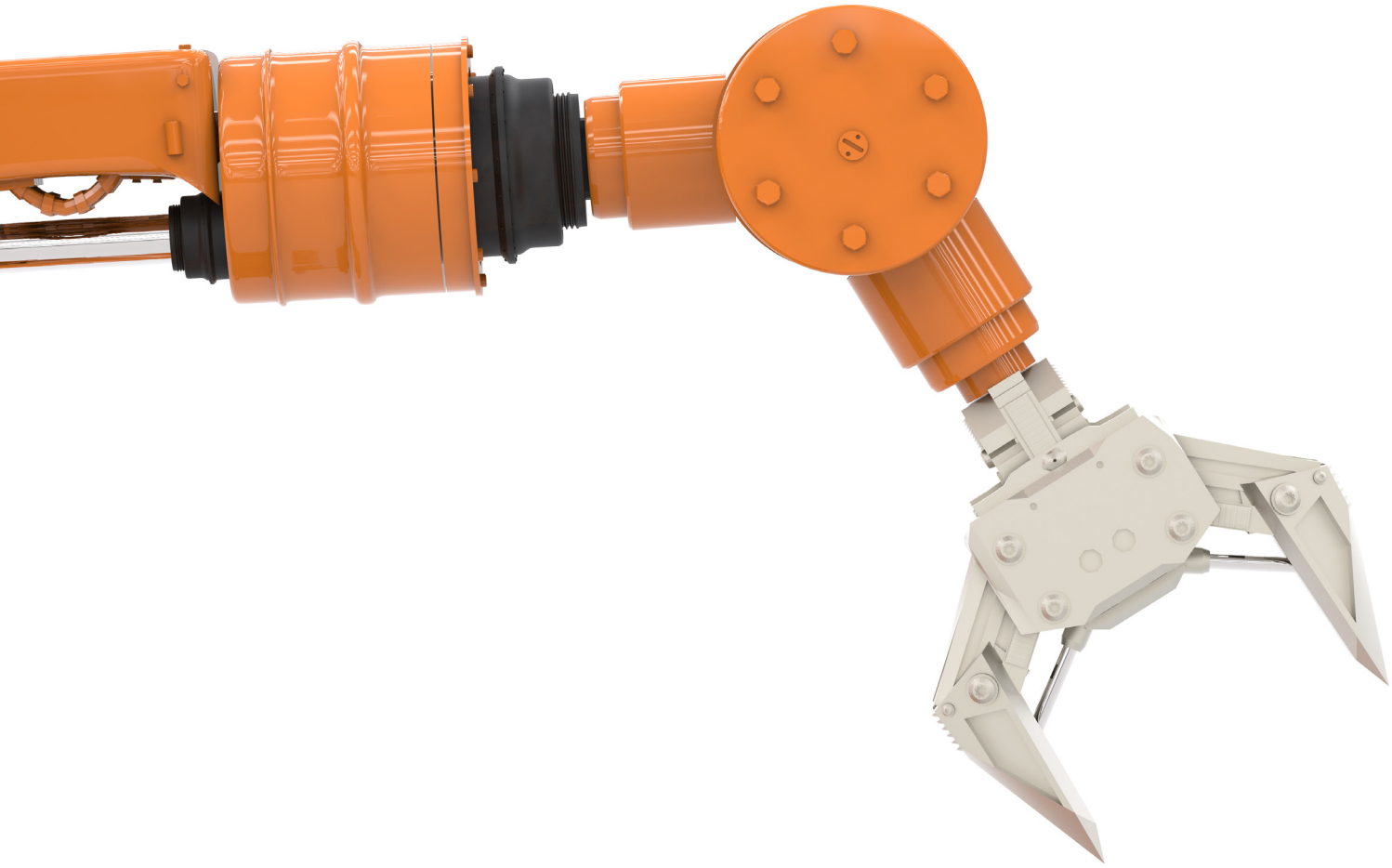

THE FUTURE OF MANUFACTURING

EMERGING TRENDS AND HR BEST PRACTICES

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QUANTUM WORKPLACE

American manufacturing is at a turning point. Rapid advances in technology have introduced automation on a remarkable scale, resulting in significant gains in production and seismic changes to the manufacturing workforce, both in the number of jobs available in the sector and the skills and education required to fill them.

