

MANUFACTURING
WORKFORCE:
THE NEW

TIME FOR ACTION

The global manufacturing industry is fighting a growing skills gap. **Without immediate corrective action, it could be facing a collapse.** Manufacturing executives now need to focus on training, education, and partnership to debunk the myths about a career in manufacturing and attract the inspired, skilled, and innovative workforce the industry needs to secure its future.

By Robert Dean and Joel Conover





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N ESTIMATED 10 MILLION MANUFACTURING JOBS worldwide are currently unfilled.¹ How can the global manufacturing industry respond to this enormous skills gap? Certainly, technological innovation and process automation have changed the basic skill set required of manufacturing employees, forcing them to become more technologically adept, rapidly digest

more information than ever on the job, and increasingly make business-critical decisions based on real-time insights. Such people are becoming increasingly hard to find.

On top of that, the baby boomer generation is working beyond normal retirement age, leaving fewer opportunities for job-title and salary advancement for employees with less than 10 years' experience. As a result, much of a manufacturing company's most promising talent is actively looking outside the organization for better positions that provide faster advancement opportunity.

Making matters worse, in many developed nations the manufacturing industry has a long-standing perception as dark, dank, and dirty, which is driving new potential workers away from professions in manufacturing industries. The industry is also seeing an increasing deficit in qualified candidates to attract to today's 10 million global job vacancies. Today's—and tomorrow's—manufacturing facilities require a sophisticated skill set, obtained through extensive training and education for both knowledge- and trade-based roles, that is not offered or encouraged in many places.

Manufacturing executives now need to work more closely with academia, trade organizations, governments, and each other to attract, develop, and inspire a new, motivated workforce that can drive industrial change, corporate growth, and professional excellence in the years ahead. Together, these

stakeholders in manufacturing's future must make appropriate training more accessible to attract new employees and retain the ones they have. They must also work to debunk existing myths by opening factory doors and showing prospective employees how innovative and clean the industry really is.

Understanding the New Workforce

One of the first steps in this process of industrial renewal is to understand the next generation of manufacturing workers.

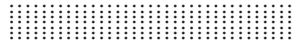
The upcoming generation of workers, often referred to as Gen Y or Millennials and born somewhere between the mid-1970s and the early 2000s, is now a key target for many manufacturing companies looking to fill current jobs. This generation, and even more so the generation that follows it, is generally marked by an increased use and familiarity with communications, media, and digital technologies. These people use the Internet as their external brain; rely on technology for entertainment, education, and communication; and have a thirst for instant gratification and little expectation of lifetime employment.

According to a survey of 1,000 technology insiders, critics, and students by Pew Research, participants gave consistent predictions on the key skills young people would need in 2020. These include public problem-solving through cooperative work,

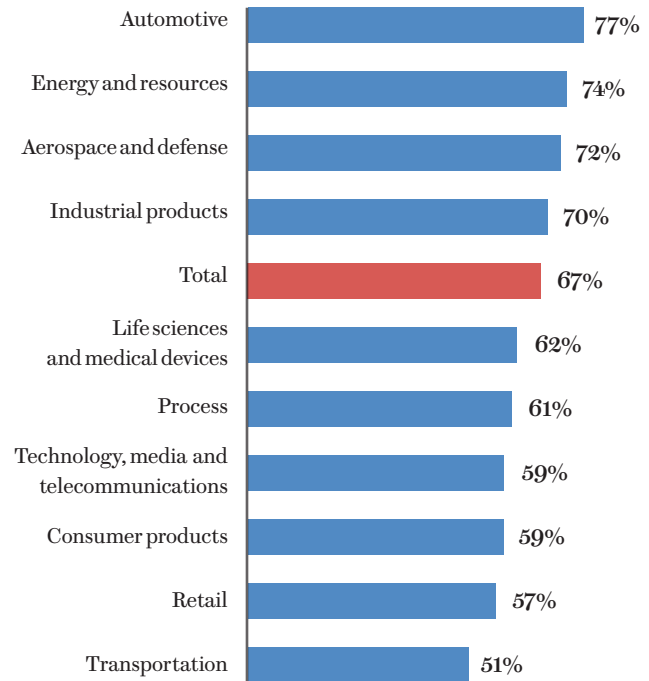
searching effectively for information online, and weighing the quality of information. This highlights the challenge that executives in the manufacturing industry will face—attracting qualified candidates who not only problem-solve and use technology effectively, but respect authority, collaborate effectively, and make quick decisions on real-time processes and procedures.

