

A Hiring Engine:

A Breakdown of the Job Openings in Manufacturing

By Chad Moutray, Ph.D., CBE

In many ways, manufacturing in America has never been doing better. The National Association of Manufacturers' quarterly Manufacturers' Outlook Survey found that, over the past nine consecutive quarters, more than 90 percent of manufacturers reported being positive about their company's outlook—record-setting optimism dating back to the first quarter of 2017. Moreover, 2018 was the best calendar year in the survey's history¹. Thanks in no small part to the pro-growth policies like tax reform coming out of Washington, manufacturers across the country have been growing, investing, raising compensation and generating the most jobs in one year since 1997. Since the passage of tax reform, the sector has hired 289,000 workers, which speaks to the robust growth in activity seen since then.

This growth also underlines a burgeoning crisis. Simply put, the manufacturing industry is creating more open jobs than there are skilled workers to fill them. This so-called skills gap challenge is hardly a new one for the industry, but manufacturing's recent economic success has exacerbated it to the point where it is now a full-blown workforce crisis. It will take a comprehensive effort from the public and private sectors to align education options with the well-paying manufacturing jobs that are out there. In other words, solving this challenge will not be easy. The task can at least be made clearer if we first have a better understanding of what jobs need to be filled, where they are and what kinds of skills are needed.

To that end, this paper seeks to shed light on some of the opportunities to continue the positive momentum in the manufacturing industry. It undertakes in-depth analysis of the employment trends in manufacturing, a sector-by-sector breakdown of recent job openings, identification of states where manufacturing jobs are located and identification of the in-demand skills needed to fill them.

But first, the challenge. Today's labor market is extremely tight. Unemployment is hovering near 50-year lows. At the time of this paper's publication and for the 12th straight month, there were more job openings in the U.S. than people actively looking for work. In January 2019, there were 7,581,000 job openings in the U.S., the highest on record. These are all good things in a normal context. However, manufacturers averaged more than 480,000 job openings per month over the second half of 2018. In other words, manufacturers have had to contend with a gap of almost half a million unfilled jobs.

This challenge has costs. In the March 2019 Outlook Survey, manufacturers cited the inability to attract and retain talent as their top concern for the sixth quarter in a row. More than 1 in 4 manufacturers said that this has forced them to turn down new business opportunities. About 1 in 3 noted that they have had to hold off on plans to hire more workers due to these workforce constraints.²

¹ NAM Manufacturers' Outlook Survey, March 2019.

² NAM Manufacturers' Outlook Survey, December 2018.

Even more concerning, the problem is expected to get worse in the years to come. A study last year by Deloitte and The Manufacturing Institute—the education and workforce partner of the NAM—found that manufacturers will need to hire 4.6 million workers over the next decade, but more than half of those jobs could go unfilled unless the next generation of manufacturing workers is properly educated about the jobs that exist and the skills needed to fill them.³ Moreover, according to the same analysis, the U.S. economy could sacrifice as much as \$454 billion annually in manufacturing GDP by 2028. (It is already estimated to have lost \$48 billion in 2018 alone.) Manufacturers’ inability to find skilled workers could ultimately cost the economy more than \$2.5 trillion in output over the next decade.⁴ In addition to dampening the future growth of the industry, the skills gap challenge hurts today’s manufacturing workers. Skills shortages reduce earnings up to 11 percent annually, according to a 2014 analysis from Accenture and the MI.⁵

This paper attempts to explain some of the most prevalent—and most important—questions people interested in manufacturing tend to ask: What are the open positions? What are the top sectors that are hiring? Where are these jobs located? And, consequently, what are the top skills that are required for these jobs? Among other things, one of the most significant takeaways is that many of the largest job opening gains are seen in sectors that are highly technical and advanced (see Table 2)—thus emphasizing the need for workers to have proper skills training and qualifications.

A quality workforce is the fuel for innovation and success and the key to a more productive business. That’s why manufacturers are leading the way to proactively address the skills gap challenge and build tomorrow’s workforce today. For instance, the MI has been focused intensely on this issue for many years, and it is leading the way in its work with business leaders, educational institutions, partner organizations, today’s current manufacturing workers and tomorrow’s manufacturing aspirants. There are many other organizations across the country and policymakers across the political spectrum working to solve this problem too. It seems the whole country is focused on it. Hopefully, this research paper will make their jobs easier. I believe the data it contains can help target efforts and sharpen insights and ultimately help more manufacturers and more manufacturing workers make the career connection that can lift them up—and the rest of our economy—along the way.

Employment Trends in Manufacturing

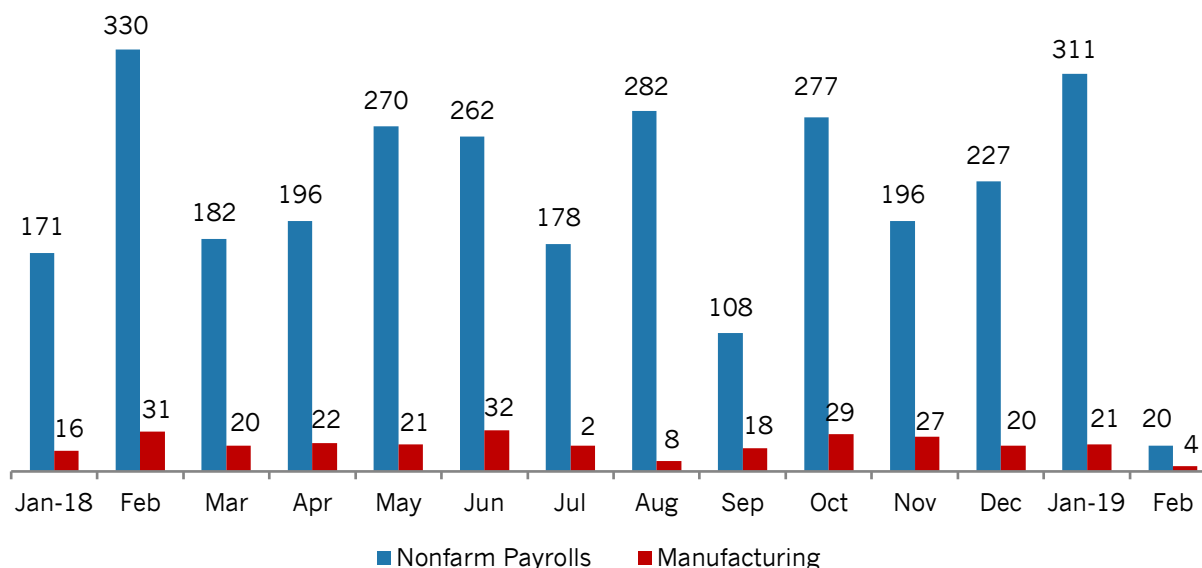
As noted earlier, the challenge of finding qualified workers has been made more difficult by the very tight labor market. With the unemployment rate at 50-year lows, the U.S. economy is operating at (or very near) what economists call “full employment,” and manufacturers have added roughly 20,000 workers, on average, each month over the past year (Figure 1). In addition, there were just over half a million job openings in the manufacturing sector in August, an all-time high, with postings in the sector hovering near 480,000 for much of the second half of 2018, even with some softness at the end of the year (Figure 2). This is, of course, under the backdrop of record-high job postings in the U.S. economy, with more than 7.5 million nonfarm payroll job openings in January, as noted earlier. As such, it is not surprising that firms continue to cite challenges with finding talent.

³ Deloitte and The Manufacturing Institute, November 2018.

