

Augmented reality technology has evolved rapidly to become an essential tool for companies looking to address challenges around workforce readiness. Use this guide to better understand the technology and to identify the pain points you plan to address.

Using Augmented Reality to Address the Skills Gap, Enhance Employee Life Cycle, and Improve Workforce Efficiency

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Introduction

At the most fundamental level, augmented reality (AR) technology brings data into the view of users when and where they need it most. This data "augments" a person's view of the surrounding reality and, in the case of business, helps a person successfully do the job at hand. AR presents critical contextual information, real-time insights, and remote expertise to frontline workers at the point of need. While some organizations leverage advanced headsets to deliver this AR information, the vast majority use devices that many of their employees are already carrying, including smartphones and tablets.

Spending on commercial-focused AR software and services has been growing at a rapid rate across a wide range of different use cases, especially among industrial-focused organizations. Many of these companies face substantial staffing challenges as experienced workers age out of the workforce. This challenge is often exacerbated by the fact that so many of these industry verticals continue to use outdated paper-based processes. Many are also still using slow, old-school training methods for new staff, which makes it exceedingly difficult to quickly ramp up new employees.

These challenges all came to a head during the pandemic, which forced many companies to radically accelerate their plans around AR technologies as they rushed to onboard new employees and dealt with having experienced employees in quarantine or lockdown. As a result, competitors in your space are likely already utilizing AR inside their organizations across a range of departments and use cases. If you're not doing the same and moving quickly to establish a game plan around using AR, you're likely to fall behind in terms of hiring new employees, upskilling current employees, and modernizing existing processes.

AT A GLANCE

KEY STATS

IDC forecasts that worldwide commercial spending on augmented reality software and services will grow from \$3.9 billion in 2022 to \$12.1 billion by 2026.

WHAT'S IMPORTANT

Forward-thinking companies are already using augmented reality technologies to address real-world challenges today.

Some of the most common pain points that companies use AR to address are:

- » **High cost of training/upskilling.** How long does it take to train a new hire to the point of competency, and how much does it cost your organization? When was the last time your company revisited its training materials and processes to address the learning styles of the people entering the workforce today? Leveraging AR for training new employees has the potential to do more than just speed the time to value of those employees. It has the potential to be a key differentiator when it comes to competing for new hires in the market. And training doesn't apply just to new hires. Today's organizations must also constantly upskill the current workforce to keep pace with change. One of the key challenges facing many industrial-focused companies is retaining skilled workers in a tight labor market. AR technology can make it easier, faster, and more economical to train your current workforce to tackle new jobs.
- » **Long time to worker proficiency with complex products and processes.** Even the most skilled workers will encounter complexity brought on by the production and servicing of new products, new configurations of legacy products that require specialized knowledge (particularly those with high degrees of variability and custom configurations), and the stringent demands of highly regulated industries and processes. AR can help an organization address this complexity by bringing digital content front and center when and where it is needed. This augmented visual content can include step-by-step instructions, animated sequences, Internet of Things (IoT) data, videos, visual inspection diagrams, checklists, PDFs, and images. AR guidance for complex task execution accelerates employee understanding and helps ensure standard operating procedures (SOPs) are followed correctly.
- » **Workforce and operational inefficiencies.** One of the biggest challenges industrial organizations face is that of simple inefficiency. Many are dragged down by slow, paper-based processes that they know they should replace but are daunted by where to begin and how to approach the problem. AR is uniquely suited to addressing the need for better training and instruction methods and has the potential to bring any lagging organization into the 21st century.

AR technology is uniquely suited to address these pain points. However, it's important to consider the following questions before choosing a solution:

- » **What problem are you trying to solve?** AR technology has wide applicability within most industrial organizations, and it's easy to get distracted by the possibilities. That's why it's important to identify a specific challenge you want to address, focusing attention on areas that will provide the highest value.
- » **What production processes, manufacturing processes, or operational processes might a solution impact, and how do you manage change?** To ensure adoption and a smooth rollout, you need to include the key internal stakeholders, especially the individuals who will be using the technology. Ensuring that employees understand the technology and are properly trained is key for a successful AR implementation.
- » **Which internal groups must buy in, and who might be blockers?** It's important to have an AR evangelist who both understands the technology and can rally support inside the organization. Change can be hard, and some pushback is to be expected. However, you're more likely to find support if you address concerns early on instead of midprocess.
- » **What key performance indicators (KPIs) should be used to measure value?** How are you currently measuring performance within a process, and how might that measurement have to change with the introduction of AR? This must be addressed before AR technology is implemented, not added midstream. Get the organization's buy in on KPIs early in the process.

- » **Who will lead the effort to test and measure the results?** Enlist the right people inside the organization to capture the results and be sure to include some AR skeptics. Winning over the broader team will require impartial and repeatable results.

Evaluating AR as a Solution to Pain Points

It can be difficult to know which questions to ask when looking at AR. The questions in Table 1 can help simplify this task.

