



HOW ROBOTICS CAN HELP YOU BUILD YOUR WORKFORCE OF THE FUTURE

White Paper

OVERVIEW

Discover how adding robots can help attract top tech talent and enable your business to do more with less people.

The manufacturing industry is in the midst of a transformation, spurred on partially by the impact of both supply chain disruptions as well as a global shortage of skilled talent. This skilled talent shortage is primarily driven by demographic changes (low birth rate and aging population), skill mismatch, and insufficient education and training programs in comparison to the rapid innovation in industry.

The skills gap in the U.S. alone is costing the economy \$13 billion per month, and Deloitte predicts that number will sadly grow to an [estimated \\$2.5 trillion over the next decade](#).

The problem is equally significant in other areas of the world. According to Korn Ferry's "Future of Work" findings, there will be an estimated total talent deficit of [85 million](#) workers in 2030, resulting in [\\$8.452 trillion](#) in unrealized revenue globally—more than the yearly GDP of the U.K. and Germany combined.

THE CHANGING FACE OF TODAY'S WORKFORCE

While companies continue to rely on conventional methods, such as compensation, titles, and career advancement, to attract and retain employees, the working population has reassessed priorities as a result of the growing number of remote working opportunities today. As a result, a growing pool of workers are seeking alternatives to the traditional career path.

This shift has created a structural gap in the labor supply, and for many smaller manufacturers that are located in rural areas with very small labor pools, the issues are even more profound. Poaching talent from competitors, a common practice, simply spurs wage inflation without addressing the fundamental imbalance in the labor market.

UNDERSTANDING THE WORKFORCE OF THE FUTURE

When we talk about the workforce of the future, we are mainly talking about Millennials (born between 1981 and 1996) and Generation Z (born between 1997 and 2012). The workforce of the future (2030 onwards) will be primarily composed of these two generations.

Gen Zers and Millennials value different things than previous generations. Some key characteristics these workers are looking for in employment opportunities:

- **Purpose and Meaning:** With vast amounts of data at their disposal, they are more pragmatic and analytical, and value knowing what is going on around them and being in control. This generation of self-learners is also more comfortable absorbing knowledge online than in printed-out training documents—so save your paper. They prioritize finding purpose in their jobs and want to work for organizations that share their values.
- **Work-Life Balance:** They place importance on achieving a healthy work-life balance, so they place value on flexibility in work arrangements and seek opportunities that allow them to maintain a sense of personal well-being and pursue interests outside of work.

- **Career Growth and Development:** They desire opportunities for continuous learning and career advancement and prioritize professional development, mentorship programs, and opportunities to acquire new skills. They seek employers who invest in their growth and provide clear paths for advancement.
- **Leading-Edge-Technology:** Having grown up in the digital age, these digital natives are tech-savvy and value workplaces that embrace technology and innovation. They expect organizations to provide them with modern tools and technologies that facilitate productivity and collaboration.

CHANGING THE NARRATIVE FOR MANUFACTURING AS A CAREER

Manufacturing jobs have traditionally been viewed as "dirty," low-paying, and with little room for advancement. Younger workers, who prioritize purpose and meaning in their work, may not see manufacturing as an industry that offers a fulfilling and impactful career path. This perception of the manufacturing industry as a low-tech and low-skill sector can deter young talent.

Once hired, Gen Zers seek career advancement and continuous skill development. If manufacturing companies are unable to offer these opportunities, young talent may—and often do—seek more promising careers elsewhere.

Additionally, the manufacturing industry is often associated with shift-based work schedules and rigid routines, which can clash with the desire for work-life balance among Gen Zers. The demanding nature of manufacturing jobs, including physically demanding tasks and long hours, may not align with the flexible and balanced work arrangements that today's young talent seeks.



The challenges become even more pronounced for small- and medium-sized manufacturers because they often face these obstacles:

- **Limited Resources:** These manufacturers typically have limited financial resources, which can make it difficult for them to invest in attracting and retaining young talent.

They may struggle to offer competitive compensation packages, comprehensive benefits, or extensive training and development programs that can appeal to Gen Z job seekers.