⁴ *Ibid.*

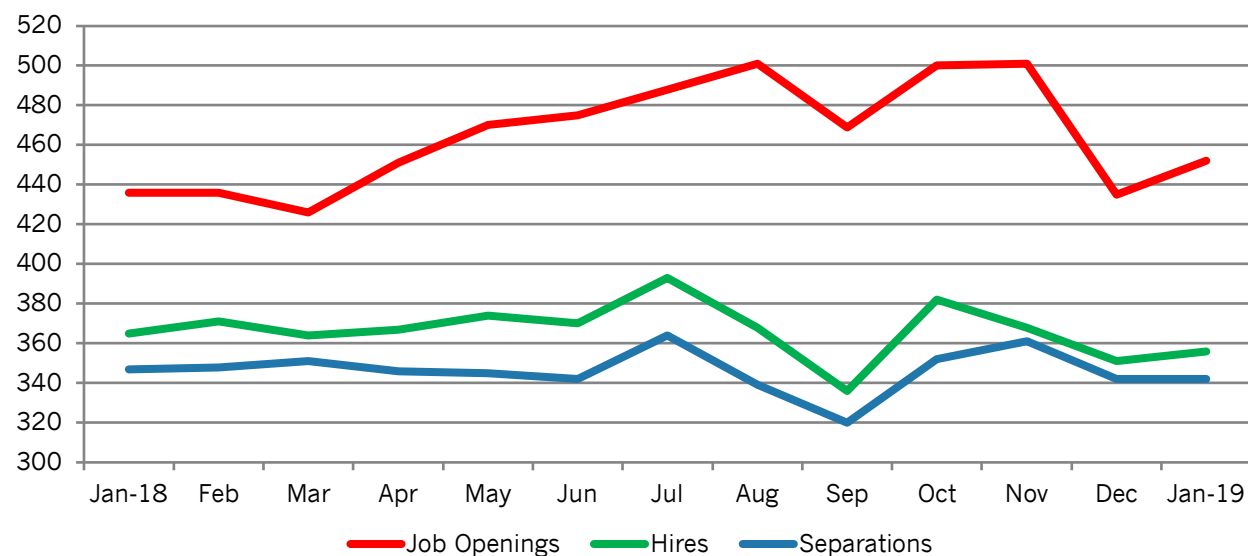
⁵ Accenture and The Manufacturing Institute, March 2014.

Figure 1: Monthly Changes in Employment, January 2018 to February 2019
(Seasonally Adjusted, in Thousands of Employees)



Source: Bureau of Labor Statistics

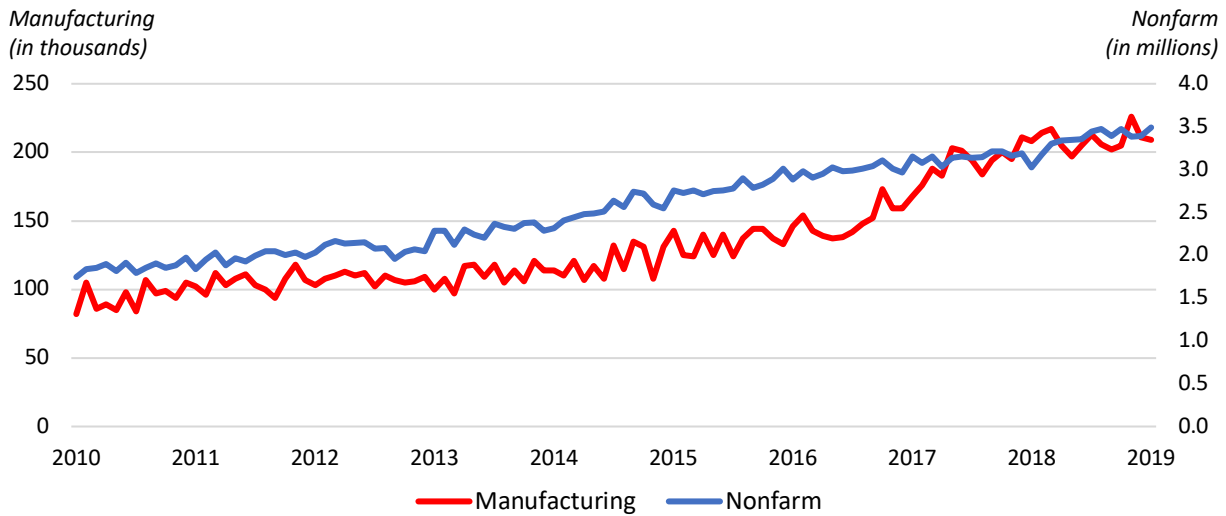
Figure 2: Manufacturing Job Openings, Hires and Separations, January 2018 to January 2019
(Seasonally Adjusted, in Thousands of Employees)



Source: Bureau of Labor Statistics

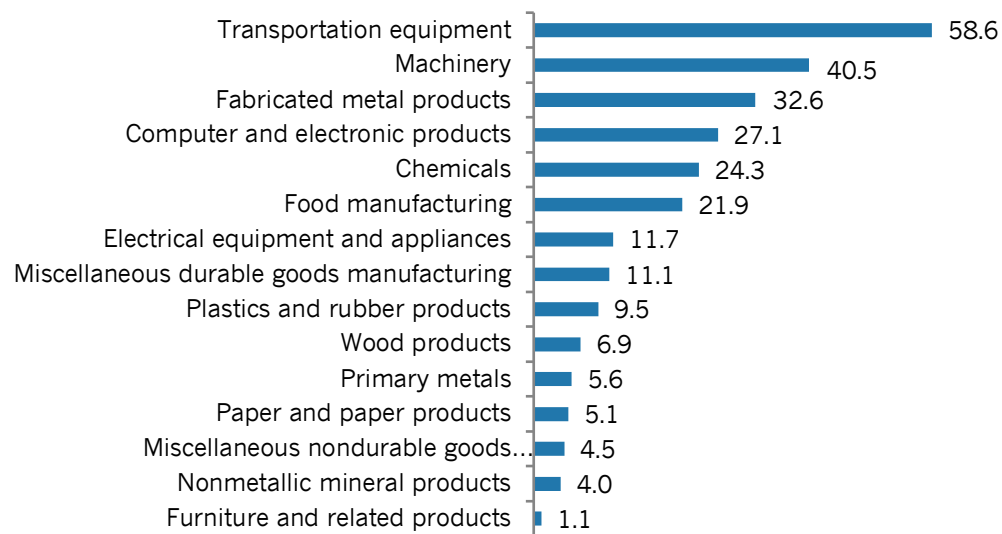
Along those lines, the data are also consistent with a lot of “churn” in the labor market, with more employees quitting their jobs in search of newer (and likely higher-paying) opportunities at record rates (Figure 3). There were 3,490,000 quits in the U.S. economy, a new all-time high, which likely suggests that Americans are switching jobs in light of the tight labor market in hopes of moving to higher-paying careers. Quits in the manufacturing sector have also trended higher, with 209,000 quits in January, up from 168,000 two years earlier.

Figure 3: Nonfarm and Manufacturing Labor Market Quits, 2010 to 2019
(Seasonally Adjusted, in Number of Employees)