Throughout the 2016 presidential campaign, candidates and the news media pointed to manufacturing as both a cause and an effect of perceived larger societal problems and priorities. Walking outside long-silent factories and past boarded-up houses, candidates bemoaned that manufacturing in America was dead or dying.

But these scenes don't tell the whole story. The fact is, overall in the United States, manufacturing is booming. The industry is the largest and most dynamic sector of the U.S. economy; manufacturing output is a near a record high.[1]

Industry changes and simple economics have brought about changes in the workforce. But for all the production and automation found on factory floors, the industry's single greatest asset remains the people who make it all run.

The greatest challenges facing American manufacturing are closely linked and must be dealt with deliberately and comprehensively:

- **Meeting the demand for highly trained workers**
- **Overcoming the "second-tier career" stigma**
- **Combating low employee engagement**

HISTORY OF AMERICAN MANUFACTURING

In 1790, Samuel Slater, his head full of learnings picked up from the English textile industry, built the first factory in America: a cotton-spinning mill on the south bank of the Blackstone River in Pawtucket, Rhode Island.[2] Slater had to know others would follow his lead in this newborn country, but there was no way he could have dreamt what was coming.

Fast forward some 130 years, to the outset of World War II. America has retooled its growing manufacturing might to support the Allied war effort.[3] Half of the world's wealth, more than half of the productivity, nearly two-thirds of the world's machines are concentrated in American hands; the rest of the world lies in the shadow of American industry.[4]

Soon after the war, there was a desperate hunger for products after the 15-year drought caused first by the Depression and then by World War II.[5] American industry went back to work, this time producing consumer goods, holding tight to the lean production strategies developed during the war effort.

For the first time, the man or woman on the production line could afford the products he or she made. Indeed, manufacturing in the post-war years provided more than a third of civilian jobs in the U.S.; its plants generated products and consumers alike.

From the 1940s to the 1970s, the manufacturing industry helped to build out the U.S. middle class, providing well-paying jobs that didn't require a college degree. At the same time, the U.S. established pro-labor policies and faced limited global competition.

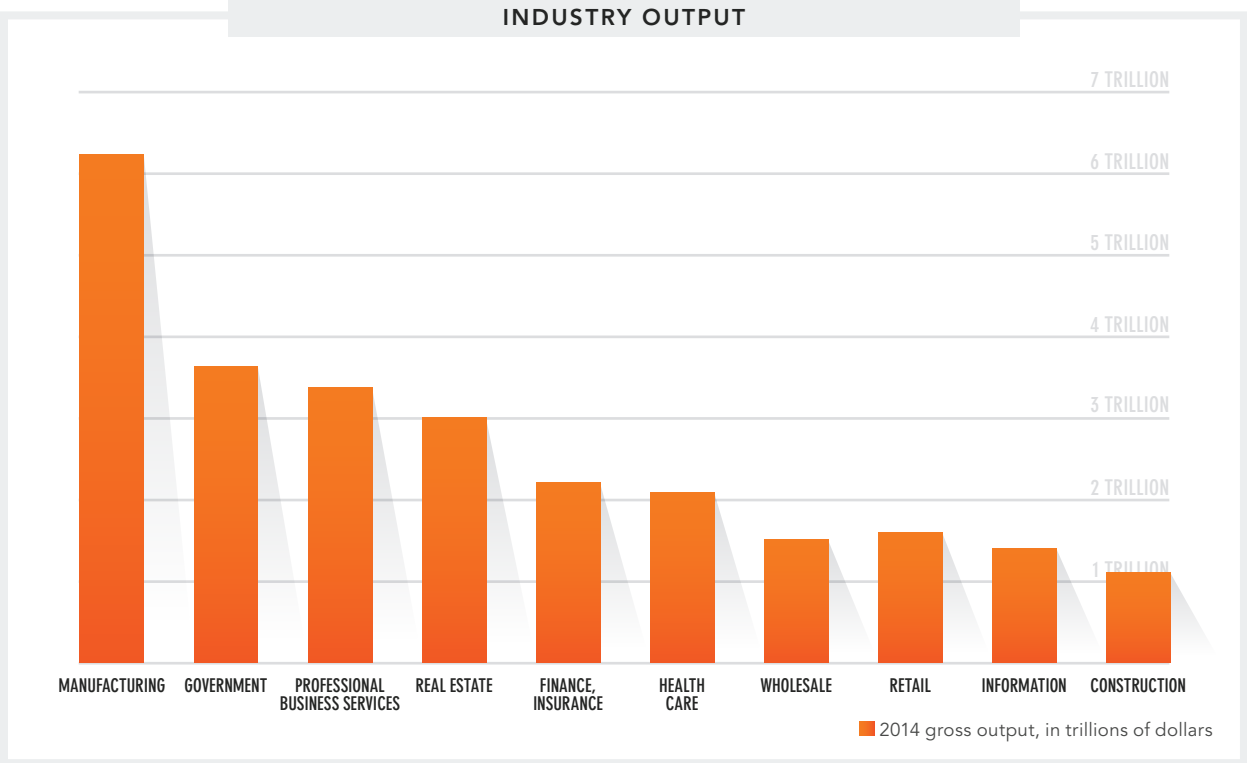
In the 1980s, large publically held corporations began to streamline their companies and eliminate functions that they didn't see as core competencies.[6] Changes continued in the 1990s, and the rise of China, globalized free trade, and supply chain innovation arguably resulted in the off-shoring of thousands of U.S. manufacturing facilities and millions of manufacturing jobs to lower-wage countries.[7]