- **Limited Brand Recognition:** They may lack brand recognition and visibility, especially when compared to larger, well-established companies. Gen Z job seekers often gravitate towards companies with strong employer brands and reputations. Without a strong brand presence, small manufacturers may struggle to attract the attention of young talent.
- **Perception of Traditional Work Environment:** Gen Z job seekers are often looking for dynamic and innovative workplaces, and smaller manufacturers may struggle to convey these qualities effectively. The perception of manufacturing as a low-tech or as a low-growth industry can further deter young talent from considering opportunities in small manufacturing companies.
- **Limited-Job-Growth-Opportunities:** They may have fewer opportunities for career advancement compared to larger companies with multiple departments and hierarchical structures. Young talent seeks opportunities for growth and development, and the lack of clear advancement paths within small manufacturers can discourage them from pursuing careers in the industry.
- **Lack of-Training and-Development-Resources:** These companies may face challenges in providing robust training and development programs. Limited resources and personnel can make it difficult to offer comprehensive onboarding, skills enhancement, and professional development initiatives that are attractive to Gen Z job seekers.

HOW ROBOTICS CAN HELP ON MULTIPLE FRONTS

Implementing robotics serves a dual purpose by enhancing productivity, while also playing a crucial role in attracting and retaining young talent. The integration of robotics technology offers numerous benefits that align with the preferences of younger generations.

For one, by implementing and leveraging robotic systems, manufacturers can showcase their commitment to innovation and technological advancement, appealing to tech-savvy individuals seeking dynamic and cutting-edge work environments. Taking advantage of the latest in technology also assures customers—both new and existing—that a company is committed to future growth.

Another benefit is that automation, through the use of robotics, can reduce mundane and repetitive tasks, allowing employees, especially the younger workforce, to focus on more challenging and intellectually stimulating work. This can not only increase job satisfaction, but also help the business retain that skilled talent. Acquiring the talent is step one; keeping them happy is just as important.

While the integration of robotics in manufacturing can be a compelling factor in attracting young talent, it's important to note that simply adopting robotics technology is not enough. The true appeal lies in the experiences and

opportunities that are unlocked by the presence of robotics in the workplace.

Robotics technology creates an ecosystem that fosters innovation, collaboration, and growth. It provides employees with the chance to work alongside advanced machines, learn new skills, and develop expertise in programming and operating robotic systems. This hands-on experience with cutting-edge technology can be highly enticing to young talent who are eager to be part of the forefront of technological advancements.



GAMIFICATION OF ROBOTICS

The manufacturing industry needs to better promote manufacturing as a career that offers the younger workers what they value most as discussed earlier. The good news is that the younger generation is extremely comfortable with technology, and their knowledge of electronic devices and software interfaces lends itself very well to robot simulation and offline programming.

Robot workcells need to be engineered so that all processes are considered within a certain number of constraints. Robot engineering is part planning, part validation, and part programming. The workforce of today, and in particular the younger workers, has been immersed in these types of activities for years.

The workflows used in Robot Simulation and Offline Programming (OFP) aren't too different from the imaginary stories that unfold in the gaming worlds. The main difference is that robot simulation applies to the real world, eventually. Robot simulation software offers a 3D environment in which they will find puzzles and problems to solve. Similar to playing a video game, there are successes and pitfalls. Also, the decisions made will have results that are favorable or unfavorable, so attention to detail and problem-solving are key skills used in the robot workcell-building process.

Once built, the workcell robots can be programmed, which is where the virtual meets reality. Executing a virtual robot program is one thing, but having the ability to load that virtual program into the actual production robot in the actual workcell and making it work is not only exciting, but is fascinating, as it borders on science fiction. Virtual to Reality, or V+R, offers something that no video game can achieve.