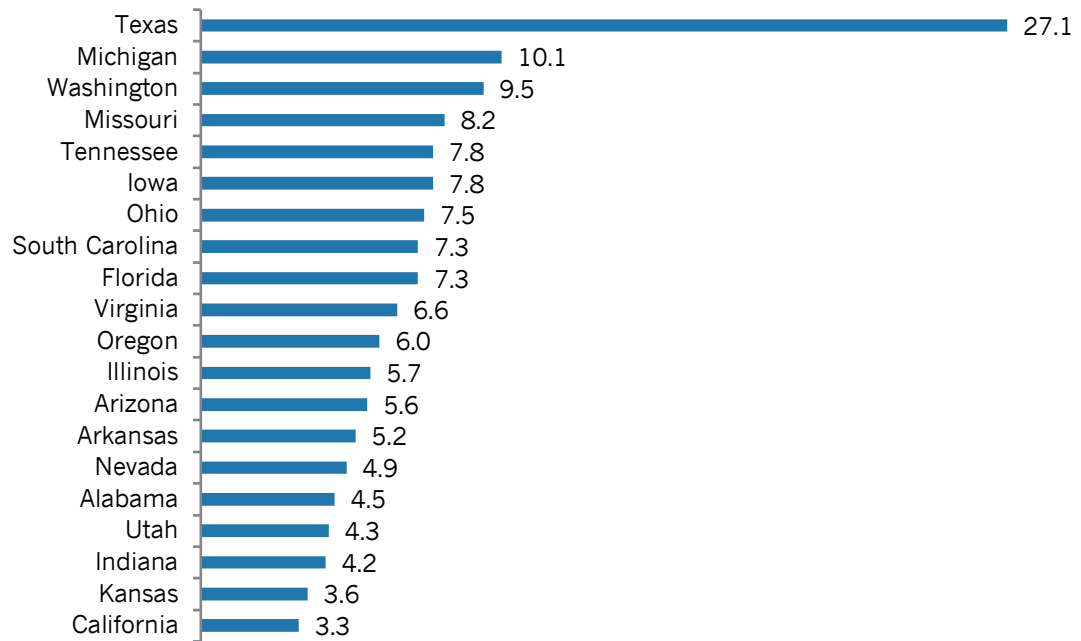
Source: Bureau of Labor Statistics

Figure 4: Manufacturing Sectors with the Largest Year-Over-Year Net Employment Gains, February 2018 to February 2019
(Seasonally Adjusted, in Thousands of Employees)



Source: Bureau of Labor Statistics

Figure 5: Top 20 States for Manufacturing Job Creation, February 2018 to February 2019
(Seasonally Adjusted, in Thousands of Employees)



Source: Bureau of Labor Statistics

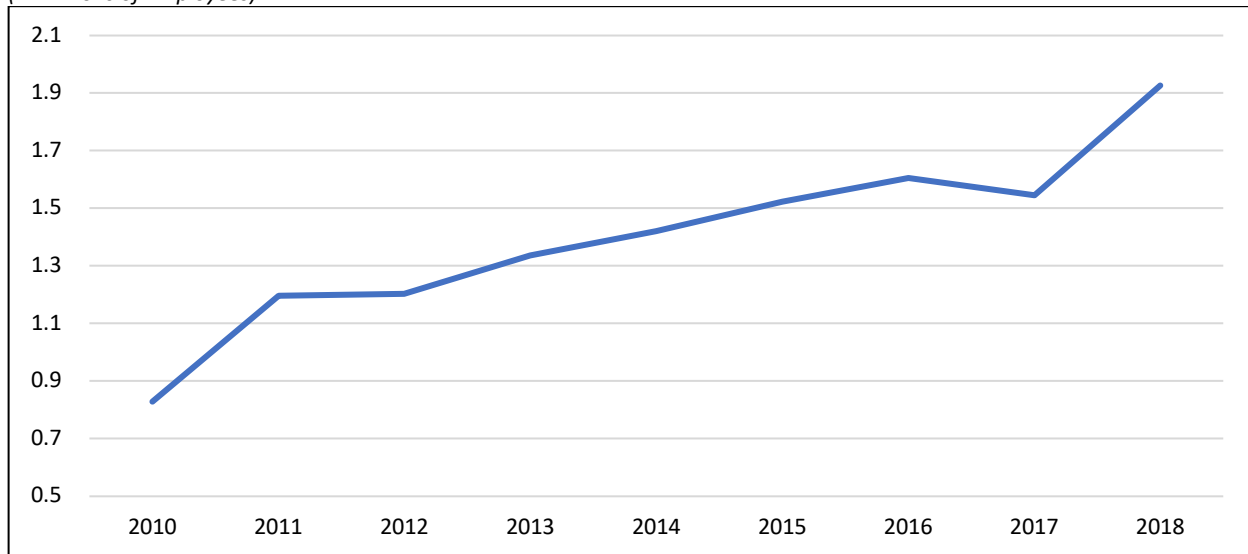
In the December 2018 NAM Manufacturers' Outlook Survey, nearly 77 percent of respondents said that they had positions at their company that they were unable to fill. To address that workforce shortage, manufacturers are relying more on their existing workforce, creating or expanding internal training programs to upskill workers, collaborating with educational institutions and manufacturers themselves on skills certification programs and utilizing temporary staffing services. This builds on the prior quarter's survey, which found that more than 28 percent of respondents had to turn away opportunities because of the lack of enough workers to take on new business.

Figures 4 and 5 outline the top major sectors and states, respectively, for year-over-year manufacturing employment growth. Of the top sectors, transportation equipment had the most job growth over the past 12 months, adding 58,600 workers between February 2018 and February 2019. This was following by solid job growth in the machinery (40,500), fabricated metal products (32,600), computer and electronic products (27,100), chemicals (24,300) and food manufacturing (21,900) sectors, among others. Of the top states, Texas had the most year-over-year manufacturing job gains in February, adding 27,100 workers, with Michigan (10,100), Washington (9,500), Missouri (8,200), Iowa (7,800), Tennessee (7,800) and Ohio (7,500) also topping the list.

A Sector-by-Sector Breakdown of Recent Job Openings

Burning Glass Technologies compiles all active job openings into a comprehensive, large database, tagging each one with the skills, educational and certification requirements, starting salary and other parameters. Using their Labor Insights tool, we can do a number of searches on the data to assess hiring trends.

Figure 6: Number of Manufacturing Job Openings by Year, 2010 to 2018
(in Millions of Employees)



Source: Burning Glass Technologies, Labor Insights

Table 1: Major Manufacturing Sectors with the Most Active Job Openings, 2018

3-Digit NAICS Codes	Major Sectors in Manufacturing	% of Total Manufacturing Job Openings During Period
336	Transportation equipment	20.95%
325	Chemicals	17.34%
334	Computer and electronic products	16.12%
333	Machinery	10.79%
311	Food manufacturing	9.06%
339	Miscellaneous manufacturing	4.34%
312	Beverage and tobacco products	4.01%
327	Nonmetallic mineral products	2.88%
335	Electrical equipment and appliances	2.05%
321	Wood products	1.92%
332	Fabricated metal products	1.71%
331	Primary metals	1.68%
324	Petroleum and coal products	1.41%
323	Printing and related support activities	1.38%
315, 316	Apparel and leather products	1.22%
322	Paper	0.93%
326	Plastics and rubber products	0.90%
337	Furniture and related products	0.82%
313, 314	Textile and product mills	0.48%

Source: Burning Glass Technologies, Labor Insights

From this data, we see a clear upward trend in job posting since the Great Recession (Figure 6) in the Burning Glass database, up from 830,000 in 2010 to 1.93 million in 2018. More importantly, this

data set can provide real-time information about who is hiring and where—something that is not readily available from the Bureau of Labor Statistics figures.

Table 2: Top 25 Manufacturing Subsectors for Active Job Openings, 2018

4-Digit NAICS Codes	Manufacturing Subsectors	% of Total Manufacturing Job Openings During Period
3254	Pharmaceutical and medicine manufacturing	12.59%
3364	Aerospace products and parts manufacturing	9.67%
3345	Navigational, measuring, electromedical, and control instruments manufacturing	6.44%
3339	Other general-purpose machinery manufacturing	5.66%
3361	Motor vehicle manufacturing	4.38%
3121	Beverage manufacturing	3.94%
3391	Medical equipment and supplies manufacturing	3.75%
3344	Semiconductor and other electrical components	3.40%
3341	Computer and peripheral equipment manufacturing	3.33%
3363	Motor vehicle parts manufacturing	2.31%
3333	Commercial and service industry machinery manufacturing	2.05%
3273	Cement and concrete product manufacturing	1.80%
3219	Other wood product manufacturing	1.59%
3256	Soap, cleaning compound, and toilet preparation manufacturing	1.55%
3251	Basic chemical manufacturing	1.42%
3241	Petroleum and coal products manufacturing	1.41%
3342	Communications equipment manufacturing	1.37%
3119	Other food manufacturing	1.25%
3113	Sugar and confectionery product manufacturing	1.20%
3331	Agriculture, construction, and mining machinery manufacturing	1.19%
3116	Animal slaughtering and processing	1.18%
3311	Iron and steel mills and ferroalloy manufacturing	1.03%
3231	Printing and related support activities	0.95%
3343	Audio and video equipment manufacturing	0.89%
3359	Other electrical equipment and component manufacturing	0.87%

Source: *Burning Glass Technologies, Labor Insights*

Table 1 shows which manufacturing sectors had the most job openings in 2018 (at the 3-digit NAICS code level). Nearly three-quarters of all job postings in the manufacturing sector last year were in five major sectors: transportation equipment, chemicals, computer and electronic products, machinery and food manufacturing.