But with up to four different generations now working side-by-side on the plant floor—from retirement-ready baby boomers to new graduates—the manufacturing industry is seeing disconnects in communication, motivation, innovation, teamwork, engagement, professionalism, and leadership. If companies do not bridge these generations and embrace their newest influx of frontline employees, their operating costs will go up, employees’ effectiveness will decrease, and both morale and profits will suffer.

According to Jason Dorsey, a thought leader on Gen Y and bridging the generations, and author of *Y-Size Your Business*, three converging factors—the changing economy, Gen Y’s workplace attitudes, and a multigenerational workforce—underscore the importance of making the most of Gen Y’s emergence during a pivotal time for business competition. Dorsey believes that Gen Y employees, when managed correctly, can indeed deliver tremendous workplace performance and loyalty at a substantial value. He says this combination could not have come at a better time, because the



Percentage of U.S. Companies Facing Worker Shortages, by Sector



Source: World Economic Forum/Deloitte Report: *The Future of Manufacturing*

current economic climate is forcing companies to do more with less in an increasingly competitive business environment.

Debunking the Myths

How often do you see images in the media of a spotless shop floor and hear about a video-enabled manufacturing production line? Very rarely. Today’s manufacturing execu-



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tives now need to fight the old perception of manufacturing as a dark, dank, and dirty industry, and actively help paint a picture of today's bright, innovative, and clean production environment. Many potential manufacturing industry employees still have an outdated perception of what manufacturing is really like, and so they are taking other paths in life that they see as more exciting, rewarding, and safe.

TV shows like *How It's Made* and *The Edge Factor* are helping to raise awareness of the advancements being made in the manufacturing industry. *The Edge Factor*, for example, regularly features a high-caliber, real-life manufacturing story that puts a positive and an accurate spin on today's technology. As the industry works to revolutionize the image of manufacturing by debunking stereotypes, this approach helps shine a spotlight on the advanced technologies and innovations that now characterize the modern, exhilarating manufacturing careers available to the next generation.

A second myth is that a career in manufacturing means slow career advancement and comparatively low wages. In fact, according to the Brookings Institution, wages in manufacturing are higher than those in the economy as a whole, with the average manufacturing salary at \$58,485 compared to the national average of \$47,290. The manufac-

turing sectors with the highest average annual earnings are pharmaceuticals, computers and electronics, petroleum and coal products, aerospace, chemicals, and machinery. Lower on the list are jobs in textile product mills, apparel, wood, leather, and furniture.

The third myth in many developed nations is that manufacturing is no longer a major contributor to economic wealth. But contrary to popular belief, manufacturing remains an important part of the economic base of most Western nations—and many metropolitan areas of developed countries like the United States. There is a need, now more than ever, for skilled employees to take positions with manufacturing companies as new plants are built and others undergo renovation in the U.S. and other nations to maintain manufacturing's economic momentum.

Attracting New Workers

Education is a critical component in developing and attracting the people with the right skill sets to help drive the future of the manufacturing industry. Culturally, we are moving toward a more cerebral society where people use their brains more than their hands. Technology is becoming increasingly pervasive, but this trend means that more awareness is needed on educational programs to show how the manufacturing processes have evolved with the generations. This will help new candidates not only feel encouraged to apply for



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manufacturing jobs, but feel that they will be empowered to take action once hired.

But it is not just the manufacturing knowledge worker who is in demand. The industry is also facing challenges finding people who are qualified to do welding, metal-bending, and other standard shop-floor-type operations. Most traditional high schools and trade schools have discontinued this type of education, and trade schools are not attracting enough interest to populate these types of programs.

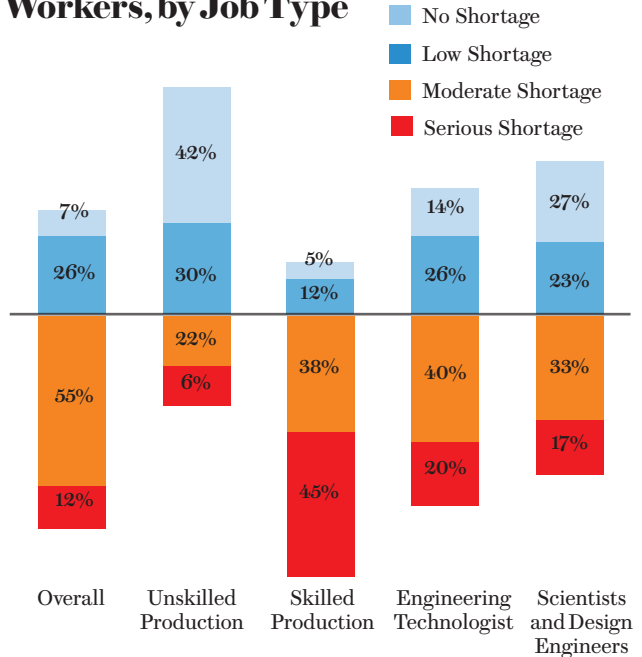
Manufacturing executives need to work with their local communities to educate parents, teachers, and administrators that not everybody needs a four-year college degree to get a good job, and that there is value in a technical education. Students must also be shown that entering the skilled professions can result in as emotionally and financially rewarding a career as going to college. It is essential for manufacturing companies to partner with high schools to get students interested in the skilled trades, and for trade schools to maintain enrollment rates in hands-on programs.