AMERICAN MANUFACTURING TODAY

Today, manufacturing in America is undergoing dramatic change. Despite the rhetoric of the campaign trail, domestic manufacturing is hardly teetering on the verge of collapse.

Consider:

Manufacturing is the largest and most dynamic sector of the U.S. economy. Technology and new ways of organizing work have revolutionized the American factory. Today, US factories produce twice as much as they did in 1984, but with one-third fewer workers. Total production of U.S. factories peaked in 2007 before falling by 18% during the Great Recession. Manufacturing also leads all other US industries in output.[8]



Source: Market Watch

US factories continue to compete on the world stage. China became the leading manufacturing economy in the world in 2010, but the United States maintains a strong second-place standing.[9] The value added by U.S. factories is more than $2 trillion a year, equal to the next three countries (Japan, Germany and South Korea) combined. U.S. manufacturing is still the envy of the world.[10]

Manufacturers have one of the highest percentages of workers who are eligible for health benefits provided by their employer. 92 percent of manufacturing employees were eligible for health insurance benefits in 2015, according to the Kaiser Family Foundation. This is significantly higher than the 79 percent national average.[11]

The manufacturing sector has nearly recovered from the Great Recession; output in 2015 was within 3% of the 2007 level

Source: Market Watch

FUTURE OF AMERICAN MANUFACTURING

The forces steering the future of manufacturing in America are a mix of the unexpected and the long-foreseen. In January 2017, the Manufacturing Leadership Council put forth a list of trends expected to define the industry in the coming months.[12]

The list includes:

Trade tensions loom in the face of global uncertainty. Political upheavals during 2016 in both the U.S. and Europe have created unprecedented levels of uncertainty about the freedom of international trade for manufacturing companies over the next decade. The prospects of a major trade deal between the U.S. and 12 Pacific Rim countries, known as the Trans-Pacific Partnership (TPP), is uncertain, and a similar Transatlantic Trade and Investment Partnership (TTIP) deal with Europe is stalled. Additionally, the U.K.'s Brexit vote in June 2016 has thrown the traditional trade relationships between many European companies into disarray and could take a decade to resolve. Large corporations may be able to negotiate their way through the minefield of future trade agreements, but small- and medium-sized manufacturing enterprises will need to be vigilant and flexible if they wish to maintain broad and open access to key export markets around the world.

