

Table 1**Companies using critical and emerging technologies, by industry: 2021**

(Percent)

Industry	NAICS code	Companies (number)	Advanced computing	Advanced sensing	Artificial intelligence	Autonomous systems and robotics	Additive manufacturing	Biotechnology	Human machine interfaces	Communication and networking	Advanced financial technologies	Advanced semiconductors and microelectronics	Advanced engineering materials	Renewable energy generation and storage	Advanced gas turbine engine technologies	Advanced nuclear energy technologies
All industries	11, 21-23, 31-33, 42-81	4,874,928	25.3	5.2	4.8	2.4	3.0	1.4	2.0	8.9	3.2	1.7	2.0	2.6	1.0	0.8
Manufacturing industries	31-33	209,282	24.7	8.5	4.8	8.2	12.0	1.3	2.1	9.4	3.0	4.2	5.1	3.5	1.4	0.7
Food	311	19,326	19.2	6.2	2.6	4.6	2.1	1.4	1.3	6.1	2.9	1.8	1.6	2.8	0.9	0.5
Beverage and tobacco products	312	9,354	22.9	5.3	1.9	3.5	2.2	1.8	1.4	9.8	2.3	0.9	1.6	8.6	0.8	0.4
Textile, apparel, and leather products	313-16	9,443	17.0	4.3	3.2	3.1	6.1	1.3	1.6	5.6	2.3	1.5	2.4	2.7	1.5	1.3
Wood products	321	9,546	21.9	7.1	2.7	5.1	5.3	0.7	1.1	7.5	3.5	1.7	2.8	2.9	1.0	0.3
Paper	322	1,500	34.6	10.9	9.9	10.0	11.9	2.9	1.4	17.9	3.9	4.1	3.7	6.8	0.5	0.5
Printing and related support activities	323	20,212	25.2	4.8	3.5	1.4	4.3	0.3	0.6	6.0	2.2	1.0	0.7	1.2	0.5	0.3
Petroleum and coal products	324	546	22.5	4.4	2.8	4.6	2.4	1.2	1.2	6.0	2.2	2.8	2.6	5.0	1.7	0.8
Chemicals	325	7,961	26.2	10.0	6.0	6.3	9.7	6.3	2.1	11.9	6.4	4.7	6.7	6.1	1.7	1.2
Pesticide, fertilizer, and other agricultural chemicals	3253	580	33.3	6.7	7.3	9.8	6.2	6.4	4.3	14.9	6.4	5.8	4.7	5.7	4.6	4.3
Pharmaceuticals and medicines	3254	1,536	31.5	12.0	7.7	8.6	11.3	20.4	4.1	12.4	6.8	3.8	4.9	5.6	2.2	2.1
Soap, cleaning compound, and toilet preparation	3256	1,652	19.8	8.9	8.1	5.8	9.2	2.5	2.0	4.8	2.8	1.6	5.1	5.3	1.8	1.2
Other chemicals	other 325	4,194	25.6	10.2	4.1	5.0	9.6	2.8	1.3	14.1	7.7	6.3	8.4	6.7	1.0	0.4
Plastics and rubber products	326	7,060	27.1	12.6	4.9	14.1	16.9	1.0	2.9	11.5	3.6	3.9	7.5	2.7	1.0	0.9
Nonmetallic mineral products	327	7,290	20.1	5.1	4.3	5.6	7.2	0.5	1.3	9.1	2.8	1.8	3.5	2.3	1.3	0.4
Primary metals	331	2,079	26.3	14.5	5.3	15.0	14.7	0.5	1.2	12.8	2.7	2.9	7.4	3.8	1.3	0.8
Fabricated metal products	332	46,128	24.1	8.7	5.0	10.4	13.4	0.6	1.7	8.0	2.9	4.2	6.1	2.4	1.9	0.8
Machinery	333	16,440	31.5	14.5	7.6	18.9	20.9	1.5	5.0	12.7	3.5	8.4	10.4	5.0	1.9	1.4
Computer and electronic products	334	8,527	37.7	22.4	12.0	13.7	26.2	2.9	6.5	30.4	4.2	20.0	15.3	7.4	2.8	1.3
Communications equipment	3342	850	40.2	21.6	9.7	10.2	26.8	0.5	6.3	55.9	3.8	20.7	10.0	6.2	0.1	0.0
Semiconductor and other electronic components	3344	2,711	34.2	22.0	11.0	18.0	24.0	1.7	7.7	27.8	4.1	25.2	17.1	10.2	3.4	2.0

