

TABLE 125

Impact of producing artificial intelligence or goods or services with artificial intelligence on skill level of workforce, by industry: 2016–18

(Number and percent)

Industry	NAICS code	Companies (number)	Number of workers			Skill level of workers			STEM skills of workers			
			Increased	Decreased	Did not change	Increased	Decreased	Did not change	Increased	Decreased	Did not change	Did not employ
All industries	11, 21–23, 31–33, 42–81	19,775	23.3	4.1	72.6	44.3	2.1	53.6	39.4	1.8	40.7	18.1
Manufacturing industries	31–33	817	37.1	6.0	56.9	48.9	0.9	50.2	46.4	D	37.9	15.2
Food	311	30	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0
Beverage and tobacco products	312	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textile, apparel, and leather products	313–16	11	D	0.0	D	D	0.0	D	D	0.0	0.0	D
Wood products	321	3	D	0.0	D	0.0	0.0	100.0	0.0	0.0	D	D
Paper	322	D	D	0.0	0.0	D	0.0	0.0	D	0.0	0.0	0.0
Printing and related support activities	323	56	16.1	D	78.6	22.8	0.0	77.2	19.6	0.0	D	60.7
Petroleum and coal products	324	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals	325	25	D	D	D	D	0.0	92.0	D	0.0	D	D
Pesticide, fertilizer, and other agricultural chemical manufacturing	3253	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pharmaceuticals and medicines	3254	D	D	0.0	0.0	0.0	0.0	D	0.0	0.0	D	0.0
Soap, cleaning compound, and toilet preparation manufacturing	3256	D	D	0.0	0.0	D	0.0	0.0	D	0.0	0.0	0.0
Other chemicals	other 325	D	0.0	D	D	0.0	0.0	D	0.0	0.0	D	D
Plastics and rubber products	326	9	D	D	D	88.9	0.0	D	D	0.0	D	D
Nonmetallic mineral products	327	D	D	D	0.0	D	0.0	D	D	0.0	D	0.0
Primary metals	331	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fabricated metal products	332	153	40.4	18.5	41.0	60.8	D	38.6	60.8	0.0	37.3	D
Machinery	333	231	56.7	D	42.4	42.2	0.0	57.8	36.4	0.0	58.0	5.6
Computer and electronic products	334	145	44.1	3.5	52.5	68.3	D	27.6	69.0	D	19.3	9.0
Communications equipment	3342	9	D	0.0	55.6	D	0.0	55.6	77.8	0.0	D	0.0
Semiconductor and other electronic components	3344	10	D	0.0	60.0	0.0	0.0	100.0	D	0.0	50.0	D
Navigational, measuring, electromedical, and control instruments	3345	93	41.3	5.5	53.2	77.4	D	18.3	75.3	D	15.1	D
Other computer and electronic products	other 334	30	54.8	0.0	45.2	77.4	0.0	22.6	73.3	0.0	23.3	D
Electrical equipment, appliances, and components	335	80	D	0.0	91.3	59.2	0.0	40.8	59.2	0.0	32.1	8.7
Transportation equipment	336	17	23.5	D	64.7	33.3	0.0	66.7	42.1	0.0	57.9	0.0
Automobiles, bodies, trailers, and parts	3361–63	11	D	D	54.5	D	0.0	72.7	D	0.0	72.7	0.0
Aerospace products and parts	3364	D	0.0	0.0	D	D	0.0	D	D	0.0	D	0.0
Other transportation	other 336	D	D	0.0	D	0.0	0.0	D	D	0.0	D	0.0
Furniture and related products	337	9	D	0.0	D	100.0	0.0	0.0	D	0.0	D	0.0

