

Table 57. Companies that cooperated with other businesses or organizations on innovation, by industry: 2021–23

(Percent)

Industry	NAICS code	All companies (number)	On R&D	On other innovation activities (excluding R&D)	On any other business activities
All industries	11, 21–23, 31–33, 42–81	5,033,879	2.8	2.9	6.4
Manufacturing industries	31–33	207,352	8.5	6.4	8.7
Food	311	18,929	8.4	6.8	8.8
Beverage and tobacco products	312	9,236	8.7	7.5	14.9
Textile, apparel, and leather products	313–16	9,223	5.8	4.1	6.1
Wood products	321	9,572	3.6	3.7	6.6
Paper	322	2,042	5.1	6.6	r 4.7
Printing and related support activities	323	18,767	2.7	3.0	5.8
Petroleum and coal products	324	222	8.1	9.9	r 6.3
Chemicals	325	7,878	18.7	11.1	14.9
Pesticide, fertilizer, and other agricultural chemicals	3253	499	11.2	7.4	r 10.2
Pharmaceuticals and medicines	3254	1,702	23.6	11.6	16.0
Soap, cleaning compound, and toilet preparation	3256	1,817	18.2	14.3	17.1
Other chemicals	other 325	3,860	17.7	10.0	14.0
Plastics and rubber products	326	6,787	10.9	8.3	7.2
Nonmetallic mineral products	327	7,659	4.3	2.7	5.1
Primary metals	331	1,933	4.8	3.7	6.2
Fabricated metal products	332	47,168	8.0	6.8	8.7
Machinery	333	17,417	12.0	7.9	8.2
Computer and electronic products	334	8,108	24.0	13.0	16.6
Communications equipment	3342	973	19.3	13.1	17.8
Semiconductor and other electronic components	3344	2,583	21.4	11.9	14.6
Navigational, measuring, electromedical, and control instruments	3345	3,674	27.9	12.8	17.4
Other computer and electronic products	other 334	878	20.3	17.0	17.9
Electrical equipment, appliances, and components	335	4,012	12.7	9.8	9.5
Transportation equipment	336	7,200	14.2	8.2	10.8
Automobiles, bodies, trailers, and parts	3361–63	4,517	12.1	6.8	8.6
Aerospace products and parts	3364	907	19.6	11.0	13.9
Other transportation	other 336	1,776	16.7	10.3	14.6
Furniture and related products	337	11,432	3.1	2.5	5.9
Miscellaneous	339	19,766	7.3	5.7	9.0
Medical equipment and supplies	3391	7,071	8.3	6.3	9.6
Other miscellaneous manufacturing	3399	12,695	6.7	5.3	8.7
Nonmanufacturing industries	11, 21–23, 42–81	4,826,527	2.6	2.8	6.3
Agriculture, forestry, fishing, and hunting	11	18,408	2.5	2.4	4.9
Mining, extraction, and support activities	21	14,212	3.3	1.9	4.4
Utilities	22	3,367	5.1	4.3	7.4
Construction	23	697,532	1.4	1.6	5.2
Wholesale trade	42	236,689	5.5	4.5	7.9
Retail trade	44–45	542,047	2.0	2.2	5.1
Transportation and warehousing	48–49	184,207	1.5	1.6	5.5
Information	51	67,109	7.5	8.8	14.3
Publishing	511	19,008	12.6	12.1	18.8
Newspaper, periodical, book, and directory publishers	5111	8,557	2.5	3.2	6.1
Software publishers	5112	10,451	20.7	19.4	29.2
Telecommunications	517	6,886	5.2	7.4	10.4
Data processing, hosting, and related services	518	8,312	11.7	14.2	17.5
Other information	other 51	32,903	4.0	5.8	11.8
Finance and insurance	52	195,489	2.3	3.2	6.0
Real estate and rental and leasing	53	282,087	1.4	1.9	5.5

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Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,783	13.2		6.2	r	14.8	
Other real estate and rental and leasing	other 53	280,304	1.3		1.9		5.4	
Professional, scientific, and technical services	54	730,285	5.6		5.6		11.2	
Legal services	5411	153,500	1.1		1.8		6.6	
Accounting, tax preparation, bookkeeping, and payroll services	5412	108,031	1.3		1.7		4.3	
Architectural, engineering, and related services	5413	88,454	8.4		7.6		14.5	
Specialized design services	5414	28,137	4.0		5.1		11.0	
Computer systems design and related services	5415	99,385	11.3		10.9		18.0	
Management, scientific, and technical consulting services	5416	156,771	6.9		7.9		14.9	
Scientific research and development services	5417	11,544	43.5		17.2		19.0	
Advertising, public relations, and related services	5418	27,216	3.4		4.0		11.8	
Other professional, scientific, and technical services	5419	57,246	2.5		3.2		7.7	
Management of companies and enterprises	55	2,682	7.2	r	1.3	r	5.7	r
Administrative and support and waste management and remediation services	56	305,400	1.6		1.9		5.6	
Educational services	61	61,684	3.5		3.9		8.5	
Health care and social assistance	62	549,826	2.0		2.3		5.4	
Health care services	621–23	482,098	2.1		2.3		5.3	
Social assistance	624	67,728	1.0		2.1		5.8	
Arts, entertainment, and recreation	71	97,837	2.9		3.8		7.2	
Accommodation and food services	72	492,801	1.7		1.8		4.0	
Other services	81	344,866	1.2		1.5		3.5	

r = relative standard error > 50%.

NAICS = 2022 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding or unavailable NAICS detail for select records beyond the 4-digit industry classification. Industry classification is based on dominant establishment payroll. Statistics are representative of companies located in the United States.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, 2024 Annual Business Survey: Data Year 2023.