ROBOTICS CAN PUT YOU ON THE PATH TO DIGITAL TRANSFORMATION

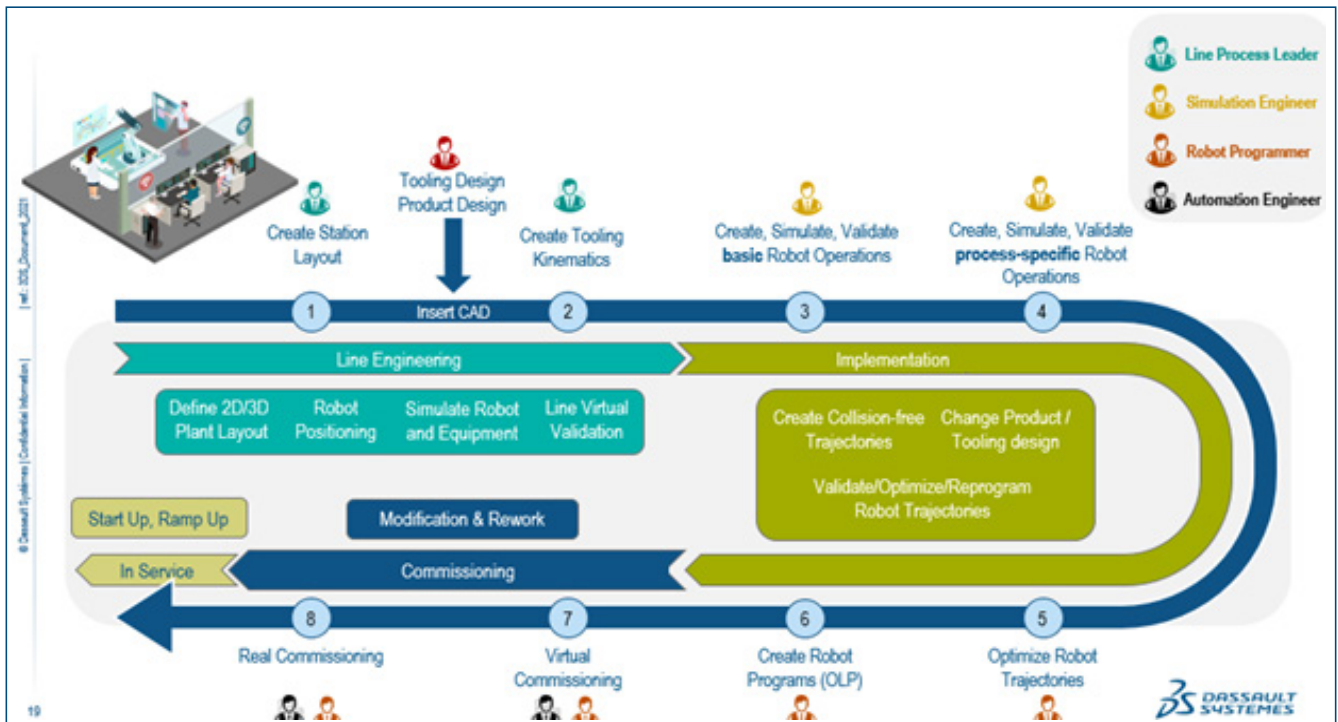
The integration of robotics often goes hand in hand with the implementation of advanced data analytics, artificial intelligence, the Internet of Things (IoT), robot programming, automation, and mechanical engineering, among other relevant disciplines. This interconnected ecosystem not only enhances productivity, but also opens up avenues for employees to engage with emerging technologies and gain insights into the broader field of Industry 4.0. Small companies that invest in robotics demonstrate a commitment to nurturing and developing talent, which can be a strong incentive for skilled individuals to join their teams.



CREATING A DYNAMIC, COLLABORATIVE WORK ENVIRONMENT

Robotics often requires collaboration across different disciplines, such as software development, electrical engineering, and mechanical engineering. This collaborative environment can be highly stimulating for young

professionals who enjoy working in cross-functional teams. By promoting such a dynamic and innovative work environment, small companies can attract young skilled talent who seek opportunities for growth and engagement.



WORKPLACE FLEXIBILITY

One way robotics enables work flexibility is through offline programming. Rather than requiring continuous physical presence on the production floor, robotics systems can be programmed and configured offline. This allows engineers and operators to work remotely or in flexible hours to design, simulate, and optimize robot movements and tasks.

Offline programming reduces the need for constant on-site presence, offering flexibility in work arrangements and fostering a better work-life balance. Furthermore, robotics systems often come with advanced monitoring and control capabilities. Engineers and operators can remotely monitor the performance and status of robots, make adjustments, and address any issues that arise. This remote accessibility

allows for flexible work arrangements, such as remote troubleshooting or supervision, enabling professionals to manage robotics operations from different locations and at different times.

FUTURE-FOCUSED INDUSTRIES

Many industries are increasingly relying on robotics and automation to improve efficiency and productivity. By incorporating robotics into their operations, small companies can position themselves as forward-thinking and future-focused organizations. This can be particularly appealing to young professionals who want to work in industries that are at the forefront of technological advancements.