Table 2 dives deeper into this data, providing job openings detail at the 4-digit NAICS code level. At this more granular level, there are 10 subsectors that account for just over 55 percent of all job openings among manufacturers: pharmaceutical and medicine manufacturing; aerospace products and parts; navigational, measuring, electromedical, and control instruments; other general-purpose machinery manufacturing; motor vehicle manufacturing; beverage manufacturing; medical equipment and supplies manufacturing; semiconductor and other electrical components; computer and peripheral equipment; and motor vehicles and parts manufacturing. This suggests that some of the largest job opening gains are seen in sectors that are highly technical and advanced—thus emphasizing the need for workers to have proper skills training and qualifications.

Table 3 takes this a step further by showing some of the top skills identified for each of the major sectors in manufacturing.

Table 3: Top 10 Skills Listed in Job Openings by Major Manufacturing Sectors, 2018

3-Digit NAICS Codes	Major Sectors in Manufacturing	Top Skills Listed in Active Job Postings in the Sector
311	Food manufacturing	Food safety, sales, scheduling, customer service, packaging, merchandising, repair, budgeting, SAP, quality management
312	Beverage and tobacco products	Merchandising, sales, customer service, forklift operation, budgeting, scheduling, lifting ability, inventory management, repair, product sales
321	Wood products	Sales, customer service, forklift operation, scheduling, basic mathematics, repair, hand tools, product sales, occupational health and safety, budgeting
322	Paper	Packaging, repair, scheduling, SAP, budgeting, project management, machinery, predictive/preventative maintenance, customer service, forklift operation
323	Printing and related support activities	Customer service, scheduling, sales, lifting ability, repair, quality assurance and control, forklift operation, packaging, printers, basic mathematics
324	Petroleum and coal products	Repair, scheduling, industrial engineering industry expertise, SAP, project management, customer service, budgeting, sales, predictive/preventative maintenance, spreadsheets
325	Chemicals	Sales, budgeting, project management, biotechnology, customer service, scheduling, quality assurance and control, SAP, current good manufacturing practices (CGMP), chemistry
326	Plastics and rubber products	Repair, forklift operation, packaging, scheduling, customer service, machinery, sales, project management, SAP, budgeting
327	Nonmetallic mineral products	Repair, scheduling, occupational health and safety, customer service, forklift operation, personal protective equipment (PPE), machinery, sales, budgeting, project management

331	Primary metals	Repair, forklift operation, scheduling, welding, machinery, personal protective equipment (PPE), sales, industrial engineering industry expertise, customer service, predictive/preventative maintenance
332	Fabricated metal products	Scheduling, repair, machining, sales, computer numerical control (CNC), customer service, budgeting, project management, machinery, quality assurance and control
333	Machinery	Sales, customer service, repair, scheduling, project management, customer contact, budgeting, technical support, forklift operation, forklift operation
334	Computer and electronic products	Project management, sales, budgeting, scheduling, customer service, software engineering, software development, Python, Linux, product development
335	Electrical equipment and appliances	Sales, project management, customer service, repair, budgeting, scheduling, SAP, legal compliance, product development, sales goals
336	Transportation equipment	Repair, scheduling, customer service, project management, budgeting, systems engineering, sales, customer contact, SAP, software development
337	Furniture and related products	Sales, customer service, sales goals, product sales, budgeting, scheduling, retail industry knowledge, product knowledge, store operations
339	Miscellaneous manufacturing	Sales, customer service, budgeting, scheduling, project management, repair, product sales, customer contact, quality assurance and control, SAP
313, 314	Textile and product mills	Lift trucks, customer service, product sales, repair, budgeting, sales, scheduling, forklift operation, commercial driving, basic mathematics
315, 316	Apparel and leather products	Sales, key performance indicators (KPIs), retail industry knowledge, product sales, merchandising, store management, product knowledge, visual merchandizing, sales goals, customer service

Source: *Burning Glass Technologies, Labor Insights*

Following the Concluding Remarks section, Table 4 shows the top states for manufacturing job opening growth in 2018. Whereas Figure 3 showed the number of job openings in each state, this table expresses manufacturing jobs at the state level as a percentage of the number of jobs nationally. Unsurprisingly, California, the most populous state, had the largest proportion of job postings, accounting for 14.4 percent of all manufacturing job openings nationally. It was followed by Texas, Michigan, Illinois and Ohio, among others. Interestingly, the top 10 states comprised 53.5 percent of all manufacturing job openings last year, with 78.5 percent of all postings occurring in the top 20 states.

Also following the Concluding Remarks, Table 5 provides more detail on the job openings in every state and the District of Columbia, showing the top ten major sectors (at the 4-digit NAICS level) for postings from 2018.

Concluding Remarks

The bottom line is simple. The job market remains very robust, with the unemployment rate near 50-year lows and manufacturers regularly citing the difficulty in finding talent as a top concern. Moreover, we would expect challenges in attracting and retaining workers to persist over the course of 2019 and beyond due to the continued tightness of the labor market—a phenomenon that will only be exacerbated further by Baby Boomer retirements.

With that context in mind, there are still questions about where the jobs in manufacturing are coming from. While the Job Openings and Labor Turnover Survey has reflected all-time highs for postings and quits in recent months, the level of detail about openings in the manufacturing sector has been limited to national data and to breakouts for durable and nondurable goods only. The following tables just scratch the surface of what is available from this resource, hopefully whetting the appetite for more analysis moving forward. But, there are some key findings of note that are quite informative.

The jobs available in manufacturing are highly technical. The Burning Glass breakdowns of job openings in 2018 provide a great level of detail on the sectors and states that are producing the most postings, and what clearly stands out is the sophistication of those top sectors. The manufacturing sectors that are generating the most job openings have tended to be highly technical in nature, requiring specialized and advanced training and likely yielding increased salaries. For those of us who work in manufacturing and who see how technologically advanced the sector has become in recent years, this might not be news, but it might be to others.

Workers will need specialized skills training and credentials to be qualified for many of the jobs that are out there. The reality is that modern manufacturing has become quite advanced, and the sectors that are the fastest growing illustrate the need for high-level credentials and educational attainment, with an emphasis on upskilling and lifelong learning.

There is no single “type” of modern manufacturing job. The future growth of the industry will be tied to recruiting and retaining a diverse workforce. This means that manufacturers need to attract more workers with technical backgrounds, including those in science, technology, engineering and math (STEM) fields and those with specialized credentials. Those workers are in high demand—and not just in manufacturing—which makes recruitment even more challenging.

Future research in this space will attempt to look at how these trends have changed over time. It will also be interesting to see how employment growth changes as the economy starts to show signs of slowing. For now, the big takeaway is this: A record number of manufacturing jobs are available—and they are increasingly highly technical—and the future of the industry will be directly tied to the education, recruitment and retention of the next generation of manufacturing workers.

A more detailed look at Table 4 and Table 5 follows.

