Forum Institutional

Empowering the next-generation manufacturing workforce through AR innovation

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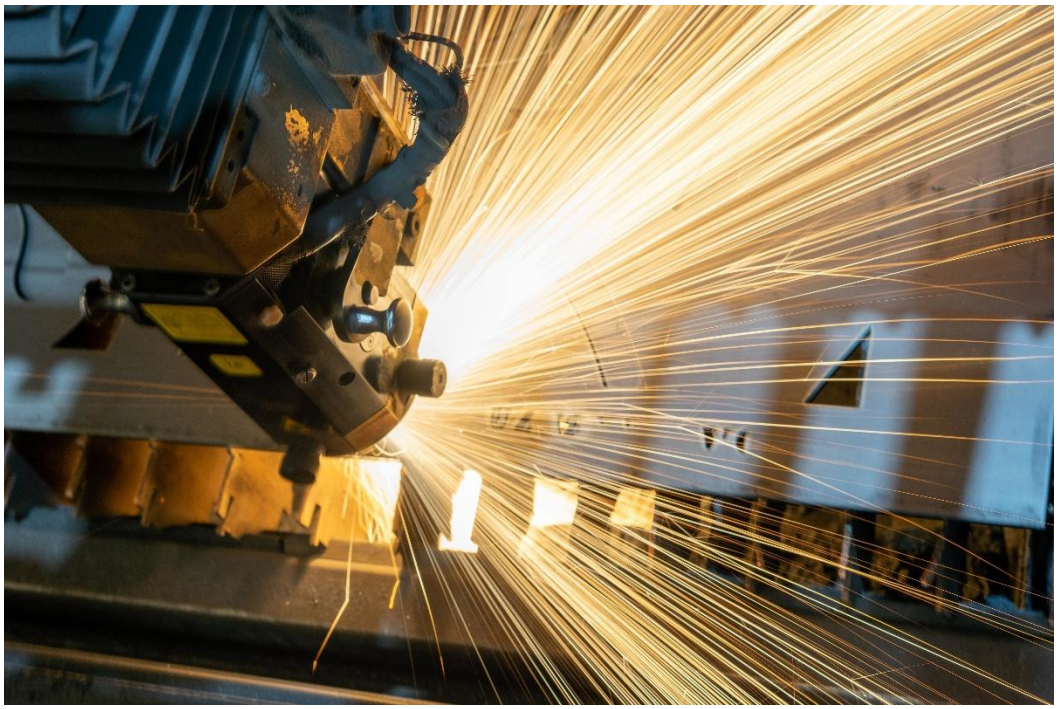
- **The manufacturing industry is suffering from a growing labour shortage.**
- **AR technology can help to tackle this issue while building a workforce fit for the future.**



Whether it stems from the retiring workforce or challenges in hiring skilled workers, there is currently a labour shortage in the manufacturing sector.

Manufacturers are experiencing the departure of their most skilled and experienced workers due to an ageing workforce and economic drivers that create pressure to incentivize older, more expensive workers to retire. In 2021, the US Department of Labor reported that there were more than 425,000 openings across the country for machinists and tool and die makers. The average age of a machinist is 53 years old, and 90% of machinists are over 40. Many are, therefore, retiring – and decades of experience can be lost with each retiring employee.

However, despite the fact that manufacturing jobs are in demand, the number of vacant, entry-level manufacturing positions continues to increase. In fact, US manufacturing is expected to have 2.1 million unfilled jobs by 2030. Manufacturers are finding it 36% more difficult to find talent today than in 2018, even though the unemployment rate is much higher than in the recent past.

Why is hiring for AR technologies such a challenge?

The bottom line is there are more openings than people who have enough experience to be hired – and they're not getting the experience for several reasons. These jobs often require a hands-on, applied training programme that can last anywhere from several months to more than a year. Additionally, with the ongoing digital transformation of the manufacturing industry, the skills required are changing and much of the workforce does not yet possess them.

Furthermore, younger workers have different expectations for jobs and careers or simply a lack of interest in the industry. This lack of interest can largely be attributed to misconceptions about manufacturing. Many recent college graduates view manufacturing as an industry that's earmarked for people who did not pursue post-secondary education. In actuality, there are many manufacturing jobs that require college degrees and some that require doctorates.

A recent study by the Manufacturing Institute showed that even though domestic manufacturing is perceived as increasingly important to the economy, many Americans are unaware that the industry is becoming increasingly high-tech – which not only improves employee productivity but provides highly advanced, transferable skills.

One such cutting-edge technology is augmented reality (AR). AR is a highly visual, interactive method of presenting relevant digital information in the context of the physical environment. It can connect employees and improve business outcomes. Simply put, AR technology can democratize knowledge. This is particularly important because as seasoned manufacturing workers age, their knowledge can be easily shared with more tech-focused younger workers.

AR technology enhances what we see in the present by integrating simulated objects and information into the real world. Using AR in manufacturing enables new, revolutionary training methods whereby workers can learn and perfect tasks virtually in the environments where they will be performed, thereby accelerating key metrics such as time to productivity and time to resolution. Since AR technology breaks the limitations of the physical world, it allows humans to be present with each other irrespective of distance.

Implementing AR technology, industrial enterprises are boosting workforce efficiency and safety, improving operational performance, and lowering costs across the factory and the field. Manufacturing experts can capture step-by-step procedures and best practices as they work and then transform those insights into reusable process documents, job aids, and training materials, thereby helping less seasoned or entry-level workers get up to speed quickly and efficiently.

AR can deliver critical information to manufacturing workers exactly when and where they need it. It offers a way to create and deliver easily consumable work instructions by integrating digital content into real-world work environments. Empowering the workforce with AR technology through better information delivery, faster knowledge transfer, modernized training methods, immediate access to remote expertise, and enhanced customer experiences will change the industry right when it is most necessary.

AR is reshaping how manufacturing employees acquire knowledge and digitally interact with their physical surroundings, resulting in faster execution, fewer manual processes, and better decision-making. Knowledge is essentially democratized, as the wider workforce has easy access to the most expert information for the job.

Looking forward: the future of manufacturing with AR technology

Amid industry-wide skills gap issues and a changing work environment, manufacturing organizations are finding AR technology to be critical for increasing operational efficiency and productivity, as well as enriching the overall employee experience. AR can help narrow the skills and knowledge gap and ensure all employees have the tools they need to succeed. As the digital transformation of the manufacturing sector continues, tomorrow's workforce must develop and hone new skills today – and AR technology makes that possible.