49,173	36,493	S	S	S	S	S	S	S	0
Texas	329,140	276,430	13,857	4,011	S	S	402 r	16,235	2,224	13,924 r
Utah	79,606	66,048	0	S	0	S	S	8,053	S	3,700 r
Vermont	7,375	5,087	0	S	0	S	0	2,151 r	S	0
Virginia	161,665	118,605	1,643 r	7,463 r	1,398	S	0	31,997	S	S
Washington	216,907	157,371	21,407	6,165	1,290	S	0	28,365	1,805 r	S
West Virginia	1,355	1,173	0	S	0	0	0	0	0	0
Wisconsin	62,366	43,579	S	2,319 r	0	1,639 r	S	12,675	652 r	0
Wyoming	12,602	9,435	0	S	0	0	0	S	S	S
Undistributed	10,717 r	7,299 r	S	S	0	0	0	0	0	0

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 13

R&D employees for companies with 1–9 employees, by selected industry and company size: 2017

(Number)

Industry	NAICS code	All companies	1–4 employees	5–9 employees
All selected industries	31–33, 42, 51, 5413, 5415, 5417	55,083	32,860	22,223
Manufacturing industries	31–33	6,295	4,147	2,148
Food, beverage, and tobacco products	311–12	67	59	7
Textile, apparel, and leather products	313–16	35	22	S
Wood products	321	0	0	0
Paper	322	0	0	0
Printing and related support activities	323	0	0	0
Petroleum and coal products	324	0	0	0
Pharmaceuticals and medicines	3254	349	185	164
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	724	568	156
Plastics and rubber products	326	45	10	35
Nonmetallic mineral products	327	14	0	14
Primary metals	331	3	3	0
Fabricated metal products	332	69	62	S
Machinery	333	687	292	396
Computer and electronic products	334	2,977	2,015	962
Electrical equipment, appliances, and components	335	378	333	45
Transportation equipment	336	142	111	31
Furniture and related products	337	0	0	0
Miscellaneous manufacturing	339	806	486	320
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	48,788	28,713	20,075
Wholesale trade	42	517	206	311
Information	51	7,209	4,406	2,803
Software publishers	5112	5,331	3,235	2,096
Information, excluding software publishers	51 (excluding 5112)	1,877	1,171	706
Architectural, engineering, and related services	5413	3,297	1,819	1,479
Computer systems design and related services	5415	26,428	16,584	9,845
Scientific research and development services	5417	11,336	5,698	5,638

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 14

R&D employees for companies with 1–9 employees, by selected industry and sex: 2017

(Number)

Industry	NAICS code	Total	Male	Female
All selected industries	31–33, 42, 51, 5413, 5415, 5417	55,083	42,704	12,379
Manufacturing industries	31–33	6,295	5,175	1,120
Food, beverage, and tobacco products	311–12	67	63	3 r
Textile, apparel, and leather products	313–16	35 r	27 r	7 r
Wood products	321	0	0	0
Paper	322	0	0	0
Printing and related support activities	323	0	0	0
Petroleum and coal products	324	0	0	0
Pharmaceuticals and medicines	3254	349	221	128
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	724	511	213
Plastics and rubber products	326	45	38	7
Nonmetallic mineral products	327	14 r	9	6 r
Primary metals	331	3 r	3 r	0
Fabricated metal products	332	69	53	15
Machinery	333	687	652	35
Computer and electronic products	334	2,977	2,567	411
Electrical equipment, appliances, and components	335	378	279	99
Transportation equipment	336	142	130	12
Furniture and related products	337	0	0	0
Miscellaneous manufacturing	339	806	622	184
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	48,788	37,529	11,259
Wholesale trade	42	517	417	100
Information	51	7,209	5,985	1,224
Software publishers	5112	5,331	4,340	991
Information, excluding software publishers	51 (excluding 5112)	1,877	1,645	232
Architectural, engineering, and related services	5413	3,297	2,755	542
Computer systems design and related services	5415	26,428	20,973	5,456
Scientific research and development services	5417	11,336	7,399	3,937

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 15

R&D employees for companies with 1–9 employees, by selected industry and domestic or foreign: 2017

(Number)

Industry	NAICS code	Total	Domestic	Foreign
All selected industries	31–33, 42, 51, 5413, 5415, 5417	55,083	45,465	9,619
Manufacturing industries	31–33	6,295	5,860	435 r
Food, beverage, and tobacco products	311–12	67	61 r	6 r
Textile, apparel, and leather products	313–16	35 r	35 r	0
Wood products	321	0	0	0
Paper	322	0	0	0
Printing and related support activities	323	0	0	0
Petroleum and coal products	324	0	0	0
Pharmaceuticals and medicines	3254	349	349	0
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	724	710	14 r
Plastics and rubber products	326	45	45	0
Nonmetallic mineral products	327	14 r	14 r	0
Primary metals	331	3 r	3 r	0
Fabricated metal products	332	69	69	0
Machinery	333	687	684	4 r
Computer and electronic products	334	2,977	2,687	290 r
Electrical equipment, appliances, and components	335	378	335	43 r
Transportation equipment	336	142	142	0
Furniture and related products	337	0	0	0
Miscellaneous manufacturing	339	806	727	79 r
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	48,788	39,604	9,184
Wholesale trade	42	517	370	147
Information	51	7,209	5,176	2,033
Software publishers	5112	5,331	3,659	1,672
Information, excluding software publishers	51 (excluding 5112)	1,877	1,516	361
Architectural, engineering, and related services	5413	3,297	2,746	551 r
Computer systems design and related services	5415	26,428	20,944	5,485
Scientific research and development services	5417	11,336	10,369	967

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 16

Domestic R&D employees for companies with 1–9 employees, by selected industry and R&D occupation: 2017

(Number)

Industry	NAICS code	All R&D employees	Researchers (including R&D scientists, engineers, and their managers)	R&D technicians and equivalent staff	R&D support staff (clerical and other)
All selected industries	31–33, 42, 51, 5413, 5415, 5417	45,465	28,877	12,346	4,242
Manufacturing industries	31–33	5,860	3,715	1,416	728
Food, beverage, and tobacco products	311–12	61 r	34 r	20	7 r
Textile, apparel, and leather products	313–16	35 r	35 r	0	0
Wood products	321	0	0	0	0
Paper	322	0	0	0	0
Printing and related support activities	323	0	0	0	0
Petroleum and coal products	324	0	0	0	0
Pharmaceuticals and medicines	3254	349	153	132	63 r
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	710	427	164	119
Plastics and rubber products	326	45	36	S	8 r
Nonmetallic mineral products	327	14 r	S	0	8 r
Primary metals	331	3 r	3 r	0	0
Fabricated metal products	332	69	41	23 r	5
Machinery	333	684	398	169	117 r
Computer and electronic products	334	2,687	1,871	532	284
Electrical equipment, appliances, and components	335	335	153	160	22 r
Transportation equipment	336	142	99	34	9 r
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	727	460	180	87
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	39,604	25,161	10,930	3,513
Wholesale trade	42	370	155	168	46 r
Information	51	5,176	3,438	1,343	394
Software publishers	5112	3,659	2,224	1,120	315
Information, excluding software publishers	51 (excluding 5112)	1,516	1,214	224	79
Architectural, engineering, and related services	5413	2,746	1,876	530	340
Computer systems design and related services	5415	20,944	12,697	6,476	1,770
Scientific research and development services	5417	10,369	6,995	2,411	963

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 17

Domestic R&D researchers for companies with 1–9 employees, by selected industry and education level: 2017

(Number)

Industry	NAICS code	Researchers (including R&D scientists, engineers, and their managers)	Researchers with PhD (excluding MD, JD, and EdD)
All selected industries	31–33, 42, 51, 5413, 5415, 5417	28,877	6,669
Manufacturing industries	31–33	3,715	610
Food, beverage, and tobacco products	311–12	34 r	12 r
Textile, apparel, and leather products	313–16	35 r	0
Wood products	321	0	0
Paper	322	0	0
Printing and related support activities	323	0	0
Petroleum and coal products	324	0	0
Pharmaceuticals and medicines	3254	153	51
Chemicals, excluding pharmaceuticals	325 (excluding 3254)	427	90
Plastics and rubber products	326	36	3 r
Nonmetallic mineral products	327	S	S
Primary metals	331	3 r	0
Fabricated metal products	332	41	4
Machinery	333	398	42 r
Computer and electronic products	334	1,871	297
Electrical equipment, appliances, and components	335	153	19 r
Transportation equipment	336	99	26 r
Furniture and related products	337	0	0
Miscellaneous manufacturing	339	460	60
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	25,161	6,059
Wholesale trade	42	155	21
Information	51	3,438	245
Software publishers	5112	2,224	155
Information, excluding software publishers	51 (excluding 5112)	1,214	90
Architectural, engineering, and related services	5413	1,876	588
Computer systems design and related services	5415	12,697	1,844
Scientific research and development services	5417	6,995	3,360

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

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(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 18-1

Tax credit for research activities for companies with R&D expenditures and 1–9 employees, by industry: 2017

(Number and percent)

Industry	NAICS code	Total	Yes, filed Form 6765 in 2017	No, did not file Form 6765 in 2017
All selected industries	31–33, 42, 51, 5413, 5415, 5417	18,395	13.5	86.5
Manufacturing industries	31–33	2,580	19.0	81.0
Food, beverage, and tobacco products	311–12	40	52.4 r	47.6 r
Textile, apparel, and leather products	313–16	10 r	0.0	100.0
Wood products	321	0	0.0	0.0
Paper	322	0	0.0	0.0
Printing and related support activities	323	0	0.0	0.0
Petroleum and coal products	324	S	S	0.0
Chemicals	325	455	17.4	82.6
Pharmaceuticals and medicines	3254	143	16.9	83.1
Chemicals, excluding pharmaceuticals	other 325	312	17.7	82.3
Plastics and rubber products	326	32	18.4 r	81.6
Nonmetallic mineral products	327	6 r	0.0	100.0 r
Primary metals	331	3 r	0.0	100.0 r
Fabricated metal products	332	16	34.2 r	65.8 r
Machinery	333	316	16.7	83.3
Computer and electronic products	334	1,133	18.9	81.1
Semiconductor and other electronic components	3344	253	12.1	87.9
Navigational, measuring, electromedical, and control instruments	3345	592	23.1	76.9
Other computer and electronic products	other 334	288	16.4	83.6
Electrical equipment, appliances, and components	335	144	15.9 r	84.1
Transportation equipment	336	88	14.9	85.1
Aerospace products and parts	3364	17	25.3	74.7
Other transportation equipment	other 336	70	12.3 r	87.7
Furniture and related products	337	0	0.0	0.0
Miscellaneous manufacturing	339	335	22.1	77.9
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	15,816	12.6	87.4
Wholesale trade	42	256	22.6 r	77.4
Information	51	1,972	13.4	86.6
Software publishers	5112	1,430	11.6	88.4
Information, excluding software publishers	51 (excluding 5112)	542	18.0	82.0
Architectural, engineering, and related services	5413	945	11.0	89.0
Computer systems design and related services	5415	9,220	9.6	90.4
Scientific research and development services	5417	3,423	19.8	80.2
Research and development in nanotechnology	541713	654	16.7 r	83.3
Research and development in biotechnology (except nanobiotechnology)	541714	814	27.6 r	72.4
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	1,801	18.8	81.2
Social sciences and humanities research and development	541720	143	3.7	96.3 r

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 18-2

Tax credit for research activities for companies with R&D expenditures and 1–4 employees, by industry: 2017

(Number and percent)

Industry	NAICS code	Total	Yes, filed Form 6765 in 2017	No, did not file Form 6765 in 2017
All selected industries	31–33, 42, 51, 5413, 5415, 5417	13,003	10.6	89.4
Manufacturing industries	31–33	1,890	16.3	83.7
Food, beverage, and tobacco products	311–12	34	61.5	38.5
Textile, apparel, and leather products	313–16	7	0.0	100.0
Wood products	321	0	0.0	0.0
Paper	322	0	0.0	0.0
Printing and related support activities	323	0	0.0	0.0
Petroleum and coal products	324	0	0.0	0.0
Chemicals	325	348	13.9	86.1
Pharmaceuticals and medicines	3254	107	14.5	85.5
Chemicals, excluding pharmaceuticals	other 325	241	13.6	86.4
Plastics and rubber products	326	12	24.1	75.9
Nonmetallic mineral products	327	0	0.0	0.0
Primary metals	331	3	0.0	100.0
Fabricated metal products	332	14	37.7	62.3
Machinery	333	188	5.2	94.8
Computer and electronic products	334	832	15.1	84.9
Semiconductor and other electronic components	3344	209	5.7	94.3
Navigational, measuring, electromedical, and control instruments	3345	450	22.8	77.2
Other computer and electronic products	other 334	173	6.1	93.9
Electrical equipment, appliances, and components	335	132	17.4	82.6
Transportation equipment	336	74	13.7	86.3
Aerospace products and parts	3364	16	18.3	81.7
Other transportation equipment	other 336	58	12.4	87.6
Furniture and related products	337	0	0.0	0.0
Miscellaneous manufacturing	339	245	25.2	74.8
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	11,112	9.6	90.4
Wholesale trade	42	125	16.0	84.0
Information	51	1,254	8.5	91.5
Software publishers	5112	891	6.9	93.1
Information, excluding software publishers	51 (excluding 5112)	363	12.4	87.6
Architectural, engineering, and related services	5413	615	9.6	90.4
Computer systems design and related services	5415	6,802	7.4	92.6
Scientific research and development services	5417	2,318	16.4	83.6
Research and development in nanotechnology	541713	470	15.2	84.8
Research and development in biotechnology (except nanobiotechnology)	541714	547	23.1	76.9
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	1,185	15.2	84.8
Social sciences and humanities research and development	541720	111	2.4	97.6

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 18-3

Tax credit for research activities for companies with R&D expenditures and 5–9 employees, by industry: 2017

(Number and percent)

Industry	NAICS code	Total	Yes, filed Form 6765 in 2017	No, did not file Form 6765 in 2017
All selected industries	31–33, 42, 51, 5413, 5415, 5417	5,392	20.4	79.6
Manufacturing industries	31–33	689	26.5	73.5
Food, beverage, and tobacco products	311–12	6 r	0.0	100.0
Textile, apparel, and leather products	313–16	S	0.0	S
Wood products	321	0	0.0	0.0
Paper	322	0	0.0	0.0
Printing and related support activities	323	0	0.0	0.0
Petroleum and coal products	324	S	S	0.0
Chemicals	325	107	28.9 r	71.1
Pharmaceuticals and medicines	3254	36	24.0 r	76.0
Chemicals, excluding pharmaceuticals	other 325	71	31.5 r	68.5
Plastics and rubber products	326	20	15.0 r	85.0
Nonmetallic mineral products	327	6 r	0.0	100.0 r
Primary metals	331	0	0.0	0.0
Fabricated metal products	332	S	0.0	S
Machinery	333	128	33.6	66.4
Computer and electronic products	334	301	29.6	70.4
Semiconductor and other electronic components	3344	44	42.4 r	57.6 r
Navigational, measuring, electromedical, and control instruments	3345	142	23.8	76.2
Other computer and electronic products	other 334	115	31.9	68.1
Electrical equipment, appliances, and components	335	12 r	0.0	100.0
Transportation equipment	336	14 r	21.3	78.7 r
Aerospace products and parts	3364	S	S	0.0
Other transportation equipment	other 336	12 r	S	88.1 r
Furniture and related products	337	0	0.0	0.0
Miscellaneous manufacturing	339	90	13.5 r	86.5
Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	4,703	19.5	80.5
Wholesale trade	42	132	28.9 r	71.1
Information	51	719	21.9	78.1
Software publishers	5112	540	19.4	80.6
Information, excluding software publishers	51 (excluding 5112)	179	29.5	70.5
Architectural, engineering, and related services	5413	330	13.8	86.2
Computer systems design and related services	5415	2,418	15.7	84.3
Scientific research and development services	5417	1,105	26.8	73.2
Research and development in nanotechnology	541713	184	20.6	79.4
Research and development in biotechnology (except nanobiotechnology)	541714	268	36.6	63.4
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	616	25.7	74.3
Social sciences and humanities research and development	541720	33	8.0	92.0

r = relative standard error > 50%; S = data withheld to avoid disclosing operations of individual companies.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 19

Product innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product innovation			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	821,671	3,781,935	17.8	82.2
Manufacturing industries	31–33	220,930	62,446	158,484	28.3	71.7
Food	311	18,180	5,891	12,289	32.4	67.6
Beverage and tobacco products	312	6,724	3,228	3,496	48.0	52.0
Textile, apparel, and leather products	313–16	10,569	2,800	7,769	26.5	73.5
Wood products	321	10,850	2,016	8,835	18.6	81.4
Paper	322	2,276	618	1,658	27.2	72.8
Printing and related support activities	323	21,903	4,932	16,971	22.5	77.5
Petroleum and coal products	324	624	167	457	26.7	73.3
Chemicals	325	7,910	3,290	4,620	41.6	58.4
Pesticide, fertilizer, and other agricultural chemicals	3253	542	196	346	36.2	63.8
Pharmaceuticals and medicines	3254	1,412	591	822	41.8	58.2
Soap, cleaning compound, and toilet preparation	3256	1,615	744	871	46.1	53.9
Other chemicals	other 325	4,341	1,759	2,582	40.5	59.5
Plastics and rubber products	326	8,412	2,639	5,774	31.4	68.6
Nonmetallic mineral products	327	8,021	1,666	6,355	20.8	79.2
Primary metals	331	2,679	577	2,102	21.5	78.5
Fabricated metal products	332	47,340	9,316	38,024	19.7	80.3
Machinery	333	18,792	6,330	12,463	33.7	66.3
Computer and electronic products	334	9,566	4,571	4,995	47.8	52.2
Communications equipment	3342	916	510	406	55.7	44.3
Semiconductor and other electronic components	3344	3,214	1,178	2,036	36.7	63.3
Navigational, measuring, electromedical, and control instruments	3345	3,958	2,101	1,857	53.1	46.9
Other computer and electronic products	other 334	1,478	782	696	52.9	47.1
Electrical equipment, appliances, and components	335	4,223	1,714	2,509	40.6	59.4
Transportation equipment	336	8,039	2,851	5,188	35.5	64.5
Automobiles, bodies, trailers, and parts	3361–63	5,018	1,793	3,225	35.7	64.3
Aerospace products and parts	3364	1,109	348	761	31.4	68.6
Other transportation	other 336	1,912	710	1,202	37.1	62.9
Furniture and related products	337	12,430	2,767	9,663	22.3	77.7
Miscellaneous	339	22,315	7,060	15,256	31.6	68.4
Medical equipment and supplies	3391	8,202	2,432	5,770	29.7	70.3
Other miscellaneous manufacturing	3399	14,113	4,627	9,486	32.8	67.2
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	759,225	3,623,452	17.3	82.7
Agriculture, forestry, fishing, and hunting	11	21,054	1,883	19,171	8.9	91.1
Mining, extraction, and support activities	21	15,546	1,119	14,427	7.2	92.8
Utilities	22	2,534	287	2,247	11.3	88.7
Construction	23	607,403	64,453	542,950	10.6	89.4
Wholesale trade	42	252,134	63,426	188,708	25.2	74.8
Retail trade	44–45	545,440	114,735	430,705	21.0	79.0
Transportation and warehousing	48–49	144,404	13,973	130,431	9.7	90.3
Information	51	56,053	20,395	35,658	36.4	63.6
Publishing	511	17,031	7,062	9,969	41.5	58.5
Newspaper, periodical, book, and directory publishers	5111	9,593	2,653	6,940	27.7	72.3
Software publishers	5112	7,438	4,410	3,028	59.3	40.7
Telecommunications	517	6,045	2,007	4,038	33.2	66.8
Data processing, hosting, and related services	518	8,414	3,997	4,417	47.5	52.5
Other information	other 51	24,563	7,328	17,235	29.8	70.2

TABLE 19

Product innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product innovation			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	38,092	154,253	19.8	80.2
Real estate and rental and leasing	53	229,923	24,163	205,760	10.5	89.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	355	1,346	20.9	79.1
Other real estate and rental and leasing	other 53	228,222	23,808	204,414	10.4	89.6
Professional, scientific, and technical services	54	639,985	137,653	502,332	21.5	78.5
Legal services	5411	146,441	14,014	132,427	9.6	90.4
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	11,155	88,627	11.2	88.8
Architectural, engineering, and related services	5413	83,492	19,119	64,372	22.9	77.1
Specialized design services	5414	25,140	6,347	18,794	25.2	74.8
Computer systems design and related services	5415	90,056	32,559	57,497	36.2	63.8
Management, scientific, and technical consulting services	5416	109,247	31,006	78,241	28.4	71.6
Scientific research and development services	5417	9,293	3,323	5,970	35.8	64.2
Advertising, public relations, and related services	5418	25,626	6,518	19,108	25.4	74.6
Other professional, scientific, and technical services	5419	50,907	13,610	37,297	26.7	73.3
Management of companies and enterprises	55	2,276	229	2,047	10.1	89.9
Administrative and support and waste management and remediation services	56	266,751	41,914	224,837	15.7	84.3
Educational services	61	51,288	16,968	34,320	33.1	66.9
Health care and social assistance	62	509,529	93,660	415,870	18.4	81.6
Health care services	621–23	447,069	82,181	364,887	18.4	81.6
Social assistance	624	62,461	11,479	50,982	18.4	81.6
Arts, entertainment, and recreation	71	74,256	16,684	57,572	22.5	77.5
Accommodation and food services	72	441,426	58,621	382,804	13.3	86.7
Other services	81	330,331	50,971	279,359	15.4	84.6

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 20

Product innovation in companies, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Product innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	821,671	3,781,935	17.8	82.2
Micro companies					
1–4	2,615,093	436,753	2,178,340	16.7	83.3
5–9	885,880	166,226	719,654	18.8	81.2
Small companies					
10–19	562,922	109,894	453,028	19.5	80.5
20–49	353,037	68,668	284,369	19.5	80.5
Medium companies					
50–99	104,561	21,417	83,144	20.5	79.5
100–249	52,429	11,447	40,983	21.8	78.2
Large companies					
250–499	15,665	3,660	12,005	23.4	76.6
500–999	7,026	1,599	5,428	22.8	77.2
1,000–4,999	5,514	1,464	4,050	26.6 r	73.4
5,000–9,999	744	273	470	36.7	63.3
10,000–24,999	447	163	284	36.4	63.6
25,000 or more	288	107	182	37.0	63.0

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 21

Product innovation in companies, by firm classification of sex: 2015–17

(Number and percent)

Sex of owners	Companies (number)	Product innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	821,671	3,781,935	17.8	82.2
Female majority owned	924,992	180,697	744,295	19.5	80.5
Male majority owned	2,879,461	498,132	2,381,329	17.3	82.7
Equally owned by male and female	707,151	125,519	581,632	17.7	82.3
Unclassifiable	92,001 i	17,323 i	74,679 i	18.8	81.2

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

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 22

Product innovation in companies, by firm classification of race and ethnicity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	Product innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	821,671	3,781,935	17.8	82.2
Race					
White	3,946,809	705,571	3,241,238	17.9	82.1
Asian	460,617	79,149	381,468	17.2	82.8
Black or African American	83,640	15,771	67,869	18.9	81.1
American Indian or Alaska Native	19,983	4,267	15,716	21.4	78.6
Native Hawaiian or Other Pacific Islander	5,617	1,053	4,564	18.7	81.3
Ethnicity					
Hispanic or Latino	242,652	43,120	199,531	17.8	82.2
Equally Hispanic/ Not Hispanic or Latino	39,072	7,941	31,131	20.3	79.7
Not Hispanic or Latino	4,229,882	753,287	3,476,595	17.8	82.2
Minority status					
Minority	799,368	140,672	658,696	17.6	82.4
Equally minority/ nonminority	68,687	14,498	54,190	21.1	78.9
Nonminority	3,643,550	649,178	2,994,371	17.8	82.2
Unclassifiable	92,001 i	17,323 i	74,679 i	18.8	81.2

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

Note(s):

Detail may not add to total because of rounding. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 23

Process innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Process innovation			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	752,895	3,850,711	16.4	83.6
Manufacturing industries	31–33	220,930	75,816	145,114	34.3	65.7
Food	311	18,180	5,795	12,384	31.9	68.1
Beverage and tobacco products	312	6,724	2,570	4,154	38.2	61.8
Textile, apparel, and leather products	313–16	10,569	3,038	7,531	28.7	71.3
Wood products	321	10,850	3,188	7,663	29.4	70.6
Paper	322	2,276	831	1,445	36.5	63.5
Printing and related support activities	323	21,903	6,897	15,006	31.5	68.5
Petroleum and coal products	324	624	188	435	30.2	69.8
Chemicals	325	7,910	3,053	4,857	38.6	61.4
Pesticide, fertilizer, and other agricultural chemicals	3253	542	170	373	31.3	68.7
Pharmaceuticals and medicines	3254	1,412	654	758	46.3	53.7
Soap, cleaning compound, and toilet preparation	3256	1,615	592	1,022	36.7	63.3
Other chemicals	other 325	4,341	1,637	2,704	37.7	62.3
Plastics and rubber products	326	8,412	3,275	5,138	38.9	61.1
Nonmetallic mineral products	327	8,021	2,393	5,628	29.8	70.2
Primary metals	331	2,679	970	1,708	36.2	63.8
Fabricated metal products	332	47,340	16,472	30,869	34.8	65.2
Machinery	333	18,792	7,049	11,743	37.5	62.5
Computer and electronic products	334	9,566	3,723	5,843	38.9	61.1
Communications equipment	3342	916	339	577	37.0	63.0
Semiconductor and other electronic components	3344	3,214	1,365	1,849	42.5	57.5
Navigational, measuring, electromedical, and control instruments	3345	3,958	1,495	2,463	37.8	62.2
Other computer and electronic products	other 334	1,478	524	954	35.4	64.6
Electrical equipment, appliances, and components	335	4,223	1,586	2,637	37.6	62.4
Transportation equipment	336	8,039	2,917	5,122	36.3	63.7
Automobiles, bodies, trailers, and parts	3361–63	5,018	1,933	3,085	38.5	61.5
Aerospace products and parts	3364	1,109	424	685	38.2	61.8
Other transportation	other 336	1,912	560	1,352	29.3	70.7
Furniture and related products	337	12,430	3,920	8,510	31.5	68.5
Miscellaneous	339	22,315	7,933	14,383	35.5	64.5
Medical equipment and supplies	3391	8,202	2,937	5,265	35.8	64.2
Other miscellaneous manufacturing	3399	14,113	4,995	9,118	35.4	64.6
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	677,080	3,705,597	15.4	84.6
Agriculture, forestry, fishing, and hunting	11	21,054	2,816	18,238	13.4	86.6
Mining, extraction, and support activities	21	15,546	1,791	13,754	11.5	88.5
Utilities	22	2,534	455	2,079	18.0	82.0
Construction	23	607,403	75,436	531,967	12.4	87.6
Wholesale trade	42	252,134	59,093	193,041	23.4	76.6
Retail trade	44–45	545,440	81,259	464,181	14.9	85.1
Transportation and warehousing	48–49	144,404	38,696	105,708	26.8	73.2
Information	51	56,053	14,796	41,257	26.4	73.6
Publishing	511	17,031	4,920	12,111	28.9	71.1
Newspaper, periodical, book, and directory publishers	5111	9,593	2,195	7,398	22.9	77.1
Software publishers	5112	7,438	2,725	4,713	36.6	63.4
Telecommunications	517	6,045	1,695	4,351	28.0	72.0
Data processing, hosting, and related services	518	8,414	3,050	5,364	36.3	63.7
Other information	other 51	24,563	5,132	19,431	20.9	79.1

TABLE 23

Process innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Process innovation			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	31,209	161,136	16.2	83.8
Real estate and rental and leasing	53	229,923	26,507	203,417	11.5	88.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	266	1,435	15.6	84.4
Other real estate and rental and leasing	other 53	228,222	26,241	201,982	11.5	88.5
Professional, scientific, and technical services	54	639,985	127,072	512,913	19.9	80.1
Legal services	5411	146,441	16,221	130,221	11.1	88.9
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	19,545	80,236	19.6	80.4
Architectural, engineering, and related services	5413	83,492	16,486	67,005	19.7	80.3
Specialized design services	5414	25,140	4,747	20,394	18.9	81.1
Computer systems design and related services	5415	90,056	31,432	58,624	34.9	65.1
Management, scientific, and technical consulting services	5416	109,247	23,328	85,918	21.4	78.6
Scientific research and development services	5417	9,293	2,319	6,974	25.0	75.0
Advertising, public relations, and related services	5418	25,626	4,944	20,682	19.3	80.7
Other professional, scientific, and technical services	5419	50,907	8,049	42,859	15.8	84.2
Management of companies and enterprises	55	2,276	205	2,071	9.0	91.0
Administrative and support and waste management and remediation services	56	266,751	42,861	223,890	16.1	83.9
Educational services	61	51,288	9,300	41,988	18.1	81.9
Health care and social assistance	62	509,529	65,473	444,056	12.8	87.2
Health care services	621–23	447,069	58,380	388,689	13.1	86.9
Social assistance	624	62,461	7,093	55,368	11.4	88.6
Arts, entertainment, and recreation	71	74,256	9,045	65,211	12.2	87.8
Accommodation and food services	72	441,426	50,080	391,346	11.3	88.7
Other services	81	330,331	40,986	289,345	12.4	87.6

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 24

Process innovation in companies, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Process innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	752,895	3,850,711	16.4	83.6
Micro companies					
1–4	2,615,093	378,321	2,236,773	14.5	85.5
5–9	885,880	148,629	737,251	16.8	83.2
Small companies					
10–19	562,922	105,547	457,375	18.7	81.3
20–49	353,037	72,649	280,389	20.6	79.4
Medium companies					
50–99	104,561	24,934	79,627	23.8	76.2
100–249	52,429	13,953	38,477	26.6	73.4
Large companies					
250–499	15,665	4,638	11,027	29.6	70.4
500–999	7,026	1,878	5,148	26.7	73.3
1,000–4,999	5,514	1,773	3,740	32.2	67.8
5,000–9,999	744	289	454	38.9	61.1
10,000–24,999	447	173	274	38.7	61.3
25,000 or more	288	112	176	39.0	61.0

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 25

Process innovation in companies, by firm classification of sex: 2015–17

(Number and percent)

Sex of owners	Companies (number)	Process innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	752,895	3,850,711	16.4	83.6
Female majority owned	924,992	144,184	780,809	15.6	84.4
Male majority owned	2,879,461	479,659	2,399,802	16.7	83.3
Equally owned by male and female	707,151	111,661	595,491	15.8	84.2
Unclassifiable	92,001 i	17,391 i	74,610 i	18.9	81.1

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

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 26

Process innovation in companies, by firm classification of race and ethnicity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	Process innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	752,895	3,850,711	16.4	83.6
Race					
White	3,946,809	641,736	3,305,073	16.3	83.7
Asian	460,617	75,533	385,083	16.4	83.6
Black or African American	83,640	14,704	68,935	17.6	82.4
American Indian or Alaska Native	19,983	4,061	15,923	20.3	79.7
Native Hawaiian or Other Pacific Islander	5,617	1,051	4,567	18.7	81.3
Ethnicity					
Hispanic or Latino	242,652	47,109	195,543	19.4	80.6
Equally Hispanic/ Not Hispanic or Latino	39,072	7,156	31,915	18.3	81.7
Not Hispanic or Latino	4,229,882	681,239	3,548,643	16.1	83.9
Minority status					
Minority	799,368	140,202	659,166	17.5	82.5
Equally minority/ nonminority	68,687	12,703	55,985	18.5	81.5
Nonminority	3,643,550	582,599	3,060,951	16.0	84.0
Unclassifiable	92,001 i	17,391 i	74,610 i	18.9	81.1

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

Note(s):

Detail may not add to total because of rounding. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 27