Table 4: Top 20 States for Manufacturing Job Openings, 2018

	Number of Manufacturing Job Openings in the State	% of Total Manufacturing Job Openings During Period
California	277,448	14.42%
Texas	153,998	8.00%
Michigan	90,746	4.72%
Illinois	83,079	4.32%
Ohio	81,560	4.24%
Florida	74,143	3.85%
Pennsylvania	71,607	3.72%
New York	68,778	3.57%
North Carolina	65,028	3.38%
New Jersey	62,322	3.24%
Massachusetts	61,895	3.22%
Georgia	53,529	2.78%
Minnesota	52,956	2.75%
Wisconsin	51,335	2.67%
Colorado	47,522	2.47%
Virginia	46,814	2.43%
Arizona	46,076	2.39%
Indiana	42,364	2.20%
Washington	42,215	2.19%
Tennessee	37,539	1.95%

Source: Burning Glass Technologies, Labor Insights

Table 5: Top 10 Major Manufacturing Sectors for Job Growth in 2018

	Top Manufacturing Sectors in the State for Job Openings	% of Total Manufacturing Job Openings During Period
Alabama		
3364	Aerospace Products and Parts Manufacturing	22.5%
3254	Pharmaceutical and Medicine Manufacturing	7.1%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	6.7%
3121	Beverage Manufacturing	5.7%
3273	Cement and Concrete Product Manufacturing	5.6%
3339	Other General-Purpose Machinery Manufacturing	3.8%
3391	Medical Equipment and Supplies Manufacturing	3.3%
3241	Petroleum and Coal Products Manufacturing	3.0%
3363	Motor Vehicle Parts Manufacturing	2.7%
3116	Animal Slaughtering and Processing	2.4%
Alaska		
3219	Other Wood Product Manufacturing	26.2%

3254	Pharmaceutical and Medicine Manufacturing	12.0%
3364	Aerospace Products and Parts Manufacturing	9.1%
3361	Motor Vehicle Manufacturing	8.4%
3333	Commercial and Service Industry Machinery Manufacturing	5.8%
3339	Other General-Purpose Machinery Manufacturing	5.5%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.1%
3342	Communications Equipment Manufacturing	3.8%
3391	Medical Equipment and Supplies Manufacturing	3.8%
3241	Petroleum and Coal Products Manufacturing	2.3%
Arizona		
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	12.0%
3344	Semiconductor and Other Electrical Components Manufacturing	10.9%
3364	Aerospace Products and Parts Manufacturing	10.3%
3361	Motor Vehicle Manufacturing	8.9%
3254	Pharmaceutical and Medicine Manufacturing	5.8%
3333	Commercial and Service Industry Machinery Manufacturing	5.5%
3314	Nonferrous Metal (except Aluminum) Production and Processing	4.5%
3339	Other General-Purpose Machinery Manufacturing	4.3%
3391	Medical Equipment and Supplies Manufacturing	3.9%
3329	Other Fabricated Metal Product Manufacturing	3.2%
Arkansas		
3116	Animal Slaughtering and Processing	19.1%
3364	Aerospace Products and Parts Manufacturing	8.1%
3254	Pharmaceutical and Medicine Manufacturing	7.0%
3121	Beverage Manufacturing	5.2%
3241	Petroleum and Coal Products Manufacturing	4.8%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	4.4%
3339	Other General-Purpose Machinery Manufacturing	4.1%
3391	Medical Equipment and Supplies Manufacturing	3.7%
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2.8%
3273	Cement and Concrete Product Manufacturing	2.7%
3119	Other Food Manufacturing	2.7%
California		
3364	Aerospace Products and Parts Manufacturing	14.3%

3254	Pharmaceutical and Medicine Manufacturing	13.8%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	11.1%
3344	Semiconductor and Other Electrical Components Manufacturing	9.7%
3341	Computer and Peripheral Equipment Manufacturing	6.8%
3361	Motor Vehicle Manufacturing	6.1%
3121	Beverage Manufacturing	6.0%
3339	Other General-Purpose Machinery Manufacturing	4.8%
3391	Medical Equipment and Supplies Manufacturing	3.3%
3333	Commercial and Service Industry Machinery Manufacturing	1.9%
3343	Audio and Video Equipment Manufacturing	1.9%
Colorado		
3364	Aerospace Products and Parts Manufacturing	25.2%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	9.5%
3121	Beverage Manufacturing	6.8%
3254	Pharmaceutical and Medicine Manufacturing	4.9%
3341	Computer and Peripheral Equipment Manufacturing	4.8%
3339	Other General-Purpose Machinery Manufacturing	4.7%
3342	Communications Equipment Manufacturing	4.5%
3391	Medical Equipment and Supplies Manufacturing	3.5%
3361	Motor Vehicle Manufacturing	3.1%
3344	Semiconductor and Other Electrical Components Manufacturing	2.8%
3219	Other Wood Product Manufacturing	2.8%
Connecticut		
3364	Aerospace Products and Parts Manufacturing	47.2%
3254	Pharmaceutical and Medicine Manufacturing	13.5%
3339	Other General-Purpose Machinery Manufacturing	6.5%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.6%
3333	Commercial and Service Industry Machinery Manufacturing	4.1%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	2.2%
3399	Other Miscellaneous Manufacturing	2.2%
3361	Motor Vehicle Manufacturing	2.0%
3391	Medical Equipment and Supplies Manufacturing	1.5%
3121	Beverage Manufacturing	1.3%

Delaware		
3254	Pharmaceutical and Medicine Manufacturing	24.8%
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	18.3%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	14.0%
3251	Basic Chemical Manufacturing	10.1%
3339	Other General-Purpose Machinery Manufacturing	4.9%
3399	Other Miscellaneous Manufacturing	3.0%
3361	Motor Vehicle Manufacturing	2.6%
3391	Medical Equipment and Supplies Manufacturing	2.4%
3333	Commercial and Service Industry Machinery Manufacturing	2.2%
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	2.1%
District of Columbia		
3339	Other General-Purpose Machinery Manufacturing	17.8%
3254	Pharmaceutical and Medicine Manufacturing	16.3%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	8.1%
3364	Aerospace Products and Parts Manufacturing	7.7%
3333	Commercial and Service Industry Machinery Manufacturing	7.5%
3361	Motor Vehicle Manufacturing	6.5%
3341	Computer and Peripheral Equipment Manufacturing	6.2%
3391	Medical Equipment and Supplies Manufacturing	4.1%
3121	Beverage Manufacturing	4.0%
3344	Semiconductor and Other Electrical Components Manufacturing	2.8%
Florida		
3364	Aerospace Products and Parts Manufacturing	19.2%
3254	Pharmaceutical and Medicine Manufacturing	10.3%
3339	Other General-Purpose Machinery Manufacturing	7.0%
3391	Medical Equipment and Supplies Manufacturing	6.9%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	6.7%
3121	Beverage Manufacturing	5.9%
3273	Cement and Concrete Product Manufacturing	5.5%
3342	Communications Equipment Manufacturing	5.5%
3361	Motor Vehicle Manufacturing	4.8%
3219	Other Wood Product Manufacturing	2.6%
Georgia		

3364	Aerospace Products and Parts Manufacturing	9.7%
3121	Beverage Manufacturing	9.6%
3254	Pharmaceutical and Medicine Manufacturing	8.0%
3339	Other General-Purpose Machinery Manufacturing	6.6%
3241	Petroleum and Coal Products Manufacturing	4.9%
3149	Other Textile Product Mills	4.2%
3141	Textile Furnishings Mills	4.0%
3273	Cement and Concrete Product Manufacturing	3.5%
3341	Computer and Peripheral Equipment Manufacturing	3.2%
3333	Commercial and Service Industry Machinery Manufacturing	3.1%
Hawaii		
3121	Beverage Manufacturing	12.6%
3361	Motor Vehicle Manufacturing	8.8%
3254	Pharmaceutical and Medicine Manufacturing	8.6%
3364	Aerospace Products and Parts Manufacturing	7.0%
3115	Dairy Product Manufacturing	6.7%
3339	Other General-Purpose Machinery Manufacturing	6.2%
3366	Ship and Boat Building	5.5%
3342	Communications Equipment Manufacturing	4.6%
3152	Cut and Sew Apparel Manufacturing	4.5%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4.2%
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	4.2%
Idaho		
3344	Semiconductor and Other Electrical Components Manufacturing	34.7%
3341	Computer and Peripheral Equipment Manufacturing	11.2%
3273	Cement and Concrete Product Manufacturing	7.2%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	5.0%
3254	Pharmaceutical and Medicine Manufacturing	4.9%
3339	Other General-Purpose Machinery Manufacturing	3.5%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	2.8%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	2.8%
3219	Other Wood Product Manufacturing	2.7%
3121	Beverage Manufacturing	2.1%
Illinois		