Jobs and automation will negotiate an uneasy peace. Faced with a dramatically changing political environment, U.S. manufacturing's profile will rise in 2017 as the debate over how best to expand manufacturing jobs takes place. That debate will become increasingly illuminated by a growing understanding that automation, in contrast to off-shoring, has played a key role in not only job elimination in the past but also in defining what jobs and skills are needed in the future.

Manufacturing leaders must broaden their horizons. Manufacturing leaders will also be required to broaden their horizons as Manufacturing 4.0 creates new, digitally-enabled opportunities to enhance operational efficiency by building new workflows that link previously isolated functions such as manufacturing, supply chain, and new product development. Leaders will be forced to gain deeper knowledge of how other, contiguous functions work in order to understand the opportunities for cross-functional collaboration, ultimately resulting greater customer value.

HOW TO WEATHER THE STORM

The Three Biggest Challenges Facing American Manufacturing and What HR Leaders Can Do

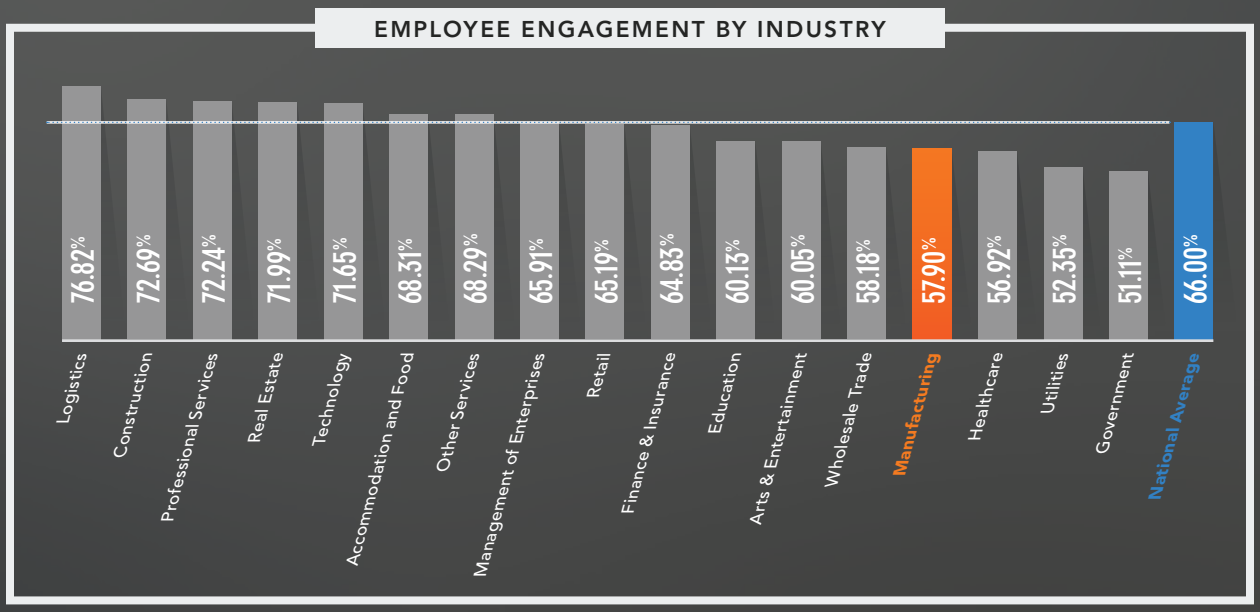
Manufacturing's coming years will be marked by a multitude of changes, and the successful firms will be distinguished by their ability to handle the biggest challenges facing American manufacturing:

1. **Meeting the demand for highly trained workers**
2. **Overcoming the "second-tier career" stigma**
3. **Combating low employee engagement**

To navigate the coming changes, it is essential that manufacturing firms have an engaged workforce - something that is in short supply .

Recent research by Quantum Workplace showed that of 17 industries, manufacturing ranked 14th, over eight percent below the national average.

Engaged, high-performing employees will be the key to weathering the storm.