Marketing innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Marketing innovation			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	1,038,723	3,564,883	22.6	77.4
Manufacturing industries	31–33	220,930	67,711	153,219	30.6	69.4
Food	311	18,180	7,328	10,852	40.3	59.7
Beverage and tobacco products	312	6,724	3,958	2,766	58.9	41.1
Textile, apparel, and leather products	313–16	10,569	3,323	7,246	31.4	68.6
Wood products	321	10,850	2,548	8,302	23.5	76.5
Paper	322	2,276	857	1,419	37.7	62.3
Printing and related support activities	323	21,903	6,572	15,332	30.0	70.0
Petroleum and coal products	324	624	209	415	33.5	66.5
Chemicals	325	7,910	3,218	4,692	40.7	59.3
Pesticide, fertilizer, and other agricultural chemicals	3253	542	203	340	37.4	62.6
Pharmaceuticals and medicines	3254	1,412	636	776	45.0	55.0
Soap, cleaning compound, and toilet preparation	3256	1,615	819	795	50.7	49.3
Other chemicals	other 325	4,341	1,560	2,781	35.9	64.1
Plastics and rubber products	326	8,412	2,739	5,673	32.6	67.4
Nonmetallic mineral products	327	8,021	2,148	5,873	26.8	73.2
Primary metals	331	2,679	653	2,026	24.4	75.6
Fabricated metal products	332	47,340	10,391	36,949	21.9	78.1
Machinery	333	18,792	5,730	13,062	30.5	69.5
Computer and electronic products	334	9,566	3,398	6,168	35.5	64.5
Communications equipment	3342	916	352	564	38.4	61.6
Semiconductor and other electronic components	3344	3,214	940	2,274	29.3	70.7
Navigational, measuring, electromedical, and control instruments	3345	3,958	1,559	2,399	39.4	60.6
Other computer and electronic products	other 334	1,478	547	931	37.0	63.0
Electrical equipment, appliances, and components	335	4,223	1,499	2,724	35.5	64.5
Transportation equipment	336	8,039	2,652	5,387	33.0	67.0
Automobiles, bodies, trailers, and parts	3361–63	5,018	1,791	3,227	35.7	64.3
Aerospace products and parts	3364	1,109	221	888	19.9	80.1
Other transportation	other 336	1,912	640	1,273	33.4	66.6
Furniture and related products	337	12,430	2,926	9,504	23.5	76.5
Miscellaneous	339	22,315	7,531	14,784	33.8	66.2
Medical equipment and supplies	3391	8,202	2,306	5,896	28.1	71.9
Other miscellaneous manufacturing	3399	14,113	5,226	8,888	37.0	63.0
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	971,012	3,411,665	22.2	77.8
Agriculture, forestry, fishing, and hunting	11	21,054	2,205	18,849	10.5	89.5
Mining, extraction, and support activities	21	15,546	1,271	14,274	8.2	91.8
Utilities	22	2,534	399	2,135	15.8	84.2
Construction	23	607,403	90,679	516,724	14.9	85.1
Wholesale trade	42	252,134	69,706	182,428	27.6	72.4
Retail trade	44–45	545,440	151,527	393,913	27.8	72.2
Transportation and warehousing	48–49	144,404	19,968	124,437	13.8	86.2
Information	51	56,053	21,610	34,443	38.6	61.4
Publishing	511	17,031	7,423	9,609	43.6	56.4
Newspaper, periodical, book, and directory publishers	5111	9,593	3,745	5,848	39.0	61.0
Software publishers	5112	7,438	3,678	3,760	49.4	50.6
Telecommunications	517	6,045	2,017	4,028	33.4	66.6
Data processing, hosting, and related services	518	8,414	3,281	5,133	39.0	61.0
Other information	other 51	24,563	8,890	15,673	36.2	63.8

TABLE 27

Marketing innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Marketing innovation			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	40,957	151,388	21.3	78.7
Real estate and rental and leasing	53	229,923	44,641	185,283	19.4	80.6
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	626	1,075	36.8	63.2
Other real estate and rental and leasing	other 53	228,222	44,014	184,208	19.3	80.7
Professional, scientific, and technical services	54	639,985	142,886	497,099	22.3	77.7
Legal services	5411	146,441	23,871	122,570	16.3	83.7
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	12,791	86,991	12.8	87.2
Architectural, engineering, and related services	5413	83,492	19,225	64,267	23.0	77.0
Specialized design services	5414	25,140	10,156	14,984	40.4	59.6
Computer systems design and related services	5415	90,056	23,913	66,143	26.6	73.4
Management, scientific, and technical consulting services	5416	109,247	25,690	83,557	23.5	76.5
Scientific research and development services	5417	9,293	2,643	6,650	28.4	71.6
Advertising, public relations, and related services	5418	25,626	10,067	15,559	39.3	60.7
Other professional, scientific, and technical services	5419	50,907	14,531	36,376	28.5	71.5
Management of companies and enterprises	55	2,276	391	1,885	17.2	82.8
Administrative and support and waste management and remediation services	56	266,751	54,282	212,469	20.3	79.7
Educational services	61	51,288	17,772	33,516	34.7	65.3
Health care and social assistance	62	509,529	99,263	410,266	19.5	80.5
Health care services	621–23	447,069	87,450	359,618	19.6	80.4
Social assistance	624	62,461	11,813	50,648	18.9	81.1
Arts, entertainment, and recreation	71	74,256	21,622	52,634	29.1	70.9
Accommodation and food services	72	441,426	120,354	321,072	27.3	72.7
Other services	81	330,331	71,481	258,850	21.6	78.4

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 28

Marketing innovation in companies, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Marketing innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,038,723	3,564,883	22.6	77.4
Micro companies					
1–4	2,615,093	496,917	2,118,177	19.0	81.0
5–9	885,880	221,113	664,767	25.0	75.0
Small companies					
10–19	562,922	156,012	406,910	27.7	72.3
20–49	353,037	103,654	249,384	29.4	70.6
Medium companies					
50–99	104,561	33,318	71,243	31.9	68.1
100–249	52,429	17,084	35,345	32.6	67.4
Large companies					
250–499	15,665	5,468	10,197	34.9	65.1
500–999	7,026	2,356	4,670	33.5	66.5
1,000–4,999	5,514	2,084	3,429	37.8	62.2
5,000–9,999	744	338	406	45.5	54.5
10,000–24,999	447	221	226	49.4	50.6
25,000 or more	288	158	130	54.8	45.2

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 29

Marketing innovation in companies, by firm classification of sex: 2015–17

(Number and percent)

Sex of owners	Companies (number)	Marketing innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,038,723	3,564,883	22.6	77.4
Female majority owned	924,992	222,680	702,312	24.1	75.9
Male majority owned	2,879,461	627,035	2,252,427	21.8	78.2
Equally owned by male and female	707,151	164,486	542,666	23.3	76.7
Unclassifiable	92,001 i	24,523 i	67,478 i	26.7	73.3

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

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 30

Marketing innovation in companies, by firm classification of race and ethnicity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	Marketing innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,038,723	3,564,883	22.6	77.4
Race					
White	3,946,809	883,888	3,062,921	22.4	77.6
Asian	460,617	105,586	355,031	22.9	77.1
Black or African American	83,640	19,237	64,403	23.0	77.0
American Indian or Alaska Native	19,983	5,242	14,741	26.2	73.8
Native Hawaiian or Other Pacific Islander	5,617	1,480	4,138	26.3	73.7
Ethnicity					
Hispanic or Latino	242,652	59,765	182,887	24.6	75.4
Equally Hispanic/ Not Hispanic or Latino	39,072	10,862	28,209	27.8	72.2
Not Hispanic or Latino	4,229,882	943,573	3,286,309	22.3	77.7
Minority status					
Minority	799,368	187,892	611,476	23.5	76.5
Equally minority/ nonminority	68,687	19,121	49,566	27.8	72.2
Nonminority	3,643,550	807,187	2,836,362	22.2	77.8
Unclassifiable	92,001 i	24,523 i	67,478 i	26.7	73.3

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

Note(s):

Detail may not add to total because of rounding. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 31

Organizational innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Organizational innovation			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	1,193,030	3,410,577	25.9	74.1
Manufacturing industries	31–33	220,930	72,384	148,546	32.8	67.2
Food	311	18,180	6,094	12,086	33.5	66.5
Beverage and tobacco products	312	6,724	2,817	3,907	41.9	58.1
Textile, apparel, and leather products	313–16	10,569	2,944	7,626	27.9	72.1
Wood products	321	10,850	3,003	7,847	27.7	72.3
Paper	322	2,276	812	1,464	35.7	64.3
Printing and related support activities	323	21,903	6,409	15,494	29.3	70.7
Petroleum and coal products	324	624	217	407	34.8	65.2
Chemicals	325	7,910	3,058	4,852	38.7	61.3
Pesticide, fertilizer, and other agricultural chemicals	3253	542	173	369	31.9	68.1
Pharmaceuticals and medicines	3254	1,412	622	790	44.0	56.0
Soap, cleaning compound, and toilet preparation	3256	1,615	604	1,011	37.4	62.6
Other chemicals	other 325	4,341	1,660	2,681	38.2	61.8
Plastics and rubber products	326	8,412	3,071	5,342	36.5	63.5
Nonmetallic mineral products	327	8,021	2,186	5,835	27.2	72.8
Primary metals	331	2,679	932	1,747	34.8	65.2
Fabricated metal products	332	47,340	15,364	31,977	32.5	67.5
Machinery	333	18,792	6,494	12,299	34.6	65.4
Computer and electronic products	334	9,566	3,698	5,868	38.7	61.3
Communications equipment	3342	916	349	566	38.2	61.8
Semiconductor and other electronic components	3344	3,214	1,412	1,802	43.9	56.1
Navigational, measuring, electromedical, and control instruments	3345	3,958	1,464	2,494	37.0	63.0
Other computer and electronic products	other 334	1,478	473	1,005	32.0	68.0
Electrical equipment, appliances, and components	335	4,223	1,602	2,621	37.9	62.1
Transportation equipment	336	8,039	2,849	5,190	35.4	64.6
Automobiles, bodies, trailers, and parts	3361–63	5,018	1,862	3,156	37.1	62.9
Aerospace products and parts	3364	1,109	465	644	41.9	58.1
Other transportation	other 336	1,912	523	1,390	27.3	72.7
Furniture and related products	337	12,430	3,648	8,782	29.3	70.7
Miscellaneous	339	22,315	7,159	15,156	32.1	67.9
Medical equipment and supplies	3391	8,202	2,428	5,774	29.6	70.4
Other miscellaneous manufacturing	3399	14,113	4,732	9,381	33.5	66.5
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	1,120,646	3,262,031	25.6	74.4
Agriculture, forestry, fishing, and hunting	11	21,054	3,976	17,078	18.9	81.1
Mining, extraction, and support activities	21	15,546	2,468	13,078	15.9	84.1
Utilities	22	2,534	563	1,971	22.2	77.8
Construction	23	607,403	138,508	468,895	22.8	77.2
Wholesale trade	42	252,134	67,239	184,895	26.7	73.3
Retail trade	44–45	545,440	127,245	418,195	23.3	76.7
Transportation and warehousing	48–49	144,404	35,131	109,273	24.3	75.7
Information	51	56,053	18,960	37,093	33.8	66.2
Publishing	511	17,031	6,226	10,805	36.6	63.4
Newspaper, periodical, book, and directory publishers	5111	9,593	2,745	6,848	28.6	71.4
Software publishers	5112	7,438	3,481	3,957	46.8	53.2
Telecommunications	517	6,045	2,012	4,033	33.3	66.7
Data processing, hosting, and related services	518	8,414	3,524	4,889	41.9	58.1
Other information	other 51	24,563	7,198	17,365	29.3	70.7

TABLE 31

Organizational innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Organizational innovation			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	57,914	134,431	30.1	69.9
Real estate and rental and leasing	53	229,923	54,393	175,530	23.7	76.3
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	583	1,117	34.3	65.7
Other real estate and rental and leasing	other 53	228,222	53,810	174,413	23.6	76.4
Professional, scientific, and technical services	54	639,985	180,405	459,580	28.2	71.8
Legal services	5411	146,441	31,879	114,562	21.8	78.2
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	21,988	77,793	22.0	78.0
Architectural, engineering, and related services	5413	83,492	24,945	58,547	29.9	70.1
Specialized design services	5414	25,140	7,266	17,874	28.9	71.1
Computer systems design and related services	5415	90,056	31,685	58,371	35.2	64.8
Management, scientific, and technical consulting services	5416	109,247	35,765	73,482	32.7	67.3
Scientific research and development services	5417	9,293	3,535	5,758	38.0	62.0
Advertising, public relations, and related services	5418	25,626	8,252	17,373	32.2	67.8
Other professional, scientific, and technical services	5419	50,907	15,089	35,818	29.6	70.4
Management of companies and enterprises	55	2,276	536	1,740	23.5	76.5
Administrative and support and waste management and remediation services	56	266,751	70,558	196,193	26.5	73.5
Educational services	61	51,288	17,510	33,778	34.1	65.9
Health care and social assistance	62	509,529	144,901	364,629	28.4	71.6
Health care services	621–23	447,069	125,340	321,729	28.0	72.0
Social assistance	624	62,461	19,561	42,900	31.3	68.7
Arts, entertainment, and recreation	71	74,256	18,915	55,341	25.5	74.5
Accommodation and food services	72	441,426	108,475	332,950	24.6	75.4
Other services	81	330,331	72,950	257,381	22.1	77.9

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 32

Organizational innovation in companies, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Organizational innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,193,030	3,410,577	25.9	74.1
Micro companies					
1–4	2,615,093	545,876	2,069,217	20.9	79.1
5–9	885,880	258,447	627,433	29.2	70.8
Small companies					
10–19	562,922	186,101	376,821	33.1	66.9
20–49	353,037	126,000	227,037	35.7	64.3
Medium companies					
50–99	104,561	41,581	62,980	39.8	60.2
100–249	52,429	21,877	30,552	41.7	58.3
Large companies					
250–499	15,665	6,908	8,757	44.1	55.9
500–999	7,026	2,966	4,061	42.2	57.8
1,000–4,999	5,514	2,494	3,020	45.2	54.8
5,000–9,999	744	370	374	49.7	50.3
10,000–24,999	447	239	208	53.5	46.5
25,000 or more	288	171	118	59.2	40.8

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 33

Organizational innovation in companies, by firm classification of sex: 2015–17

(Number and percent)

Sex of owners	Companies (number)	Organizational innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,193,030	3,410,577	25.9	74.1
Female majority owned	924,992	251,933	673,059	27.2	72.8
Male majority owned	2,879,461	735,092	2,144,369	25.5	74.5
Equally owned by male and female	707,151	176,068	531,083	24.9	75.1
Unclassifiable	92,001 i	29,936 i	62,065 i	32.5	67.5

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

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 34

Organizational innovation in companies, by firm classification of race and ethnicity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	Organizational innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,193,030	3,410,577	25.9	74.1
Race					
White	3,946,809	1,019,008	2,927,801	25.8	74.2
Asian	460,617	110,508	350,109	24.0	76.0
Black or African American	83,640	27,464	56,175	32.8	67.2
American Indian or Alaska Native	19,983	6,412	13,571	32.1	67.9
Native Hawaiian or Other Pacific Islander	5,617	1,878	3,739	33.4	66.6
Ethnicity					
Hispanic or Latino	242,652	71,653	170,998	29.5	70.5
Equally Hispanic/ Not Hispanic or Latino	39,072	11,878	27,193	30.4	69.6
Not Hispanic or Latino	4,229,882	1,079,562	3,150,320	25.5	74.5
Minority status					
Minority	799,368	213,551	585,817	26.7	73.3
Equally minority/ nonminority	68,687	20,856	47,831	30.4	69.6
Nonminority	3,643,550	928,687	2,714,863	25.5	74.5
Unclassifiable	92,001 i	29,936 i	62,065 i	32.5	67.5

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

Note(s):

Detail may not add to total because of rounding. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 35

Product or process innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product or process innovation			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	1,218,460	3,385,146	26.5	73.5
Manufacturing industries	31–33	220,930	99,847	121,082	45.2	54.8
Food	311	18,180	8,303	9,877	45.7	54.3
Beverage and tobacco products	312	6,724	4,037	2,687	60.0	40.0
Textile, apparel, and leather products	313–16	10,569	4,237	6,332	40.1	59.9
Wood products	321	10,850	3,903	6,947	36.0	64.0
Paper	322	2,276	1,063	1,213	46.7	53.3
Printing and related support activities	323	21,903	8,673	13,230	39.6	60.4
Petroleum and coal products	324	624	254	370	40.7	59.3
Chemicals	325	7,910	4,361	3,549	55.1	44.9
Pesticide, fertilizer, and other agricultural chemicals	3253	542	267	275	49.3	50.7
Pharmaceuticals and medicines	3254	1,412	800	612	56.6	43.4
Soap, cleaning compound, and toilet preparation	3256	1,615	936	678	58.0	42.0
Other chemicals	other 325	4,341	2,358	1,983	54.3	45.7
Plastics and rubber products	326	8,412	4,141	4,271	49.2	50.8
Nonmetallic mineral products	327	8,021	2,984	5,037	37.2	62.8
Primary metals	331	2,679	1,177	1,502	43.9	56.1
Fabricated metal products	332	47,340	19,460	27,880	41.1	58.9
Machinery	333	18,792	9,521	9,272	50.7	49.3
Computer and electronic products	334	9,566	5,849	3,717	61.1	38.9
Communications equipment	3342	916	605	310	66.1	33.9
Semiconductor and other electronic components	3344	3,214	1,779	1,436	55.3	44.7
Navigational, measuring, electromedical, and control instruments	3345	3,958	2,528	1,430	63.9	36.1
Other computer and electronic products	other 334	1,478	937	541	63.4	36.6
Electrical equipment, appliances, and components	335	4,223	2,280	1,944	54.0	46.0
Transportation equipment	336	8,039	4,112	3,927	51.2	48.8
Automobiles, bodies, trailers, and parts	3361–63	5,018	2,617	2,401	52.2	47.8
Aerospace products and parts	3364	1,109	593	515	53.5	46.5
Other transportation	other 336	1,912	901	1,011	47.1	52.9
Furniture and related products	337	12,430	5,021	7,409	40.4	59.6
Miscellaneous	339	22,315	10,456	11,860	46.9	53.1
Medical equipment and supplies	3391	8,202	3,712	4,490	45.3	54.7
Other miscellaneous manufacturing	3399	14,113	6,743	7,370	47.8	52.2
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	1,118,613	3,264,064	25.5	74.5
Agriculture, forestry, fishing, and hunting	11	21,054	3,816	17,238	18.1	81.9
Mining, extraction, and support activities	21	15,546	2,375	13,170	15.3	84.7
Utilities	22	2,534	582	1,952	23.0	77.0
Construction	23	607,403	112,877	494,526	18.6	81.4
Wholesale trade	42	252,134	91,960	160,174	36.5	63.5
Retail trade	44–45	545,440	152,920	392,520	28.0	72.0
Transportation and warehousing	48–49	144,404	43,007	101,397	29.8	70.2
Information	51	56,053	24,979	31,073	44.6	55.4
Publishing	511	17,031	8,522	8,510	50.0	50.0
Newspaper, periodical, book, and directory publishers	5111	9,593	3,653	5,940	38.1	61.9
Software publishers	5112	7,438	4,868	2,570	65.5	34.5
Telecommunications	517	6,045	2,555	3,490	42.3	57.7
Data processing, hosting, and related services	518	8,414	4,716	3,698	56.0	44.0
Other information	other 51	24,563	9,187	15,376	37.4	62.6

TABLE 35

Product or process innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product or process innovation			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	54,344	138,001	28.3	71.7
Real estate and rental and leasing	53	229,923	40,451	189,472	17.6	82.4
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	466	1,235	27.4	72.6
Other real estate and rental and leasing	other 53	228,222	39,985	188,238	17.5	82.5
Professional, scientific, and technical services	54	639,985	198,235	441,750	31.0	69.0
Legal services	5411	146,441	24,968	121,474	17.0	83.0
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	24,284	75,497	24.3	75.7
Architectural, engineering, and related services	5413	83,492	26,410	57,081	31.6	68.4
Specialized design services	5414	25,140	8,363	16,777	33.3	66.7
Computer systems design and related services	5415	90,056	44,351	45,704	49.2	50.8
Management, scientific, and technical consulting services	5416	109,247	40,458	68,789	37.0	63.0
Scientific research and development services	5417	9,293	3,929	5,364	42.3	57.7
Advertising, public relations, and related services	5418	25,626	8,627	16,999	33.7	66.3
Other professional, scientific, and technical services	5419	50,907	16,843	34,064	33.1	66.9
Management of companies and enterprises	55	2,276	324	1,952	14.2	85.8
Administrative and support and waste management and remediation services	56	266,751	66,303	200,448	24.9	75.1
Educational services	61	51,288	20,079	31,208	39.2	60.8
Health care and social assistance	62	509,529	125,904	383,625	24.7	75.3
Health care services	621–23	447,069	111,310	335,759	24.9	75.1
Social assistance	624	62,461	14,595	47,866	23.4	76.6
Arts, entertainment, and recreation	71	74,256	20,632	53,624	27.8	72.2
Accommodation and food services	72	441,426	86,227	355,199	19.5	80.5
Other services	81	330,331	73,598	256,733	22.3	77.7

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 36

Product or process innovation in companies, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Product or process innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,218,460	3,385,146	26.5	73.5
Micro companies					
1–4	2,615,093	636,031	1,979,062	24.3	75.7
5–9	885,880	244,122	641,758	27.6	72.4
Small companies					
10–19	562,922	164,994	397,928	29.3	70.7
20–49	353,037	107,656	245,381	30.5	69.5
Medium companies					
50–99	104,561	34,925	69,636	33.4	66.6
100–249	52,429	19,014	33,416	36.3	63.7
Large companies					
250–499	15,665	6,082	9,583	38.8	61.2
500–999	7,026	2,568	4,458	36.6	63.4
1,000–4,999	5,514	2,314	3,200	42.0	58.0
5,000–9,999	744	382	361	51.4	48.6
10,000–24,999	447	225	222	50.4	49.6
25,000 or more	288	146	142	50.6	49.4

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 37

Product or process innovation in companies, by firm classification of sex: 2015–17

(Number and percent)

Sex of owners	Companies (number)	Product or process innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,218,460	3,385,146	26.5	73.5
Female majority owned	924,992	253,929	671,064	27.5	72.5
Male majority owned	2,879,461	754,008	2,125,454	26.2	73.8
Equally owned by male and female	707,151	184,510	522,642	26.1	73.9
Unclassifiable	92,001 i	26,015 i	65,987 i	28.3	71.7

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

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 38

Product or process innovation in companies, by firm classification of race and ethnicity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	Product or process innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,218,460	3,385,146	26.5	73.5
Race					
White	3,946,809	1,045,663	2,901,146	26.5	73.5
Asian	460,617	117,447	343,169	25.5	74.5
Black or African American	83,640	23,447	60,193	28.0	72.0
American Indian or Alaska Native	19,983	6,264	13,719	31.3	68.7
Native Hawaiian or Other Pacific Islander	5,617	1,617	4,000	28.8	71.2
Ethnicity					
Hispanic or Latino	242,652	69,546	173,106	28.7	71.3
Equally Hispanic/ Not Hispanic or Latino	39,072	11,560	27,512	29.6	70.4
Not Hispanic or Latino	4,229,882	1,111,340	3,118,542	26.3	73.7
Minority status					
Minority	799,368	214,522	584,846	26.8	73.2
Equally minority/ nonminority	68,687	21,003	47,684	30.6	69.4
Nonminority	3,643,550	956,921	2,686,629	26.3	73.7
Unclassifiable	92,001 i	26,015 i	65,987 i	28.3	71.7

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

Note(s):

Detail may not add to total because of rounding. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 39

Marketing or organizational innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Marketing or organizational innovation			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	1,505,546	3,098,060	32.7	67.3
Manufacturing industries	31–33	220,930	92,692	128,237	42.0	58.0
Food	311	18,180	8,697	9,483	47.8	52.2
Beverage and tobacco products	312	6,724	4,193	2,532	62.3	37.7
Textile, apparel, and leather products	313–16	10,569	4,072	6,498	38.5	61.5
Wood products	321	10,850	3,758	7,092	34.6	65.4
Paper	322	2,276	1,077	1,199	47.3	52.7
Printing and related support activities	323	21,903	8,455	13,449	38.6	61.4
Petroleum and coal products	324	624	272	352	43.6	56.4
Chemicals	325	7,910	4,011	3,899	50.7	49.3
Pesticide, fertilizer, and other agricultural chemicals	3253	542	250	292	46.1	53.9
Pharmaceuticals and medicines	3254	1,412	808	604	57.2	42.8
Soap, cleaning compound, and toilet preparation	3256	1,615	915	699	56.7	43.3
Other chemicals	other 325	4,341	2,038	2,303	46.9	53.1
Plastics and rubber products	326	8,412	3,804	4,608	45.2	54.8
Nonmetallic mineral products	327	8,021	2,976	5,045	37.1	62.9
Primary metals	331	2,679	1,082	1,597	40.4	59.6
Fabricated metal products	332	47,340	17,733	29,608	37.5	62.5
Machinery	333	18,792	8,141	10,651	43.3	56.7
Computer and electronic products	334	9,566	4,695	4,871	49.1	50.9
Communications equipment	3342	916	472	444	51.6	48.4
Semiconductor and other electronic components	3344	3,214	1,564	1,651	48.6	51.4
Navigational, measuring, electromedical, and control instruments	3345	3,958	1,971	1,987	49.8	50.2
Other computer and electronic products	other 334	1,478	688	790	46.5	53.5
Electrical equipment, appliances, and components	335	4,223	2,033	2,190	48.1	51.9
Transportation equipment	336	8,039	3,660	4,379	45.5	54.5
Automobiles, bodies, trailers, and parts	3361–63	5,018	2,387	2,631	47.6	52.4
Aerospace products and parts	3364	1,109	501	608	45.2	54.8
Other transportation	other 336	1,912	773	1,140	40.4	59.6
Furniture and related products	337	12,430	4,434	7,996	35.7	64.3
Miscellaneous	339	22,315	9,569	12,746	42.9	57.1
Medical equipment and supplies	3391	8,202	3,147	5,055	38.4	61.6
Other miscellaneous manufacturing	3399	14,113	6,422	7,691	45.5	54.5
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	1,412,854	2,969,823	32.2	67.8
Agriculture, forestry, fishing, and hunting	11	21,054	4,737	16,317	22.5	77.5
Mining, extraction, and support activities	21	15,546	2,885	12,661	18.6	81.4
Utilities	22	2,534	673	1,861	26.6	73.4
Construction	23	607,403	161,161	446,242	26.5	73.5
Wholesale trade	42	252,134	90,804	161,330	36.0	64.0
Retail trade	44–45	545,440	182,867	362,573	33.5	66.5
Transportation and warehousing	48–49	144,404	39,035	105,369	27.0	73.0
Information	51	56,053	26,458	29,595	47.2	52.8
Publishing	511	17,031	8,906	8,126	52.3	47.7
Newspaper, periodical, book, and directory publishers	5111	9,593	4,315	5,278	45.0	55.0
Software publishers	5112	7,438	4,591	2,847	61.7	38.3
Telecommunications	517	6,045	2,575	3,470	42.6	57.4
Data processing, hosting, and related services	518	8,414	4,290	4,123	51.0	49.0
Other information	other 51	24,563	10,686	13,876	43.5	56.5

TABLE 39

Marketing or organizational innovation in companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Marketing or organizational innovation			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	67,094	125,251	34.9	65.1
Real estate and rental and leasing	53	229,923	67,429	162,494	29.3	70.7
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	774	927	45.5	54.5
Other real estate and rental and leasing	other 53	228,222	66,655	161,567	29.2	70.8
Professional, scientific, and technical services	54	639,985	221,722	418,262	34.6	65.4
Legal services	5411	146,441	39,195	107,246	26.8	73.2
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	24,883	74,898	24.9	75.1
Architectural, engineering, and related services	5413	83,492	30,175	53,316	36.1	63.9
Specialized design services	5414	25,140	11,893	13,247	47.3	52.7
Computer systems design and related services	5415	90,056	37,278	52,778	41.4	58.6
Management, scientific, and technical consulting services	5416	109,247	42,550	66,697	38.9	61.1
Scientific research and development services	5417	9,293	4,202	5,091	45.2	54.8
Advertising, public relations, and related services	5418	25,626	12,113	13,512	47.3	52.7
Other professional, scientific, and technical services	5419	50,907	19,431	31,476	38.2	61.8
Management of companies and enterprises	55	2,276	591	1,685	26.0	74.0
Administrative and support and waste management and remediation services	56	266,751	85,444	181,307	32.0	68.0
Educational services	61	51,288	22,660	28,628	44.2	55.8
Health care and social assistance	62	509,529	169,220	340,310	33.2	66.8
Health care services	621–23	447,069	147,347	299,722	33.0	67.0
Social assistance	624	62,461	21,873	40,588	35.0	65.0
Arts, entertainment, and recreation	71	74,256	26,451	47,805	35.6	64.4
Accommodation and food services	72	441,426	147,472	293,953	33.4	66.6
Other services	81	330,331	96,152	234,179	29.1	70.9

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 40

Marketing or organizational innovation in companies, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Marketing or organizational innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,505,546	3,098,060	32.7	67.3
Micro companies					
1–4	2,615,093	719,688	1,895,405	27.5	72.5
5–9	885,880	319,344	566,536	36.0	64.0
Small companies					
10–19	562,922	225,595	337,327	40.1	59.9
20–49	353,037	150,949	202,089	42.8	57.2
Medium companies					
50–99	104,561	49,341	55,220	47.2	52.8
100–249	52,429	25,414	27,015	48.5	51.5
Large companies					
250–499	15,665	8,005	7,660	51.1	48.9
500–999	7,026	3,451	3,576	49.1	50.9
1,000–4,999	5,514	2,859	2,655	51.9	48.1
5,000–9,999	744	445	298	59.9	40.1
10,000–24,999	447	267	180	59.8	40.2
25,000 or more	288	190	99	65.8	34.2

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 41

Marketing or organizational innovation in companies, by firm classification of sex: 2015–17

(Number and percent)

Sex of owners	Companies (number)	Marketing or organizational innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,505,546	3,098,060	32.7	67.3
Female majority owned	924,992	319,147	605,845	34.5	65.5
Male majority owned	2,879,461	919,662	1,959,799	31.9	68.1
Equally owned by male and female	707,151	230,748	476,403	32.6	67.4
Unclassifiable	92,001 i	35,989 i	56,013 i	39.1	60.9

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

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 42

Marketing or organizational innovation in companies, by firm classification of race and ethnicity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	Marketing or organizational innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,505,546	3,098,060	32.7	67.3
Race					
White	3,946,809	1,287,573	2,659,236	32.6	67.4
Asian	460,617	142,621	317,996	31.0	69.0
Black or African American	83,640	31,751	51,889	38.0	62.0
American Indian or Alaska Native	19,983	7,739	12,245	38.7	61.3
Native Hawaiian or Other Pacific Islander	5,617	2,196	3,421	39.1	60.9
Ethnicity					
Hispanic or Latino	242,652	87,558	155,094	36.1	63.9
Equally Hispanic/ Not Hispanic or Latino	39,072	15,176	23,896	38.8	61.2
Not Hispanic or Latino	4,229,882	1,366,824	2,863,058	32.3	67.7
Minority status					
Minority	799,368	266,752	532,616	33.4	66.6
Equally minority/ nonminority	68,687	26,404	42,283	38.4	61.6
Nonminority	3,643,550	1,176,402	2,467,148	32.3	67.7
Unclassifiable	92,001 i	35,989 i	56,013 i	39.1	60.9

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

Note(s):

Detail may not add to total because of rounding. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 43