3254	Pharmaceutical and Medicine Manufacturing	18.6%
3391	Medical Equipment and Supplies Manufacturing	8.1%
3339	Other General-Purpose Machinery Manufacturing	7.9%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	5.3%
3364	Aerospace Products and Parts Manufacturing	4.6%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.7%
3361	Motor Vehicle Manufacturing	3.1%
3363	Motor Vehicle Parts Manufacturing	3.0%
3119	Other Food Manufacturing	2.8%
3121	Beverage Manufacturing	2.8%
3333	Commercial and Service Industry Machinery Manufacturing	2.8%
Indiana		
3254	Pharmaceutical and Medicine Manufacturing	14.2%
3391	Medical Equipment and Supplies Manufacturing	9.1%
3363	Motor Vehicle Parts Manufacturing	5.8%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.3%
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	5.1%
3339	Other General-Purpose Machinery Manufacturing	4.5%
3121	Beverage Manufacturing	4.4%
3361	Motor Vehicle Manufacturing	4.3%
3364	Aerospace Products and Parts Manufacturing	3.8%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	3.5%
Iowa		
3364	Aerospace Products and Parts Manufacturing	11.2%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	9.7%
3116	Animal Slaughtering and Processing	9.6%
3254	Pharmaceutical and Medicine Manufacturing	7.1%
3339	Other General-Purpose Machinery Manufacturing	6.0%
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	5.2%
3361	Motor Vehicle Manufacturing	4.0%
3119	Other Food Manufacturing	3.8%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.2%
3121	Beverage Manufacturing	2.8%
Kansas		
3364	Aerospace Products and Parts Manufacturing	22.4%

3254	Pharmaceutical and Medicine Manufacturing	11.4%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	8.2%
3241	Petroleum and Coal Products Manufacturing	5.4%
3116	Animal Slaughtering and Processing	5.2%
3339	Other General-Purpose Machinery Manufacturing	3.9%
3361	Motor Vehicle Manufacturing	2.9%
3121	Beverage Manufacturing	2.6%
3112	Grain and Oilseed Milling	2.6%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	2.5%
Kentucky		
3121	Beverage Manufacturing	10.9%
3254	Pharmaceutical and Medicine Manufacturing	7.9%
3364	Aerospace Products and Parts Manufacturing	7.4%
3339	Other General-Purpose Machinery Manufacturing	6.3%
3361	Motor Vehicle Manufacturing	4.5%
3333	Commercial and Service Industry Machinery Manufacturing	4.4%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.9%
3363	Motor Vehicle Parts Manufacturing	3.9%
3231	Printing and Related Support Activities	3.6%
3391	Medical Equipment and Supplies Manufacturing	3.4%
Louisiana		
3254	Pharmaceutical and Medicine Manufacturing	10.1%
3121	Beverage Manufacturing	9.0%
3251	Basic Chemical Manufacturing	7.8%
3241	Petroleum and Coal Products Manufacturing	7.4%
3339	Other General-Purpose Machinery Manufacturing	6.1%
3344	Semiconductor and Other Electrical Components Manufacturing	5.4%
3364	Aerospace Products and Parts Manufacturing	4.9%
3119	Other Food Manufacturing	4.2%
3391	Medical Equipment and Supplies Manufacturing	3.8%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.7%
Maine		
3364	Aerospace Products and Parts Manufacturing	13.5%
3219	Other Wood Product Manufacturing	12.3%
3391	Medical Equipment and Supplies Manufacturing	8.1%
3339	Other General-Purpose Machinery Manufacturing	7.4%
3273	Cement and Concrete Product Manufacturing	6.3%

3254	Pharmaceutical and Medicine Manufacturing	6.0%
3344	Semiconductor and Other Electrical Components Manufacturing	5.4%
3113	Sugar and Confectionery Product Manufacturing	5.1%
3121	Beverage Manufacturing	2.7%
3241	Petroleum and Coal Products Manufacturing	2.6%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.6%
Maryland		
3364	Aerospace Products and Parts Manufacturing	28.6%
3254	Pharmaceutical and Medicine Manufacturing	9.9%
3339	Other General-Purpose Machinery Manufacturing	9.7%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	6.3%
3391	Medical Equipment and Supplies Manufacturing	5.4%
3361	Motor Vehicle Manufacturing	5.4%
3119	Other Food Manufacturing	3.7%
3121	Beverage Manufacturing	3.2%
3251	Basic Chemical Manufacturing	2.3%
3342	Communications Equipment Manufacturing	1.7%
Massachusetts		
3254	Pharmaceutical and Medicine Manufacturing	34.3%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	18.9%
3341	Computer and Peripheral Equipment Manufacturing	7.4%
3339	Other General-Purpose Machinery Manufacturing	5.3%
3391	Medical Equipment and Supplies Manufacturing	3.6%
3333	Commercial and Service Industry Machinery Manufacturing	3.0%
3364	Aerospace Products and Parts Manufacturing	3.0%
3361	Motor Vehicle Manufacturing	2.8%
3344	Semiconductor and Other Electrical Components Manufacturing	2.3%
3343	Audio and Video Equipment Manufacturing	2.3%
Michigan		
3363	Motor Vehicle Parts Manufacturing	21.4%
3254	Pharmaceutical and Medicine Manufacturing	10.8%
3361	Motor Vehicle Manufacturing	9.1%
3391	Medical Equipment and Supplies Manufacturing	5.2%
3352	Household Appliance Manufacturing	5.0%
3339	Other General-Purpose Machinery Manufacturing	4.2%
3261	Plastics Product Manufacturing	2.8%

3121	Beverage Manufacturing	2.8%
3251	Basic Chemical Manufacturing	2.7%
3364	Aerospace Products and Parts Manufacturing	2.7%
Minnesota		
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	16.8%
3339	Other General-Purpose Machinery Manufacturing	9.1%
3254	Pharmaceutical and Medicine Manufacturing	8.2%
3361	Motor Vehicle Manufacturing	4.0%
3391	Medical Equipment and Supplies Manufacturing	3.6%
3364	Aerospace Products and Parts Manufacturing	3.6%
3219	Other Wood Product Manufacturing	3.6%
3231	Printing and Related Support Activities	3.4%
3112	Grain and Oilseed Milling	3.4%
3344	Semiconductor and Other Electrical Components Manufacturing	2.9%
3121	Beverage Manufacturing	2.9%
Mississippi		
3254	Pharmaceutical and Medicine Manufacturing	9.7%
3364	Aerospace Products and Parts Manufacturing	6.9%
3339	Other General-Purpose Machinery Manufacturing	6.5%
3121	Beverage Manufacturing	6.4%
3391	Medical Equipment and Supplies Manufacturing	5.6%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	5.3%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.2%
3361	Motor Vehicle Manufacturing	4.7%
3116	Animal Slaughtering and Processing	4.6%
3241	Petroleum and Coal Products Manufacturing	3.8%
Missouri		
3254	Pharmaceutical and Medicine Manufacturing	14.3%
3364	Aerospace Products and Parts Manufacturing	13.7%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	6.8%
3339	Other General-Purpose Machinery Manufacturing	5.5%
3391	Medical Equipment and Supplies Manufacturing	5.2%
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	4.4%
3121	Beverage Manufacturing	4.4%
3116	Animal Slaughtering and Processing	3.9%
3361	Motor Vehicle Manufacturing	3.4%
3113	Sugar and Confectionery Product Manufacturing	3.4%