One program helping to prepare the new generation of manufacturing workers is The Manufacturing Institute's Dream It! Do It! initiative. This program partners businesses with community organizations, public schools, and community colleges to educate young people about career opportunities in manufacturing, and equip them with the skills they need to get good jobs. The Institute also has a Manufacturing Skills Certification System, a composite of stackable secondary and post-secondary credentials designed to validate the skills and competencies that applicants need to be productive and successful in the modern manufacturing environment. The Institute has set a goal of certifying a half-million manufacturing workers by 2016. In 2011, it certified 84,000.

Young workers are not the only solution



Shortages of U.S. Manufacturing Workers, by Job Type



Source: World Economic Forum/Deloitte Report: *The Future of Manufacturing*

to the skills gap, however. Manufacturing executives should not miss the opportunity to reward advancement opportunities for existing workers, too. If companies want to be successful in moving toward more team-based learning, the management skills and career paths for employees need to be nurtured. They must also look to enhance and standardize on-boarding orientation procedures for quality, consistency, and efficiency, and provide training programs throughout the length of the employee's career, especially as technological advancements are happening at a rapid rate.

Technology As a Game-Changer

The increasing speed of innovation also means that industry must put policies in place to ensure the rapid adoption of new technologies, and consistently train people on how to use

¹*The Future of Manufacturing: Opportunities to Drive Economic Growth.* World Economic Forum and Deloitte Touche Tohmatsu Limited, 2012

² Cisco Connected World Technology Report, 2011



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those technologies. If this does not happen, manufacturers around the world will be at a disadvantage, as other industries that are a step ahead with new technology advances are more likely to attract and retain the limited pool of educated and skilled talent.

One key issue for the next generation, for example, is the concept of Bring Your Own Device (BYOD), which allows employees to work anywhere on their preferred device, untethered from a traditional static workstation. A recent Cisco Connected World Technology Report found that two of five survey respondents said they would accept a lower-paying job that offered more flexibility for device choice, social media access, and mobility than a higher-paying job with less flexibility. The study also reported that employees who are able to use their personal devices to improve job workflow, increase competence, and enhance collaboration are more productive on the job and more likely to stay with an organization longer.²

Technology is changing the job, but it can also change and educate the employees who do the job. BYOD should be recognized as a powerful way to give employees access to the extensive training and education that will be required for both knowledge- and trade-based roles.

Driving the Future

Driving the rapid adoption of technology alone is not enough. Manufacturing executives must also be alert to the changes in business strategy that will help put that technology to work for them most effectively. Every manufacturer should empower its employees to identify ways to make com-

pany processes more agile through the use of new technology. The new workforce depends on external data and instant access to information to augment and improve its decision-making process, and manufacturers need to enable and optimize that behavior in the workplace by enabling workers to connect, collaborate, and make informed decisions in real time.

That's why all manufacturing executives must look at what the industry is dealing with now, and where it will be in 10 years' time. Over the next decade, the future workforce must be better able to collaborate globally to share best practices and determine how best to program the ever-changing technology that will propel their businesses through a constant flood of change. The explosion of devices, and the increase in data that these devices provide, will continue. The challenge now is how to leverage these trends to the best business advantage.

As manufacturing executives, we believe there are two things you can do today to help enable the workforce of the future:

- ▶ Adopt new technology as quickly as possible, and embrace it as an enabler rather than an obstacle. Technology can significantly help drive business innovation, and attract and retain more qualified and committed employees for the future.
- ▶ Get involved with all levels of schools and the local government to help dispel negative perceptions. Hold open houses to educate and train prospects so they are encouraged and excited to become tomorrow's workforce.

Companies that decide not to take action in addressing the rapid technological changes and attracting Gen Y to the industry will inevitably fall behind. And if the industry as a whole does not take action today, the consequences could be severe for all of us. **M**