Innovating companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Any innovation			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	1,989,523	2,614,083	43.2	56.8
Manufacturing industries	31–33	220,930	127,849	93,081	57.9	42.1
Food	311	18,180	10,996	7,183	60.5	39.5
Beverage and tobacco products	312	6,724	5,011	1,713	74.5	25.5
Textile, apparel, and leather products	313–16	10,569	5,573	4,996	52.7	47.3
Wood products	321	10,850	5,362	5,488	49.4	50.6
Paper	322	2,276	1,409	868	61.9	38.1
Printing and related support activities	323	21,903	11,604	10,299	53.0	47.0
Petroleum and coal products	324	624	359	264	57.6	42.4
Chemicals	325	7,910	5,333	2,576	67.4	32.6
Pesticide, fertilizer, and other agricultural chemicals	3253	542	338	204	62.4	37.6
Pharmaceuticals and medicines	3254	1,412	986	426	69.8	30.2
Soap, cleaning compound, and toilet preparation	3256	1,615	1,139	475	70.6	29.4
Other chemicals	other 325	4,341	2,869	1,471	66.1	33.9
Plastics and rubber products	326	8,412	5,160	3,252	61.3	38.7
Nonmetallic mineral products	327	8,021	4,088	3,933	51.0	49.0
Primary metals	331	2,679	1,499	1,180	55.9	44.1
Fabricated metal products	332	47,340	25,360	21,981	53.6	46.4
Machinery	333	18,792	11,580	7,213	61.6	38.4
Computer and electronic products	334	9,566	6,879	2,687	71.9	28.1
Communications equipment	3342	916	706	209	77.1	22.9
Semiconductor and other electronic components	3344	3,214	2,139	1,075	66.6	33.4
Navigational, measuring, electromedical, and control instruments	3345	3,958	2,925	1,033	73.9	26.1
Other computer and electronic products	other 334	1,478	1,108	370	75.0	25.0
Electrical equipment, appliances, and components	335	4,223	2,749	1,474	65.1	34.9
Transportation equipment	336	8,039	5,018	3,021	62.4	37.6
Automobiles, bodies, trailers, and parts	3361–63	5,018	3,194	1,824	63.7	36.3
Aerospace products and parts	3364	1,109	723	386	65.2	34.8
Other transportation	other 336	1,912	1,102	811	57.6	42.4
Furniture and related products	337	12,430	6,485	5,945	52.2	47.8
Miscellaneous	339	22,315	13,351	8,964	59.8	40.2
Medical equipment and supplies	3391	8,202	4,724	3,478	57.6	42.4
Other miscellaneous manufacturing	3399	14,113	8,628	5,485	61.1	38.9
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	1,861,675	2,521,002	42.5	57.5
Agriculture, forestry, fishing, and hunting	11	21,054	6,630	14,424	31.5	68.5
Mining, extraction, and support activities	21	15,546	4,036	11,510	26.0	74.0
Utilities	22	2,534	964	1,570	38.0	62.0
Construction	23	607,403	211,490	395,913	34.8	65.2
Wholesale trade	42	252,134	126,882	125,252	50.3	49.7
Retail trade	44–45	545,440	244,667	300,773	44.9	55.1
Transportation and warehousing	48–49	144,404	62,055	82,349	43.0	57.0
Information	51	56,053	34,067	21,986	60.8	39.2
Publishing	511	17,031	11,246	5,786	66.0	34.0
Newspaper, periodical, book, and directory publishers	5111	9,593	5,402	4,192	56.3	43.7
Software publishers	5112	7,438	5,844	1,594	78.6	21.4
Telecommunications	517	6,045	3,550	2,496	58.7	41.3
Data processing, hosting, and related services	518	8,414	5,866	2,548	69.7	30.3
Other information	other 51	24,563	13,405	11,158	54.6	45.4

TABLE 43

Innovating companies, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Any innovation			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	88,651	103,693	46.1	53.9
Real estate and rental and leasing	53	229,923	82,759	147,164	36.0	64.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	891	810	52.4	47.6
Other real estate and rental and leasing	other 53	228,222	81,868	146,354	35.9	64.1
Professional, scientific, and technical services	54	639,985	294,598	345,387	46.0	54.0
Legal services	5411	146,441	48,464	97,977	33.1	66.9
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	36,414	63,368	36.5	63.5
Architectural, engineering, and related services	5413	83,492	39,486	44,005	47.3	52.7
Specialized design services	5414	25,140	14,033	11,107	55.8	44.2
Computer systems design and related services	5415	90,056	54,233	35,823	60.2	39.8
Management, scientific, and technical consulting services	5416	109,247	56,376	52,870	51.6	48.4
Scientific research and development services	5417	9,293	5,725	3,568	61.6	38.4
Advertising, public relations, and related services	5418	25,626	14,318	11,308	55.9	44.1
Other professional, scientific, and technical services	5419	50,907	25,547	25,360	50.2	49.8
Management of companies and enterprises	55	2,276	711	1,565	31.2	68.8
Administrative and support and waste management and remediation services	56	266,751	111,405	155,346	41.8	58.2
Educational services	61	51,288	29,793	21,495	58.1	41.9
Health care and social assistance	62	509,529	219,186	290,343	43.0	57.0
Health care services	621–23	447,069	191,686	255,382	42.9	57.1
Social assistance	624	62,461	27,500	34,961	44.0	56.0
Arts, entertainment, and recreation	71	74,256	33,823	40,433	45.5	54.5
Accommodation and food services	72	441,426	181,507	259,919	41.1	58.9
Other services	81	330,331	128,452	201,879	38.9	61.1

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 44

Innovating companies, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Any innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,989,523	2,614,083	43.2	56.8
Micro companies					
1–4	2,615,093	1,007,148	1,607,945	38.5	61.5
5–9	885,880	411,068	474,812	46.4	53.6
Small companies					
10–19	562,922	280,804	282,118	49.9	50.1
20–49	353,037	183,535	169,502	52.0	48.0
Medium companies					
50–99	104,561	58,760	45,801	56.2	43.8
100–249	52,429	30,187	22,243	57.6	42.4
Large companies					
250–499	15,665	9,487	6,178	60.6	39.4
500–999	7,026	4,084	2,942	58.1	41.9
1,000–4,999	5,514	3,409	2,105	61.8	38.2
5,000–9,999	744	540	204	72.6	27.4
10,000–24,999	447	297	150	66.5	33.5
25,000 or more	288	205	84	71.0	29.0

Note(s):

Detail may not add to total because of rounding. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 45

Innovating companies, by firm classification of sex: 2015–17

(Number and percent)

Sex of owners	Companies (number)	Any innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,989,523	2,614,083	43.2	56.8
Female majority owned	924,992	417,200	507,792	45.1	54.9
Male majority owned	2,879,461	1,223,670	1,655,791	42.5	57.5
Equally owned by male and female	707,151	304,693	402,458	43.1	56.9
Unclassifiable	92,001 i	43,960 i	48,041 i	47.8	52.2

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

Note(s):

Detail may not add to total because of rounding. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 46

Innovating companies, by firm classification of race and ethnicity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	Any innovation			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	1,989,523	2,614,083	43.2	56.8
Race					
White	3,946,809	1,699,605	2,247,204	43.1	56.9
Asian	460,617	195,392	265,225	42.4	57.6
Black or African American	83,640	40,826	42,814	48.8	51.2
American Indian or Alaska Native	19,983	9,788	10,196	49.0	51.0
Native Hawaiian or Other Pacific Islander	5,617	2,786	2,831	49.6	50.4
Ethnicity					
Hispanic or Latino	242,652	115,584	127,068	47.6	52.4
Equally Hispanic/ Not Hispanic or Latino	39,072	19,051	20,021	48.8	51.2
Not Hispanic or Latino	4,229,882	1,810,929	2,418,953	42.8	57.2
Minority status					
Minority	799,368	357,829	441,539	44.8	55.2
Equally minority/ nonminority	68,687	33,799	34,889	49.2	50.8
Nonminority	3,643,550	1,553,936	2,089,614	42.6	57.4
Unclassifiable	92,001 i	43,960 i	48,041 i	47.8	52.2

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

Note(s):

Detail may not add to total because of rounding. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 47

Product innovation in companies, by industry and R&D activity: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	In-house or external R&D			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	821,671	272,342	549,329	33.1	66.9
Manufacturing industries	31–33	62,446	40,568	21,878	65.0	35.0
Food	311	5,891	3,303	2,588	56.1	43.9
Beverage and tobacco products	312	3,228	2,046	1,182	63.4	36.6
Textile, apparel, and leather products	313–16	2,800	1,477	1,323	52.8	47.2
Wood products	321	2,016	908	1,108	45.1	54.9
Paper	322	618	369	249	59.7	40.3
Printing and related support activities	323	4,932	1,933	2,999	39.2	60.8
Petroleum and coal products	324	167	137	29	82.5	17.5
Chemicals	325	3,290	2,756	533	83.8	16.2
Pesticide, fertilizer, and other agricultural chemicals	3253	196	116	80	59.2	40.8
Pharmaceuticals and medicines	3254	591	533	57	90.3	9.7
Soap, cleaning compound, and toilet preparation	3256	744	589	155	79.1	20.9
Other chemicals	other 325	1,759	1,518	241	86.3	13.7
Plastics and rubber products	326	2,639	1,935	704	73.3	26.7
Nonmetallic mineral products	327	1,666	879	787	52.7	47.3
Primary metals	331	577	401	175	69.6	30.4
Fabricated metal products	332	9,316	6,039	3,277	64.8	35.2
Machinery	333	6,330	5,170	1,160	81.7	18.3
Computer and electronic products	334	4,571	4,057	514	88.8	11.2
Communications equipment	3342	510	437	72	85.8	14.2
Semiconductor and other electronic components	3344	1,178	1,022	156	86.7	13.3
Navigational, measuring, electromedical, and control instruments	3345	2,101	1,955	146	93.0	7.0
Other computer and electronic products	other 334	782	643	139	82.3	17.7
Electrical equipment, appliances, and components	335	1,714	1,380	334	80.5	19.5
Transportation equipment	336	2,851	2,169	682	76.1	23.9
Automobiles, bodies, trailers, and parts	3361–63	1,793	1,334	459	74.4	25.6
Aerospace products and parts	3364	348	260	88	74.8	25.2
Other transportation	other 336	710	574	136	80.9	19.1
Furniture and related products	337	2,767	1,264	1,502	45.7	54.3
Miscellaneous	339	7,060	4,329	2,731	61.3	38.7
Medical equipment and supplies	3391	2,432	1,337	1,096	55.0	45.0
Other miscellaneous manufacturing	3399	4,627	2,992	1,635	64.7	35.3
Nonmanufacturing industries	11, 21–23, 42–81	759,225	231,774	527,451	30.5	69.5
Agriculture, forestry, fishing, and hunting	11	1,883	558	1,325	29.6	70.4
Mining, extraction, and support activities	21	1,119	468	651	41.8	58.2
Utilities	22	287	109	178	37.9	62.1
Construction	23	64,453	14,917	49,535	23.1	76.9
Wholesale trade	42	63,426	25,659	37,767	40.5	59.5
Retail trade	44–45	114,735	24,875	89,860	21.7	78.3
Transportation and warehousing	48–49	13,973	3,665	10,308	26.2	73.8
Information	51	20,395	12,302	8,093	60.3	39.7
Publishing	511	7,062	4,948	2,115	70.1	29.9
Newspaper, periodical, book, and directory publishers	5111	2,653	956	1,696	36.1	63.9
Software publishers	5112	4,410	3,991	419	90.5	9.5
Telecommunications	517	2,007	869	1,138	43.3	56.7
Data processing, hosting, and related services	518	3,997	2,912	1,085	72.8	27.2
Other information	other 51	7,328	3,573	3,755	48.8	51.2

TABLE 47

Product innovation in companies, by industry and R&D activity: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	In-house or external R&D			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	38,092	9,372	28,720	24.6	75.4
Real estate and rental and leasing	53	24,163	6,411	17,752	26.5	73.5
Lessors of nonfinancial intangible assets (except copyrighted works)	533	355	207	147	58.5	41.5
Other real estate and rental and leasing	other 53	23,808	6,204	17,604	26.1	73.9
Professional, scientific, and technical services	54	137,653	64,666	72,987	47.0	53.0
Legal services	5411	14,014	3,463	10,551	24.7	75.3
Accounting, tax preparation, bookkeeping, and payroll services	5412	11,155	2,431	8,724	21.8	78.2
Architectural, engineering, and related services	5413	19,119	11,392	7,727	59.6	40.4
Specialized design services	5414	6,347	2,754	3,593	43.4	56.6
Computer systems design and related services	5415	32,559	22,457	10,102	69.0	31.0
Management, scientific, and technical consulting services	5416	31,006	13,282	17,725	42.8	57.2
Scientific research and development services	5417	3,323	2,971	351	89.4	10.6
Advertising, public relations, and related services	5418	6,518	2,326	4,192	35.7	64.3
Other professional, scientific, and technical services	5419	13,610	3,588	10,022	26.4	73.6
Management of companies and enterprises	55	229	115	115	50.0	50.0
Administrative and support and waste management and remediation services	56	41,914	11,085	30,829	26.4	73.6
Educational services	61	16,968	6,063	10,905	35.7	64.3
Health care and social assistance	62	93,660	21,150	72,510	22.6	77.4
Health care services	621–23	82,181	18,671	63,510	22.7	77.3
Social assistance	624	11,479	2,479	9,000	21.6	78.4
Arts, entertainment, and recreation	71	16,684	4,646	12,037	27.8	72.2
Accommodation and food services	72	58,621	14,844	43,777	25.3	74.7
Other services	81	50,971	10,870	40,102	21.3	78.7

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 48

Product innovation in companies, by company size and R&D activity: 2015–17

(Number and percent)

Company size	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	821,671	272,342	549,329	33.1	66.9
Micro companies					
1–4	436,753	132,026	304,727	30.2	69.8
5–9	166,226	51,000	115,226	30.7	69.3
Small companies					
10–19	109,894	37,957	71,938	34.5	65.5
20–49	68,668	29,002	39,666	42.2	57.8
Medium companies					
50–99	21,417	10,920	10,497	51.0	49.0
100–249	11,447	6,544	4,903	57.2	42.8
Large companies					
250–499	3,660	2,337	1,323	63.9	36.1
500–999	1,599	1,055	544	66.0	34.0
1,000–4,999	1,464	1,074	390	73.4 r	26.6
5,000–9,999	273	216	58	78.9	21.1
10,000–24,999	163	128	34	78.9	21.1
25,000 or more	107	84	23	78.4	21.6

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 49

Product innovation in companies, by firm classification of sex and R&D activity: 2015–17

(Number and percent)

Sex of owners	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	821,671	272,342	549,329	33.1	66.9
Female majority owned	180,697	48,824	131,873	27.0	73.0
Male majority owned	498,132	176,373	321,759	35.4	64.6
Equally owned by male and female	125,519	36,902	88,617	29.4	70.6
Unclassifiable	17,323 i	10,242 i	7,080 i	59.1	40.9

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

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 50

Product innovation in companies, by firm classification of race and ethnicity and R&D activity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	821,671	272,342	549,329	33.1	66.9
Race					
White	705,571	231,334	474,236	32.8	67.2
Asian	79,149	24,913	54,236	31.5	68.5
Black or African American	15,771	4,333	11,438	27.5	72.5
American Indian or Alaska Native	4,267	1,500	2,767	35.2	64.8
Native Hawaiian or Other Pacific Islander	1,053	340	713	32.3	67.7
Ethnicity					
Hispanic or Latino	43,120	11,221	31,900	26.0	74.0
Equally Hispanic/ Not Hispanic or Latino	7,941	2,736	5,204	34.5	65.5
Not Hispanic or Latino	753,287	248,142	505,145	32.9	67.1
Minority status					
Minority	140,672	41,607	99,065	29.6	70.4
Equally minority/ nonminority	14,498	5,331	9,167	36.8	63.2
Nonminority	649,178	215,162	434,016	33.1	66.9
Unclassifiable	17,323 ⁱ	10,242 ⁱ	7,080 ⁱ	59.1	40.9

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

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 51

Process innovation in companies, by industry and R&D activity: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	In-house or external R&D			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	752,895	270,271	482,624	35.9	64.1
Manufacturing industries	31–33	75,816	42,781	33,034	56.4	43.6
Food	311	5,795	3,288	2,507	56.7	43.3
Beverage and tobacco products	312	2,570	1,742	828	67.8	32.2
Textile, apparel, and leather products	313–16	3,038	1,514	1,524	49.8	50.2
Wood products	321	3,188	1,241	1,946	38.9	61.1
Paper	322	831	445	387	53.5	46.5
Printing and related support activities	323	6,897	2,448	4,449	35.5	64.5
Petroleum and coal products	324	188	140	48	74.2	25.8
Chemicals	325	3,053	2,463	590	80.7	19.3
Pesticide, fertilizer, and other agricultural chemicals	3253	170	102	67	60.5	39.5
Pharmaceuticals and medicines	3254	654	570	85	87.1	12.9
Soap, cleaning compound, and toilet preparation	3256	592	461	131	77.9	22.1
Other chemicals	other 325	1,637	1,330	307	81.2	18.8
Plastics and rubber products	326	3,275	2,156	1,118	65.9	34.1
Nonmetallic mineral products	327	2,393	1,158	1,235	48.4	51.6
Primary metals	331	970	597	373	61.5	38.5
Fabricated metal products	332	16,472	8,696	7,776	52.8	47.2
Machinery	333	7,049	5,031	2,018	71.4	28.6
Computer and electronic products	334	3,723	2,970	752	79.8	20.2
Communications equipment	3342	339	287	52	84.7	15.3
Semiconductor and other electronic components	3344	1,365	959	406	70.3	29.7
Navigational, measuring, electromedical, and control instruments	3345	1,495	1,323	172	88.5	11.5
Other computer and electronic products	other 334	524	401	123	76.6	23.4
Electrical equipment, appliances, and components	335	1,586	1,210	377	76.3	23.7
Transportation equipment	336	2,917	1,999	919	68.5	31.5
Automobiles, bodies, trailers, and parts	3361–63	1,933	1,365	568	70.6	29.4
Aerospace products and parts	3364	424	253	171	59.6	40.4
Other transportation	other 336	560	381	179	68.0	32.0
Furniture and related products	337	3,920	1,687	2,234	43.0	57.0
Miscellaneous	339	7,933	3,980	3,953	50.2	49.8
Medical equipment and supplies	3391	2,937	1,312	1,625	44.7	55.3
Other miscellaneous manufacturing	3399	4,995	2,668	2,327	53.4	46.6
Nonmanufacturing industries	11, 21–23, 42–81	677,080	227,490	449,590	33.6	66.4
Agriculture, forestry, fishing, and hunting	11	2,816	872	1,944	31.0	69.0
Mining, extraction, and support activities	21	1,791	670	1,121	37.4	62.6
Utilities	22	455	120	336	26.3	73.7
Construction	23	75,436	19,793	55,643	26.2	73.8
Wholesale trade	42	59,093	23,686	35,406	40.1	59.9
Retail trade	44–45	81,259	23,371	57,888	28.8	71.2
Transportation and warehousing	48–49	38,696	6,445	32,251	16.7	83.3
Information	51	14,796	9,393	5,403	63.5	36.5
Publishing	511	4,920	3,356	1,564	68.2	31.8
Newspaper, periodical, book, and directory publishers	5111	2,195	807	1,388	36.8	63.2
Software publishers	5112	2,725	2,549	176	93.5	6.5
Telecommunications	517	1,695	795	899	46.9	53.1
Data processing, hosting, and related services	518	3,050	2,235	815	73.3	26.7
Other information	other 51	5,132	3,006	2,126	58.6	41.4

TABLE 51

Process innovation in companies, by industry and R&D activity: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	In-house or external R&D			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	31,209	9,912	21,297	31.8	68.2
Real estate and rental and leasing	53	26,507	7,840	18,666	29.6	70.4
Lessors of nonfinancial intangible assets (except copyrighted works)	533	266	159	106	59.9	40.1
Other real estate and rental and leasing	other 53	26,241	7,681	18,560	29.3	70.7
Professional, scientific, and technical services	54	127,072	58,053	69,019	45.7	54.3
Legal services	5411	16,221	4,293	11,928	26.5	73.5
Accounting, tax preparation, bookkeeping, and payroll services	5412	19,545	3,688	15,857	18.9	81.1
Architectural, engineering, and related services	5413	16,486	9,776	6,710	59.3	40.7
Specialized design services	5414	4,747	2,213	2,534	46.6	53.4
Computer systems design and related services	5415	31,432	19,875	11,557	63.2	36.8
Management, scientific, and technical consulting services	5416	23,328	10,860	12,469	46.6	53.4
Scientific research and development services	5417	2,319	2,071	248	89.3	10.7
Advertising, public relations, and related services	5418	4,944	2,146	2,798	43.4	56.6
Other professional, scientific, and technical services	5419	8,049	3,130	4,919	38.9	61.1
Management of companies and enterprises	55	205	84	122	40.8	59.2
Administrative and support and waste management and remediation services	56	42,861	12,236	30,625	28.5	71.5
Educational services	61	9,300	4,444	4,857	47.8	52.2
Health care and social assistance	62	65,473	20,092	45,381	30.7	69.3
Health care services	621–23	58,380	17,670	40,710	30.3	69.7
Social assistance	624	7,093	2,422	4,671	34.2	65.8
Arts, entertainment, and recreation	71	9,045	3,617	5,428	40.0	60.0
Accommodation and food services	72	50,080	15,464	34,615	30.9	69.1
Other services	81	40,986	11,397	29,589	27.8	72.2

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 52

Process innovation in companies, by company size and R&D activity: 2015–17

(Number and percent)

Company size	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	752,895	270,271	482,624	35.9	64.1
Micro companies					
1–4	378,321	124,036	254,284	32.8	67.2
5–9	148,629	51,133	97,496	34.4	65.6
Small companies					
10–19	105,547	38,951	66,596	36.9	63.1
20–49	72,649	31,360	41,289	43.2	56.8
Medium companies					
50–99	24,934	12,397	12,536	49.7	50.3
100–249	13,953	7,328	6,625	52.5	47.5
Large companies					
250–499	4,638	2,423	2,215	52.2	47.8
500–999	1,878	1,073	805	57.2	42.8
1,000–4,999	1,773	1,142	631	64.4 r	35.6 r
5,000–9,999	289	213	76	73.6	26.4
10,000–24,999	173	126	47	72.6	27.4
25,000 or more	112	88	25	78.2	21.8

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 53

Process innovation in companies, by firm classification of sex and R&D activity: 2015–17

(Number and percent)

Sex of owners	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	752,895	270,271	482,624	35.9	64.1
Female majority owned	144,184	47,212	96,972	32.7	67.3
Male majority owned	479,659	177,424	302,235	37.0	63.0
Equally owned by male and female	111,661	36,329	75,331	32.5	67.5
Unclassifiable	17,391 i	9,305 i	8,086 i	53.5	46.5

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

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 54

Process innovation in companies, by firm classification of race and ethnicity and R&D activity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	752,895	270,271	482,624	35.9	64.1
Race					
White	641,736	229,299	412,437	35.7	64.3
Asian	75,533	25,431	50,103	33.7	66.3
Black or African American	14,704	4,689	10,016	31.9	68.1
American Indian or Alaska Native	4,061	1,543	2,518	38.0	62.0
Native Hawaiian or Other Pacific Islander	1,051	394	657	37.5	62.5
Ethnicity					
Hispanic or Latino	47,109	12,829	34,280	27.2	72.8
Equally Hispanic/ Not Hispanic or Latino	7,156	2,486	4,670	34.7	65.3
Not Hispanic or Latino	681,239	245,651	435,588	36.1	63.9
Minority status					
Minority	140,202	44,244	95,958	31.6	68.4
Equally minority/ nonminority	12,703	4,846	7,856	38.2	61.8
Nonminority	582,599	211,875	370,724	36.4	63.6
Unclassifiable	17,391 ⁱ	9,305 ⁱ	8,086 ⁱ	53.5	46.5

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

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 55

Product or process innovation in companies, by industry and R&D activity: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	In-house or external R&D			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	1,218,460	365,864	852,596	30.0	70.0
Manufacturing industries	31–33	99,847	55,404	44,444	55.5	44.5
Food	311	8,303	4,300	4,003	51.8	48.2
Beverage and tobacco products	312	4,037	2,439	1,598	60.4	39.6
Textile, apparel, and leather products	313–16	4,237	1,946	2,292	45.9	54.1
Wood products	321	3,903	1,420	2,483	36.4	63.6
Paper	322	1,063	548	515	51.5	48.5
Printing and related support activities	323	8,673	2,806	5,866	32.4	67.6
Petroleum and coal products	324	254	194	60	76.2	23.8
Chemicals	325	4,361	3,416	946	78.3	21.7
Pesticide, fertilizer, and other agricultural chemicals	3253	267	139	128	52.1	47.9
Pharmaceuticals and medicines	3254	800	686	114	85.8	14.2
Soap, cleaning compound, and toilet preparation	3256	936	697	239	74.5	25.5
Other chemicals	other 325	2,358	1,893	465	80.3	19.7
Plastics and rubber products	326	4,141	2,707	1,434	65.4	34.6
Nonmetallic mineral products	327	2,984	1,364	1,620	45.7	54.3
Primary metals	331	1,177	718	460	61.0	39.0
Fabricated metal products	332	19,460	10,036	9,424	51.6	48.4
Machinery	333	9,521	6,915	2,605	72.6	27.4
Computer and electronic products	334	5,849	4,786	1,064	81.8	18.2
Communications equipment	3342	605	501	105	82.7	17.3
Semiconductor and other electronic components	3344	1,779	1,295	483	72.8	27.2
Navigational, measuring, electromedical, and control instruments	3345	2,528	2,268	261	89.7	10.3
Other computer and electronic products	other 334	937	722	215	77.1	22.9
Electrical equipment, appliances, and components	335	2,280	1,701	579	74.6	25.4
Transportation equipment	336	4,112	2,798	1,314	68.0	32.0
Automobiles, bodies, trailers, and parts	3361–63	2,617	1,775	842	67.8	32.2
Aerospace products and parts	3364	593	374	220	63.0	37.0
Other transportation	other 336	901	649	252	72.0	28.0
Furniture and related products	337	5,021	1,972	3,049	39.3	60.7
Miscellaneous	339	10,456	5,325	5,131	50.9	49.1
Medical equipment and supplies	3391	3,712	1,670	2,042	45.0	55.0
Other miscellaneous manufacturing	3399	6,743	3,655	3,089	54.2	45.8
Nonmanufacturing industries	11, 21–23, 42–81	1,118,613	310,460	808,153	27.8	72.2
Agriculture, forestry, fishing, and hunting	11	3,816	1,055	2,761	27.6	72.4
Mining, extraction, and support activities	21	2,375	870	1,506	36.6	63.4
Utilities	22	582	155	427	26.6	73.4
Construction	23	112,877	24,307	88,570	21.5	78.5
Wholesale trade	42	91,960	33,098	58,862	36.0	64.0
Retail trade	44–45	152,920	31,606	121,314	20.7	79.3
Transportation and warehousing	48–49	43,007	6,939	36,068	16.1	83.9
Information	51	24,979	14,334	10,646	57.4	42.6
Publishing	511	8,522	5,594	2,928	65.6	34.4
Newspaper, periodical, book, and directory publishers	5111	3,653	1,222	2,431	33.5	66.5
Software publishers	5112	4,868	4,371	497	89.8	10.2
Telecommunications	517	2,555	1,020	1,536	39.9	60.1
Data processing, hosting, and related services	518	4,716	3,295	1,421	69.9	30.1
Other information	other 51	9,187	4,425	4,761	48.2	51.8

TABLE 55

Product or process innovation in companies, by industry and R&D activity: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	In-house or external R&D			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	54,344	13,218	41,126	24.3	75.7
Real estate and rental and leasing	53	40,451	9,951	30,500	24.6	75.4
Lessors of nonfinancial intangible assets (except copyrighted works)	533	466	264	202	56.7	43.3
Other real estate and rental and leasing	other 53	39,985	9,687	30,298	24.2	75.8
Professional, scientific, and technical services	54	198,235	82,260	115,975	41.5	58.5
Legal services	5411	24,968	5,465	19,503	21.9	78.1
Accounting, tax preparation, bookkeeping, and payroll services	5412	24,284	4,187	20,098	17.2	82.8
Architectural, engineering, and related services	5413	26,410	14,491	11,919	54.9	45.1
Specialized design services	5414	8,363	3,378	4,985	40.4	59.6
Computer systems design and related services	5415	44,351	27,621	16,730	62.3	37.7
Management, scientific, and technical consulting services	5416	40,458	16,138	24,320	39.9	60.1
Scientific research and development services	5417	3,929	3,437	492	87.5	12.5
Advertising, public relations, and related services	5418	8,627	2,976	5,651	34.5	65.5
Other professional, scientific, and technical services	5419	16,843	4,565	12,277	27.1	72.9
Management of companies and enterprises	55	324	140	184	43.3	56.7
Administrative and support and waste management and remediation services	56	66,303	15,699	50,604	23.7	76.3
Educational services	61	20,079	6,980	13,100	34.8	65.2
Health care and social assistance	62	125,904	28,237	97,667	22.4	77.6
Health care services	621–23	111,310	25,015	86,295	22.5	77.5
Social assistance	624	14,595	3,222	11,372	22.1	77.9
Arts, entertainment, and recreation	71	20,632	5,702	14,931	27.6	72.4
Accommodation and food services	72	86,227	20,505	65,722	23.8	76.2
Other services	81	73,598	15,407	58,191	20.9	79.1

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 56

Product or process innovation in companies, by company size and R&D activity: 2015–17

(Number and percent)

Company size	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	1,218,460	365,864	852,596	30.0	70.0
Micro companies					
1–4	636,031	172,577	463,454	27.1	72.9
5–9	244,122	68,678	175,444	28.1	71.9
Small companies					
10–19	164,994	51,617	113,377	31.3	68.7
20–49	107,656	41,061	66,595	38.1	61.9
Medium companies					
50–99	34,925	15,853	19,072	45.4	54.6
100–249	19,014	9,472	9,542	49.8	50.2
Large companies					
250–499	6,082	3,161	2,921	52.0	48.0
500–999	2,568	1,437	1,131	55.9	44.1
1,000–4,999	2,314	1,465	849	63.3	36.7
5,000–9,999	382	275	107	71.9	28.1
10,000–24,999	225	160	65	71.0	29.0
25,000 or more	146	108	38	74.1	25.9

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 57

Product or process innovation in companies, by firm classification of sex and R&D activity: 2015–17

(Number and percent)

Sex of owners	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	1,218,460	365,864	852,596	30.0	70.0
Female majority owned	253,929	64,516	189,413	25.4	74.6
Male majority owned	754,008	238,815	515,193	31.7	68.3
Equally owned by male and female	184,510	49,196	135,314	26.7	73.3
Unclassifiable	26,015 i	13,338 i	12,677 i	51.3	48.7

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

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 58

Product or process innovation in companies, by firm classification of race and ethnicity and R&D activity: 2015–17

(Number and percent)

Race and ethnicity of owners	Companies (number)	In-house or external R&D			
		Number		Percent	
		Yes	No	Yes	No
All companies	1,218,460	365,864	852,596	30.0	70.0
Race					
White	1,045,663	311,382	734,281	29.8	70.2
Asian	117,447	33,112	84,335	28.2	71.8
Black or African American	23,447	5,871	17,576	25.0	75.0
American Indian or Alaska Native	6,264	2,067	4,197	33.0	67.0
Native Hawaiian or Other Pacific Islander	1,617	474	1,143	29.3	70.7
Ethnicity					
Hispanic or Latino	69,546	16,023	53,523	23.0	77.0
Equally Hispanic/ Not Hispanic or Latino	11,560	3,531	8,028	30.5	69.5
Not Hispanic or Latino	1,111,340	332,972	778,368	30.0	70.0
Minority status					
Minority	214,522	56,683	157,839	26.4	73.6
Equally minority/ nonminority	21,003	6,885	14,119	32.8	67.2
Nonminority	956,921	288,958	667,962	30.2	69.8
Unclassifiable	26,015 ⁱ	13,338 ⁱ	12,677 ⁱ	51.3	48.7

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

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Companies may be included in one or more race and ethnicity category. Companies classified as minority owned are those owned by persons of any race and ethnicity combination other than "Not Hispanic or Latino" and "White." Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 59

Product or process innovation in companies, by innovation activity and company size: 2015–17

(Number and percent)