Montana		
3254	Pharmaceutical and Medicine Manufacturing	16.9%
3363	Motor Vehicle Parts Manufacturing	9.4%
3391	Medical Equipment and Supplies Manufacturing	8.0%
3339	Other General-Purpose Machinery Manufacturing	6.9%
3273	Cement and Concrete Product Manufacturing	5.7%
3219	Other Wood Product Manufacturing	5.0%
3241	Petroleum and Coal Products Manufacturing	3.9%
3115	Dairy Product Manufacturing	3.7%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.5%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	3.3%
Nebraska		
3254	Pharmaceutical and Medicine Manufacturing	11.3%
3391	Medical Equipment and Supplies Manufacturing	10.4%
3119	Other Food Manufacturing	10.2%
3361	Motor Vehicle Manufacturing	7.3%
3116	Animal Slaughtering and Processing	6.8%
3339	Other General-Purpose Machinery Manufacturing	5.4%
3363	Motor Vehicle Parts Manufacturing	4.1%
3364	Aerospace Products and Parts Manufacturing	3.8%
3344	Semiconductor and Other Electrical Components Manufacturing	2.9%
3323	Architectural and Structural Metals Manufacturing	2.7%
Nevada		
3361	Motor Vehicle Manufacturing	15.8%
3364	Aerospace Products and Parts Manufacturing	9.5%
3254	Pharmaceutical and Medicine Manufacturing	9.0%
3399	Other Miscellaneous Manufacturing	7.8%
3339	Other General-Purpose Machinery Manufacturing	5.0%
3391	Medical Equipment and Supplies Manufacturing	4.5%
3241	Petroleum and Coal Products Manufacturing	4.1%
3273	Cement and Concrete Product Manufacturing	3.9%
3121	Beverage Manufacturing	3.4%
3343	Audio and Video Equipment Manufacturing	3.4%
New Hampshire		
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	14.1%
3254	Pharmaceutical and Medicine Manufacturing	11.3%
3364	Aerospace Products and Parts Manufacturing	7.3%
3363	Motor Vehicle Parts Manufacturing	6.9%

3339	Other General-Purpose Machinery Manufacturing	5.3%
3273	Cement and Concrete Product Manufacturing	4.7%
3241	Petroleum and Coal Products Manufacturing	4.2%
3121	Beverage Manufacturing	4.1%
3151	Apparel Knitting Mills	3.3%
3391	Medical Equipment and Supplies Manufacturing	3.1%
New Jersey		
3254	Pharmaceutical and Medicine Manufacturing	48.2%
3391	Medical Equipment and Supplies Manufacturing	5.5%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	5.4%
3361	Motor Vehicle Manufacturing	3.7%
3343	Audio and Video Equipment Manufacturing	3.4%
3339	Other General-Purpose Machinery Manufacturing	3.2%
3119	Other Food Manufacturing	2.6%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.4%
3364	Aerospace Products and Parts Manufacturing	2.3%
3113	Sugar and Confectionery Product Manufacturing	2.2%
New Mexico		
3364	Aerospace Products and Parts Manufacturing	13.1%
3344	Semiconductor and Other Electrical Components Manufacturing	8.0%
3254	Pharmaceutical and Medicine Manufacturing	7.9%
3241	Petroleum and Coal Products Manufacturing	7.4%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	7.0%
3339	Other General-Purpose Machinery Manufacturing	5.4%
3121	Beverage Manufacturing	5.1%
3115	Dairy Product Manufacturing	4.9%
3361	Motor Vehicle Manufacturing	4.0%
3314	Nonferrous Metal (except Aluminum) Production and Processing	3.6%
New York		
3254	Pharmaceutical and Medicine Manufacturing	21.6%
3339	Other General-Purpose Machinery Manufacturing	8.6%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	6.6%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	6.1%
3364	Aerospace Products and Parts Manufacturing	5.9%
3361	Motor Vehicle Manufacturing	5.0%
3391	Medical Equipment and Supplies Manufacturing	4.2%

3333	Commercial and Service Industry Machinery Manufacturing	4.1%
3272	Glass and Glass Product Manufacturing	3.7%
3121	Beverage Manufacturing	3.5%
North Carolina		
3254	Pharmaceutical and Medicine Manufacturing	15.9%
3339	Other General-Purpose Machinery Manufacturing	8.3%
3341	Computer and Peripheral Equipment Manufacturing	8.0%
3364	Aerospace Products and Parts Manufacturing	6.2%
3361	Motor Vehicle Manufacturing	5.8%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.8%
3121	Beverage Manufacturing	4.1%
3391	Medical Equipment and Supplies Manufacturing	3.0%
3359	Other Electrical Equipment and Component Manufacturing	2.5%
3343	Audio and Video Equipment Manufacturing	2.5%
North Dakota		
3364	Aerospace Products and Parts Manufacturing	14.3%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	8.8%
3339	Other General-Purpose Machinery Manufacturing	7.5%
3254	Pharmaceutical and Medicine Manufacturing	7.1%
3363	Motor Vehicle Parts Manufacturing	7.0%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	4.6%
3241	Petroleum and Coal Products Manufacturing	4.2%
3219	Other Wood Product Manufacturing	4.1%
3115	Dairy Product Manufacturing	3.9%
3112	Grain and Oilseed Milling	3.9%
Ohio		
3254	Pharmaceutical and Medicine Manufacturing	13.4%
3339	Other General-Purpose Machinery Manufacturing	10.6%
3361	Motor Vehicle Manufacturing	7.4%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.7%
3364	Aerospace Products and Parts Manufacturing	5.2%
3121	Beverage Manufacturing	4.4%
3363	Motor Vehicle Parts Manufacturing	3.9%
3391	Medical Equipment and Supplies Manufacturing	3.3%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	2.8%
3113	Sugar and Confectionery Product Manufacturing	2.6%

Oklahoma		
3364	Aerospace Products and Parts Manufacturing	21.7%
3339	Other General-Purpose Machinery Manufacturing	7.5%
3241	Petroleum and Coal Products Manufacturing	6.5%
3121	Beverage Manufacturing	5.2%
3361	Motor Vehicle Manufacturing	5.0%
3116	Animal Slaughtering and Processing	4.7%
3254	Pharmaceutical and Medicine Manufacturing	4.5%
3391	Medical Equipment and Supplies Manufacturing	3.9%
3341	Computer and Peripheral Equipment Manufacturing	3.7%
3273	Cement and Concrete Product Manufacturing	3.1%
Oregon		
3344	Semiconductor and Other Electrical Components Manufacturing	21.0%
3339	Other General-Purpose Machinery Manufacturing	7.6%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	6.2%
3254	Pharmaceutical and Medicine Manufacturing	5.4%
3121	Beverage Manufacturing	5.0%
3364	Aerospace Products and Parts Manufacturing	4.9%
3219	Other Wood Product Manufacturing	3.4%
3341	Computer and Peripheral Equipment Manufacturing	3.2%
3391	Medical Equipment and Supplies Manufacturing	3.1%
3333	Commercial and Service Industry Machinery Manufacturing	2.3%
3361	Motor Vehicle Manufacturing	2.3%
Pennsylvania		
3254	Pharmaceutical and Medicine Manufacturing	29.9%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.6%
3339	Other General-Purpose Machinery Manufacturing	5.5%
3364	Aerospace Products and Parts Manufacturing	4.1%
3361	Motor Vehicle Manufacturing	4.0%
3121	Beverage Manufacturing	3.7%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	3.5%
3391	Medical Equipment and Supplies Manufacturing	3.2%
3333	Commercial and Service Industry Machinery Manufacturing	2.9%
3113	Sugar and Confectionery Product Manufacturing	2.6%
Rhode Island		