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Miscellaneous	339	46	15.2	r	0.0	84.8	54.3	r	0.0	45.7	r	60.9	0.0	23.9	r	D	
Medical equipment and supplies	3391	38	D		0.0	97.4	53.8	r	0.0	46.2	r	63.2	r	0.0	21.1	r	D
Other miscellaneous manufacturing	3399	6	r	D	0.0	D	D		0.0	D		D		0.0	D		0.0
Nonmanufacturing industries	11, 21–23, 42–81	18,959	22.7		4.0	73.3	44.1		2.1	53.8		39.2		1.9	40.8		18.2
Agriculture, forestry, fishing, and hunting	11	0	0.0		0.0	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Mining, extraction, and support activities	21	D	0.0		0.0	D	0.0		0.0	D		0.0		0.0	0.0		D
Utilities	22	5	D		0.0	D	D		0.0	D		D		0.0	D		D
Construction	23	1,146	32.5		D	63.5	47.8		D	48.3		45.5		D	32.6		18.1
Wholesale trade	42	1,322	11.3		3.6	r	85.1		30.3	D		68.2		18.2	D		62.9
Retail trade	44–45	1,818	21.7		0.0	78.3	40.2		D	56.9		23.0		0.0	51.2		25.8
Transportation and warehousing	48–49	92	r	31.5		D	45.7	r	55.4		D	43.5		29.7	r	0.0	30.8
Information	51	1,301	32.7		2.5	r	64.8		50.5		D	49.3		51.0		D	35.6
Publishing	511	428	33.4		2.8	r	63.8		55.0		0.0	45.0		55.4		D	37.6
Newspaper, periodical, book, and directory publishers	5111	22	D		D		50.0	r	54.5	r	0.0	45.5	r	D		0.0	D
Software publishers	5112	407	33.4		1.7		64.9		54.9		0.0	45.1		56.5		D	38.1
Telecommunications	517	170	11.2	r	D		80.6		25.3		D	73.5		12.4		D	42.4
Data processing, hosting, and related services	518	521	33.8		D		65.1		52.0		0.0	48.0		59.0		0.0	31.2
Other information	other 51	180	48.6		0.0		51.4		59.8		0.0	40.2		53.6		0.0	36.9
Finance and insurance	52	780	24.4		20.6		55.0		40.8		D	48.1		35.8		D	38.3
Real estate and rental and leasing	53	295	D		0.0	100.0	33.2		0.0	66.8		33.2		0.0		D	D
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0.0		0.0		0.0		0.0		0.0	0.0		0.0		0.0	0.0
Other real estate and rental and leasing	other 53	295	D		0.0	100.0	33.2		0.0	66.8		33.2		0.0		D	D
Professional, scientific, and technical services	54	8,045	22.8		1.9	r	75.3		48.9		0.2	50.9		46.6		0.1	r
Legal services	5411	425	0.0		D		86.4		32.8		0.0	67.2		15.8	r	0.0	28.0
Accounting, tax preparation, bookkeeping, and payroll services	5412	449	17.8	r	D		81.5		27.5		0.0	72.5		27.4		0.0	45.0
Architectural, engineering, and related services	5413	598	27.6	r	D		70.9		43.1		D	55.5		43.3		D	48.0
Specialized design services	5414	148	0.0		0.0	100.0	D		0.0	73.0		D		0.0		D	D
Computer systems design and related services	5415	4,470	22.7		1.6	r	75.7		51.3		0.1	r	48.6		48.8		D
Management, scientific, and technical consulting services	5416	1,184	32.7		D		66.9		53.7		0.0	46.3		55.5		0.0	36.7
Scientific research and development services	5417	274	47.8		D		51.1		62.2		0.0	37.8		65.2		0.0	28.6
Advertising, public relations, and related services	5418	182	7.7		D		92.3		29.7		D	68.1		16.5		0.0	51.6
Other professional, scientific, and technical services	5419	320	12.5	r	0.0		87.5		73.5		0.0	26.5	r	67.1		0.0	12.5

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Management of companies and enterprises	55	D	D	0.0	0.0	D	0.0	0.0	D	0.0	0.0	0.0	0.0
Administrative and support and waste management and remediation services	56	959	19.2	13.5	r 67.3	47.7	0.0	52.3	54.6	D	31.7	D	
Educational services	61	88	r 0.0	D	97.7	0.0	0.0	100.0	0.0	0.0	100.0	0.0	
Health care and social assistance	62	1,570	26.6	D	69.8	35.7	D	60.8	27.7	D	41.8	24.3	
Health care services	621–23	1,570	26.6	D	69.8	35.7	D	60.8	27.7	D	41.8	24.3	
Social assistance	624	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Arts, entertainment, and recreation	71	D	0.0	0.0	D	0.0	0.0	D	0.0	0.0	D	D	
Accommodation and food services	72	749	27.9	D	56.6	34.8	D	49.8	34.8	D	15.0	r 42.7	
Other services	81	637	D	0.0	92.5	45.5	0.0	54.5	25.0	0.0	39.9	35.2	

D = withheld to avoid disclosing data for individual companies; data are included in higher-level totals. r = relative standard error > 50%.

NAICS = 2017 North American Industry Classification System; STEM = science, technology, engineering, and mathematics.

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, 2019 Annual Business Survey: Data Year 2018.