Innovation activity	All companies	Micro companies (1–9 employees)	Small companies (10–49 employees)	Medium companies (50–249 employees)	Large companies (250+ employees)
All companies with product or process innovation activities (number of companies)	1,218,460	880,153	272,650	53,939	11,718
Activities (number of companies)					
In-house R&D	331,093	217,531	83,912	23,462	6,189
Continuously (business had permanent R&D staff in-house)	106,132	62,362	29,034	10,720	4,016
Occasionally (as needed only)	224,961	155,169	54,878	12,742	2,173
External R&D	103,304	65,000	27,611	8,135	2,559
Acquisition of machinery, equipment, software, and buildings	521,662	338,492	142,516	32,708	7,946
Acquisition of existing knowledge from other companies or organizations	239,715	169,053	55,794	11,725	3,144
Training for innovative activities	507,713	331,495	137,543	31,020	7,655
Market introduction of innovations	369,694	245,661	96,082	22,258	5,694
Brand building	586,628	394,694	151,159	32,824	7,951
Design	361,390	246,294	88,604	21,039	5,453
Other	191,310	122,571	50,071	14,112	4,556
Activities (percent)					
In-house R&D	27.2	24.7	30.8	43.5	52.8
Continuously (business had permanent R&D staff in-house)	8.7	7.1	10.6	19.9	34.3
Occasionally (as needed only)	18.5	17.6	20.1	23.6	18.5
External R&D	8.5	7.4	10.1	15.1	21.8
Acquisition of machinery, equipment, software, and buildings	42.8	38.5	52.3	60.6	67.8
Acquisition of existing knowledge from other companies or organizations	19.7	19.2	20.5	21.7	26.8
Training for innovative activities	41.7	37.7	50.4	57.5	65.3
Market introduction of innovations	30.3	27.9	35.2	41.3	48.6
Brand building	48.1	44.8	55.4	60.9	67.9
Design	29.7	28.0	32.5	39.0	46.5
Other	15.7	13.9	18.4	26.2	38.9

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 60

Innovating companies, by factors interfering with innovation and company size: 2015–17

(Percent)

Factors interfering with innovation	All companies	Micro companies (1–9 employees)	Small companies (10–49 employees)	Medium companies (50–249 employees)	Large companies (250+ employees)
All companies (number of companies)	1,989,523	1,418,216	464,339	88,947	18,021
Lack of internal finance	57.5	58.6	56.5	48.1	43.0
Lack of credit or private equity	42.3	43.6	40.9	32.5	27.4
Innovation costs too high	52.4	52.2	53.8	50.3	51.7
Lack of skilled employees within the business	58.2	55.8	64.6	62.9	56.4
Lack of collaboration partners	33.8	34.0	33.7	31.4	31.7
Difficulties in obtaining government grants or subsidies	23.0	23.7	22.1	17.6	15.4
Uncertain market demand for your ideas	40.7	41.0	40.2	39.5	41.9
Too much competition in your market	53.0	53.1	53.0	52.1	51.6

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Percent shares include companies indicating that the factor is very important and companies indicating that the factor is somewhat important.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 61

Non-innovating companies that considered innovating, by factors preventing innovation and company size: 2015–17

(Percent)

Factors preventing innovation	All companies	Micro companies (1–9 employees)	Small companies (10–49 employees)	Medium companies (50–249 employees)	Large companies (250+ employees)
Non-innovating companies that considered innovating (number of companies)	43,615	32,826	8,833	1,663	293
Lack of internal finance	80.4	82.2	75.6	71.5	66.8
Lack of credit or private equity	60.6	62.9	55.2	49.1	41.2 r
Innovation costs too high	82.7	83.8	79.9	75.4	83.5
Lack of skilled employees within the business	75.1	74.5	77.3	75.9	74.6
Lack of collaboration partners	56.5	56.4	57.1	54.6	58.1 r
Difficulties in obtaining government grants or subsidies	39.8	41.4	36.6	29.0	22.3
Uncertain market demand for your ideas	63.6	63.9	62.8	64.1	60.7 r
Too much competition in your market	68.9	69.1	67.7	72.1	63.8 r
Legislation or regulation that generated excessive burden	51.8	52.0	52.3	45.9	52.2 r
Legislation or regulation that created uncertainty	52.4	52.6	52.3	49.8	51.7 r
Legislation or regulation that lacked consistency across the United States	46.1	46.4	45.9	41.8	41.3 r

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Non-innovating companies are defined here as those without product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States. Percent shares include companies indicating that the factor is very important and companies indicating that the factor is somewhat important.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 62

Non-innovating companies with no compelling reason to innovate, by reasons for not innovating and company size: 2015–17

(Percent)

Reasons for not innovating	All companies	Micro companies (1–9 employees)	Small companies (10–49 employees)	Medium companies (50–249 employees)	Large companies (250+ employees)
Non-innovating companies with no compelling reason to innovate (number of companies)	400,458	311,776	74,844	11,740	2,099
Low demand for innovations in your market	64.1	63.1	67.2	69.9	68.4
No need to innovate due to previous innovations	60.5	59.6	63.0	65.4	64.7
No need to innovate due to very little competition in the business's market	53.2	53.3	53.6	51.5	47.1
Lack of good ideas for innovations	45.6	45.3	46.9	47.1	44.9

Note(s):

Detail may not add to total because of rounding. Non-innovating companies are defined here as those without product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States. Percent shares include companies indicating the reason is very important as well as companies indicating the reason is somewhat important.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 63-1

Innovating companies, by effect of regulations or legislation on innovation: 2015–17

(Percent)

Regulation or legislation	Companies (number)	Stimulated innovation	Created no major problems	Created uncertainty	Generated an excessive burden	Not applicable
Product safety or consumer protection	1,989,523	6.1	31.4	7.0	5.7	50.7
Operational and worker safety	1,989,523	6.5	38.4	5.6	4.5	45.6
Environmental	1,989,523	6.0	34.2	6.9	4.9	48.7
Intellectual property	1,989,523	5.1	32.6	5.0	1.9	55.7
Tax	1,989,523	5.1	27.5	16.2	17.4	34.9
Employment or social affairs	1,989,523	4.3	31.9	12.0	7.0	45.2

Note(s):

Detail may not add to total because companies could select more than one option. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 63-2

Innovating companies, by effect of regulations or legislation on innovation, for companies with 1–9 employees: 2015–17
(Percent)

Regulation or legislation	Companies (number)	Stimulated innovation	Created no major problems	Created uncertainty	Generated an excessive burden	Not applicable
Product safety or consumer protection	1,418,216	6.1	29.9	6.7	5.4	52.8
Operational and worker safety	1,418,216	6.2	36.3	5.0	4.0	49.0
Environmental	1,418,216	6.0	32.2	6.5	4.5	51.3
Intellectual property	1,418,216	5.2	30.9	5.1	1.9	57.1
Tax	1,418,216	5.2	26.4	15.9	17.4	36.1
Employment or social affairs	1,418,216	4.3	30.8	11.0	6.2	48.2

Note(s):

Detail may not add to total because companies could select more than one option. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 63-3

Innovating companies, by effect of regulations or legislation on innovation, for companies with 10 or more employees: 2015–17

(Percent)

Regulation or legislation	Companies (number)	Stimulated innovation	Created no major problems	Created uncertainty	Generated an excessive burden	Not applicable
Product safety or consumer protection	571,307	6.1	35.1	7.8	6.4	45.5
Operational and worker safety	571,307	7.1	43.6	7.0	5.7	37.2
Environmental	571,307	5.8	39.0	7.8	5.7	42.3
Intellectual property	571,307	4.6	36.9	4.8	1.8	52.1
Tax	571,307	5.1	30.0	16.8	17.3	31.8
Employment or social affairs	571,307	4.5	34.8	14.5	9.0	37.9

Note(s):

Detail may not add to total because companies could select more than one option. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 64

Innovating companies, by type and location of cooperation partner, by company size: 2015–17

(Percent)

Type and location of cooperation partner	All companies	Micro companies (1–9 employees)	Small companies (10–49 employees)	Medium companies (50–249 employees)	Large companies (250+ employees)
All companies with innovation activities (number of companies)	1,989,523	1,418,216	464,339	88,947	18,021
Type of cooperation partner, global					
Any cooperation partner	41.6	41.0	41.9	47.4	53.4
Other affiliated companies	13.9	13.2	14.6	18.9	28.8
Suppliers of equipment, materials, components, or software	29.1	27.9	31.2	35.2	38.2
Clients or customers from the private sector	27.7	27.8	26.9	29.7	31.6
Clients or customers from the public sector	20.3	20.3	20.6	20.3	19.8
Competitors or other companies in your sector	17.8	18.0	17.5	17.2	16.2
Companies not in your sector	10.2	10.0	10.5	11.1	12.3
Consultants or commercial laboratories	12.4	11.6	13.6	17.8	24.0
Universities or other higher education institutions	8.1	7.8	8.7	9.6	12.7
Government or public research institutes	5.2	5.1	5.5	5.6	7.2
Private research institutes	4.7	4.5	4.9	4.9	7.0
Type of cooperation partner, located in United States					
Any cooperation partner	40.9	40.2	41.3	46.7	51.8
Other affiliated companies	13.2	12.6	13.8	17.4	25.8
Suppliers of equipment, materials, components, or software	28.0	26.8	30.2	34.2	36.9
Clients or customers from the private sector	27.2	27.2	26.5	29.4	31.0
Clients or customers from the public sector	19.9	19.8	20.2	20.1	19.3
Competitors or other companies in your sector	17.3	17.4	17.1	16.8	15.4
Companies not in your sector	9.7	9.5	10.2	10.8	11.8
Consultants or commercial laboratories	12.0	11.1	13.2	17.5	23.5
Universities or other higher education institutions	7.8	7.4	8.4	9.4	12.2
Government or public research institutes	4.8	4.7	5.2	5.4	6.8
Private research institutes	4.3	4.1	4.6	4.7	6.6
Type of cooperation partner, located outside United States					
Any cooperation partner	4.5	4.3	4.2	6.5	14.7
Other affiliated companies	1.2	1.0	1.2	2.6	9.5
Suppliers of equipment, materials, components, or software	2.4	2.3	2.5	3.7	8.3
Clients or customers from the private sector	1.6	1.5	1.4	2.2	5.2
Clients or customers from the public sector	0.9	0.8	0.8	1.0	3.0
Competitors or other companies in your sector	1.0	1.0	0.9	1.1	2.8
Companies not in your sector	0.7	0.7	0.6	0.7	2.1
Consultants or commercial laboratories	0.8	0.8	0.7	1.1	3.4
Universities or other higher education institutions	0.6	0.6	0.5	0.4	2.0
Government or public research institutes	0.4	0.5	0.4	0.3	1.1
Private research institutes	0.5	0.5	0.4	0.4	1.5

Note(s):

Detail may not add to total because of rounding. Innovating companies are defined here as those with product, process, marketing, or organizational innovation. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 65

Companies with abandoned or suspended innovation activity, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Abandoned or suspended innovation activity			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	129,341	4,474,266	2.8	97.2
Manufacturing industries	31–33	220,930	19,608	201,322	8.9	91.1
Food	311	18,180	1,753	16,427	9.6	90.4
Beverage and tobacco products	312	6,724	632	6,092	9.4	90.6
Textile, apparel, and leather products	313–16	10,569	834	9,736	7.9	92.1
Wood products	321	10,850	460	10,390	4.2	95.8
Paper	322	2,276	221	2,056	9.7	90.3
Printing and related support activities	323	21,903	1,002	20,902	4.6	95.4
Petroleum and coal products	324	624	57	567	9.1	90.9
Chemicals	325	7,910	1,359	6,551	17.2	82.8
Pesticide, fertilizer, and other agricultural chemicals	3253	542	50	492	9.3	90.7
Pharmaceuticals and medicines	3254	1,412	261	1,151	18.5	81.5
Soap, cleaning compound, and toilet preparation	3256	1,615	317	1,298	19.6	80.4
Other chemicals	other 325	4,341	731	3,610	16.8	83.2
Plastics and rubber products	326	8,412	1,042	7,370	12.4	87.6
Nonmetallic mineral products	327	8,021	438	7,583	5.5	94.5
Primary metals	331	2,679	259	2,420	9.7	90.3
Fabricated metal products	332	47,340	3,029	44,311	6.4	93.6
Machinery	333	18,792	2,293	16,499	12.2	87.8
Computer and electronic products	334	9,566	1,668	7,898	17.4	82.6
Communications equipment	3342	916	163	753	17.8	82.2
Semiconductor and other electronic components	3344	3,214	556	2,659	17.3	82.7
Navigational, measuring, electromedical, and control instruments	3345	3,958	700	3,258	17.7	82.3
Other computer and electronic products	other 334	1,478	250	1,228	16.9	83.1
Electrical equipment, appliances, and components	335	4,223	647	3,576	15.3	84.7
Transportation equipment	336	8,039	1,029	7,010	12.8	87.2
Automobiles, bodies, trailers, and parts	3361–63	5,018	629	4,389	12.5	87.5
Aerospace products and parts	3364	1,109	157	952	14.2	85.8
Other transportation	other 336	1,912	243	1,669	12.7	87.3
Furniture and related products	337	12,430	627	11,803	5.0	95.0
Miscellaneous	339	22,315	2,257	20,058	10.1	89.9
Medical equipment and supplies	3391	8,202	531	7,671	6.5	93.5
Other miscellaneous manufacturing	3399	14,113	1,726	12,388	12.2	87.8
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	109,733	4,272,944	2.5	97.5
Agriculture, forestry, fishing, and hunting	11	21,054	341	20,712	1.6	98.4
Mining, extraction, and support activities	21	15,546	406	15,140	2.6	97.4
Utilities	22	2,534	86	2,448	3.4	96.6
Construction	23	607,403	7,138	600,265	1.2	98.8
Wholesale trade	42	252,134	14,529	237,606	5.8	94.2
Retail trade	44–45	545,440	13,253	532,187	2.4	97.6
Transportation and warehousing	48–49	144,404	2,187	142,217	1.5	98.5
Information	51	56,053	4,965	51,088	8.9	91.1
Publishing	511	17,031	1,625	15,406	9.5	90.5
Newspaper, periodical, book, and directory publishers	5111	9,593	532	9,062	5.5	94.5
Software publishers	5112	7,438	1,094	6,344	14.7	85.3
Telecommunications	517	6,045	333	5,712	5.5	94.5
Data processing, hosting, and related services	518	8,414	1,204	7,210	14.3	85.7

TABLE 65

Companies with abandoned or suspended innovation activity, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Abandoned or suspended innovation activity			
			Number		Percent	
			Yes	No	Yes	No
Other information	other 51	24,563	1,802	22,760	7.3	92.7
Finance and insurance	52	192,345	3,866	188,479	2.0	98.0
Real estate and rental and leasing	53	229,923	3,976	225,947	1.7	98.3
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	111	1,589	6.5	93.5
Other real estate and rental and leasing	other 53	228,222	3,865	224,358	1.7	98.3
Professional, scientific, and technical services	54	639,985	28,542	611,442	4.5	95.5
Legal services	5411	146,441	1,706	144,735	1.2	98.8
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	1,075	98,706	1.1	98.9
Architectural, engineering, and related services	5413	83,492	4,649	78,842	5.6	94.4
Specialized design services	5414	25,140	1,501	23,639	6.0	94.0
Computer systems design and related services	5415	90,056	9,469	80,587	10.5	89.5
Management, scientific, and technical consulting services	5416	109,247	6,039	103,208	5.5	94.5
Scientific research and development services	5417	9,293	1,231	8,062	13.2	86.8
Advertising, public relations, and related services	5418	25,626	1,330	24,296	5.2	94.8
Other professional, scientific, and technical services	5419	50,907	1,542	49,365	3.0	97.0
Management of companies and enterprises	55	2,276	50	2,226	2.2	97.8
Administrative and support and waste management and remediation services	56	266,751	4,835	261,916	1.8	98.2
Educational services	61	51,288	2,104	49,184	4.1	95.9
Health care and social assistance	62	509,529	7,820	501,710	1.5	98.5
Health care services	621–23	447,069	6,980	440,089	1.6	98.4
Social assistance	624	62,461	840	61,621	1.3	98.7
Arts, entertainment, and recreation	71	74,256	2,174	72,082	2.9	97.1
Accommodation and food services	72	441,426	8,505	432,921	1.9	98.1
Other services	81	330,331	4,956	325,375	1.5	98.5

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 66

Companies with abandoned or suspended innovation activity, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Abandoned or suspended innovation activity			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	129,341	4,474,266	2.8	97.2
Micro companies					
1–4	2,615,093	67,380	2,547,713	2.6	97.4
5–9	885,880	22,921	862,959	2.6	97.4
Small companies					
10–19	562,922	17,202	545,720	3.1	96.9
20–49	353,037	11,793	341,244	3.3	96.7
Medium companies					
50–99	104,561	4,363	100,198	4.2	95.8
100–249	52,429	2,956	49,474	5.6	94.4
Large companies					
250–499	15,665	1,181	14,484	7.5	92.5
500–999	7,026	570	6,457	8.1 r	91.9
1,000–4,999	5,514	673	4,841	12.2 r	87.8
5,000–9,999	744	141	603	18.9	81.1
10,000–24,999	447	98	349	21.9	78.1
25,000 or more	288	64	224	22.1	77.9

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 67

Product or process innovation in companies with abandoned or suspended innovation, by R&D activity: 2015–17

(Number and percent)

R&D activity	Companies (number)	Abandoned or suspended innovation activity			
		Number		Percent	
		Yes	No	Yes	No
Product or process innovating companies	1,218,460	102,786	1,115,674	8.4	91.6
R&D-active companies	365,864	71,732	294,132	19.6	80.4
Non-R&D-active companies	852,596	31,054	821,542	3.6	96.4

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 68

Companies with incomplete but ongoing innovation activity, by industry: 2017

(Number and percent)

Industry	NAICS code	Companies (number)	Incomplete but ongoing innovation activity			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	658,141	3,945,465	14.3	85.7
Manufacturing industries	31–33	220,930	55,676	165,253	25.2	74.8
Food	311	18,180	4,414	13,766	24.3	75.7
Beverage and tobacco products	312	6,724	2,142	4,582	31.9	68.1
Textile, apparel, and leather products	313–16	10,569	2,474	8,095	23.4	76.6
Wood products	321	10,850	1,701	9,150	15.7	84.3
Paper	322	2,276	647	1,629	28.4	71.6
Printing and related support activities	323	21,903	4,118	17,785	18.8	81.2
Petroleum and coal products	324	624	147	477	23.6	76.4
Chemicals	325	7,910	3,105	4,805	39.2	60.8
Pesticide, fertilizer, and other agricultural chemicals	3253	542	142	400	26.2	73.8
Pharmaceuticals and medicines	3254	1,412	652	760	46.2	53.8
Soap, cleaning compound, and toilet preparation	3256	1,615	650	965	40.3	59.7
Other chemicals	other 325	4,341	1,661	2,680	38.3	61.7
Plastics and rubber products	326	8,412	2,751	5,662	32.7	67.3
Nonmetallic mineral products	327	8,021	1,596	6,425	19.9	80.1
Primary metals	331	2,679	718	1,961	26.8	73.2
Fabricated metal products	332	47,340	9,335	38,006	19.7	80.3
Machinery	333	18,792	5,982	12,810	31.8	68.2
Computer and electronic products	334	9,566	4,366	5,200	45.6	54.4
Communications equipment	3342	916	419	497	45.7	54.3
Semiconductor and other electronic components	3344	3,214	1,244	1,970	38.7	61.3
Navigational, measuring, electromedical, and control instruments	3345	3,958	2,047	1,911	51.7	48.3
Other computer and electronic products	other 334	1,478	656	822	44.4	55.6
Electrical equipment, appliances, and components	335	4,223	1,570	2,653	37.2	62.8
Transportation equipment	336	8,039	2,615	5,424	32.5	67.5
Automobiles, bodies, trailers, and parts	3361–63	5,018	1,604	3,414	32.0	68.0
Aerospace products and parts	3364	1,109	376	733	33.9	66.1
Other transportation	other 336	1,912	634	1,278	33.2	66.8
Furniture and related products	337	12,430	2,194	10,236	17.7	82.3
Miscellaneous	339	22,315	5,787	16,528	25.9	74.1
Medical equipment and supplies	3391	8,202	1,980	6,222	24.1	75.9
Other miscellaneous manufacturing	3399	14,113	3,807	10,306	27.0	73.0
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	602,465	3,780,212	13.7	86.3
Agriculture, forestry, fishing, and hunting	11	21,054	2,315	18,739	11.0	89.0
Mining, extraction, and support activities	21	15,546	1,465	14,081	9.4	90.6
Utilities	22	2,534	300	2,234	11.9	88.1
Construction	23	607,403	55,254	552,149	9.1	90.9
Wholesale trade	42	252,134	46,984	205,150	18.6	81.4
Retail trade	44–45	545,440	66,731	478,709	12.2	87.8
Transportation and warehousing	48–49	144,404	17,659	126,745	12.2	87.8
Information	51	56,053	16,927	39,126	30.2	69.8
Publishing	511	17,031	5,944	11,087	34.9	65.1
Newspaper, periodical, book, and directory publishers	5111	9,593	1,937	7,657	20.2	79.8
Software publishers	5112	7,438	4,008	3,430	53.9	46.1
Telecommunications	517	6,045	1,472	4,573	24.3	75.7
Data processing, hosting, and related services	518	8,414	3,526	4,888	41.9	58.1

TABLE 68

Companies with incomplete but ongoing innovation activity, by industry: 2017

(Number and percent)

Industry	NAICS code	Companies (number)	Incomplete but ongoing innovation activity			
			Number		Percent	
			Yes	No	Yes	No
Other information	other 51	24,563	5,985	18,578	24.4	75.6
Finance and insurance	52	192,345	28,031	164,314	14.6	85.4
Real estate and rental and leasing	53	229,923	26,133	203,790	11.4	88.6
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	351	1,350	20.6	79.4
Other real estate and rental and leasing	other 53	228,222	25,782	202,440	11.3	88.7
Professional, scientific, and technical services	54	639,985	117,705	522,280	18.4	81.6
Legal services	5411	146,441	14,462	131,979	9.9	90.1
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	12,692	87,089	12.7	87.3
Architectural, engineering, and related services	5413	83,492	18,463	65,029	22.1	77.9
Specialized design services	5414	25,140	4,679	20,462	18.6	81.4
Computer systems design and related services	5415	90,056	28,165	61,891	31.3	68.7
Management, scientific, and technical consulting services	5416	109,247	23,350	85,897	21.4	78.6
Scientific research and development services	5417	9,293	3,692	5,601	39.7	60.3
Advertising, public relations, and related services	5418	25,626	4,483	21,143	17.5	82.5
Other professional, scientific, and technical services	5419	50,907	7,719	43,188	15.2	84.8
Management of companies and enterprises	55	2,276	215	2,061	9.4	90.6
Administrative and support and waste management and remediation services	56	266,751	35,640	231,111	13.4	86.6
Educational services	61	51,288	10,851	40,437	21.2	78.8
Health care and social assistance	62	509,529	69,276	440,253	13.6	86.4
Health care services	621-23	447,069	59,871	387,198	13.4	86.6
Social assistance	624	62,461	9,405	53,055	15.1	84.9
Arts, entertainment, and recreation	71	74,256	11,472	62,784	15.4	84.6
Accommodation and food services	72	441,426	55,424	386,002	12.6	87.4
Other services	81	330,331	40,084	290,247	12.1	87.9

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 69

Companies with incomplete but ongoing innovation activity, by company size: 2017

(Number and percent)

Company size	Companies (number)	Incomplete but ongoing innovation activity			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	658,141	3,945,465	14.3	85.7
Micro companies					
1–4	2,615,093	340,081	2,275,012	13.0	87.0
5–9	885,880	125,694	760,186	14.2	85.8
Small companies					
10–19	562,922	88,668	474,254	15.8	84.2
20–49	353,037	61,719	291,318	17.5	82.5
Medium companies					
50–99	104,561	21,185	83,375	20.3	79.7
100–249	52,429	12,334	40,095	23.5	76.5
Large companies					
250–499	15,665	4,212	11,453	26.9	73.1
500–999	7,026	1,885	5,141	26.8	73.2
1,000–4,999	5,514	1,755	3,759	31.8 r	68.2
5,000–9,999	744	301	443	40.4	59.6
10,000–24,999	447	187	260	41.8	58.2
25,000 or more	288	120	168	41.6	58.4

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 70

Product or process innovation in companies with incomplete but ongoing innovation activity, by R&D activity: 2017

(Number and percent)

R&D activity	Companies (number)	Incomplete but ongoing innovation activity			
		Number		Percent	
		Yes	No	Yes	No
Product or process innovating companies	1,218,460	433,557	784,904	35.6	64.4
R&D-active companies	365,864	221,990	143,874	60.7	39.3
Non-R&D-active companies	852,596	211,567	641,030	24.8	75.2

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 71

Companies with new-to-market product innovation, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product innovation new to market			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	410,828	4,192,778	8.9	91.1
Manufacturing industries	31–33	220,930	38,966	181,963	17.6	82.4
Food	311	18,180	3,890	14,290	21.4	78.6
Beverage and tobacco products	312	6,724	1,754	4,970	26.1	73.9
Textile, apparel, and leather products	313–16	10,569	1,748	8,821	16.5	83.5
Wood products	321	10,850	1,096	9,754	10.1	89.9
Paper	322	2,276	374	1,902	16.4	83.6
Printing and related support activities	323	21,903	2,031	19,872	9.3	90.7
Petroleum and coal products	324	624	107	517	17.1	82.9
Chemicals	325	7,910	2,197	5,713	27.8	72.2
Pesticide, fertilizer, and other agricultural chemicals	3253	542	118	424	21.8	78.2
Pharmaceuticals and medicines	3254	1,412	473	939	33.5	66.5
Soap, cleaning compound, and toilet preparation	3256	1,615	427	1,187	26.5	73.5
Other chemicals	other 325	4,341	1,179	3,162	27.2	72.8
Plastics and rubber products	326	8,412	1,662	6,751	19.8	80.2
Nonmetallic mineral products	327	8,021	1,111	6,910	13.9	86.1
Primary metals	331	2,679	344	2,335	12.8	87.2
Fabricated metal products	332	47,340	5,173	42,168	10.9	89.1
Machinery	333	18,792	4,737	14,055	25.2	74.8
Computer and electronic products	334	9,566	3,450	6,116	36.1	63.9
Communications equipment	3342	916	370	546	40.4	59.6
Semiconductor and other electronic components	3344	3,214	884	2,331	27.5	72.5
Navigational, measuring, electromedical, and control instruments	3345	3,958	1,640	2,318	41.4	58.6
Other computer and electronic products	other 334	1,478	556	922	37.6	62.4
Electrical equipment, appliances, and components	335	4,223	1,197	3,026	28.4	71.6
Transportation equipment	336	8,039	2,121	5,918	26.4	73.6
Automobiles, bodies, trailers, and parts	3361–63	5,018	1,299	3,719	25.9	74.1
Aerospace products and parts	3364	1,109	257	851	23.2	76.8
Other transportation	other 336	1,912	565	1,348	29.5	70.5
Furniture and related products	337	12,430	1,407	11,023	11.3	88.7
Miscellaneous	339	22,315	4,553	17,763	20.4	79.6
Medical equipment and supplies	3391	8,202	1,337	6,865	16.3	83.7
Other miscellaneous manufacturing	3399	14,113	3,216	10,898	22.8	77.2
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	371,862	4,010,815	8.5	91.5
Agriculture, forestry, fishing, and hunting	11	21,054	807	20,246	3.8	96.2
Mining, extraction, and support activities	21	15,546	566	14,979	3.6	96.4
Utilities	22	2,534	125	2,409	4.9	95.1
Construction	23	607,403	26,569	580,834	4.4	95.6
Wholesale trade	42	252,134	42,452	209,682	16.8	83.2
Retail trade	44–45	545,440	67,320	478,120	12.3	87.7
Transportation and warehousing	48–49	144,404	5,229	139,175	3.6	96.4
Information	51	56,053	11,888	44,165	21.2	78.8
Publishing	511	17,031	4,710	12,322	27.7	72.3
Newspaper, periodical, book, and directory publishers	5111	9,593	1,673	7,920	17.4	82.6
Software publishers	5112	7,438	3,036	4,402	40.8	59.2
Telecommunications	517	6,045	1,161	4,884	19.2	80.8
Data processing, hosting, and related services	518	8,414	2,366	6,048	28.1	71.9
Other information	other 51	24,563	3,651	20,912	14.9	85.1

TABLE 71

Companies with new-to-market product innovation, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product innovation new to market			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	192,345	15,352	176,993	8.0	92.0
Real estate and rental and leasing	53	229,923	9,160	220,763	4.0	96.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	160	1,541	9.4	90.6
Other real estate and rental and leasing	other 53	228,222	9,000	219,222	3.9	96.1
Professional, scientific, and technical services	54	639,985	60,318	579,666	9.4	90.6
Legal services	5411	146,441	3,644	142,797	2.5	97.5
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	3,219	96,562	3.2	96.8
Architectural, engineering, and related services	5413	83,492	9,175	74,317	11.0	89.0
Specialized design services	5414	25,140	2,804	22,336	11.2	88.8
Computer systems design and related services	5415	90,056	15,891	74,165	17.6	82.4
Management, scientific, and technical consulting services	5416	109,247	14,732	94,515	13.5	86.5
Scientific research and development services	5417	9,293	2,594	6,699	27.9	72.1
Advertising, public relations, and related services	5418	25,626	2,692	22,933	10.5	89.5
Other professional, scientific, and technical services	5419	50,907	5,565	45,342	10.9	89.1
Management of companies and enterprises	55	2,276	95	2,181	4.2	95.8
Administrative and support and waste management and remediation services	56	266,751	16,337	250,414	6.1	93.9
Educational services	61	51,288	8,763	42,525	17.1	82.9
Health care and social assistance	62	509,529	36,742	472,787	7.2	92.8
Health care services	621–23	447,069	32,509	414,559	7.3	92.7
Social assistance	624	62,461	4,233	58,228	6.8	93.2
Arts, entertainment, and recreation	71	74,256	8,918	65,338	12.0	88.0
Accommodation and food services	72	441,426	36,160	405,266	8.2	91.8
Other services	81	330,331	25,060	305,271	7.6	92.4

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 72

Companies with new-to-market product innovation, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Product innovation new to market			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	410,828	4,192,778	8.9	91.1
Micro companies					
1–4	2,615,093	210,708	2,404,386	8.1	91.9
5–9	885,880	83,194	802,686	9.4	90.6
Small companies					
10–19	562,922	58,067	504,855	10.3	89.7
20–49	353,037	37,115	315,922	10.5	89.5
Medium companies					
50–99	104,561	11,360	93,201	10.9	89.1
100–249	52,429	6,216	46,213	11.9	88.1
Large companies					
250–499	15,665	2,062	13,603	13.2	86.8
500–999	7,026	866	6,160	12.3	87.7
1,000–4,999	5,514	881	4,633	16.0 r	84.0
5,000–9,999	744	177	567	23.8	76.2
10,000–24,999	447	101	346	22.6	77.4
25,000 or more	288	82	207	28.3	71.7

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 73

Companies with new-to-market product innovation, by R&D activity: 2015–17

(Number and percent)

R&D activity	Companies (number)	Product innovation new to market			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	410,828	4,192,778	8.9	91.1
Product or process innovating companies	1,218,460	387,116	831,345	31.8	68.2
R&D-active companies	365,864	167,127	198,737	45.7	54.3
Non-R&D-active companies	852,596	219,988	632,608	25.8	74.2