3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	19.7%
3254	Pharmaceutical and Medicine Manufacturing	18.7%
3339	Other General-Purpose Machinery Manufacturing	5.6%
3364	Aerospace Products and Parts Manufacturing	5.0%
3333	Commercial and Service Industry Machinery Manufacturing	4.9%
3391	Medical Equipment and Supplies Manufacturing	4.9%
3312	Steel Product Manufacturing from Purchased Steel	3.7%
3341	Computer and Peripheral Equipment Manufacturing	3.5%
3359	Other Electrical Equipment and Component Manufacturing	2.4%
3219	Other Wood Product Manufacturing	2.4%
3273	Cement and Concrete Product Manufacturing	2.4%
South Carolina		
3364	Aerospace Products and Parts Manufacturing	8.9%
3254	Pharmaceutical and Medicine Manufacturing	8.3%
3363	Motor Vehicle Parts Manufacturing	8.1%
3339	Other General-Purpose Machinery Manufacturing	6.7%
3391	Medical Equipment and Supplies Manufacturing	4.4%
3359	Other Electrical Equipment and Component Manufacturing	4.4%
3273	Cement and Concrete Product Manufacturing	3.3%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.2%
3121	Beverage Manufacturing	3.1%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	2.9%
3344	Semiconductor and Other Electrical Components Manufacturing	2.9%
South Dakota		
3399	Other Miscellaneous Manufacturing	11.1%
3344	Semiconductor and Other Electrical Components Manufacturing	11.0%
3116	Animal Slaughtering and Processing	8.8%
3339	Other General-Purpose Machinery Manufacturing	7.9%
3254	Pharmaceutical and Medicine Manufacturing	7.2%
3363	Motor Vehicle Parts Manufacturing	6.1%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	5.0%
3391	Medical Equipment and Supplies Manufacturing	4.5%
3312	Steel Product Manufacturing from Purchased Steel	4.2%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	3.1%

Tennessee		
3254	Pharmaceutical and Medicine Manufacturing	9.9%
3339	Other General-Purpose Machinery Manufacturing	7.7%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	6.7%
3391	Medical Equipment and Supplies Manufacturing	6.5%
3121	Beverage Manufacturing	5.6%
3363	Motor Vehicle Parts Manufacturing	5.0%
3361	Motor Vehicle Manufacturing	4.9%
3341	Computer and Peripheral Equipment Manufacturing	3.2%
3219	Other Wood Product Manufacturing	2.8%
3251	Basic Chemical Manufacturing	2.7%
Texas		
3341	Computer and Peripheral Equipment Manufacturing	10.7%
3364	Aerospace Products and Parts Manufacturing	9.0%
3254	Pharmaceutical and Medicine Manufacturing	7.6%
3339	Other General-Purpose Machinery Manufacturing	6.4%
3251	Basic Chemical Manufacturing	6.2%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.8%
3344	Semiconductor and Other Electrical Components Manufacturing	4.8%
3361	Motor Vehicle Manufacturing	4.4%
3121	Beverage Manufacturing	4.1%
3241	Petroleum and Coal Products Manufacturing	3.7%
Utah		
3391	Medical Equipment and Supplies Manufacturing	13.4%
3364	Aerospace Products and Parts Manufacturing	11.7%
3329	Other Fabricated Metal Product Manufacturing	7.9%
3254	Pharmaceutical and Medicine Manufacturing	7.6%
3273	Cement and Concrete Product Manufacturing	6.8%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5.0%
3341	Computer and Peripheral Equipment Manufacturing	5.0%
3339	Other General-Purpose Machinery Manufacturing	4.5%
3342	Communications Equipment Manufacturing	3.4%
3361	Motor Vehicle Manufacturing	3.2%
Vermont		
3364	Aerospace Products and Parts Manufacturing	28.7%

3254	Pharmaceutical and Medicine Manufacturing	15.1%
3273	Cement and Concrete Product Manufacturing	6.7%
3339	Other General-Purpose Machinery Manufacturing	5.9%
3333	Commercial and Service Industry Machinery Manufacturing	5.1%
3121	Beverage Manufacturing	4.3%
3391	Medical Equipment and Supplies Manufacturing	4.1%
3344	Semiconductor and Other Electrical Components Manufacturing	3.4%
3342	Communications Equipment Manufacturing	2.8%
3119	Other Food Manufacturing	2.8%
Virginia		
3364	Aerospace Products and Parts Manufacturing	20.1%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	10.2%
3339	Other General-Purpose Machinery Manufacturing	9.0%
3254	Pharmaceutical and Medicine Manufacturing	6.0%
3121	Beverage Manufacturing	3.9%
3333	Commercial and Service Industry Machinery Manufacturing	3.8%
3366	Ship and Boat Building	3.8%
3391	Medical Equipment and Supplies Manufacturing	3.6%
3361	Motor Vehicle Manufacturing	3.3%
3344	Semiconductor and Other Electrical Components Manufacturing	3.2%
Washington		
3364	Aerospace Products and Parts Manufacturing	23.6%
3361	Motor Vehicle Manufacturing	8.5%
3339	Other General-Purpose Machinery Manufacturing	7.5%
3254	Pharmaceutical and Medicine Manufacturing	5.8%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4.6%
3341	Computer and Peripheral Equipment Manufacturing	4.4%
3121	Beverage Manufacturing	3.9%
3391	Medical Equipment and Supplies Manufacturing	3.4%
3219	Other Wood Product Manufacturing	3.0%
3273	Cement and Concrete Product Manufacturing	2.9%
West Virginia		
3254	Pharmaceutical and Medicine Manufacturing	21.2%
3121	Beverage Manufacturing	13.4%
3273	Cement and Concrete Product Manufacturing	8.1%
3364	Aerospace Products and Parts Manufacturing	7.1%

3329	Other Fabricated Metal Product Manufacturing	5.0%
3391	Medical Equipment and Supplies Manufacturing	4.3%
3339	Other General-Purpose Machinery Manufacturing	3.9%
3231	Printing and Related Support Activities	3.9%
3251	Basic Chemical Manufacturing	3.8%
3363	Motor Vehicle Parts Manufacturing	2.5%
Wisconsin		
3339	Other General-Purpose Machinery Manufacturing	8.4%
3231	Printing and Related Support Activities	7.6%
3361	Motor Vehicle Manufacturing	5.7%
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	5.6%
3271	Clay Product and Refractory Manufacturing	5.4%
3254	Pharmaceutical and Medicine Manufacturing	4.9%
3222	Converted Paper Product Manufacturing	4.5%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4.3%
3121	Beverage Manufacturing	4.0%
3364	Aerospace Products and Parts Manufacturing	3.3%
Wyoming		
3241	Petroleum and Coal Products Manufacturing	22.0%
3254	Pharmaceutical and Medicine Manufacturing	14.2%
3391	Medical Equipment and Supplies Manufacturing	9.1%
3273	Cement and Concrete Product Manufacturing	5.4%
3363	Motor Vehicle Parts Manufacturing	4.5%
3339	Other General-Purpose Machinery Manufacturing	4.5%
3119	Other Food Manufacturing	3.9%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	3.2%
3121	Beverage Manufacturing	3.0%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	3.0%

Source: Burning Glass Technologies, Labor Insights

Works Cited

Accenture and The Manufacturing Institute. *Out of Inventory: Skills Shortage Threatens Growth for U.S. Manufacturing*. Washington, DC, May 2014. See

<http://www.themanufacturinginstitute.org/Research/Skills-and-Training-Study/~media/70965D0C4A944329894C96E0316DF336.ashx>.

Deloitte and The Manufacturing Institute. *Skills Gap and Future of Work Study*. Washington, DC, November 14, 2018. See <http://www.themanufacturinginstitute.org/Research/Skills-Gap-in-Manufacturing/Skills-Gap-in-Manufacturing.aspx>.

NAM Manufacturers' Outlook Survey, *Fourth Quarter 2018*. Washington, DC: National Association of Manufacturers, December 20, 2018. See https://www.nam.org/uploadedFiles/NAM/Site_Content/Data-and-Reports/Manufacturers_Outlook_Survey/nam%20manufacturers%20outlook%20survey%20writeup%20-%2012.2018%20.pdf.

NAM Manufacturers' Outlook Survey, *First Quarter 2019*. Washington, DC: National Association of Manufacturers, March 5, 2019. See <http://www.nam.org/outlook/>.