1. Meeting demand for highly skilled workers.

The U.S. has lost 5 million manufacturing jobs since 2000, and those losses have reverberated across the country, particularly affecting lower-pay, lower-skill jobs.[13]

Half a century ago, almost no manufacturing workers went to college; they graduated from high school and went straight to the factory, where they found a good job for life. Now, it's more and more common for manufacturers to hire workers who have some higher education. Traditional manufacturing workers, however, don't have those advanced degrees, and find themselves squeezed from the workforce.

Meanwhile, since 2000, jobs in manufacturing for people with graduate degrees have grown 32 percent.[14] Manufacturing jobs for people with less than a high-school education fell 44% between 2000 and 2013.[15]

Despite all the new skills and education required, fewer employees feel that manufacturing firms are training them for the future. Recent research by Quantum Workplace shows that **the survey item "I see professional growth and career development opportunities," dropped 3.16%** among manufacturing employees in 2017. The decrease is especially concerning in an industry going through complete overhauls in organizational structure and workplace technology.

HR Recommendation:

Organizations should enhance their efforts to train individuals toward future, more advanced job roles. This training can take many forms, such as cross-training, job shadowing, job rotation, workshops, etc. Aim to create a "culture of education" to give manufacturing employees a competitive edge against job automation or outsourcing.

Manufacturing also needs to be able to retain these skilled workers. Focus groups are a great medium for exploring retention. HR reps should sit down with employees to discuss what could be improved, changed, started, or stopped to enhance their probability of continued tenure; make sure employees consider ideas beyond pay and benefits.

2. Overcoming "second-tier career" stigma.

According to a 2017 White House report, the U.S. economy will need to fill 3.5 million skilled manufacturing jobs over the next decade.[16] However, just 1 in 3 parents said they would encourage their child to pursue a career in manufacturing, and manufacturing ranked last as a career choice among millenials.[17]

Simply put, recruiters are up against the myth that manufacturing work as only "dirty, dumb, and dangerous." They work to dispel that mindset by spending time reaching out to young people at local high schools, technical and vocational schools, and community colleges. Younger workers need to see the potential in the expanding area of so-called advanced manufacturing, which is highly specialized and requires a facility with computers.

The same study by Quantum Workplace showed two significant decreases in survey item favorability among manufacturing workers:

- A 4.75% decrease in the item "My immediate coworkers consistently go the extra mile to achieve great results."

- A 1.66% decrease in the item "The people I work with most closely are committed to producing top quality work."

Decreases in these items can spell trouble for an industry trying to overcome status stigmas.

HR Recommendation:

Fear and anxiety about an uncertain future — such as from trade tensions or job automation — often inhibit individuals' ability to see beyond their own problems and disconnect employees from the company as a whole. In other words, anticipatory dread might be fueling the perception that coworkers aren't helping each other out, or at least that they're not going above and beyond in their normal tasks. Encourage managers to build relationships between team members, and your employees will slowly build care – and volunteer discretionary effort – toward their coworkers.

3. Combating low employee engagement

Nothing kills an industry quite like the lack of engagement among its workforce. While hardly a silver bullet, improving employee engagement does far more than simply create a happier and more productive workforce. Organizations with highly engaged employees have higher profitability, greater stock price growth, and greater revenue growth.

Below are listed the top drivers of employee engagement among manufacturing employees; these are the areas that could have the greatest impact on employee engagement.

MANUFACTURING DRIVERS	
1	The senior leaders of the organization value people as their most important resource.
2	I trust our senior leaders to lead the company to future success.
3	My job allows me to utilize my strengths.
4	If I contribute to the organization's success, I know I will be recognized.
5	I believe this organization will be successful in the future.

HR Recommendation:

To really push the dial on employee engagement, organizations must identify gaps and drivers in their own unique employee populations. Institute an annual employee engagement survey to get the temperature on your individual company's engagement. Then, with the help of your survey partner, address areas that need improvements.

CONCLUSION

While many may disparage the future of manufacturing, the industry will endure the changes to come. With proper attention to employees, organizations can create environments that develop, engage, and draw new waves of employees.

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