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 74

Companies with new-to-business product innovation, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product innovation only new to the business			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	4,603,606	762,079	3,841,528	16.6	83.4
Manufacturing industries	31–33	220,930	52,223	168,706	23.6	76.4
Food	311	18,180	5,067	13,113	27.9	72.1
Beverage and tobacco products	312	6,724	2,907	3,817	43.2	56.8
Textile, apparel, and leather products	313–16	10,569	2,338	8,231	22.1	77.9
Wood products	321	10,850	1,731	9,119	16.0	84.0
Paper	322	2,276	482	1,794	21.2	78.8
Printing and related support activities	323	21,903	4,657	17,246	21.3	78.7
Petroleum and coal products	324	624	141	483	22.5	77.5
Chemicals	325	7,910	2,558	5,352	32.3	67.7
Pesticide, fertilizer, and other agricultural chemicals	3253	542	149	394	27.4	72.6
Pharmaceuticals and medicines	3254	1,412	458	955	32.4	67.6
Soap, cleaning compound, and toilet preparation	3256	1,615	598	1,017	37.0	63.0
Other chemicals	other 325	4,341	1,354	2,987	31.2	68.8
Plastics and rubber products	326	8,412	2,143	6,269	25.5	74.5
Nonmetallic mineral products	327	8,021	1,435	6,586	17.9	82.1
Primary metals	331	2,679	485	2,194	18.1	81.9
Fabricated metal products	332	47,340	8,377	38,963	17.7	82.3
Machinery	333	18,792	4,652	14,141	24.8	75.2
Computer and electronic products	334	9,566	3,359	6,207	35.1	64.9
Communications equipment	3342	916	393	523	42.9	57.1
Semiconductor and other electronic components	3344	3,214	953	2,261	29.7	70.3
Navigational, measuring, electromedical, and control instruments	3345	3,958	1,406	2,552	35.5	64.5
Other computer and electronic products	other 334	1,478	607	871	41.0	59.0
Electrical equipment, appliances, and components	335	4,223	1,276	2,947	30.2	69.8
Transportation equipment	336	8,039	2,116	5,923	26.3	73.7
Automobiles, bodies, trailers, and parts	3361–63	5,018	1,397	3,621	27.8	72.2
Aerospace products and parts	3364	1,109	212	897	19.1	80.9
Other transportation	other 336	1,912	508	1,405	26.5	73.5
Furniture and related products	337	12,430	2,440	9,989	19.6	80.4
Miscellaneous	339	22,315	6,059	16,257	27.2	72.8
Medical equipment and supplies	3391	8,202	2,288	5,914	27.9	72.1
Other miscellaneous manufacturing	3399	14,113	3,771	10,342	26.7	73.3
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	709,855	3,672,822	16.2	83.8
Agriculture, forestry, fishing, and hunting	11	21,054	1,797	19,257	8.5	91.5
Mining, extraction, and support activities	21	15,546	1,143	14,403	7.4	92.6
Utilities	22	2,534	270	2,264	10.7	89.3
Construction	23	607,403	66,234	541,168	10.9	89.1
Wholesale trade	42	252,134	55,399	196,735	22.0	78.0
Retail trade	44–45	545,440	106,145	439,294	19.5	80.5
Transportation and warehousing	48–49	144,404	14,377	130,027	10.0	90.0
Information	51	56,053	16,268	39,785	29.0	71.0
Publishing	511	17,031	5,091	11,941	29.9	70.1
Newspaper, periodical, book, and directory publishers	5111	9,593	1,981	7,612	20.7	79.3
Software publishers	5112	7,438	3,109	4,329	41.8	58.2
Telecommunications	517	6,045	1,673	4,372	27.7	72.3
Data processing, hosting, and related services	518	8,414	3,145	5,269	37.4	62.6

TABLE 74

Companies with new-to-business product innovation, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Product innovation only new to the business			
			Number		Percent	
			Yes	No	Yes	No
Other information	other 51	24,563	6,359	18,204	25.9	74.1
Finance and insurance	52	192,345	34,687	157,658	18.0	82.0
Real estate and rental and leasing	53	229,923	23,024	206,899	10.0	90.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	287	1,413	16.9	83.1
Other real estate and rental and leasing	other 53	228,222	22,737	205,486	10.0	90.0
Professional, scientific, and technical services	54	639,985	122,362	517,622	19.1	80.9
Legal services	5411	146,441	13,744	132,697	9.4	90.6
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	10,910	88,871	10.9	89.1
Architectural, engineering, and related services	5413	83,492	16,834	66,657	20.2	79.8
Specialized design services	5414	25,140	5,744	19,397	22.8	77.2
Computer systems design and related services	5415	90,056	27,853	62,202	30.9	69.1
Management, scientific, and technical consulting services	5416	109,247	26,640	82,607	24.4	75.6
Scientific research and development services	5417	9,293	2,134	7,159	23.0	77.0
Advertising, public relations, and related services	5418	25,626	5,921	19,704	23.1	76.9
Other professional, scientific, and technical services	5419	50,907	12,581	38,326	24.7	75.3
Management of companies and enterprises	55	2,276	200	2,076	8.8	91.2
Administrative and support and waste management and remediation services	56	266,751	40,432	226,318	15.2	84.8
Educational services	61	51,288	13,999	37,289	27.3	72.7
Health care and social assistance	62	509,529	89,703	419,827	17.6	82.4
Health care services	621–23	447,069	78,909	368,160	17.7	82.3
Social assistance	624	62,461	10,794	51,667	17.3	82.7
Arts, entertainment, and recreation	71	74,256	14,000	60,256	18.9	81.1
Accommodation and food services	72	441,426	60,107	381,319	13.6	86.4
Other services	81	330,331	49,707	280,624	15.0	85.0

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 75

Companies with new-to-business product innovation, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Product innovation only new to the business			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	762,079	3,841,528	16.6	83.4
Micro companies					
1–4	2,615,093	407,422	2,207,671	15.6	84.4
5–9	885,880	155,471	730,409	17.5	82.5
Small companies					
10–19	562,922	101,186	461,736	18.0	82.0
20–49	353,037	62,909	290,129	17.8	82.2
Medium companies					
50–99	104,561	19,091	85,470	18.3	81.7
100–249	52,429	9,767	42,663	18.6	81.4
Large companies					
250–499	15,665	3,089	12,576	19.7	80.3
500–999	7,026	1,423	5,603	20.3	79.7
1,000–4,999	5,514	1,257	4,257	22.8	77.2
5,000–9,999	744	229	514	30.8	69.2
10,000–24,999	447	144	303	32.2	67.8
25,000 or more	288	92	197	31.8	68.2

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 76

Companies with new-to-business product innovation, by R&D activity: 2015–17

(Number and percent)

R&D activity	Companies (number)	Product innovation only new to the business			
		Number		Percent	
		Yes	No	Yes	No
All companies	4,603,606	762,079	3,841,528	16.6	83.4
Product or process innovating companies	1,218,460	707,350	511,110	58.1	41.9
R&D-active companies	365,864	221,772	144,092	60.6	39.4
Non-R&D-active companies	852,596	485,578	367,018	57.0	43.0

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 77

Product or process innovation in companies with public support, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Public support			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	1,218,460	38,829	1,179,632	3.2	96.8
Manufacturing industries	31–33	99,847	6,951	92,896	7.0	93.0
Food	311	8,303	610	7,693	7.3	92.7
Beverage and tobacco products	312	4,037	397	3,641	9.8	90.2
Textile, apparel, and leather products	313–16	4,237	154	4,083	3.6	96.4
Wood products	321	3,903	160	3,743	4.1	95.9
Paper	322	1,063	93	971	8.7	91.3
Printing and related support activities	323	8,673	260	8,413	3.0	97.0
Petroleum and coal products	324	254	18	236	7.0	93.0
Chemicals	325	4,361	404	3,957	9.3	90.7
Pesticide, fertilizer, and other agricultural chemicals	3253	267	14	253	5.2	94.8
Pharmaceuticals and medicines	3254	800	94	706	11.8	88.2
Soap, cleaning compound, and toilet preparation	3256	936	43	893	4.6	95.4
Other chemicals	other 325	2,358	253	2,105	10.7	89.3
Plastics and rubber products	326	4,141	465	3,676	11.2	88.8
Nonmetallic mineral products	327	2,984	199	2,785	6.7	93.3
Primary metals	331	1,177	109	1,069	9.2	90.8
Fabricated metal products	332	19,460	1,116	18,345	5.7	94.3
Machinery	333	9,521	1,032	8,488	10.8	89.2
Computer and electronic products	334	5,849	724	5,125	12.4	87.6
Communications equipment	3342	605	57	548	9.5	90.5
Semiconductor and other electronic components	3344	1,779	261	1,518	14.7	85.3
Navigational, measuring, electromedical, and control instruments	3345	2,528	350	2,178	13.8	86.2
Other computer and electronic products	other 334	937	56	881	6.0	94.0
Electrical equipment, appliances, and components	335	2,280	213	2,066	9.4	90.6
Transportation equipment	336	4,112	331	3,781	8.1	91.9
Automobiles, bodies, trailers, and parts	3361–63	2,617	250	2,367	9.6	90.4
Aerospace products and parts	3364	593	37	556	6.3	93.7
Other transportation	other 336	901	44	858	4.8	95.2
Furniture and related products	337	5,021	183	4,838	3.6	96.4
Miscellaneous	339	10,456	483	9,972	4.6	95.4
Medical equipment and supplies	3391	3,712	178	3,534	4.8	95.2
Other miscellaneous manufacturing	3399	6,743	305	6,438	4.5	95.5
Nonmanufacturing industries	11, 21–23, 42–81	1,118,613	31,878	1,086,735	2.8	97.2
Agriculture, forestry, fishing, and hunting	11	3,816	262	3,554	6.9	93.1
Mining, extraction, and support activities	21	2,375	49	2,326	2.1	97.9
Utilities	22	582	29	553	5.0	95.0
Construction	23	112,877	2,326	110,551	2.1	97.9
Wholesale trade	42	91,960	2,583	89,377	2.8	97.2
Retail trade	44–45	152,920	2,970	149,950	1.9	98.1
Transportation and warehousing	48–49	43,007	901	42,106	2.1	97.9
Information	51	24,979	1,450	23,529	5.8	94.2
Publishing	511	8,522	537	7,984	6.3	93.7
Newspaper, periodical, book, and directory publishers	5111	3,653	65	3,589	1.8	98.2
Software publishers	5112	4,868	473	4,396	9.7	90.3
Telecommunications	517	2,555	237	2,318	9.3	90.7
Data processing, hosting, and related services	518	4,716	362	4,354	7.7	92.3
Other information	other 51	9,187	314	8,873	3.4	96.6

TABLE 77

Product or process innovation in companies with public support, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Public support			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	54,344	589	53,754	1.1	98.9
Real estate and rental and leasing	53	40,451	975	39,476	2.4	97.6
Lessors of nonfinancial intangible assets (except copyrighted works)	533	466	10 r	456	2.2 r	97.8
Other real estate and rental and leasing	other 53	39,985	965	39,020	2.4	97.6
Professional, scientific, and technical services	54	198,235	7,904	190,331	4.0	96.0
Legal services	5411	24,968	325	24,642	1.3	98.7
Accounting, tax preparation, bookkeeping, and payroll services	5412	24,284	263	24,021	1.1	98.9
Architectural, engineering, and related services	5413	26,410	1,777	24,634	6.7	93.3
Specialized design services	5414	8,363	177	8,187	2.1	97.9
Computer systems design and related services	5415	44,351	2,169	42,183	4.9	95.1
Management, scientific, and technical consulting services	5416	40,458	1,326	39,133	3.3	96.7
Scientific research and development services	5417	3,929	1,225	2,704	31.2	68.8
Advertising, public relations, and related services	5418	8,627	197	8,429	2.3	97.7
Other professional, scientific, and technical services	5419	16,843	445	16,397	2.6	97.4
Management of companies and enterprises	55	324	16 r	308	4.9 r	95.1
Administrative and support and waste management and remediation services	56	66,303	1,103	65,200	1.7	98.3
Educational services	61	20,079	793	19,287	3.9	96.1
Health care and social assistance	62	125,904	5,550	120,354	4.4	95.6
Health care services	621–23	111,310	3,524	107,785	3.2	96.8
Social assistance	624	14,595	2,026	12,569	13.9	86.1
Arts, entertainment, and recreation	71	20,632	540	20,093	2.6	97.4
Accommodation and food services	72	86,227	2,321	83,906	2.7	97.3
Other services	81	73,598	1,518	72,080	2.1	97.9

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 78

Product or process innovation in companies with public support, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Public support			
		Number		Percent	
		Yes	No	Yes	No
All companies	1,218,460	38,829	1,179,632	3.2	96.8
Micro companies					
1–4	636,031	13,860	622,171	2.2	97.8
5–9	244,122	7,303	236,820	3.0	97.0
Small companies					
10–19	164,994	5,750	159,244	3.5	96.5
20–49	107,656	5,711	101,945	5.3	94.7
Medium companies					
50–99	34,925	2,770	32,155	7.9	92.1
100–249	19,014	1,970	17,044	10.4	89.6
Large companies					
250–499	6,082	718	5,364	11.8	88.2
500–999	2,568	273	2,295	10.6	89.4
1,000–4,999	2,314	322	1,992	13.9	86.1
5,000–9,999	382	61	321	16.0	84.0
10,000–24,999	225	59	166	26.3	73.7
25,000 or more	146	33	113	22.4	77.6

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 79

Product or process innovation in companies with public support, by R&D activity: 2015–17

(Number and percent)

R&D activity	Companies (number)	Public support			
		Number		Percent	
		Yes	No	Yes	No
Product or process innovating companies	1,218,460	38,829	1,179,632	3.2	96.8
R&D-active companies	365,864	22,918	342,946	6.3	93.7
Non-R&D-active companies	852,596	15,911	836,686	1.9	98.1

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 80

Product innovation in companies with public support, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Public support			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	821,671	29,067	792,604	3.5	96.5
Manufacturing industries	31–33	62,446	5,267	57,179	8.4	91.6
Food	311	5,891	450	5,440	7.6	92.4
Beverage and tobacco products	312	3,228	328	2,900	10.2	89.8
Textile, apparel, and leather products	313–16	2,800	120	2,680	4.3	95.7
Wood products	321	2,016	86	1,930	4.3	95.7
Paper	322	618	72	546	11.6	88.4
Printing and related support activities	323	4,932	183	4,749	3.7	96.3
Petroleum and coal products	324	167	12	155	7.0	93.0
Chemicals	325	3,290	327	2,963	9.9	90.1
Pesticide, fertilizer, and other agricultural chemicals	3253	196	11	185	5.4	94.6
Pharmaceuticals and medicines	3254	591	75	516	12.7	87.3
Soap, cleaning compound, and toilet preparation	3256	744	36	708	4.8	95.2
Other chemicals	other 325	1,759	205	1,554	11.7	88.3
Plastics and rubber products	326	2,639	322	2,316	12.2	87.8
Nonmetallic mineral products	327	1,666	138	1,527	8.3	91.7
Primary metals	331	577	53	523	9.2	90.8
Fabricated metal products	332	9,316	763	8,554	8.2	91.8
Machinery	333	6,330	789	5,540	12.5	87.5
Computer and electronic products	334	4,571	650	3,921	14.2	85.8
Communications equipment	3342	510	57	452	11.3	88.7
Semiconductor and other electronic components	3344	1,178	213	965	18.1	81.9
Navigational, measuring, electromedical, and control instruments	3345	2,101	329	1,772	15.7	84.3
Other computer and electronic products	other 334	782	50	732	6.4	93.6
Electrical equipment, appliances, and components	335	1,714	195	1,520	11.3	88.7
Transportation equipment	336	2,851	241	2,610	8.5	91.5
Automobiles, bodies, trailers, and parts	3361–63	1,793	174	1,619	9.7	90.3
Aerospace products and parts	3364	348	30	318	8.6	91.4
Other transportation	other 336	710	37	673	5.2	94.8
Furniture and related products	337	2,767	143	2,624	5.2	94.8
Miscellaneous	339	7,060	395	6,665	5.6	94.4
Medical equipment and supplies	3391	2,432	135	2,297	5.6	94.4
Other miscellaneous manufacturing	3399	4,627	260	4,368	5.6	94.4
Nonmanufacturing industries	11, 21–23, 42–81	759,225	23,800	735,425	3.1	96.9
Agriculture, forestry, fishing, and hunting	11	1,883	132	1,750	7.0	93.0
Mining, extraction, and support activities	21	1,119	36	1,083	3.2	96.8
Utilities	22	287	17	270	6.0	94.0
Construction	23	64,453	1,442	63,011	2.2	97.8
Wholesale trade	42	63,426	2,009	61,417	3.2	96.8
Retail trade	44–45	114,735	2,274	112,461	2.0	98.0
Transportation and warehousing	48–49	13,973	360	13,613	2.6	97.4
Information	51	20,395	1,296	19,099	6.4	93.6
Publishing	511	7,062	499	6,563	7.1	92.9
Newspaper, periodical, book, and directory publishers	5111	2,653	41	2,612	1.5	98.5
Software publishers	5112	4,410	458	3,951	10.4	89.6
Telecommunications	517	2,007	199	1,808	9.9	90.1
Data processing, hosting, and related services	518	3,997	324	3,673	8.1	91.9
Other information	other 51	7,328	273	7,054	3.7	96.3

TABLE 80

Product innovation in companies with public support, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Public support			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	38,092	479	37,613	1.3	98.7
Real estate and rental and leasing	53	24,163	501	23,662	2.1	97.9
Lessors of nonfinancial intangible assets (except copyrighted works)	533	355	10 r	345	2.9 r	97.1
Other real estate and rental and leasing	other 53	23,808	491	23,317	2.1	97.9
Professional, scientific, and technical services	54	137,653	6,492	131,160	4.7	95.3
Legal services	5411	14,014	177	13,837	1.3	98.7
Accounting, tax preparation, bookkeeping, and payroll services	5412	11,155	170	10,985	1.5	98.5
Architectural, engineering, and related services	5413	19,119	1,465	17,655	7.7	92.3
Specialized design services	5414	6,347	148	6,199	2.3	97.7
Computer systems design and related services	5415	32,559	1,798	30,761	5.5	94.5
Management, scientific, and technical consulting services	5416	31,006	1,096	29,910	3.5	96.5
Scientific research and development services	5417	3,323	1,097	2,226	33.0	67.0
Advertising, public relations, and related services	5418	6,518	179	6,339	2.8	97.2
Other professional, scientific, and technical services	5419	13,610	363	13,248	2.7	97.3
Management of companies and enterprises	55	229	16 r	213	6.9 r	93.1
Administrative and support and waste management and remediation services	56	41,914	766	41,148	1.8	98.2
Educational services	61	16,968	685	16,283	4.0	96.0
Health care and social assistance	62	93,660	4,096	89,564	4.4	95.6
Health care services	621–23	82,181	2,413	79,768	2.9	97.1
Social assistance	624	11,479	1,683	9,796	14.7	85.3
Arts, entertainment, and recreation	71	16,684	428	16,256	2.6	97.4
Accommodation and food services	72	58,621	1,737	56,884	3.0	97.0
Other services	81	50,971	1,034	49,938	2.0	98.0

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 81

Product innovation in companies with public support, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Public support			
		Number		Percent	
		Yes	No	Yes	No
All companies	821,671	29,067	792,604	3.5	96.5
Micro companies					
1–4	436,753	10,442	426,311	2.4	97.6
5–9	166,226	5,563	160,663	3.3	96.7
Small companies					
10–19	109,894	4,356	105,539	4.0	96.0
20–49	68,668	4,349	64,319	6.3	93.7
Medium companies					
50–99	21,417	1,896	19,522	8.9	91.1
100–249	11,447	1,382	10,065	12.1	87.9
Large companies					
250–499	3,660	477	3,183	13.0	87.0
500–999	1,599	216	1,382	13.5	86.5
1,000–4,999	1,464	254	1,210	17.4	82.6 r
5,000–9,999	273	53	220	19.3	80.7
10,000–24,999	163	49	113	30.2	69.8
25,000 or more	107	31	76	29.0	71.0

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 82

Product innovation in companies with public support, by R&D activity: 2015–17

(Number and percent)

R&D activity	Companies (number)	Public support			
		Number		Percent	
		Yes	No	Yes	No
Product innovating companies	821,671	29,067	792,604	3.5	96.5
R&D-active companies	272,342	18,731	253,611	6.9	93.1
Non-R&D-active companies	549,329	10,336	538,993	1.9	98.1

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 83

Process innovation in companies with public support, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Public support			
			Number		Percent	
			Yes	No	Yes	No
All industries	11, 21–23, 31–33, 42–81	752,895	27,890	725,005	3.7	96.3
Manufacturing industries	31–33	75,816	5,570	70,246	7.3	92.7
Food	311	5,795	472	5,323	8.2	91.8
Beverage and tobacco products	312	2,570	317	2,254	12.3	87.7
Textile, apparel, and leather products	313–16	3,038	142	2,896	4.7	95.3
Wood products	321	3,188	148	3,039	4.7	95.3
Paper	322	831	73	758	8.8	91.2
Printing and related support activities	323	6,897	213	6,684	3.1	96.9
Petroleum and coal products	324	188	15	174	7.7	92.3
Chemicals	325	3,053	297	2,756	9.7	90.3
Pesticide, fertilizer, and other agricultural chemicals	3253	170	12	157	7.3	92.7
Pharmaceuticals and medicines	3254	654	85	569	13.0	87.0
Soap, cleaning compound, and toilet preparation	3256	592	34	558	5.8	94.2
Other chemicals	other 325	1,637	165	1,472	10.1	89.9
Plastics and rubber products	326	3,275	407	2,867	12.4	87.6
Nonmetallic mineral products	327	2,393	169	2,224	7.1	92.9
Primary metals	331	970	91	879	9.4	90.6
Fabricated metal products	332	16,472	966	15,506	5.9	94.1
Machinery	333	7,049	820	6,229	11.6	88.4
Computer and electronic products	334	3,723	492	3,230	13.2	86.8
Communications equipment	3342	339	28	311	8.2	91.8
Semiconductor and other electronic components	3344	1,365	227	1,138	16.6	83.4
Navigational, measuring, electromedical, and control instruments	3345	1,495	208	1,287	13.9	86.1
Other computer and electronic products	other 334	524	29	495	5.5	94.5
Electrical equipment, appliances, and components	335	1,586	142	1,444	9.0	91.0
Transportation equipment	336	2,917	274	2,643	9.4	90.6
Automobiles, bodies, trailers, and parts	3361–63	1,933	217	1,717	11.2	88.8
Aerospace products and parts	3364	424	24	400	5.6	94.4
Other transportation	other 336	560	34	526	6.1	93.9
Furniture and related products	337	3,920	138	3,783	3.5	96.5
Miscellaneous	339	7,933	393	7,540	5.0	95.0
Medical equipment and supplies	3391	2,937	166	2,772	5.6	94.4
Other miscellaneous manufacturing	3399	4,995	227	4,768	4.6	95.4
Nonmanufacturing industries	11, 21–23, 42–81	677,080	22,320	654,760	3.3	96.7
Agriculture, forestry, fishing, and hunting	11	2,816	200	2,616	7.1	92.9
Mining, extraction, and support activities	21	1,791	30	1,761	1.7	98.3
Utilities	22	455	26	429	5.7	94.3
Construction	23	75,436	1,774	73,662	2.4	97.6
Wholesale trade	42	59,093	1,990	57,103	3.4	96.6
Retail trade	44–45	81,259	1,927	79,331	2.4	97.6
Transportation and warehousing	48–49	38,696	811	37,884	2.1	97.9
Information	51	14,796	1,027	13,769	6.9	93.1
Publishing	511	4,920	338	4,582	6.9	93.1
Newspaper, periodical, book, and directory publishers	5111	2,195	54	2,141	2.5	97.5
Software publishers	5112	2,725	283	2,442	10.4	89.6
Telecommunications	517	1,695	186	1,509	11.0	89.0
Data processing, hosting, and related services	518	3,050	296	2,754	9.7	90.3
Other information	other 51	5,132	208	4,924	4.0	96.0

TABLE 83

Process innovation in companies with public support, by industry: 2015–17

(Number and percent)

Industry	NAICS code	Companies (number)	Public support			
			Number		Percent	
			Yes	No	Yes	No
Finance and insurance	52	31,209	483	30,726	1.5	98.5
Real estate and rental and leasing	53	26,507	736	25,770	2.8	97.2
Lessors of nonfinancial intangible assets (except copyrighted works)	533	266	6 r	260	2.2 r	97.8
Other real estate and rental and leasing	other 53	26,241	731	25,510	2.8	97.2
Professional, scientific, and technical services	54	127,072	5,429	121,643	4.3	95.7
Legal services	5411	16,221	271	15,949	1.7	98.3
Accounting, tax preparation, bookkeeping, and payroll services	5412	19,545	232	19,314	1.2	98.8
Architectural, engineering, and related services	5413	16,486	1,166	15,321	7.1	92.9
Specialized design services	5414	4,747	96	4,650	2.0	98.0
Computer systems design and related services	5415	31,432	1,578	29,854	5.0	95.0
Management, scientific, and technical consulting services	5416	23,328	900	22,429	3.9	96.1
Scientific research and development services	5417	2,319	789	1,530	34.0	66.0
Advertising, public relations, and related services	5418	4,944	149	4,795	3.0	97.0
Other professional, scientific, and technical services	5419	8,049	248	7,801	3.1	96.9
Management of companies and enterprises	55	205	16 r	189	7.7 r	92.3
Administrative and support and waste management and remediation services	56	42,861	811	42,051	1.9	98.1
Educational services	61	9,300	462	8,838	5.0	95.0
Health care and social assistance	62	65,473	3,603	61,871	5.5	94.5
Health care services	621–23	58,380	2,569	55,811	4.4	95.6
Social assistance	624	7,093	1,033	6,060	14.6	85.4
Arts, entertainment, and recreation	71	9,045	293	8,752	3.2	96.8
Accommodation and food services	72	50,080	1,617	48,463	3.2	96.8
Other services	81	40,986	1,084	39,901	2.6	97.4

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 84

Process innovation in companies with public support, by company size: 2015–17

(Number and percent)

Company size	Companies (number)	Public support			
		Number		Percent	
		Yes	No	Yes	No
All companies	752,895	27,890	725,005	3.7	96.3
Micro companies					
1–4	378,321	9,502	368,819	2.5	97.5
5–9	148,629	5,043	143,586	3.4	96.6
Small companies					
10–19	105,547	4,202	101,344	4.0	96.0
20–49	72,649	4,142	68,507	5.7	94.3
Medium companies					
50–99	24,934	2,180	22,753	8.7	91.3
100–249	13,953	1,624	12,329	11.6	88.4
Large companies					
250–499	4,638	596	4,042	12.9	87.1
500–999	1,878	205	1,673	10.9	89.1
1,000–4,999	1,773	271	1,502	15.3	84.7
5,000–9,999	289	46	243	15.9	84.1
10,000–24,999	173	49	124	28.1	71.9
25,000 or more	112	29	83	26.0	74.0

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 85

Process innovation in companies with public support, by R&D activity: 2015–17

(Number and percent)

R&D activity	Companies (number)	Public support			
		Number		Percent	
		Yes	No	Yes	No
Process innovating companies	752,895	27,890	725,005	3.7	96.3
R&D-active companies	270,271	17,415	252,855	6.4	93.6
Non-R&D-active companies	482,624	10,474	472,150	2.2	97.8

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 86-1

Patenting companies and total number of patent applications and patents currently owned, by industry: 2017

(Number)

Industry	NAICS code	All companies	Patenting companies	Patents pending	Patents owned
All industries	11, 21–23, 31–33, 42–81	4,603,606	73,149	342,312	1,056,487
Manufacturing industries	31–33	220,930	20,636	100,940	446,884
Food	311	18,180	661	2,063	6,816
Beverage and tobacco products	312	6,724	180	252	1,976
Textile, apparel, and leather products	313–16	10,569	687	1,843	4,000
Wood products	321	10,850	333	416	2,331
Paper	322	2,276	215	2,608	8,717
Printing and related support activities	323	21,903	257	340	6,380
Petroleum and coal products	324	624	83	389	1,578
Chemicals	325	7,910	1,583	8,340	45,032
Pesticide, fertilizer, and other agricultural chemicals	3253	542	118	706	1,841
Pharmaceuticals and medicines	3254	1,412	391	1,791	6,814
Soap, cleaning compound, and toilet preparation	3256	1,615	235	1,045	3,072
Other chemicals	other 325	4,341	839	4,799	33,304
Plastics and rubber products	326	8,412	1,365	4,234	20,121
Nonmetallic mineral products	327	8,021	431	1,805	9,972
Primary metals	331	2,679	345	763	2,319
Fabricated metal products	332	47,340	3,013	6,038	24,261
Machinery	333	18,792	3,912	22,184	92,976
Computer and electronic products	334	9,566	2,575	25,044	110,528
Communications equipment	3342	916	243	658	2,425
Semiconductor and other electronic components	3344	3,214	576	13,836	61,526
Navigational, measuring, electromedical, and control instruments	3345	3,958	1,444	8,245	33,277
Other computer and electronic products	other 334	1,478	312	2,305	13,301
Electrical equipment, appliances, and components	335	4,223	908	5,327	21,494
Transportation equipment	336	8,039	1,166	11,115	36,119
Automobiles, bodies, trailers, and parts	3361–63	5,018	685	8,011	28,300
Aerospace products and parts	3364	1,109	171	1,599	3,706
Other transportation	other 336	1,912	310	1,506	4,113
Furniture and related products	337	12,430	498	1,004	7,326
Miscellaneous	339	22,315	2,424	7,174	44,939
Medical equipment and supplies	3391	8,202	909	4,543	30,478
Other miscellaneous manufacturing	3399	14,113	1,515	2,631	14,460
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	52,512	241,372	609,603
Agriculture, forestry, fishing, and hunting	11	21,054	121	85	783
Mining, extraction, and support activities	21	15,546	314	5,475	10,309
Utilities	22	2,534	46	75	195
Construction	23	607,403	2,860	3,474	5,798
Wholesale trade	42	252,134	11,384	57,408	224,265
Retail trade	44–45	545,440	5,826	9,120	35,146
Transportation and warehousing	48–49	144,404	853	1,286	2,181
Information	51	56,053	3,487	48,227	114,341
Publishing	511	17,031	1,858	36,152	71,151
Newspaper, periodical, book, and directory publishers	5111	9,593	105	73	380
Software publishers	5112	7,438	1,753	36,079	70,771
Telecommunications	517	6,045	170	3,746	22,844
Data processing, hosting, and related services	518	8,414	913	3,244	4,732
Other information	other 51	24,563	546	5,085	15,614
Finance and insurance	52	192,345	754	7,365	10,228
Real estate and rental and leasing	53	229,923	827	9,514	26,352

TABLE 86-1

Patenting companies and total number of patent applications and patents currently owned, by industry: 2017

(Number)

Industry	NAICS code	All companies	Patenting companies	Patents pending	Patents owned
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	146	8,467	20,576
Other real estate and rental and leasing	other 53	228,222	681	1,047	5,775 r
Professional, scientific, and technical services	54	639,985	14,521	80,411	127,425
Legal services	5411	146,441	328	5,682	3,168 r
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	231	85	295
Architectural, engineering, and related services	5413	83,492	3,388	8,527	20,642
Specialized design services	5414	25,140	383	513	1,476
Computer systems design and related services	5415	90,056	3,885	10,851	22,228
Management, scientific, and technical consulting services	5416	109,247	1,713	2,971	5,916
Scientific research and development services	5417	9,293	3,761	50,595	71,726
Advertising, public relations, and related services	5418	25,626	434	507	810
Other professional, scientific, and technical services	5419	50,907	399	680	1,164
Management of companies and enterprises	55	2,276	88	166 i	1,626
Administrative and support and waste management and remediation services	56	266,751	1,859	1,900	4,075
Educational services	61	51,288	667	3,100	9,032 i
Health care and social assistance	62	509,529	2,721	8,019	18,981
Health care services	621-23	447,069	2,449	7,446	18,619
Social assistance	624	62,461	272	573	361
Arts, entertainment, and recreation	71	74,256	519	469	792
Accommodation and food services	72	441,426	3,450	3,601 r	12,949
Other services	81	330,331	2,217	1,676	5,124

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States. Patenting companies include those that own patents and those that have applied for a patent.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 86-2

Patenting companies and total number of patent applications and patents currently owned for companies with 1–9 employees, by industry: 2017

(Number)