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Navigational, measuring, electromedical, and control instruments	3345	3,737	39.3	24.5	13.1	12.7	30.2	4.7	6.2	26.9	3.8	18.8	17.8	6.7	3.4	1.2
Other computer and electronic products	other 334	1,230	39.6	17.0	13.0	10.0	18.2	1.9	5.4	29.1	6.4	11.2	7.8	4.1	1.1	0.9
Electrical equipment, appliances, and components	335	3,925	23.9	14.1	7.8	10.6	21.4	0.8	3.1	19.5	3.5	13.5	10.7	10.4	2.2	1.9
Transportation equipment	336	7,325	26.1	11.1	5.5	13.2	19.9	0.7	2.7	10.9	3.9	4.7	8.2	4.5	2.2	0.8
Automobiles, bodies, trailers, and parts	3361-63	4,494	25.4	11.6	5.3	14.7	19.5	0.9	2.9	10.4	4.1	5.2	7.1	4.9	1.7	0.7
Aerospace products and parts	3364	1,044	35.1	15.9	8.7	17.3	29.8	0.4	2.8	17.3	4.9	6.6	16.1	3.2	5.4	1.0
Other transportation	other 336	1,787	22.4	7.2	4.0	6.9	14.8	0.3	2.2	8.1	2.5	2.5	5.8	3.8	1.4	0.5
Furniture and related products	337	12,060	22.0	4.3	3.0	5.7	8.8	0.5	1.5	4.5	1.9	1.9	1.6	2.5	0.6	0.4
Miscellaneous	339	20,536	25.4	7.2	4.7	6.6	20.8	1.7	2.3	7.8	2.5	3.2	4.7	2.3	0.7	0.8
Medical equipment and supplies	3391	7,602	26.7	10.3	8.7	9.1	32.3	3.2	3.6	6.9	2.8	2.7	7.0	1.6	1.1	1.0
Other miscellaneous manufacturing	3399	12,933	24.6	5.4	2.2	5.3	13.9	0.5	1.4	8.2	2.4	3.5	3.3	2.8	0.5	0.5
Nonmanufacturing industries	11, 21-23, 42-81	4,665,645	25.3	5.0	4.8	2.1	2.7	1.4	2.0	9.0	3.2	1.4	1.8	2.6	1.0	0.9
Agriculture, forestry, fishing, and hunting	11	19,567	19.1	6.0	3.1	3.1	0.6	1.8	0.0	8.7	1.6	0.5	1.3	2.7	1.2	0.2
Mining, extraction, and support activities	21	14,004	24.0	5.9	3.3	2.8	1.7	0.9	0.8	12.0	3.7	1.9	3.1	3.4	1.7	1.0
Utilities	22	2,994	27.3	7.4	3.8	1.9	1.2	0.6	1.8	14.7	5.1	2.4	2.7	14.6	3.3	1.3
Construction	23	635,568	19.1	4.0	2.6	1.9	1.8	0.7	1.3	6.6	2.4	1.3	1.9	3.8	1.0	0.6
Wholesale trade	42	241,440	22.5	5.5	4.0	3.0	4.0	1.4	1.9	9.1	2.8	2.3	2.3	2.9	1.4	1.0
Retail trade	44-45	546,067	21.3	4.0	3.7	2.1	2.9	1.4	1.7	7.2	3.3	1.7	1.8	2.5	1.2	1.2
Transportation and warehousing	48-49	165,454	22.2	5.1	4.0	2.5	2.0	1.1	1.4	11.2	4.0	1.9	1.7	2.7	1.9	1.0
Information	51	65,445	42.4	8.2	14.5	2.5	2.6	1.0	4.9	20.7	5.0	2.0	1.6	2.9	0.8	0.7
Publishing	511	17,755	45.2	8.2	17.7	1.7	2.5	0.7	5.1	14.2	5.3	1.4	1.2	1.4	0.3	0.3
Newspaper, periodical, book, and directory publishers	5111	9,162	28.4	2.9	3.3	0.3	1.7	0.0	0.8	9.2	2.4	1.3	0.6	0.9	0.0	0.1
Software publishers	5112	8,589	63.2	13.8	33.3	3.2	3.4	1.5	9.9	19.6	8.4	1.4	1.9	1.9	0.7	0.5