WORK THAT IS IMPACTFUL

Firstly, robotics reduces human exposure to harmful environments. Certain manufacturing processes involve hazardous conditions, such as handling toxic substances or working in high-risk environments. By integrating robotics, companies can minimize human exposure to these risks, ensuring a safer working environment for employees. This aspect is particularly appealing to young professionals who prioritize workplace safety and well-being.

Secondly, robotics enables sustainable practices by minimizing errors and waste through virtual validation. With the use of simulation and virtual testing, manufacturers can validate production processes before implementation, reducing the likelihood of errors and minimizing material waste. This not only contributes to cost savings, but also aligns with sustainability goals by optimizing use of

Learn why this is the right time to add robotics and start reaping the benefits of automation today by reading this white paper, [The Evolution of Robotics in SMBs](#).

You can learn more about our manufacturing and production solutions by visiting <https://www.solidworks.com/domain/manufacturing-production>.

resources. Young professionals who are passionate about environmental sustainability and responsible practices are likely to be attracted to companies that embrace robotics for sustainable manufacturing.

Lastly, robotics helps optimize production processes and reduce energy consumption. Robotics systems can be programmed to operate with high precision and efficiency, minimizing energy waste and optimizing resource use. By automating repetitive tasks and optimizing production workflows, manufacturers can achieve energy efficiency and reduce their carbon footprint. This aligns with the values of young professionals who prioritize environmentally conscious practices and seek to work for companies that are committed to reducing their environmental impact.

THE BOTTOM LINE

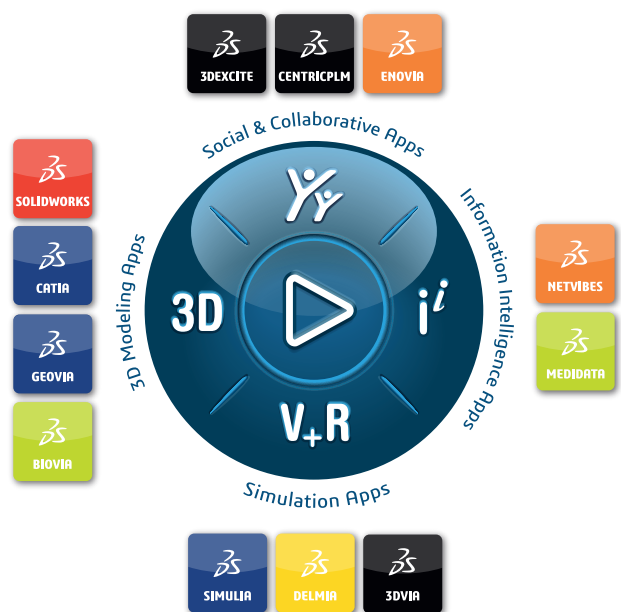
To effectively attract today's young skilled talent, small- and medium-size manufacturers must be forward-thinking and able to demonstrate their commitment to innovation and technology-driven solutions by implementing robotics. This can be highly appealing to young skilled talent who are looking for opportunities to work with advanced technologies.

These smaller manufacturers should highlight their commitment to robotics in their job postings, employer branding efforts, and networking activities. They can showcase the technologies and projects they are working on, emphasize the learning and growth opportunities, and communicate their vision for the future. Additionally, partnering with educational institutions and participating in industry events can help small companies connect with young talent interested in robotics.

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating virtual twin experiences of the real world with our 3DEXPERIENCE platform and applications, our customers can redefine the creation, production and life-cycle-management processes of their offer and thus have a meaningful impact to make the world more sustainable. The beauty of the Experience Economy is that it is a human-centered economy for the benefit of all – consumers, patients and citizens.

Dassault Systèmes brings value to more than 300,000 customers of all sizes, in all industries, in more than 150 countries. For more information, visit www.3ds.com.



©2023, Dassault Systèmes. All rights reserved. 3DEXPERIENCE, the 3DS logo, the Compass icon, IPWE, 3DEXCITE, 3DVIA, BIOVIA, CATIA, CENTRIC PLM, DELMIA, ENOVIA, GEOVIA, MEDIDATA, NETVIBES, OUTSCALE, SIMULIA and SOLIDWORKS are commercial trademarks or registered trademarks of Dassault Systèmes, a European company (Société Européenne) incorporated under French law, and registered with the Versailles trade and companies registry under number 322 306 440, or its subsidiaries in the United States and/or other countries.