Industry	NAICS code	All companies	Patenting companies	Patents pending	Patents owned
All industries	11, 21–23, 31–33, 42–81	3,500,973	40,550	54,491	126,077
Manufacturing industries	31–33	139,012	8,169	8,879	22,989
Food	311	11,753	241	366 r	455
Beverage and tobacco products	312	4,655	97	112	316
Textile, apparel, and leather products	313–16	7,452	296	226	714
Wood products	321	6,263	108	47	127
Paper	322	862	52	19 r	85
Printing and related support activities	323	16,565	63	35 r	36 r
Petroleum and coal products	324	336	20	65 r	71 r
Chemicals	325	4,513	642	842	2,605
Pesticide, fertilizer, and other agricultural chemicals	3253	343	66	61	154
Pharmaceuticals and medicines	3254	818	186	410	613
Soap, cleaning compound, and toilet preparation	3256	997	117	108	523
Other chemicals	other 325	2,355	273	263	1,315
Plastics and rubber products	326	4,249	401	303	875
Nonmetallic mineral products	327	4,519	145	90	243
Primary metals	331	1,187	113	63	745 r
Fabricated metal products	332	27,953	1,283	678	2,778
Machinery	333	10,529	1,399	1,286	3,729
Computer and electronic products	334	5,688	1,155	2,478	4,550
Communications equipment	3342	577	105	156	329
Semiconductor and other electronic components	3344	1,647	263	1,530 r	1,970 r
Navigational, measuring, electromedical, and control instruments	3345	2,366	633	619	1,931
Other computer and electronic products	other 334	1,097	154	174	319
Electrical equipment, appliances, and components	335	2,286	306	264	714
Transportation equipment	336	4,429	397	363	577
Automobiles, bodies, trailers, and parts	3361–63	2,633	215	279	308
Aerospace products and parts	3364	549	59	40	102
Other transportation	other 336	1,248	123	43	167
Furniture and related products	337	8,475	153	93	230
Miscellaneous	339	17,244	1,298	1,549	4,139
Medical equipment and supplies	3391	6,591	464	740	1,994
Other miscellaneous manufacturing	3399	10,653	834	809	2,145
Nonmanufacturing industries	11, 21–23, 42–81	3,361,961	32,382	45,612	103,088
Agriculture, forestry, fishing, and hunting	11	17,302	69	53 r	110 r
Mining, extraction, and support activities	21	11,395	92	146	277
Utilities	22	1,939	18	32	48
Construction	23	480,915	1,942	2,831	4,044
Wholesale trade	42	183,653	5,958	5,824	23,809
Retail trade	44–45	429,922	4,274	4,381	10,011
Transportation and warehousing	48–49	110,567	638	1,120 r	1,266
Information	51	40,871	1,503	2,782	2,641
Publishing	511	11,171	743	1,165	1,109
Newspaper, periodical, book, and directory publishers	5111	6,814	35	6 r	45
Software publishers	5112	4,357	707	1,158	1,064
Telecommunications	517	4,190	66	45	116
Data processing, hosting, and related services	518	5,490	402	1,281 r	837
Other information	other 51	20,021	293	292	579
Finance and insurance	52	168,797	468	2,072	3,199 r

TABLE 86-2

Patenting companies and total number of patent applications and patents currently owned for companies with 1–9 employees, by industry: 2017

(Number)

Industry	NAICS code	All companies	Patenting companies	Patents pending	Patents owned
Real estate and rental and leasing	53	206,579	606	440	6,282
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,366	107	203	2,225
Other real estate and rental and leasing	other 53	205,214	499	237	4,057
Professional, scientific, and technical services	54	539,149	9,427	18,393	35,407
Legal services	5411	128,840	231	942	2,411
Accounting, tax preparation, bookkeeping, and payroll services	5412	86,610	163	53	150
Architectural, engineering, and related services	5413	64,939	2,244	3,682	9,328
Specialized design services	5414	22,998	260	194	920
Computer systems design and related services	5415	75,393	2,513	3,408	3,989
Management, scientific, and technical consulting services	5416	97,398	1,347	2,102	4,798
Scientific research and development services	5417	6,347	2,156	7,387	12,797
Advertising, public relations, and related services	5418	20,652	208	178	251
Other professional, scientific, and technical services	5419	35,969	306	447	764
Management of companies and enterprises	55	1,820	57	21	88
Administrative and support and waste management and remediation services	56	199,301	1,180	783	1,997
Educational services	61	37,216	470	287	722
Health care and social assistance	62	375,293	1,924	2,523	3,416
Health care services	621–23	338,794	1,719	1,984	3,144
Social assistance	624	36,499	205	539	271
Arts, entertainment, and recreation	71	54,102	403	357	395
Accommodation and food services	72	222,198	1,645	2,566	5,872
Other services	81	280,941	1,707	1,000	3,504

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States. Patenting companies include those that own patents and those that have applied for a patent.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 86-3

Patenting companies and total number of patent applications and patents currently owned for companies with 10 or more employees, by industry: 2017

(Number)

Industry	NAICS code	All companies	Patenting companies	Patents pending	Patents owned
All industries	11, 21–23, 31–33, 42–81	1,102,633	32,598	287,821	930,410
Manufacturing industries	31–33	81,918	12,467	92,062	423,895
Food	311	6,427	420	1,698	6,361
Beverage and tobacco products	312	2,069	83	139	1,661
Textile, apparel, and leather products	313–16	3,117	391	1,617	3,286
Wood products	321	4,587	225	369	2,204
Paper	322	1,414	163	2,588	8,632
Printing and related support activities	323	5,338	194	304	6,343
Petroleum and coal products	324	288	63	325	1,507
Chemicals	325	3,396	941	7,499	42,426
Pesticide, fertilizer, and other agricultural chemicals	3253	199	52	645	1,688
Pharmaceuticals and medicines	3254	594	205	1,381	6,201
Soap, cleaning compound, and toilet preparation	3256	617	117	937	2,549
Other chemicals	other 325	1,986	566	4,536	31,989
Plastics and rubber products	326	4,164	964	3,931	19,246
Nonmetallic mineral products	327	3,502	287	1,715	9,730
Primary metals	331	1,492	231	700	1,574
Fabricated metal products	332	19,388	1,730	5,360	21,483
Machinery	333	8,264	2,513	20,899	89,246
Computer and electronic products	334	3,878	1,421	22,566	105,979
Communications equipment	3342	339	138	502	2,096
Semiconductor and other electronic components	3344	1,567	313	12,307	59,556
Navigational, measuring, electromedical, and control instruments	3345	1,592	811	7,626	31,346
Other computer and electronic products	other 334	381	158	2,131	12,981
Electrical equipment, appliances, and components	335	1,937	602	5,064	20,780
Transportation equipment	336	3,610	769	10,753	35,542
Automobiles, bodies, trailers, and parts	3361–63	2,385	470	7,731	27,992
Aerospace products and parts	3364	560	112	1,559	3,604
Other transportation	other 336	664	187	1,463	3,946
Furniture and related products	337	3,955	346	911	7,096
Miscellaneous	339	5,071	1,126	5,625	40,799
Medical equipment and supplies	3391	1,611	445	3,803	28,484
Other miscellaneous manufacturing	3399	3,460	681	1,822	12,315
Nonmanufacturing industries	11, 21–23, 42–81	1,020,716	20,131	195,759	506,515
Agriculture, forestry, fishing, and hunting	11	3,751	52	31	673
Mining, extraction, and support activities	21	4,151	221	5,329	10,032
Utilities	22	595	28	43	147
Construction	23	126,488	919	643	1,754
Wholesale trade	42	68,481	5,426	51,585	200,457
Retail trade	44–45	115,518	1,552	4,738	25,135
Transportation and warehousing	48–49	33,837	215	166	915
Information	51	15,181	1,984	45,444	111,700
Publishing	511	5,861	1,115	34,988	70,042
Newspaper, periodical, book, and directory publishers	5111	2,779	70	67	335
Software publishers	5112	3,081	1,045	34,921	69,707
Telecommunications	517	1,856	104	3,701	22,728
Data processing, hosting, and related services	518	2,924	511	1,963	3,895
Other information	other 51	4,542	253	4,793	15,034
Finance and insurance	52	23,548	285	5,293	7,029

TABLE 86-3

Patenting companies and total number of patent applications and patents currently owned for companies with 10 or more employees, by industry: 2017

(Number)

Industry	NAICS code	All companies	Patenting companies	Patents pending	Patents owned
Real estate and rental and leasing	53	23,344	220	9,074	20,070
Lessors of nonfinancial intangible assets (except copyrighted works)	533	335	38	8,264	18,351
Other real estate and rental and leasing	other 53	23,009	182	810	1,718
Professional, scientific, and technical services	54	100,836	5,093	62,018	92,018
Legal services	5411	17,601	97	4,740	757 r
Accounting, tax preparation, bookkeeping, and payroll services	5412	13,172	68 r	32	146
Architectural, engineering, and related services	5413	18,552	1,144	4,844	11,314
Specialized design services	5414	2,142	123	320	556
Computer systems design and related services	5415	14,663	1,372	7,443	18,239
Management, scientific, and technical consulting services	5416	11,849	366	870	1,118
Scientific research and development services	5417	2,946	1,606	43,208	58,929
Advertising, public relations, and related services	5418	4,974	226	330 r	559
Other professional, scientific, and technical services	5419	14,938	93	233	400
Management of companies and enterprises	55	456 i	31 i	145 i	1,538
Administrative and support and waste management and remediation services	56	67,450	679	1,117	2,077
Educational services	61	14,072	197	2,813	8,311 i
Health care and social assistance	62	134,237	796	5,496	15,565
Health care services	621-23	108,275	730	5,462	15,475
Social assistance	624	25,962	67	34 r	90
Arts, entertainment, and recreation	71	20,154	116	112	397
Accommodation and food services	72	219,228	1,805	1,035	7,077
Other services	81	49,390	510	676	1,619

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States. Patenting companies include those that own patents and those that have applied for a patent.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 87-1

Companies participating in intellectual property transfer activities: 2017

(Percent)

Intellectual property transfer activity	Companies (number)	Yes	No
Transferred intellectual property to others through technical assistance agreements	4,603,606	0.9	99.1
Received intellectual property from others through technical assistance agreements	4,603,606	1.3	98.7
Participated in cross-licensing agreements	4,603,606	0.7	99.3
Allowed free use of patents or intellectual property	4,603,606	0.4	99.6
Made use of open-source patents or intellectual property	4,603,606	1.8	98.2

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 87-2

Companies participating in intellectual property transfer activities, for companies with 1–9 employees: 2017

(Percent)

Intellectual property transfer activity	Companies (number)	Yes	No
Transferred intellectual property to others through technical assistance agreements	3,500,973	0.8	99.2
Received intellectual property from others through technical assistance agreements	3,500,973	1.1	98.9
Participated in cross-licensing agreements	3,500,973	0.6	99.4
Allowed free use of patents or intellectual property	3,500,973	0.4	99.6
Made use of open-source patents or intellectual property	3,500,973	1.7	98.3

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 87-3

Companies participating in intellectual property transfer activities, for companies with 10 or more employees: 2017

(Percent)

Intellectual property transfer activity	Companies (number)	Yes	No
Transferred intellectual property to others through technical assistance agreements	1,102,633	1.0	99.0
Received intellectual property from others through technical assistance agreements	1,102,633	2.0	98.0
Participated in cross-licensing agreements	1,102,633	1.1	98.9
Allowed free use of patents or intellectual property	1,102,633	0.5	99.5
Made use of open-source patents or intellectual property	1,102,633	2.1	97.9

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 88-1

Product or process innovation in companies participating in intellectual property transfer activities, by R&D activity: 2017
(Percent)

Intellectual property transfer activity	Product or process innovating companies			Companies with R&D			Companies without R&D		
	Companies (number)	Total		Companies (number)	Total		Companies (number)	Total	
		Yes	No		Yes	No		Yes	No
Transferred intellectual property to others through technical assistance agreements	1,218,460	2.0	98.0	365,864	4.8	95.2	852,596	0.8	99.2
Received intellectual property from others through technical assistance agreements	1,218,460	2.9	97.1	365,864	5.9	94.1	852,596	1.6	98.4
Participated in cross-licensing agreements	1,218,460	1.7	98.3	365,864	3.8	96.2	852,596	0.8	99.2
Allowed free use of patents or intellectual property	1,218,460	1.1	98.9	365,864	2.6	97.4	852,596	0.4	99.6
Made use of open-source patents or intellectual property	1,218,460	4.3	95.7	365,864	10.2	89.8	852,596	1.8	98.2

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 88-2

Product or process innovation in companies participating in intellectual property transfer activities for companies with 1–9 employees, by R&D activity: 2017

(Percent)

Intellectual property transfer activity	Product or process innovating companies			Companies with R&D			Companies without R&D		
	Companies (number)	Total		Companies (number)	Total		Companies (number)	Total	
		Yes	No		Yes	No		Yes	No
Transferred intellectual property to others through technical assistance agreements	880,153	1.9	98.1	241,255	4.8	95.2	638,898	0.8	99.2
Received intellectual property from others through technical assistance agreements	880,153	2.4	97.6	241,255	5.3	94.7	638,898	1.4	98.6
Participated in cross-licensing agreements	880,153	1.4	98.6	241,255	3.3	96.7	638,898	0.7	99.3
Allowed free use of patents or intellectual property	880,153	1.0	99.0	241,255	2.7	97.3	638,898	0.4	99.6
Made use of open-source patents or intellectual property	880,153	4.2	95.8	241,255	10.5	89.5	638,898	1.8	98.2

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 88-3

Product or process innovation in companies participating in intellectual property transfer activities for companies with 10 or more employees, by R&D activity: 2017

(Percent)

Intellectual property transfer activity	Product or process innovating companies			Companies with R&D			Companies without R&D		
	Companies (number)	Total		Companies (number)	Total		Companies (number)	Total	
		Yes	No		Yes	No		Yes	No
Transferred intellectual property to others through technical assistance agreements	338,307	2.3	97.7	124,609	4.7	95.3	213,698	0.8	99.2
Received intellectual property from others through technical assistance agreements	338,307	4.1	95.9	124,609	7.2	92.8	213,698	2.3	97.7
Participated in cross-licensing agreements	338,307	2.4	97.6	124,609	4.9	95.1	213,698	1.0	99.0
Allowed free use of patents or intellectual property	338,307	1.2	98.8	124,609	2.4	97.6	213,698	0.5	99.5
Made use of open-source patents or intellectual property	338,307	4.8	95.2	124,609	9.6	90.4	213,698	1.9	98.1

Note(s):

Detail may not add to total because of rounding. R&D activity is based on unedited company responses to innovation questions, not R&D expenditures. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 89-1

Importance of intellectual property protection, by type: 2017

(Percent)

Type of intellectual property	Companies (number)	Very important	Somewhat important	Not at all important
Utility patents (patents for inventions)	4,603,606	2.5	4.2	93.3
Design patents (patents for appearance)	4,603,606	2.8	4.9	92.3
Trademarks	4,603,606	7.0	8.9	84.1
Copyrights	4,603,606	6.2	8.0	85.8
Trade secrets	4,603,606	7.3	9.0	83.7
Nondisclosure agreements	4,603,606	8.6	10.9	80.5

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 89-2

Importance of intellectual property protection for companies with 1–9 employees, by type: 2017

(Percent)

Type of intellectual property	Companies (number)	Very important	Somewhat important	Not at all important
Utility patents (patents for inventions)	3,500,973	2.3	3.9	93.8
Design patents (patents for appearance)	3,500,973	2.5	4.6	92.9
Trademarks	3,500,973	5.8	8.0	86.1
Copyrights	3,500,973	5.7	7.4	86.9
Trade secrets	3,500,973	6.2	8.0	85.9
Nondisclosure agreements	3,500,973	7.2	9.6	83.1

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 89-3

Importance of intellectual property protection for companies with 10 or more employees, by type: 2017

(Percent)

Type of intellectual property	Companies (number)	Very important	Somewhat important	Not at all important
Utility patents (patents for inventions)	1,102,633	3.2	4.9	91.8
Design patents (patents for appearance)	1,102,633	3.8	6.1	90.2
Trademarks	1,102,633	10.9	11.6	77.5
Copyrights	1,102,633	7.9	9.7	82.4
Trade secrets	1,102,633	11.0	12.3	76.7
Nondisclosure agreements	1,102,633	12.8	14.9	72.3

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 90

Importance of utility patents, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
All industries	11, 21–23, 31–33, 42–81	4,603,606	2.5	4.2	93.3
Manufacturing industries	31–33	220,930	7.6	7.8	84.6
Food	311	18,180	2.9	6.5	90.5
Beverage and tobacco products	312	6,724	2.5	3.7	93.7
Textile, apparel, and leather products	313–16	10,569	6.3	7.0	86.7
Wood products	321	10,850	2.0	4.3	93.7
Paper	322	2,276	6.0	9.7	84.3
Printing and related support activities	323	21,903	2.3	4.1	93.6
Petroleum and coal products	324	624	10.2	r 9.3	80.5
Chemicals	325	7,910	16.0	12.3	71.8
Pesticide, fertilizer, and other agricultural chemicals	3253	542	12.1	r 14.6	r 73.3
Pharmaceuticals and medicines	3254	1,412	25.4	14.3	60.3
Soap, cleaning compound, and toilet preparation	3256	1,615	9.9	9.8	80.3
Other chemicals	other 325	4,341	15.7	12.2	72.1
Plastics and rubber products	326	8,412	12.8	11.2	75.9
Nonmetallic mineral products	327	8,021	3.2	5.0	91.7
Primary metals	331	2,679	8.7	9.2	82.1
Fabricated metal products	332	47,340	6.1	6.9	87.0
Machinery	333	18,792	15.1	11.1	73.7
Computer and electronic products	334	9,566	21.4	16.4	62.2
Communications equipment	3342	916	22.0	15.3	62.7
Semiconductor and other electronic components	3344	3,214	17.0	15.2	67.8
Navigational, measuring, electromedical, and control instruments	3345	3,958	26.4	17.2	56.4
Other computer and electronic products	other 334	1,478	17.3	17.7	65.1
Electrical equipment, appliances, and components	335	4,223	17.4	12.9	69.7
Transportation equipment	336	8,039	10.3	9.8	79.9
Automobiles, bodies, trailers, and parts	3361–63	5,018	9.7	10.2	80.1
Aerospace products and parts	3364	1,109	15.2	5.7	79.1
Other transportation	other 336	1,912	9.3	10.9	79.8
Furniture and related products	337	12,430	3.0	5.2	91.9
Miscellaneous	339	22,315	8.5	8.7	82.8
Medical equipment and supplies	3391	8,202	10.3	10.3	79.4
Other miscellaneous manufacturing	3399	14,113	7.4	7.8	84.8
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	2.3	4.0	93.8
Agriculture, forestry, fishing, and hunting	11	21,054	0.9	3.0	96.1
Mining, extraction, and support activities	21	15,546	2.4	4.1	93.5
Utilities	22	2,534	3.6	3.6	92.9
Construction	23	607,403	1.3	3.2	95.4
Wholesale trade	42	252,134	5.3	7.4	87.4
Retail trade	44–45	545,440	2.4	4.7	92.8
Transportation and warehousing	48–49	144,404	1.5	3.8	94.7
Information	51	56,053	5.1	6.4	88.5
Publishing	511	17,031	7.7	7.9	84.4
Newspaper, periodical, book, and directory publishers	5111	9,593	1.1	3.2	95.7
Software publishers	5112	7,438	16.1	14.0	69.9
Telecommunications	517	6,045	3.6	7.1	89.3
Data processing, hosting, and related services	518	8,414	8.9	7.8	83.3
Other information	other 51	24,563	2.3	4.7	93.0
Finance and insurance	52	192,345	1.1	1.9	97.0
Real estate and rental and leasing	53	229,923	0.8	1.9	97.3

TABLE 90

Importance of utility patents, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	6.6	3.4	90.0
Other real estate and rental and leasing	other 53	228,222	0.8	1.9	97.3
Professional, scientific, and technical services	54	639,985	3.2	3.8	93.0
Legal services	5411	146,441	1.3	1.2	97.5
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	0.8	1.5	97.7
Architectural, engineering, and related services	5413	83,492	4.8	5.2	90.0
Specialized design services	5414	25,140	2.6	3.9	93.5
Computer systems design and related services	5415	90,056	6.1	8.7	85.3
Management, scientific, and technical consulting services	5416	109,247	2.5	4.1	93.3
Scientific research and development services	5417	9,293	39.5	11.7	48.7
Advertising, public relations, and related services	5418	25,626	2.1	3.5	94.5
Other professional, scientific, and technical services	5419	50,907	1.7	2.9	95.5
Management of companies and enterprises	55	2,276	3.8	4.4	91.8
Administrative and support and waste management and remediation services	56	266,751	1.4	2.8	95.7
Educational services	61	51,288	1.8	3.4	94.7
Health care and social assistance	62	509,529	1.8	3.2	95.1
Health care services	621-23	447,069	1.8	3.3	94.9
Social assistance	624	62,461	1.4	2.3	96.4
Arts, entertainment, and recreation	71	74,256	1.3	2.5	96.2
Accommodation and food services	72	441,426	2.7	5.8	91.5
Other services	81	330,331	2.0	4.3	93.7

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 91

Importance of utility patents, by company size: 2017

(Percent)

Company size	Companies (number)	Very important	Somewhat important	Not at all important
All companies	4,603,606	2.5	4.2	93.3
Micro companies				
1-4	2,615,093	2.2	3.8	93.9
5-9	885,880	2.5	4.1	93.4
Small companies				
10-19	562,922	2.6	4.6	92.8
20-49	353,037	3.1	4.7	92.2
Medium companies				
50-99	104,561	4.1	5.3	90.5
100-249	52,429	5.4	6.8	87.8
Large companies				
250-499	15,665	6.4	8.6	85.0
500-999	7,026	8.0	9.8	82.1
1,000-4,999	5,514	13.1 r	10.4	76.5
5,000-9,999	744	22.8	12.9	64.3
10,000-24,999	447	24.0	14.4	61.6
25,000 or more	288	27.0	11.8	61.2

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 92

Importance of design patents, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
All industries	11, 21–23, 31–33, 42–81	4,603,606	2.8	4.9	92.3
Manufacturing industries	31–33	220,930	7.8	10.4	81.8
Food	311	18,180	4.3	8.2	87.5
Beverage and tobacco products	312	6,724	5.9	6.9	87.2
Textile, apparel, and leather products	313–16	10,569	9.1	11.3	79.6
Wood products	321	10,850	3.0	6.2	90.8
Paper	322	2,276	6.5	16.1	77.4
Printing and related support activities	323	21,903	3.6	6.5	89.9
Petroleum and coal products	324	624	8.1 r	11.1 r	80.8
Chemicals	325	7,910	10.6	14.0	75.4
Pesticide, fertilizer, and other agricultural chemicals	3253	542	12.0 r	10.8	77.2
Pharmaceuticals and medicines	3254	1,412	10.6	17.7	71.7
Soap, cleaning compound, and toilet preparation	3256	1,615	11.0	13.0	76.0
Other chemicals	other 325	4,341	10.3	13.6	76.1
Plastics and rubber products	326	8,412	12.3	13.6	74.2
Nonmetallic mineral products	327	8,021	4.9	7.1	88.0
Primary metals	331	2,679	7.6	9.6	82.8
Fabricated metal products	332	47,340	6.0	9.2	84.8
Machinery	333	18,792	14.7	14.8	70.4
Computer and electronic products	334	9,566	15.1	18.3	66.6
Communications equipment	3342	916	17.5	19.8	62.8
Semiconductor and other electronic components	3344	3,214	14.1	17.4	68.5
Navigational, measuring, electromedical, and control instruments	3345	3,958	16.2	17.9	65.8
Other computer and electronic products	other 334	1,478	13.0	20.3	66.7
Electrical equipment, appliances, and components	335	4,223	15.8	14.5	69.6
Transportation equipment	336	8,039	11.7	12.8	75.5
Automobiles, bodies, trailers, and parts	3361–63	5,018	10.9	12.8	76.2
Aerospace products and parts	3364	1,109	16.9	7.9	75.1
Other transportation	other 336	1,912	10.8	15.6	73.6
Furniture and related products	337	12,430	4.7	7.7	87.6
Miscellaneous	339	22,315	9.1	11.9	78.9
Medical equipment and supplies	3391	8,202	8.8	12.5	78.8
Other miscellaneous manufacturing	3399	14,113	9.3	11.6	79.0
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	2.5	4.7	92.8
Agriculture, forestry, fishing, and hunting	11	21,054	0.9	3.2	95.9
Mining, extraction, and support activities	21	15,546	2.0	4.6	93.5
Utilities	22	2,534	2.0	4.4	93.5
Construction	23	607,403	1.6	3.6	94.8
Wholesale trade	42	252,134	6.4	9.0	84.6
Retail trade	44–45	545,440	3.0	5.8	91.2
Transportation and warehousing	48–49	144,404	1.6	3.9	94.5
Information	51	56,053	4.9	7.9	87.3
Publishing	511	17,031	7.2	9.9	82.9
Newspaper, periodical, book, and directory publishers	5111	9,593	3.0	6.3	90.6
Software publishers	5112	7,438	12.5	14.5	73.0
Telecommunications	517	6,045	3.6	6.7	89.7
Data processing, hosting, and related services	518	8,414	6.1	10.5	83.4
Other information	other 51	24,563	3.2	5.8	90.9
Finance and insurance	52	192,345	1.3	2.1	96.6
Real estate and rental and leasing	53	229,923	1.0	2.3	96.6

TABLE 92

Importance of design patents, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	6.2	7.5	86.3
Other real estate and rental and leasing	other 53	228,222	1.0	2.3	96.7
Professional, scientific, and technical services	54	639,985	3.3	5.0	91.7
Legal services	5411	146,441	1.1	1.5	97.4
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	0.8	1.5	97.7
Architectural, engineering, and related services	5413	83,492	6.2	8.3	85.6
Specialized design services	5414	25,140	8.6	9.2	82.2
Computer systems design and related services	5415	90,056	5.6	9.7	84.7
Management, scientific, and technical consulting services	5416	109,247	2.8	4.9	92.3
Scientific research and development services	5417	9,293	15.9	15.0	69.1
Advertising, public relations, and related services	5418	25,626	4.4	6.8	88.8
Other professional, scientific, and technical services	5419	50,907	1.7	3.4	94.9
Management of companies and enterprises	55	2,276	3.9	r 4.6	91.5
Administrative and support and waste management and remediation services	56	266,751	1.6	3.3	95.1
Educational services	61	51,288	2.4	4.8	92.8
Health care and social assistance	62	509,529	1.7	3.4	94.9
Health care services	621-23	447,069	1.7	3.5	94.8
Social assistance	624	62,461	1.6	2.7	95.7
Arts, entertainment, and recreation	71	74,256	2.0	3.8	94.3
Accommodation and food services	72	441,426	3.2	6.5	90.3
Other services	81	330,331	2.1	4.7	93.2

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 93

Importance of design patents, by company size: 2017

(Percent)

Company size	Companies (number)	Very important	Somewhat important	Not at all important
All companies	4,603,606	2.8	4.9	92.3
Micro companies				
1-4	2,615,093	2.4	4.5	93.1
5-9	885,880	2.7	5.0	92.3
Small companies				
10-19	562,922	3.0	5.6	91.4
20-49	353,037	3.8	5.9	90.3
Medium companies				
50-99	104,561	4.8	6.7	88.5
100-249	52,429	6.3	8.1	85.6
Large companies				
250-499	15,665	7.1	10.2	82.7
500-999	7,026	8.6	11.6	79.8
1,000-4,999	5,514	11.6 r	12.9 r	75.5
5,000-9,999	744	17.5	19.8	62.7
10,000-24,999	447	19.3	19.5	61.2
25,000 or more	288	16.3	25.4	58.3

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 94

Importance of trademarks, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
All industries	11, 21–23, 31–33, 42–81	4,603,606	7.0	8.9	84.1
Manufacturing industries	31–33	220,930	14.7	14.5	70.8
Food	311	18,180	20.6	15.7	63.7
Beverage and tobacco products	312	6,724	40.0	21.6	38.3
Textile, apparel, and leather products	313–16	10,569	16.3	14.8	68.8
Wood products	321	10,850	5.1	9.2	85.8
Paper	322	2,276	13.8	18.9	67.3
Printing and related support activities	323	21,903	9.9	14.8	75.3
Petroleum and coal products	324	624	24.5	9.6	65.8
Chemicals	325	7,910	30.9	20.4	48.7
Pesticide, fertilizer, and other agricultural chemicals	3253	542	30.5	23.7	45.9
Pharmaceuticals and medicines	3254	1,412	38.5	21.6	39.9
Soap, cleaning compound, and toilet preparation	3256	1,615	35.7	19.8	44.5
Other chemicals	other 325	4,341	26.7	19.9	53.5
Plastics and rubber products	326	8,412	18.1	17.9	63.9
Nonmetallic mineral products	327	8,021	9.7	10.8	79.4
Primary metals	331	2,679	13.6	14.4	72.0
Fabricated metal products	332	47,340	8.1	9.8	82.0
Machinery	333	18,792	17.9	18.4	63.7
Computer and electronic products	334	9,566	24.7	23.3	52.0
Communications equipment	3342	916	26.2	24.5	49.3
Semiconductor and other electronic components	3344	3,214	17.6	21.6	60.7
Navigational, measuring, electromedical, and control instruments	3345	3,958	29.4	24.5	46.0
Other computer and electronic products	other 334	1,478	26.5	23.0	50.6
Electrical equipment, appliances, and components	335	4,223	21.9	20.7	57.4
Transportation equipment	336	8,039	17.5	15.0	67.5
Automobiles, bodies, trailers, and parts	3361–63	5,018	17.2	16.2	66.6
Aerospace products and parts	3364	1,109	14.2	14.9	70.9
Other transportation	other 336	1,912	20.0	12.1	67.9
Furniture and related products	337	12,430	6.1	9.8	84.1
Miscellaneous	339	22,315	15.0	15.2	69.7
Medical equipment and supplies	3391	8,202	10.4	13.6	76.0
Other miscellaneous manufacturing	3399	14,113	17.7	16.2	66.1
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	6.7	8.6	84.7
Agriculture, forestry, fishing, and hunting	11	21,054	1.7	4.1	94.1
Mining, extraction, and support activities	21	15,546	2.2	5.6	92.3
Utilities	22	2,534	3.9	7.2	89.0
Construction	23	607,403	2.9	5.6	91.5
Wholesale trade	42	252,134	13.8	13.5	72.7
Retail trade	44–45	545,440	7.8	10.1	82.1
Transportation and warehousing	48–49	144,404	3.9	6.2	89.9
Information	51	56,053	18.6	19.0	62.5
Publishing	511	17,031	28.0	23.4	48.6
Newspaper, periodical, book, and directory publishers	5111	9,593	19.3	17.8	63.0
Software publishers	5112	7,438	39.2	30.7	30.1
Telecommunications	517	6,045	10.6	13.1	76.3
Data processing, hosting, and related services	518	8,414	20.2	23.4	56.4
Other information	other 51	24,563	13.4	15.8	70.8
Finance and insurance	52	192,345	7.3	7.5	85.2
Real estate and rental and leasing	53	229,923	4.4	6.1	89.5

TABLE 94

Importance of trademarks, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	40.9	9.6	49.5
Other real estate and rental and leasing	other 53	228,222	4.1	6.1	89.8
Professional, scientific, and technical services	54	639,985	7.3	9.9	82.8
Legal services	5411	146,441	2.9	5.0	92.1
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	2.9	4.1	93.0
Architectural, engineering, and related services	5413	83,492	6.6	10.3	83.1
Specialized design services	5414	25,140	14.4	15.8	69.8
Computer systems design and related services	5415	90,056	13.5	17.6	68.9
Management, scientific, and technical consulting services	5416	109,247	9.3	11.8	78.9
Scientific research and development services	5417	9,293	22.1	23.9	53.9
Advertising, public relations, and related services	5418	25,626	12.3	17.0	70.7
Other professional, scientific, and technical services	5419	50,907	5.8	8.1	86.2
Management of companies and enterprises	55	2,276	11.3	8.3	80.4
Administrative and support and waste management and remediation services	56	266,751	5.4	7.1	87.6
Educational services	61	51,288	13.0	14.0	73.0
Health care and social assistance	62	509,529	3.8	6.1	90.1
Health care services	621-23	447,069	3.6	6.1	90.4
Social assistance	624	62,461	5.8	6.1	88.2
Arts, entertainment, and recreation	71	74,256	9.9	10.8	79.3
Accommodation and food services	72	441,426	10.2	11.3	78.5
Other services	81	330,331	4.8	7.8	87.4