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Telecommunications	517	7,319	40.8	13.2	7.5	3.4	3.9	2.2	2.7	42.0	6.3	3.6	3.5	6.3	2.5	2.1
Data processing, hosting, and related services	518	8,346	60.7	11.4	25.3	3.1	2.3	1.6	5.7	22.3	8.2	2.2	1.2	2.2	0.6	0.5
Other information	other 51	32,027	36.5	6.2	11.5	2.5	2.6	0.8	4.9	19.2	3.6	2.2	1.3	3.1	0.6	0.6
Finance and insurance	52	198,128	34.1	4.1	6.4	1.2	0.9	0.7	1.3	10.8	5.6	0.9	0.8	1.3	0.5	0.5
Real estate and rental and leasing	53	283,276	23.7	3.0	4.3	1.0	1.0	0.5	1.5	7.1	2.7	0.6	0.7	2.0	0.6	0.4
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1,956	38.7	0.0	4.6	2.2	6.0	0.0	2.3	6.7	0.0	0.0	0.0	0.0	0.0	0.0
Other real estate and rental and leasing	other 53	281,321	23.6	3.0	4.3	1.0	1.0	0.5	1.5	7.1	2.7	0.6	0.7	2.0	0.6	0.4
Professional, scientific, and technical services	54	717,229	39.6	7.3	9.1	2.9	3.3	1.7	3.2	13.9	4.4	1.7	2.0	2.7	0.9	0.7
Legal services	5411	152,543	37.2	4.6	3.3	0.9	0.5	0.5	1.0	11.4	2.8	0.6	0.5	1.5	0.5	0.5
Accounting, tax preparation, bookkeeping, and payroll services	5412	109,075	47.8	4.3	7.0	1.2	0.8	0.8	1.1	11.9	6.6	0.9	0.7	1.5	0.7	0.7
Architectural, engineering, and related services	5413	87,994	36.2	13.6	5.6	7.1	9.2	1.2	5.1	14.3	2.9	3.8	5.9	6.4	1.3	0.8
Specialized design services	5414	29,258	35.4	4.8	6.3	1.1	5.4	0.4	4.0	8.7	1.7	0.8	1.0	1.5	0.3	0.3
Computer systems design and related services	5415	100,282	54.8	12.1	22.9	5.1	4.7	2.0	7.0	26.6	7.9	3.0	1.9	2.7	1.1	0.7
Management, scientific, and technical consulting services	5416	144,421	32.3	6.1	9.3	2.2	2.3	1.8	3.1	12.0	4.2	1.3	1.9	3.3	0.9	0.7
Scientific research and development services	5417	11,149	39.9	16.9	18.9	10.7	15.9	32.3	5.9	16.5	3.9	8.2	14.2	5.3	1.8	1.6
Advertising, public relations, and related services	5418	28,236	34.4	4.5	9.6	1.3	2.8	0.7	3.2	11.4	4.3	1.1	1.1	2.0	0.7	0.7
Other professional, scientific, and technical services	5419	54,270	33.0	6.1	7.9	2.3	2.0	2.4	2.0	9.9	3.2	1.2	1.2	3.5	0.7	0.6

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Management of companies and enterprises	55	3,153	27.9	6.9	4.2	2.3	2.3	0.0	6.3	15.9	9.3	1.9	0.0	2.4	0.2	0.2
Administrative and support and waste management and remediation services	56	293,539	21.5	2.9	3.3	1.3	1.1	0.6	1.0	6.7	2.3	0.8	0.9	2.1	0.7	0.5
Educational services	61	57,078	24.4	2.6	4.7	1.5	2.0	0.8	1.9	8.3	3.3	0.8	0.6	1.2	0.5	0.5
Health care and social assistance	62	536,276	30.4	7.8	5.3	2.4	5.6	3.2	2.3	9.8	3.4	1.7	2.7	2.3	1.0	0.9
Health care services	621-23	469,939	31.9	8.5	5.4	2.4	6.2	3.6	2.5	10.4	3.5	1.7	2.9	2.3	0.9	1.0
Social assistance	624	66,336	19.9	3.0	3.5	1.6	1.5	1.1	1.4	5.6	2.4	1.0	1.2	1.7	1.3	1.0
Arts, entertainment, and recreation	71	89,491	20.8	3.6	3.5	1.7	2.4	0.7	2.5	7.7	2.4	0.9	1.6	2.3	0.7	0.5
Accommodation and food services	72	455,071	16.1	3.6	3.2	2.1	2.0	1.7	1.9	6.3	3.4	1.7	1.8	2.5	1.7	1.5
Other services	81	341,869	17.9	4.2	3.1	2.3	2.1	1.2	1.6	6.3	2.8	1.6	1.8	2.4	1.2	0.9

NAICS = 2017 North American Industry Classification System.

Note(s):

Detail across rows may not add to total because of rounding or unavailable NAICS detail for select records beyond the 4-digit industry classification. Detail across columns have been adjusted to add to total. Industry classification is based on dominant establishment payroll. Statistics are representative of companies located in the United States. Use is defined as "a lot," "somewhat," and "a little."

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, 2022 Annual Business Survey: Data Year 2021.