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 95

Importance of trademarks, by company size: 2017

(Percent)

Company size	Companies (number)	Very important	Somewhat important	Not at all important
All companies	4,603,606	7.0	8.9	84.1
Micro companies				
1-4	2,615,093	5.5	7.7	86.8
5-9	885,880	6.9	8.9	84.1
Small companies				
10-19	562,922	8.7	10.2	81.1
20-49	353,037	11.2	12.1	76.7
Medium companies				
50-99	104,561	14.2	13.6	72.3
100-249	52,429	17.7	15.5	66.8
Large companies				
250-499	15,665	19.4	18.5	62.1
500-999	7,026	23.3	18.8	57.9
1,000-4,999	5,514	28.3 r	21.8	49.8
5,000-9,999	744	43.0	23.7	33.3
10,000-24,999	447	47.0	17.9	35.1
25,000 or more	288	56.0	19.5	24.6

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 96

Importance of copyrights, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
All industries	11, 21–23, 31–33, 42–81	4,603,606	6.2	8.0	85.8
Manufacturing industries	31–33	220,930	10.6	13.1	76.3
Food	311	18,180	10.9	12.9	76.2
Beverage and tobacco products	312	6,724	17.1	18.1	64.8
Textile, apparel, and leather products	313–16	10,569	12.6	14.0	73.4
Wood products	321	10,850	3.3	7.7	88.9
Paper	322	2,276	8.8	17.9	73.3
Printing and related support activities	323	21,903	11.3	15.6	73.2
Petroleum and coal products	324	624	12.6	11.2	76.2
Chemicals	325	7,910	19.6	17.9	62.5
Pesticide, fertilizer, and other agricultural chemicals	3253	542	15.1	20.6	64.2
Pharmaceuticals and medicines	3254	1,412	22.5	22.7	54.8
Soap, cleaning compound, and toilet preparation	3256	1,615	21.1	21.5	57.4
Other chemicals	other 325	4,341	18.6	14.7	66.7
Plastics and rubber products	326	8,412	13.1	15.1	71.8
Nonmetallic mineral products	327	8,021	7.8	9.5	82.8
Primary metals	331	2,679	9.1	10.8	80.0
Fabricated metal products	332	47,340	6.3	8.6	85.1
Machinery	333	18,792	13.1	16.8	70.1
Computer and electronic products	334	9,566	19.5	23.1	57.4
Communications equipment	3342	916	22.3	23.5	54.2
Semiconductor and other electronic components	3344	3,214	15.9	18.4	65.7
Navigational, measuring, electromedical, and control instruments	3345	3,958	21.1	25.8	53.1
Other computer and electronic products	other 334	1,478	21.5	25.8	52.7
Electrical equipment, appliances, and components	335	4,223	15.4	17.8	66.8
Transportation equipment	336	8,039	12.5	14.0	73.4
Automobiles, bodies, trailers, and parts	3361–63	5,018	12.4	14.4	73.3
Aerospace products and parts	3364	1,109	11.4	14.6	74.0
Other transportation	other 336	1,912	13.7	12.8	73.5
Furniture and related products	337	12,430	4.8	8.0	87.2
Miscellaneous	339	22,315	12.2	14.2	73.5
Medical equipment and supplies	3391	8,202	7.9	12.3	79.7
Other miscellaneous manufacturing	3399	14,113	14.7	15.4	69.9
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	6.0	7.7	86.3
Agriculture, forestry, fishing, and hunting	11	21,054	1.1	3.9	95.0
Mining, extraction, and support activities	21	15,546	2.1	5.2	92.8
Utilities	22	2,534	2.7	6.8	90.5
Construction	23	607,403	2.5	4.7	92.8
Wholesale trade	42	252,134	9.8	11.6	78.6
Retail trade	44–45	545,440	6.1	8.5	85.5
Transportation and warehousing	48–49	144,404	3.0	5.2	91.8
Information	51	56,053	25.8	20.4	53.7
Publishing	511	17,031	37.3	23.9	38.9
Newspaper, periodical, book, and directory publishers	5111	9,593	35.1	19.5	45.4
Software publishers	5112	7,438	40.1	29.5	30.4
Telecommunications	517	6,045	8.6	14.2	77.2
Data processing, hosting, and related services	518	8,414	21.5	21.0	57.5
Other information	other 51	24,563	23.6	19.4	57.0
Finance and insurance	52	192,345	5.4	6.2	88.4
Real estate and rental and leasing	53	229,923	3.3	5.4	91.4

TABLE 96

Importance of copyrights, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	26.6	12.4	61.0
Other real estate and rental and leasing	other 53	228,222	3.1	5.3	91.6
Professional, scientific, and technical services	54	639,985	9.4	10.7	79.9
Legal services	5411	146,441	3.0	5.7	91.3
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	2.5	3.8	93.6
Architectural, engineering, and related services	5413	83,492	13.0	12.9	74.2
Specialized design services	5414	25,140	17.0	17.1	66.0
Computer systems design and related services	5415	90,056	16.2	18.2	65.6
Management, scientific, and technical consulting services	5416	109,247	11.1	12.7	76.1
Scientific research and development services	5417	9,293	18.6	23.0	58.4
Advertising, public relations, and related services	5418	25,626	14.1	18.2	67.6
Other professional, scientific, and technical services	5419	50,907	11.7	8.7	79.5
Management of companies and enterprises	55	2,276	8.8	10.5	80.7
Administrative and support and waste management and remediation services	56	266,751	4.5	6.2	89.3
Educational services	61	51,288	16.2	13.9	70.0
Health care and social assistance	62	509,529	3.8	5.6	90.6
Health care services	621-23	447,069	3.5	5.6	90.9
Social assistance	624	62,461	5.4	5.9	88.7
Arts, entertainment, and recreation	71	74,256	12.9	9.9	77.2
Accommodation and food services	72	441,426	7.0	9.0	84.0
Other services	81	330,331	3.9	6.6	89.5

r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 97

Importance of copyrights, by company size: 2017

(Percent)

Company size	Companies (number)	Very important	Somewhat important	Not at all important
All companies	4,603,606	6.2	8.0	85.8
Micro companies				
1-4	2,615,093	5.6	7.3	87.1
5-9	885,880	6.0	7.8	86.2
Small companies				
10-19	562,922	6.8	8.7	84.6
20-49	353,037	8.1	9.8	82.1
Medium companies				
50-99	104,561	9.6	11.3	79.1
100-249	52,429	11.4	13.1	75.5
Large companies				
250-499	15,665	13.1	15.3	71.6
500-999	7,026	14.9	17.1	68.0
1,000-4,999	5,514	18.0 r	20.6	61.4
5,000-9,999	744	28.7	24.9	46.4
10,000-24,999	447	32.2	23.8	44.0
25,000 or more	288	34.3	28.5	37.1

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 98

Importance of trade secrets, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
All industries	11, 21–23, 31–33, 42–81	4,603,606	7.3	9.0	83.7
Manufacturing industries	31–33	220,930	18.5	15.7	65.7
Food	311	18,180	23.8	17.2	59.1
Beverage and tobacco products	312	6,724	21.1	19.2	59.7
Textile, apparel, and leather products	313–16	10,569	14.3	16.2	69.5
Wood products	321	10,850	6.6	11.6	81.8
Paper	322	2,276	17.1	19.2	63.7
Printing and related support activities	323	21,903	8.6	12.6	78.8
Petroleum and coal products	324	624	30.6	11.6	57.8
Chemicals	325	7,910	43.0	19.3	37.7
Pesticide, fertilizer, and other agricultural chemicals	3253	542	27.4	23.0	49.6
Pharmaceuticals and medicines	3254	1,412	47.3	22.3	30.4
Soap, cleaning compound, and toilet preparation	3256	1,615	46.7	17.0	36.3
Other chemicals	other 325	4,341	42.2	18.7	39.0
Plastics and rubber products	326	8,412	25.2	18.8	56.0
Nonmetallic mineral products	327	8,021	13.9	12.5	73.6
Primary metals	331	2,679	22.3	16.3	61.5
Fabricated metal products	332	47,340	14.6	14.0	71.3
Machinery	333	18,792	25.7	19.9	54.4
Computer and electronic products	334	9,566	38.4	18.9	42.7
Communications equipment	3342	916	38.2	19.6	42.2
Semiconductor and other electronic components	3344	3,214	35.7	15.7	48.5
Navigational, measuring, electromedical, and control instruments	3345	3,958	42.3	19.8	38.0
Other computer and electronic products	other 334	1,478	33.6	23.3	43.0
Electrical equipment, appliances, and components	335	4,223	28.4	19.7	52.0
Transportation equipment	336	8,039	22.3	17.9	59.8
Automobiles, bodies, trailers, and parts	3361–63	5,018	21.2	19.6	59.2
Aerospace products and parts	3364	1,109	32.9	15.1	51.9
Other transportation	other 336	1,912	19.2	14.9	65.8
Furniture and related products	337	12,430	7.6	12.6	79.8
Miscellaneous	339	22,315	17.3	15.9	66.8
Medical equipment and supplies	3391	8,202	13.6	13.8	72.6
Other miscellaneous manufacturing	3399	14,113	19.5	17.0	63.5
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	6.8	8.7	84.6
Agriculture, forestry, fishing, and hunting	11	21,054	2.7	5.6	91.8
Mining, extraction, and support activities	21	15,546	5.8	7.4	86.8
Utilities	22	2,534	7.3	6.2	86.5
Construction	23	607,403	4.2	7.1	88.7
Wholesale trade	42	252,134	13.1	14.0	72.8
Retail trade	44–45	545,440	6.1	9.2	84.8
Transportation and warehousing	48–49	144,404	4.8	6.7	88.4
Information	51	56,053	16.2	15.9	68.0
Publishing	511	17,031	22.6	18.6	58.7
Newspaper, periodical, book, and directory publishers	5111	9,593	8.7	14.4	77.0
Software publishers	5112	7,438	40.7	24.1	35.2
Telecommunications	517	6,045	10.7	13.8	75.4
Data processing, hosting, and related services	518	8,414	25.4	18.6	56.0
Other information	other 51	24,563	9.8	13.6	76.6
Finance and insurance	52	192,345	8.3	7.2	84.5
Real estate and rental and leasing	53	229,923	3.7	5.5	90.7

TABLE 98

Importance of trade secrets, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	31.1	13.6	55.2
Other real estate and rental and leasing	other 53	228,222	3.5	5.5	91.0
Professional, scientific, and technical services	54	639,985	9.0	9.8	81.1
Legal services	5411	146,441	3.4	4.8	91.8
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	3.8	4.4	91.8
Architectural, engineering, and related services	5413	83,492	11.4	12.2	76.3
Specialized design services	5414	25,140	9.8	13.3	76.9
Computer systems design and related services	5415	90,056	17.6	16.2	66.2
Management, scientific, and technical consulting services	5416	109,247	10.5	12.2	77.3
Scientific research and development services	5417	9,293	44.3	16.1	39.6
Advertising, public relations, and related services	5418	25,626	11.1	13.9	74.9
Other professional, scientific, and technical services	5419	50,907	5.6	9.5	84.9
Management of companies and enterprises	55	2,276	9.9	9.3	80.8
Administrative and support and waste management and remediation services	56	266,751	6.3	8.1	85.6
Educational services	61	51,288	9.2	10.9	80.0
Health care and social assistance	62	509,529	3.9	5.8	90.3
Health care services	621-23	447,069	3.8	5.9	90.3
Social assistance	624	62,461	4.5	5.1	90.4
Arts, entertainment, and recreation	71	74,256	6.0	8.5	85.5
Accommodation and food services	72	441,426	9.3	11.7	79.0
Other services	81	330,331	5.3	7.9	86.9

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 99

Importance of trade secrets, by company size: 2017

(Percent)

Company size	Companies (number)	Very important	Somewhat important	Not at all important
All companies	4,603,606	7.3	9.0	83.7
Micro companies				
1-4	2,615,093	5.8	7.7	86.6
5-9	885,880	7.3	8.9	83.8
Small companies				
10-19	562,922	9.0	10.9	80.1
20-49	353,037	11.3	12.7	76.0
Medium companies				
50-99	104,561	14.7	14.3	71.0
100-249	52,429	17.4	16.4	66.2
Large companies				
250-499	15,665	18.9	18.2	63.0
500-999	7,026	21.2	17.5	61.2
1,000-4,999	5,514	25.6 r	19.8 r	54.6
5,000-9,999	744	35.6	22.5	41.9
10,000-24,999	447	36.7	21.5	41.9
25,000 or more	288	38.1	21.3	40.6

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 100

Importance of nondisclosure agreements, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
All industries	11, 21–23, 31–33, 42–81	4,603,606	8.6	10.9	80.5
Manufacturing industries	31–33	220,930	18.1	17.7	64.2
Food	311	18,180	19.4	16.4	64.3
Beverage and tobacco products	312	6,724	15.1	20.1	64.7
Textile, apparel, and leather products	313–16	10,569	12.7	14.7	72.6
Wood products	321	10,850	4.8	10.6	84.6
Paper	322	2,276	18.7	25.1	56.2
Printing and related support activities	323	21,903	9.4	13.6	77.0
Petroleum and coal products	324	624	29.2	13.7	57.1
Chemicals	325	7,910	40.4	23.8	35.8
Pesticide, fertilizer, and other agricultural chemicals	3253	542	24.5	27.5	48.0
Pharmaceuticals and medicines	3254	1,412	46.5	23.5	30.0
Soap, cleaning compound, and toilet preparation	3256	1,615	42.1	24.2	33.8
Other chemicals	other 325	4,341	39.7	23.4	36.9
Plastics and rubber products	326	8,412	26.1	23.6	50.3
Nonmetallic mineral products	327	8,021	11.0	13.6	75.4
Primary metals	331	2,679	21.6	22.2	56.2
Fabricated metal products	332	47,340	16.9	17.6	65.5
Machinery	333	18,792	25.5	25.3	49.2
Computer and electronic products	334	9,566	41.1	23.7	35.2
Communications equipment	3342	916	39.2	22.9	37.9
Semiconductor and other electronic components	3344	3,214	42.9	22.4	34.8
Navigational, measuring, electromedical, and control instruments	3345	3,958	42.8	23.8	33.4
Other computer and electronic products	other 334	1,478	34.0	26.5	39.5
Electrical equipment, appliances, and components	335	4,223	32.0	21.5	46.5
Transportation equipment	336	8,039	21.6	19.3	59.2
Automobiles, bodies, trailers, and parts	3361–63	5,018	20.4	19.2	60.4
Aerospace products and parts	3364	1,109	39.3	18.1	42.6
Other transportation	other 336	1,912	14.3	20.0	65.6
Furniture and related products	337	12,430	6.3	11.2	82.5
Miscellaneous	339	22,315	16.1	16.1	67.9
Medical equipment and supplies	3391	8,202	14.8	13.3	71.9
Other miscellaneous manufacturing	3399	14,113	16.8	17.6	65.6
Nonmanufacturing industries	11, 21–23, 42–81	4,382,677	8.1	10.6	81.4
Agriculture, forestry, fishing, and hunting	11	21,054	2.5	5.7	91.8
Mining, extraction, and support activities	21	15,546	7.5	9.9	82.6
Utilities	22	2,534	7.5	10.7	81.7
Construction	23	607,403	3.8	7.4	88.8
Wholesale trade	42	252,134	13.6	16.6	69.8
Retail trade	44–45	545,440	5.5	9.4	85.1
Transportation and warehousing	48–49	144,404	5.5	8.8	85.7
Information	51	56,053	22.7	22.8	54.5
Publishing	511	17,031	27.6	22.8	49.6
Newspaper, periodical, book, and directory publishers	5111	9,593	11.4	18.6	69.9
Software publishers	5112	7,438	48.5	28.1	23.3
Telecommunications	517	6,045	16.4	23.5	60.0
Data processing, hosting, and related services	518	8,414	35.8	26.9	37.3
Other information	other 51	24,563	16.4	21.2	62.4
Finance and insurance	52	192,345	10.7	10.8	78.5
Real estate and rental and leasing	53	229,923	5.8	9.0	85.3

TABLE 100

Importance of nondisclosure agreements, by industry: 2017

(Percent)

Industry	NAICS code	Companies (number)	Very important	Somewhat important	Not at all important
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,701	31.6	19.9	48.5
Other real estate and rental and leasing	other 53	228,222	5.6	8.9	85.5
Professional, scientific, and technical services	54	639,985	15.6	15.0	69.4
Legal services	5411	146,441	6.9	9.4	83.8
Accounting, tax preparation, bookkeeping, and payroll services	5412	99,782	8.8	8.9	82.3
Architectural, engineering, and related services	5413	83,492	16.2	17.2	66.6
Specialized design services	5414	25,140	14.3	18.1	67.7
Computer systems design and related services	5415	90,056	29.7	22.3	47.9
Management, scientific, and technical consulting services	5416	109,247	20.6	18.9	60.5
Scientific research and development services	5417	9,293	54.0	18.4	27.6
Advertising, public relations, and related services	5418	25,626	18.1	22.0	59.9
Other professional, scientific, and technical services	5419	50,907	9.3	12.7	78.0
Management of companies and enterprises	55	2,276	16.7	10.2	73.1
Administrative and support and waste management and remediation services	56	266,751	8.1	10.4	81.5
Educational services	61	51,288	12.6	13.8	73.6
Health care and social assistance	62	509,529	6.4	8.0	85.5
Health care services	621-23	447,069	6.4	8.1	85.5
Social assistance	624	62,461	6.9	7.4	85.7
Arts, entertainment, and recreation	71	74,256	8.1	12.8	79.1
Accommodation and food services	72	441,426	6.2	10.6	83.3
Other services	81	330,331	4.8	8.1	87.1

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 101

Importance of nondisclosure agreements, by company size: 2017

(Percent)

Company size	Companies (number)	Very important	Somewhat important	Not at all important
All companies	4,603,606	8.6	10.9	80.5
Micro companies				
1–4	2,615,093	6.8	9.3	83.9
5–9	885,880	8.4	10.7	80.9
Small companies				
10–19	562,922	10.4	12.9	76.7
20–49	353,037	12.9	15.5	71.6
Medium companies				
50–99	104,561	17.7	17.7	64.6
100–249	52,429	21.4	20.8	57.8
Large companies				
250–499	15,665	24.6	23.7	51.7
500–999	7,026	24.7	22.9	52.4
1,000–4,999	5,514	29.2 r	25.4 r	45.4
5,000–9,999	744	36.1	29.5	34.5
10,000–24,999	447	38.2	26.7	35.1
25,000 or more	288	42.7	26.4	30.8

r = relative standard error > 50%.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 102-1

Digital share of business activity for all companies, by type: 2017

(Percent)

Business activity	Companies (number)	None	Up to 50%	More than 50%	All	Don't know	Information not collected by the business
Personnel	4,603,606	17.8	14.0	20.2	19.5	9.5	19.0
Financial	4,603,606	10.5	10.5	25.6	30.3	8.4	14.6
Customer feedback	4,603,606	23.4	8.9	11.3	12.2	11.8	32.4
Marketing	4,603,606	20.0	10.4	14.6	12.5	10.3	32.1
Supply chain	4,603,606	22.0	6.3	8.8	7.7	10.9	44.2
Production	4,603,606	21.9	5.6	9.4	10.1	9.8	43.1

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 102-2

Digital share of business activity for companies with 1–9 employees, by type: 2017

(Percent)

Business activity	Companies (number)	None	Up to 50%	More than 50%	All	Don't know	Information not collected by the business
Personnel	3,500,973	19.1	12.2	17.9	19.6	9.4	21.7
Financial	3,500,973	11.8	10.2	23.2	29.8	8.5	16.6
Customer feedback	3,500,973	24.7	7.7	9.5	11.5	10.9	35.8
Marketing	3,500,973	21.6	9.0	12.3	12.1	9.5	35.4
Supply chain	3,500,973	23.6	5.3	7.0	7.2	10.0	46.9
Production	3,500,973	23.2	4.7	7.8	9.7	9.1	45.5

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 102-3

Digital share of business activity for companies with 10 or more employees, by type: 2017

(Percent)

Business activity	Companies (number)	None	Up to 50%	More than 50%	All	Don't know	Information not collected by the business
Personnel	1,102,633	13.7	19.7	27.5	19.1	9.8	10.2
Financial	1,102,633	6.7	11.6	33.2	32.0	8.1	8.4
Customer feedback	1,102,633	19.2	12.9	16.9	14.4	14.7	21.8
Marketing	1,102,633	14.8	14.8	22.1	14.0	12.7	21.6
Supply chain	1,102,633	17.1	9.5	14.4	9.5	13.9	35.6
Production	1,102,633	17.7	8.5	14.6	11.6	12.0	35.5

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 103-1

Cloud service purchases share for all companies, by IT function: 2017

(Percent)

IT functions	Companies (number)	None	Up to 50%	More than 50%	All	Don't know	Information not collected by the business
All IT functions	4,603,606	24.3	11.6	8.5	6.0	17.4	32.2
Security or firewall	4,603,606	23.5	10.9	7.9	10.5	19.5	27.6
Servers	4,603,606	26.8	9.1	7.0	8.2	17.6	31.3
Data storage and management (e.g., Amazon Web Services, IBM Bluemix, Microsoft Azure)	4,603,606	25.8	10.3	8.0	7.2	16.3	32.5
Collaboration and file synchronization (e.g., Dropbox, OneDrive, Google Drive)	4,603,606	24.5	13.6	7.5	6.4	16.3	31.7
Data analysis	4,603,606	29.4	6.6	5.1	4.3	16.3	38.3
Billing and account management	4,603,606	25.6	10.9	10.4	11.5	14.1	27.4
Customer relationship management	4,603,606	28.6	8.7	7.0	5.8	14.8	35.2

IT = information technology.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 103-2

Cloud service purchases share for companies with 1–9 employees, by IT function: 2017

(Percent)

IT functions	Companies (number)	None	Up to 50%	More than 50%	All	Don't know	Information not collected by the business
All IT functions	3,500,973	25.3	9.8	7.3	5.6	16.1	35.8
Security or firewall	3,500,973	24.4	9.5	6.8	9.8	18.5	31.0
Servers	3,500,973	27.4	7.6	5.8	7.5	16.6	35.2
Data storage and management (e.g., Amazon Web Services, IBM Bluemix, Microsoft Azure)	3,500,973	26.5	9.0	6.9	6.7	15.1	35.9
Collaboration and file synchronization (e.g., Dropbox, OneDrive, Google Drive)	3,500,973	25.2	12.2	6.7	6.2	15.0	34.8
Data analysis	3,500,973	29.8	5.4	4.2	3.9	14.8	41.9
Billing and account management	3,500,973	25.7	10.2	9.4	11.2	13.2	30.4
Customer relationship management	3,500,973	28.9	7.6	6.1	5.6	13.4	38.5

IT = information technology.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 103-3

Cloud service purchases share for companies with 10 or more employees, by IT function: 2017

(Percent)

IT functions	Companies (number)	None	Up to 50%	More than 50%	All	Don't know	Information not collected by the business
All IT functions	1,102,633	21.2	17.1	12.2	7.4	21.3	20.8
Security or firewall	1,102,633	20.8	15.3	11.5	12.9	22.7	16.7
Servers	1,102,633	24.9	13.9	10.8	10.5	20.8	19.0
Data storage and management (e.g., Amazon Web Services, IBM Bluemix, Microsoft Azure)	1,102,633	23.5	14.5	11.4	8.8	20.1	21.6
Collaboration and file synchronization (e.g., Dropbox, OneDrive, Google Drive)	1,102,633	22.2	18.1	10.2	7.2	20.4	22.0
Data analysis	1,102,633	27.9	10.6	8.2	5.6	21.1	26.7
Billing and account management	1,102,633	25.4	13.4	13.6	12.6	17.1	17.8
Customer relationship management	1,102,633	27.6	12.0	9.8	6.6	19.3	24.7

IT = information technology.

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 104-1

Use of business technologies, by type: 2017

(Percent)

Technology	Companies (number)	No use	Testing but not using in production or service	In use for less than 5% of production or service	In use for between 5% and 25% of production or service	In use for more than 25% of production or service	Don't know
Augmented reality	4,603,606	80.0	0.3	0.3	0.2	0.2	19.0
Automated guided vehicles (AGVs) or AGV systems	4,603,606	81.8	0.2	0.2	0.2	0.3	17.4
Automated storage and retrieval systems	4,603,606	76.4	0.3	0.8	0.9	2.5	19.0
Machine learning	4,603,606	79.3	0.5	0.8	0.7	0.8	17.8
Machine vision software	4,603,606	80.6	0.3	0.5	0.4	0.6	17.6
Natural language processing	4,603,606	81.1	0.3	0.4	0.3	0.4	17.5
Radio-frequency identification (RFID) inventory system	4,603,606	81.8	0.3	0.3	0.2	0.3	17.1
Robotics	4,603,606	82.1	0.2	0.4	0.3	0.4	16.6
Touchscreens/ kiosks for customer interface (e.g., self-checkout, self-check-in, touchscreen ordering)	4,603,606	77.8	0.7	1.3	1.2	2.3	16.6
Voice recognition software	4,603,606	80.8	0.6	1.0	0.6	0.5	16.6

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 104-2

Use of business technologies for companies with 1–9 employees, by type: 2017

(Percent)

Technology	Companies (number)	No use	Testing but not using in production or service	In use for less than 5% of production or service	In use for between 5% and 25% of production or service	In use for more than 25% of production or service	Don't know
Augmented reality	3,500,973	80.3	0.3	0.2	0.2	0.2	18.7
Automated guided vehicles (AGVs) or AGV systems	3,500,973	81.9	0.2	0.2	0.1	0.3	17.3
Automated storage and retrieval systems	3,500,973	77.1	0.3	0.7	0.8	2.3	18.7
Machine learning	3,500,973	79.9	0.5	0.7	0.6	0.7	17.6
Machine vision software	3,500,973	81.1	0.3	0.4	0.3	0.5	17.4
Natural language processing	3,500,973	81.3	0.3	0.4	0.2	0.4	17.4
Radio-frequency identification (RFID) inventory system	3,500,973	82.1	0.2	0.3	0.2	0.2	17.0
Robotics	3,500,973	82.4	0.2	0.3	0.2	0.3	16.6
Touchscreens/ kiosks for customer interface (e.g., self-checkout, self-check-in, touchscreen ordering)	3,500,973	79.2	0.6	1.1	0.9	1.6	16.6
Voice recognition software	3,500,973	80.8	0.6	0.9	0.6	0.5	16.6

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE 104-3

Use of business technologies, by type, for companies with 10 or more employees: 2017

(Percent)

Technology	Companies (number)	No use	Testing but not using in production or service	In use for less than 5% of production or service	In use for between 5% and 25% of production or service	In use for more than 25% of production or service	Don't know
Augmented reality	1,102,633	79.0	0.3	0.4	0.2	0.2	19.8
Automated guided vehicles (AGVs) or AGV systems	1,102,633	81.4	0.2	0.3	0.2	0.3	17.5
Automated storage and retrieval systems	1,102,633	74.2	0.4	1.1	1.3	3.3	19.7
Machine learning	1,102,633	77.4	0.6	1.2	1.1	1.3	18.4
Machine vision software	1,102,633	79.1	0.4	0.7	0.7	0.9	18.2
Natural language processing	1,102,633	80.6	0.3	0.5	0.3	0.4	18.0
Radio-frequency identification (RFID) inventory system	1,102,633	80.6	0.4	0.6	0.4	0.7	17.3
Robotics	1,102,633	81.1	0.3	0.7	0.7	0.7	16.5
Touchscreens/ kiosks for customer interface (e.g., self-checkout, self-check-in, touchscreen ordering)	1,102,633	73.6	1.1	2.2	2.1	4.6	16.3
Voice recognition software	1,102,633	80.6	0.6	1.1	0.6	0.5	16.6

Note(s):

Detail may not add to total because of rounding. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

Technical Notes

Survey Overview

Purpose. The Annual Business Survey (ABS) provides information on selected economic and demographic characteristics for businesses and business owners by sex, ethnicity, race, and veteran status. Further, the survey measures research and development (R&D) (for microbusinesses), business topics such as innovation and technology, and other business characteristics. The ABS is conducted jointly by the U.S. Census Bureau and the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF). The ABS replaces the quinquennial Survey of Business Owners (SBO) for employer businesses, the Annual Survey of Entrepreneurs (ASE), the Business R&D and Innovation for Microbusinesses survey (BRDI-M), and the Innovation section of the Business R&D and Innovation Survey (BRDIS).

The ABS is designed to incorporate new content each survey year based on topics of relevance. For the 2017 ABS, content includes R&D, innovation, technology, and financing. R&D data are collected on the ABS for businesses with a W-2 employment range between one and nine employees.

Data collection authority. This collection is authorized under Title 13, United States Code, Sections 8(b), 131, and 182; Title 42, United States Code, Section 1861-76 (National Science Foundation Act of 1950, as amended); and Section 505 within the America COMPETES Reauthorization Act of 2010. Sections 224 and 225 of Title 13 require mandatory response. The Office of Management and Budget (OMB) control number is 0607-1004, expiration date 31 March 2021.

Survey sponsor. The ABS is sponsored by NCSES within NSF.

Survey collection and tabulation agent. The survey is conducted annually by the U.S. Census Bureau in accordance with an interagency agreement with NCSES within NSF.

Key Survey Information

Frequency. Annual.

Initial survey year. 2018.

Reference period. Calendar year 2017; for the innovation module, the reference period is 2015 to 2017.

Response unit. Firm.

Sample or census. Sample.

Population size. 5.3 million employer firms; 4.6 million employer firms were in scope for the innovation and technology modules; 3.5 million employer firms with between one and nine employees were in scope for the R&D module.

Sample size. 849,970 employer businesses.

Survey Design

Target Population

Included in the survey are all nonfarm businesses filing Internal Revenue Service (IRS) tax forms as individual proprietorships, partnerships, or any type of corporation, and with receipts of \$1,000 or more. The ABS covers firms with paid employees only. The ABS is conducted on a company or firm basis rather than an establishment basis.

Sampling Frame

The sampling universe was constructed from the final 2016 Business Register. The Business Register is the Census Bureau's comprehensive database of U.S. businesses. Business Register data are compiled from a combination of business tax returns, data collected from the economic census, and data from other Census Bureau surveys. The 2016 Business Register includes sole proprietorships, partnerships, and corporations reporting business activity to the IRS on any one of the following 2016 IRS tax forms: 1040 (Schedule C), "Profit or Loss from Business (Sole Proprietorship)"; 1065, "U.S. Return of Partnership Income"; 941, "Employer's Quarterly Federal Tax Return"; 944, "Employer's Annual Federal Tax Return"; or any one of the 1120 corporate tax forms.

The Business Register contains establishments that are out of scope for the ABS sample. These establishments are removed from the sampling universe. They include the following:

- Establishments engaged in the following North American Industry Classification System (NAICS) industries:
 - 110000, 111, or 112 - Agriculture production
 - 482 - Railroads
 - 491 - Postal service
 - 521 - Monetary authorities - Central bank
 - 525 - Funds, trusts, and other financial vehicles
 - 813 - Religious grant operations and religious organizations
 - 814 - Private households
 - 92 - Public administration
 - Unclassified with legal form of organization as tax-exempt or unknown
- Establishments located in American Samoa, the Northern Mariana Islands, Guam, Puerto Rico, or the Virgin Islands
- Establishments belonging to foreign entities
- Government establishments
- Establishments with zero payroll and zero employment
- Establishments identified as out of business during prior year data review
- Single-unit establishments modeled as likely to be out of business using administrative data from the most recent monthly business register data sets.

Information on industry classification, receipts, payroll, and employment were extracted from the Business Register during the frame construction.

The sample is also designed to estimate demographic characteristics of the business owners. To efficiently sample for demographic characteristics, a variety of sources of information are used to estimate the likelihood that a business is woman or minority owned. Administrative sources include the Decennial Census, the American Community Survey (ACS), and the Numident file, which is the Social Security Administration's comprehensive database of information from Social Security applications. Individual business owners were identified through IRS K-1 filings for partnerships and corporations and from the Business Register for sole proprietorships. The owners were matched to the 2000 and 2010 decennial censuses to get race, sex, and ethnicity data from the 2000–16 ACS and the Numident (in that order) through a Protected Identification Key. Country of birth is also identified through the linkages to the ACS or Numident data. Each firm is then placed in one of the following nine frames for sampling: American Indian or Alaska Native, Asian, Black or African American, Hispanic, Not Hispanic or Latino White Men, Native Hawaiian and Other Pacific Islander, Other, Publicly Owned, and Women. Businesses are assigned to one (and only one) frame, with priority given to the less common frames.

Sample Design

The ABS frame is stratified by geographic area defined by state, frame, and industry and is systematically sampled within each stratum. A standard type of estimation for stratified systematic sampling is used. Large companies were selected with certainty based on volume of sales, payroll, or number of paid employees. Certainty cases have a selection probability of 1 and a sampling weight of 1 and represent only themselves. Specifically for the 2017 ABS, firms were selected with certainty based on the following criteria: firms with more than 500 employees, firms classified in industry 5417, and firms larger than stratum-specific payroll and receipt cutoffs. The certainty cutoffs vary by sampling stratum, and each stratum is sampled at varying rates, depending on the number and size of firms in a particular stratum.

The remaining frame is subjected to stratified systematic random sampling. Sampling rates vary by strata and are determined by the following calculations. Note that a systematic sample uses take rate to sample where the sampling rate is 1 divided by the take rate.

$$SAMP\text{SIZE} = \frac{(N'_{NC})^2 * \overline{PROB'_{NC}} * (1 - \overline{PROB'_{NC}}) + CV^2 * N^2 * \overline{PROB}^2}{N'_{NC} * \overline{PROB'_{NC}} * (1 - \overline{PROB'_{NC}}) + CV^2 * N^2 * \overline{PROB}^2}$$

where

N = Number of companies in the stratum

N'_{NC} = Number of noncertainty companies in the stratum

\overline{PROB} = Mean likelihood (PROB) of all companies in the stratum (PROB is the estimated probability or likelihood of a given sampling unit belonging to the frame to which it is assigned)

$\overline{PROB'_{NC}}$ = Mean likelihood of noncertainty companies in the stratum

CV = Coefficient of variation

The calculated sample size is rounded to the nearest integer. The minimum sample size for a stratum is 5 or the number of noncertainty cases in the stratum if the stratum has fewer than 5 noncertainty cases.

The coefficient of variation (CV) is initially set to 0.14, then adjusted to achieve the desired sample size. The final CV values were 0.22 for cases in the minority/female frames and 0.1788 for cases in the public/non-Hispanic white men frames.

From the sample size, the take rate for each stratum is calculated as follows:

$$TAKE = \frac{N'_{NC}}{SAMP\text{SIZE}}$$

where

N'_{NC} = Number of noncertainty companies in the stratum

For strata where the take rate was greater than the maximum take rate, the take rate was set to the maximum take rate to ensure adequate sample size in each stratum. The maximum take rate was 10.

Each firm selected for the sample was asked the percentage of ownership, sex, ethnicity, race, and veteran status for up to four people owning the largest percentages of the business. These firms were then asked additional characteristic questions (e.g., age, education level). Additionally, all firms were asked to provide information on the business's innovations and innovation activities and technology (patents, intellectual property, digital share of business activity, cloud service purchases, business technologies). Firms with between one and nine employees from the Business Register were asked to provide information regarding their R&D expenses.

The ABS sample consisted of 849,970 businesses. There were 177,548 selected with certainty. The certainty portion of the sample consisted of the following:

- 16,163 with employment greater than or equal to 500
- 11,855 in industry 5417
- 114,436 with payroll above the stratum cutoff
- 35,094 with receipts above the stratum cutoff (Note that payroll cutoffs are applied first, so cases above both cutoffs appear in the payroll count.)

The remaining 672,422 noncertainty cases were selected using systematic stratified random sample selection. The maximum sample weight was 10.

Data Collection and Processing Methods

Data collection. Prior to mailing the survey, certain businesses selected were determined to be out of scope and were not contacted. The survey was mailed to 849,782 employer businesses in June 2018. Businesses were sent a letter informing them of their requirement to report. The letter also provided instructions on how to access and submit the survey online. Two mail follow-up letters were sent to nonrespondents to boost the response rate. Additionally, the Census Bureau conducted an e-mail follow-up with select businesses. The data collection period closed in December 2018.

Mode. The 2017 ABS was collected using an electronic instrument only.

Unit Response Rates

Check-in rate. The check-in rate is defined as the unweighted number of surveys that were submitted online by in-scope companies, divided by the unweighted total number of all in-scope companies in the sample. Response to individual questions did not factor into this metric. At the close of the data collection period in December 2018, there were 559,833 responses submitted online, 65.9% of the sample.

An additional 7,619 businesses contacted the Census Bureau to indicate that the business was no longer in operation for the reference year via the call center.

Businesses selected to report R&D represented 68.3% of those that were mailed the survey. Of the businesses mailed the survey and selected to report R&D, 379,894 businesses, or 65.5%, submitted responses.

Unit response rate (URR). The URR is the unweighted number of responding companies for the survey. For the ABS, response is defined as a company providing the number of owners, number of paid owners, and number of employees, or a company responding that it ceased operations prior to 2017.

For the ABS, the URR was 67.8%. The URR for businesses eligible to report the R&D module was 67.6%.

Item Response Rates

The ABS collects data on approximately 670 variables, and the distribution of values reported by sample companies is highly skewed. Thus, rather than report unweighted item response rates, total quantity response rates are calculated, which are based on weighted data. The survey skip patterns vary for respondents; therefore, it can be impossible to know an exact denominator for item response calculations.

Total quantity response rate (TQRR). For a given published estimate other than count or ratio estimates, TQRR is the percentage of the weighted estimate based on data that were reported by units in the sample or on data that were obtained from other sources and were determined to be equivalent in quality to reported data and weighted only by sampling but not nonresponse weights. The TQRR for total sales in the United States in 2017 was 65.4%.

Total quantity nonresponse rate (TQNR). For a given published estimate, TQNR, defined as 100% minus TQRR, is calculated for each tabulation cell from the ABS, except for cells that contain count or ratio estimates. TQNR measures the combined effect of the procedures used to handle unit and item nonresponse on the weighted ABS estimate. Detailed imputation rates are available upon request.

Data Editing

Prior to tabulating the data, response data were reviewed and edited to correct reporting errors. During data analysis, it was determined that R&D data should be tabulated only for records reporting \$50,000 or more in R&D expenditures, resulting in approximately 8,000 fewer cases to review. Had these cases been included in ABS estimates, they would have contributed approximately \$200 million in R&D expenditures and approximately 18,000 to the weighted count of R&D companies, assuming they had similar reporting patterns as the companies that were reviewed.^[1]

Additionally, data were tabbed only for records classified in the following NAICS industries:

- 31–33 - Manufacturing
- 42 - Wholesale trade
- 51 - Information
- 5413 - Architectural, engineering, and related services
- 5415 - Computer systems design and related services
- 5417 - Scientific research and development services

Survey analysts reviewed the R&D reported by the survey respondents. Research was done by evaluating the reported business descriptions, reported R&D-to-sales ratio, and company website information. The majority of corrections involved false-positive reports or data reported using incorrect units (such as dollars instead of thousands of dollars). For NAICS industries 5415 and 5417, it is difficult to differentiate R&D from other technical work based solely on company website information. Because of this difficulty and the large number of companies sampled in these industries, it was not feasible to review each case individually, and relatively few corrections were made for false-positive reports.

Additional data errors were detected and corrected through mass corrections and an automated data edit system designed to review the data for reasonableness and consistency. The editing process interactively performed corrections by using standard procedures to fix detectable errors. Quality control techniques were used to verify that operating procedures were carried out as specified.

Techniques for Handling Unit and Item Nonresponse

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

Unit Nonresponse

Unit nonresponse is handled by adjusting weighted reported data and imputed data as follows. Each company's sampling weight is multiplied by a nonresponse adjustment factor. To calculate the adjustment factors, each company in the sample that is eligible for tabulation is assigned to one (and only one) adjustment cell. The adjustment cells are based on company size and NAICS sector. For company size, there are 5 categories: 1 to 4 employees, 5 to 9 employees, 10 to 49 employees, 50 to 249 employees, and 250 or more employees. For a given adjustment cell, the nonresponse adjustment factor is the ratio of the sum of the sampling weights for all companies in the cell to the sum of the sampling weights for all companies in the cell with reported or imputed data. For the nonresponse adjustment, a business is considered a respondent if it responded to the survey's R&D module, innovation module, or technology module.

Item Nonresponse

Item nonresponse for a given company is handled by item imputation. Data are imputed using administrative data where available. If no administrative data are available, data are imputed by logical imputation or donor imputation depending on the particular item.

- Administrative data were substituted for missing values of employment and sales.
- If available, historical data from related programs (2016 ASE, 2015 ASE, 2014 ASE, or 2012 SBO) were substituted for missing data to determine the sex, ethnicity, race, and veteran status of the business owner or majority business owners. When historical data were not available, the sex, ethnicity, race, and veteran status were imputed from donor respondents in the same sampling frame with similar characteristics (industry, legal form of organization, geography).
- For categorical data items, logical imputation was used and missing data items were set to the most common response option (generally "No" or "N/A").
- All other missing data items were imputed from donor respondents in the same imputation cell. Imputation cells were defined by sector, R&D activity, company size, legal form of organization, and state.
- Detailed tables of imputation rates corresponding to each data table are available from the NCSSES project officer.

Weighting

The survey data are weighted for sampling as designed for the ABS. The weights were adjusted for complete nonresponse as detailed in the following formula:

For adjustment cell h ,

$$NAF_h = \frac{\sum_{r+nr} wgt}{\sum_r wgt}$$

where

- | | | |
|------|---|---|
| r | = | Partial and complete respondents (RESP in ("CR", "PR")) |
| nr | = | Complete nonrespondents (RESP="NR") |

wgt	=	TAB_WGT value
h	=	Adjustment cell (SECTOR x EMPSIZE_COLLAPSE)
NAF_h	=	Nonresponse adjust factor for cell h

Tabulation

Although as many firms as possible were identified as out of scope during sampling, additional out-of-scope firms were identified with response or updated administrative data not available at the time of sampling. These firms were removed for tabulations and include the following:

- Firms with zero employment based on response or 2017 administrative data
- Firms that responded as out of business before 2017
- Nonprofit firms
- Firms that responded as being owned by a domestic parent company

Industry Classification

The industry classifications of firms are based on the 2017 NAICS. Firms with more than one domestic establishment are assigned a single industry classification using a hierarchical system based on the largest payroll sector, largest payroll three-digit NAICS (within the largest sector), largest payroll four-digit NAICS (within the largest three digit), and largest payroll six-digit NAICS (within the largest four digit). For tabulation, industry classification was based on administrative data for 2017.

Geography. Firms with establishments operating in more than one state are tabulated as unclassified and counted only once in state and national totals.

Variance estimation. The particular sample used for this survey is one of a large number of all possible samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ from each other. The relative standard error and standard error are measures of the variability among the estimates from all possible samples. The estimated relative standard errors and estimated standard errors presented in the tables estimate the sampling variability, and thus measure the precision with which an estimate from the particular sample selected for this survey approximates the average result of all possible samples. Relative standard errors and standard errors are applicable only to those published cells in which sample cases are tabulated. A relative standard error is an expression of the standard error as a percentage of the quantity being estimated.

The ABS uses the delete-a-group jackknife variance estimator. Note that certainty cases do not contribute to the sampling variance. The delete-a-group jackknife variance estimator requires that every sampling stratum contain at least two sampled firms. Sampling strata that do not meet this requirement are collapsed as needed to create a new set of variance estimation strata that satisfies this requirement.

The sample estimate and an estimate of its relative standard error can be used to estimate the standard error, then construct interval estimates with a prescribed level of confidence that the interval includes the average results of all samples. To illustrate, if all possible samples were surveyed under essentially the same condition, and estimates were calculated from each sample, then

- approximately 68% of the intervals from one standard error below the estimate to one standard error above the estimate would include the average value of all possible samples, and
- approximately 90% of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average value of all possible samples.

Thus, for a particular sample, one can say with specified confidence that the average of all possible samples is included in the constructed interval.

Example of a confidence interval. Suppose the estimate is 51,707 and the estimated relative standard error is 2%. The standard error is then 2% of 51,707, or 1,034. An approximate 90% confidence interval is found by first multiplying the standard error by 1.6, then adding and subtracting that result from the estimate to obtain the upper and lower bounds. Because 1.6 times 1,034 equals 1,654, the confidence interval in this example is 51,707 plus or minus 1,654 or in the range from 50,053 to 53,361.

Example of a confidence interval for percentage data. Suppose the estimate is 76.9% and the estimated standard error is 0.4%. An approximate 90% confidence interval is found by first multiplying the standard error by 1.6, then adding and subtracting that result from the estimate to obtain the upper and lower bounds. Because 1.6 times 0.4% equals 0.64%, the confidence interval in this example is 76.9% plus or minus 0.64% or in the range from 76.26% to 77.54%.

Confidentiality. In accordance with United States Code, Title 13, Section 9, no data are published that would disclose the operations of an individual establishment or business. Data obtained from the IRS, the Social Security Administration, and other sources are also treated as confidential and can be seen only by Census Bureau employees sworn to protect the data from disclosure.

Disclosure Avoidance

Disclosure avoidance is the process used to protect the confidentiality of the survey data provided by an individual or firm. Using disclosure avoidance procedures, the Census Bureau modifies or removes the characteristics that may disclose confidential information. Although it may appear that a table shows information about a specific individual or business, the Census Bureau has taken steps to mask or suppress the original data while making sure the results are still useful. Census Bureau reviewed the detailed statistical tables for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied (Approval ID: CBDRB-FY20-008).

Noise infusion. The ABS uses noise infusion as the primary method of disclosure avoidance. Noise infusion perturbs data values prior to tabulation by applying a random noise multiplier to the magnitude data, such as the sales and receipts for all firms. Disclosure protection is accomplished in a manner that causes the vast majority of cell values to be perturbed by, at most, a few percentage points. For the ABS, the estimated relative standard error for a published cell includes the estimated sampling error and the amount of perturbation in the estimated cell value due to noise.

Individual cells may be suppressed because of data quality standards. Suppressed data cells are replaced with an S.

Survey Quality Measures

The estimates produced from the ABS are subject to sampling and nonsampling errors.

Sampling error. The sampling error is described earlier in the section "Variance estimation." Detailed relative standard errors are available upon request.

Coverage error. Coverage error could result from companies with high employment providing R&D or companies with low employment failing to provide R&D. The companies were asked to provide their employment, which serves as a check on the employment coverage.

Nonsampling error. All surveys and censuses have nonsampling errors. Nonsampling errors are attributable to various sources, such as the inability to obtain information for all cases in the universe, imputation for missing data, data errors and biases, mistakes in recording or keying data, errors in collection or processing, and coverage problems.

Although explicit measures of the effects of these nonsampling errors are not available, adjustments are made to the published relative standard errors to account for errors associated with imputation of missing data. It is believed that most of the important operational and data errors were detected and corrected through an automated data edit designed to review the data for reasonableness and consistency. Quality control techniques were used to verify that operating procedures were carried out as specified.

Measurement error. The most common source of measurement error was reporting in different units (e.g., reporting whole dollars rather than thousands of dollars).

Data Comparability

This is the first year of data collection for the ABS. The information may not be fully comparable with information from previous surveys.

Definitions

Domestic or United States. Refers to a location in any of the U.S. 50 states and the District of Columbia.

Employment. Paid employment consists of full- and part-time employees, including salaried officers and executives of corporations, who were on the payroll in the pay period including March 12. Included are employees on sick leave, holidays, and vacations; not included are proprietors and partners of unincorporated businesses.

Ethnicity. Based on the OMB's guidance, there are two minimum categories for ethnicity: Hispanic or Latino and Not Hispanic or Latino. OMB considers race and Hispanic origin to be two separate and distinct concepts. Hispanics and Latinos may be of any race.

Firm. A business organization or entity consisting of one or more domestic establishment locations under common ownership or control.

Foreign parent (of a U.S.-located business). The first entity outside the United States in an affiliate's ownership chain that has a direct or indirect investment interest of more than 50% of the affiliate's voting securities.

Innovation. An innovation is the introduction of a new or significantly improved product, process, organizational method, or marketing method by this business. An innovation must have characteristics or intended uses that are new or that provide a significant improvement over what was previously used or sold by the business. However, an innovation can fail or take time to prove itself. An innovation need only be new or significantly improved for the business. It could have been originally developed or used by other businesses or organizations. The four types of innovation are product innovation, process innovation, marketing innovation, and organizational innovation.

Intellectual property. Includes patents, processes, and trade secrets; books and music; trademarks; recorded performances and events such as radio and television programs and motion pictures; broadcast and recorded live performances and events and their content; general-use computer software; franchise fees; and other (e.g., digital media).

Noise infusion. A method of disclosure avoidance in which values are perturbed prior to tabulation by applying a random noise multiplier to the magnitude data, such as the sales and receipts for all firms. Disclosure protection is accomplished in a manner that causes the vast majority of cell values to be perturbed by, at most, a few percentage points.

North American Industry Classification System (NAICS). NAICS is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. This system is used by the United States, Canada, and Mexico.

Race. The data on race were derived from answers to the race question. Race data are collected in accordance with the guidelines provided by OMB, and these data are based on self-identification. The racial categories included in the questionnaire generally reflect a social definition of race recognized in this country and not an attempt to define race biologically, anthropologically, or genetically. In addition, it is recognized that the categories of the race question include race and national origin or sociocultural groups. OMB requires that race data be collected for a minimum of five groups: White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander. Respondents may report more than one race.

Receipts. Includes the total sales, shipments, receipts, revenue, or grants for domestic operations, excluding foreign subsidiaries.

Research and development (R&D). R&D is planned, creative work aimed at discovering new knowledge or devising new applications of available knowledge. 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 and resulting in additional knowledge, which is directed to producing new or improved goods, services, or processes (development). R&D includes direct costs, such as salaries of researchers, and administrative and overhead costs clearly associated with the company's R&D. However, 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.

- **Basic research.** Activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses.
- **Applied research.** Activities aimed at solving a specific problem or meeting a specific commercial objective.
- **Development.** Systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

Sex. For the purposes of the ABS, sex refers to a person's biological sex. The sex question wording very specifically intends to capture a person's biological sex and not gender.

Worldwide sales. Worldwide and domestic sales and operating revenues, including grants.

[1] These cases amount to 3% of the \$6.65 billion estimated R&D cost for businesses with one to nine employees.

Technical Tables

Table Title

[A-1](#) Companies in the target population and selected for the sample, by industry: 2017

[A-2](#) Response measures: 2017

[A-3](#) Unit response rates, by industry: 2017

TABLE A-1

Companies in the target population and selected for the sample, by industry: 2017

(Number)

Industry	NAICS code	Companies in target population ^a	Companies selected for the sample		
			All companies	Noncertainties	Certainties
All industries	11, 21–23, 31–33, 42–81	5,250,000	843,000	666,000	177,000
Manufacturing industries	31–33	237,000	70,500	49,000	21,500
Food	311	21,000	5,900	4,000	1,900
Beverage and tobacco products	312	7,500	2,650	1,900	750
Textile, apparel, and leather products	313–16	13,500	5,300	3,600	1,700
Wood products	321	11,500	3,400	2,400	1,000
Paper	322	2,400	1,200	750	450
Printing and related support activities	323	22,500	5,800	4,300	1,500
Petroleum and coal products	324	700	550	350	200
Chemicals	325	8,600	4,500	2,900	1,600
Pesticide, fertilizer, and other agricultural chemicals	3253	600	450	300	150
Pharmaceuticals and medicines	3254	1,600	950	600	350
Soap, cleaning compound, and toilet preparation	3256	1,900	850	550	300
Other chemicals	other 325	4,500	2,350	1,500	850
Plastics and rubber products	326	8,400	2,900	1,900	1,000
Nonmetallic mineral products	327	8,600	2,950	2,000	950
Primary metals	331	3,200	1,450	900	550
Fabricated metal products	332	47,500	9,200	7,100	2,100
Machinery	333	19,500	4,600	3,100	1,500
Computer and electronic products	334	10,000	4,500	2,900	1,600
Communications equipment	3342	1,100	700	450	250
Semiconductor and other electronic components	3344	3,100	1,250	800	450
Navigational, measuring, electromedical, and control instruments	3345	4,000	1,700	1,100	600
Other computer and electronic products	other 334	1,800	850	550	300
Electrical equipment, appliances, and components	335	4,400	1,850	1,200	650
Transportation equipment	336	8,900	3,600	2,300	1,300
Automobiles, bodies, trailers, and parts	3361-63	5,400	2,000	1,200	800
Aerospace products and parts	3364	1,300	750	500	250
Other transportation	other 336	2,300	800	550	250
Furniture and related products	337	13,500	4,000	2,900	1,100
Miscellaneous	339	23,000	5,800	4,100	1,700
Medical equipment and supplies	3391	8,900	2,250	1,600	650
Other miscellaneous manufacturing	3399	14,500	3,500	2,500	1,000
Nonmanufacturing industries	11, 21–23, 42–81	5,013,000	772,000	617,000	155,000
Agriculture, forestry, fishing, and hunting	11	26,000	6,200	4,700	1,500
Mining, extraction, and support activities	21	18,500	5,600	3,900	1,700
Utilities	22	3,300	1,500	950	550
Construction	23	653,000	84,500	72,000	12,500
Wholesale trade	42	286,000	44,900	35,500	9,400
Retail trade	44–45	610,000	112,500	89,500	23,000
Transportation and warehousing	48–49	168,000	35,400	26,000	9,400
Information	51	66,000	20,200	14,000	6,200
Publishing	511	17,500	5,100	3,500	1,600
Newspaper, periodical, book, and directory publishers	5111	11,000	3,000	2,300	700

TABLE A-1

Companies in the target population and selected for the sample, by industry: 2017

(Number)

Industry	NAICS code	Companies in target population ^a	Companies selected for the sample		
			All companies	Noncertainties	Certainties
Software publishers	5112	6,400	2,100	1,200	900
Telecommunications	517	9,300	3,000	2,000	1,000
Data processing, hosting, and related services	518	8,200	3,100	2,100	1,000
Other information	other 51	31,000	9,100	6,500	2,600
Finance and insurance	52	223,000	36,000	28,000	8,000
Real estate and rental and leasing	53	284,000	40,600	33,500	7,100
Lessors of nonfinancial intangible assets (except copyrighted works)	533	2,200	1,150	750	400
Other real estate and rental and leasing	other 53	282,000	39,200	32,500	6,700
Professional, scientific, and technical services	54	761,000	130,000	94,500	35,500
Legal services	5411	167,000	23,900	20,000	3,900
Accounting, tax preparation, bookkeeping, and payroll services	5412	108,000	16,100	13,000	3,100
Architectural, engineering, and related services	5413	88,000	14,700	11,500	3,200
Specialized design services	5414	30,000	6,800	5,100	1,700
Computer systems design and related services	5415	112,000	16,800	13,000	3,800
Management, scientific, and technical consulting services	5416	149,000	21,000	17,000	4,000
Scientific research and development services	5417	12,000	12,000	0	12,000
Advertising, public relations, and related services	5418	31,500	7,600	5,600	2,000
Other professional, scientific, and technical services	5419	61,500	10,900	8,900	2,000
Management of companies and enterprises	55	12,500	5,700	1,900	3,800
Administrative and support and waste management and remediation services	56	318,000	43,700	35,500	8,200
Educational services	61	62,000	10,700	8,200	2,500
Health care and social assistance	62	569,000	71,000	61,000	10,000
Health care services	621-23	483,000	58,700	51,000	7,700
Social assistance	624	85,500	12,200	9,800	2,400
Arts, entertainment, and recreation	71	96,500	18,800	14,500	4,300
Accommodation and food services	72	490,000	58,300	52,500	5,800
Other services	81	366,000	47,400	41,500	5,900

NAICS = 2017 North American Industry Classification System.

^a Estimates of the number of companies in the target population are based on the original sampling frame that was created to select the 2018 Annual Business Survey.

Note(s):

Certainties were companies with a probability of selection of 1 because they were in an industry where all companies were included in the sample, they had 500 or more employees, or they had high payroll or receipts defined by stratum-specific cutoffs. Noncertainties are companies with a probability of selection of less than 1.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE A-2

Response measures: 2017

(Percent)

Measure	2017
Check-in rate ^a	65.9
Response rate (unweighted) ^b	69.0

^a The check-in rate is the number of survey responses from sampled companies divided by the total number of companies in the sample. This includes companies that were later determined to be inactive or otherwise out of scope for tabulations.

^b The unweighted response rate is the number of active and in-scope companies responding to the questions on the number of owners, paid owners, and employees, divided by the total number of in-scope and active companies in the sample.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

TABLE A-3

Unit response rates, by industry: 2017

(Number and percent)

Industry	NAICS code	Active reporting units ^a	Reporting units that met the response criteria (%) ^b
All industries	11, 21–23, 31–33, 42–81	737,000	69.0
Manufacturing industries	31–33	64,500	68.1
Food	311	5,400	63.3
Beverage and tobacco products	312	2,400	67.7
Textile, apparel, and leather products	313–16	4,600	63.0
Wood products	321	3,100	67.8
Paper	322	1,000	69.1
Printing and related support activities	323	5,600	68.6
Petroleum and coal products	324	400	65.8
Chemicals	325	4,000	68.1
Pesticide, fertilizer, and other agricultural chemicals	3253	400	66.8
Pharmaceuticals and medicines	3254	800	66.2
Soap, cleaning compound, and toilet preparation	3256	700	66.4
Other chemicals	other 325	2,100	69.6
Plastics and rubber products	326	2,700	71.9
Nonmetallic mineral products	327	2,800	66.2
Primary metals	331	1,100	68.5
Fabricated metal products	332	8,800	71.5
Machinery	333	4,200	71.1
Computer and electronic products	334	4,000	68.8
Communications equipment	3342	550	67.0
Semiconductor and other electronic components	3344	1,200	70.3
Navigational, measuring, electromedical, and control instruments	3345	1,600	69.9
Other computer and electronic products	other 334	700	64.9
Electrical equipment, appliances, and components	335	1,700	69.9
Transportation equipment	336	3,100	69.0
Automobiles, bodies, trailers, and parts	3361–63	1,800	70.1
Aerospace products and parts	3364	600	70.5
Other transportation	other 336	700	65.2
Furniture and related products	337	3,600	68.2
Miscellaneous	339	5,700	66.6
Medical equipment and supplies	3391	2,100	67.7
Other miscellaneous manufacturing	3399	3,600	65.9
Nonmanufacturing industries	11, 21–23, 42–81	672,000	69.0
Agriculture, forestry, fishing, and hunting	11	5,000	73.5
Mining, extraction, and support activities	21	4,600	66.2
Utilities	22	1,100	65.8
Construction	23	79,000	69.9
Wholesale trade	42	40,000	66.2
Retail trade	44–45	100,000	67.7
Transportation and warehousing	48–49	30,500	63.9
Information	51	17,000	66.2
Publishing	511	4,700	68.8
Newspaper, periodical, book, and directory publishers	5111	2,600	68.6
Software publishers	5112	2,100	69.0
Telecommunications	517	2,500	56.6
Data processing, hosting, and related services	518	2,700	68.3

TABLE A-3

Unit response rates, by industry: 2017

(Number and percent)

Industry	NAICS code	Active reporting units ^a	Reporting units that met the response criteria (%) ^b
Other information	other 51	7,200	67.0
Finance and insurance	52	31,000	73.6
Real estate and rental and leasing	53	33,000	69.3
Lessors of nonfinancial intangible assets (except copyrighted works)	533	850	65.7
Other real estate and rental and leasing	other 53	32,000	69.4
Professional, scientific, and technical services	54	110,000	75.0
Legal services	5411	21,500	76.5
Accounting, tax preparation, bookkeeping, and payroll services	5412	14,000	79.9
Architectural, engineering, and related services	5413	13,500	80.8
Specialized design services	5414	5,700	75.1
Computer systems design and related services	5415	14,000	72.9
Management, scientific, and technical consulting services	5416	17,000	71.9
Scientific research and development services	5417	9,300	68.3
Advertising, public relations, and related services	5418	6,500	72.2
Other professional, scientific, and technical services	5419	9,200	73.3
Management of companies and enterprises	55	700	61.4
Administrative and support and waste management and remediation services	56	37,500	69.1
Educational services	61	8,700	69.8
Health care and social assistance	62	63,500	71.8
Health care services	621-23	53,500	73.1
Social assistance	624	10,500	64.9
Arts, entertainment, and recreation	71	14,500	66.6
Accommodation and food services	72	53,500	59.9
Other services	81	42,500	67.1

NAICS = 2017 North American Industry Classification System.

^a Active reporting units are defined as reporting units of active companies that are in the scope of the survey after all data have been processed.^b Reporting units were considered to have fulfilled the response criteria if they provided the number of owners, paid owners, and employees.**Source(s):**

National Center for Science and Engineering Statistics and U.S. Census Bureau, Annual Business Survey, 2017.

Acknowledgments and Suggested Citation

Acknowledgments

Audrey Kindlon of the National Center for Science and Engineering Statistics (NCSES) developed and coordinated this report under the guidance of John Jankowski, NCSES Program Director, and leadership of Emilda B. Rivers, NCSES Director; Vipin Arora, NCSES Deputy Director; and Samson Adeshiyani, former NCSES Chief Statistician. Jock Black (NCSES) reviewed the report.

The U.S. Census Bureau, under National Science Foundation interagency agreement number NCSE-1748418, collected and tabulated the data and produced the statistics for this report. This work was performed by the Economic Reimbursable Surveys Division under the direction of Kevin Deardorff, Division Chief, and Aneta Erdie, Assistant Division Chief. This work was performed under the supervision of Patrice Hall, assisted by Naomi Blackman, John Clark, and Gail White with staff assistance from Ahmad Bakhshi, Elaine Emanuel, Mary Frauenfelder, Adji Fatou Diagne, Aaron Finkle, Samantha Hernandez, James Jarzabkowski, Jessica Welch, and Tesfay Weldu. Additional support, including table creation and subject matter expertise was provided by Brandon Shackelford. Mathematical and statistical techniques were provided by the Economic Statistical Methods Division under the direction of Carol Caldwell, Division Chief, and Xijian Liu, Assistant Division Chief. This work was performed under the supervision of James Hunt, assisted by Roberta Kurec with staff support from Taylor Beebe, Alexandra Abzun Cadenas, Charles Champion, and Daniel Cordes.

Data collection procedures and operations were provided by the Economic Management Division under the direction of Lisa Donaldson, Division Chief, and Michelle Karlsson, Assistant Division Chief. The staff of the National Processing Center performed mailout preparation, respondent assistance, and correspondence processing. Project management support was provided by Laura Hardesty and Alicia Kelley. Development and coordination of the computer processing system was provided by the Economic Application Division under the direction of Samuel Jones, Division Chief, and Christopher Rill, Assistant Division Chief. This work was performed by Marilyn Balogh, Anthony Caruso, Michael Feldman, David Kahwajy, David Gonzalez, Joseph Talbot, and Diana Viton. RTI International provided editing services. Publication processing support was provided by Catherine Corlies and Tanya Gore (NCSES).

Suggested Citation

National Center for Science and Engineering Statistics (NCSES). 2020. *Annual Business Survey: Data Year 2017*. NSF 21-303. Alexandria, VA: National Science Foundation. Available at <https://nces.nsf.gov/pubs/nsf21303/>.

Contact Us

Report Author

Audrey Kindlon
Survey Manager
Research and Development Statistics Program, NCSES
Tel: (703) 292-2332
E-mail: akindlon@nsf.gov

NCSES

National Center for Science and Engineering Statistics
Directorate for Social, Behavioral and Economic Sciences
National Science Foundation
2415 Eisenhower Avenue, Suite W14200
Alexandria, VA 22314
Tel: (703) 292-8780
FIRS: (800) 877-8339
TDD: (800) 281-8749
E-mail: ncsesweb@nsf.gov