TABLE 1: **Key AR Questions**

Question	Yes/No	Comment
High cost of training/upskilling		
Is your company using primarily in-person and/or classroom training of new hires?		AR technologies can remove the need for in-person and classroom training, eliminating the often associated cost of travel and hotel stays for remote employees.
Is your company spending money to have third parties generate training content for new and existing employees?		Quality training material can be expensive to acquire and maintain through outside firms. AR software can make it simple and fast to create impactful training materials via drag-and-drop software tools.
Is your company addressing the issue of institutional knowledge capture?		Too many organizations are facing the challenge of their most senior employees leaving the workforce and taking their institutional knowledge with them. AR offers tools for easily capturing the best practices of departing experts and scaling that knowledge to those who need it.
Have you looked at the total cost associated with traditional mentoring/shadowing training processes?		Mentoring and shadowing are time-tested methods of training, but they represent a high cost in that two employees are effectively doing one job. Having AR act as a digital mentor frees up training resources while improving time to proficiency. Also, when experts are "training" instead of "doing," higher-value tasks are not being done productively.
Have you considered the ramifications of outdated training methods in terms of employee retention and satisfaction?		AR can modernize and streamline your company's training methods, improving employee engagement and confidence. This in turn can lead to a more satisfied workforce that's more likely to stick with your company long term.
Addressing time to proficiency for complex products and processes		
Do your workers have easy digital access to the tools they need to do their jobs every day?		Most companies' digital technologies have not made it to the front line yet. AR can help deliver these assets at the right time/right pace to increase worker proficiency.

Has your company addressed the prospect of on-the-job knowledge delivery?		One way to speed proficiency is to enable better on-the-job training. AR can help enable this by delivering key information at the time it is needed, instead of asking employees to learn it in a classroom setting and then remember it.
Are you relying on your frontline workers to recall how to complete complex tasks and procedures?		Often the best way to learn a complex process is to do it. AR can help make this happen while also mitigating the possibility of costly mistakes by delivering easy-to-follow visual instructions that reduce ambiguity and guesswork.
Has your organization recognized the need to move beyond standard training methods such as manuals and slideware to address working with complex products and procedures?		Different people learn different ways, but it's no secret that retention can be poor if the training method is boring and outdated. AR can help new employees learn more quickly by immersing them in the process.
Has your company experienced costly mistakes and errors due to lack of employee understanding and knowledge retention associated with complex products and processes?		When a process is overly complex and employees are further challenged by inadequate instructions, they may disengage, which often leads to poor retention. By simplifying complex processes and more fully immersing employees in the learning process, AR can help address this challenge.
Workforce and operational inefficiencies due to poor or nonexistent work instructions/ job aids/SOPs		
Is your organization still running paper-based processes (or operations)?		Too many industrial companies saddle their employees with paper-based processes, work instructions, or SOPs that inhibit increased workforce or operational efficiencies. AR can enable more efficient digital-based workflows and procedures that empower frontline workers with up-to-date accurate information.
Do your employees have access to the most up-to-date information and instructions at their fingertips and on demand?		Providing employees with access to the digital tools and information they need to perform their jobs safely and accurately every day is critical to operational excellence.
Has the skills gap negatively impacted your workforce's productivity?		AR helps solve this challenge by directing frontline workers to do their jobs efficiently and accurately the first time. The technology also enables data and insights to be captured and shared with key stakeholders to drive continuous improvement.
Do you need a better way to efficiently create SOPs and work instructions?		Whether you have existing assets or need to start from scratch, AR provides the solution for creating visual workflows that help enable a more agile, resilient workforce while addressing the skills gap.
Have you examined the impact of workforce and operational inefficiencies on employee retention and satisfaction?		Nobody wants to work as part of an inefficient workforce dealing with poorly planned processes. Leveraging AR to address these challenges can lead to better workforce engagement and improved retention.

Source: IDC, 2022

Conclusion

AR technology is here, and a wide range of industrial organizations are putting it to use. To remain competitive, every company should look at the ways it might leverage AR technology to address the challenges and costs of training and upskilling current workers, the issues around achieving worker proficiency when dealing with complex products and processes, and the impact of workforce and operational inefficiency due to poor or nonexistent work instructions. The right AR partner can make addressing these issues straightforward, and the resulting improvements will pay dividends across your organization.

About the Analyst



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Tom Mainelli manages the Device and Consumer Research Group, which covers a broad range of technology categories, inclusive of both home and enterprise markets, as well as IDC's growing consumer research practice. He has led IDC's research effort in the areas of augmented and virtual reality and heads up IDC's new metaverse research practice.

MESSAGE FROM THE SPONSOR

The skills gap is a serious issue that impacts industrial manufacturers across the globe. Products are becoming more complex to manufacture and service. Expert knowledge is becoming scarcer as tenured employees retire. New employees lack the skills required to handle the complexity and traditional training and work instructions methods fall short. 75% of frontline workers say they don't have the technology they need to be productive.

Optimizing these workers' productivity is the first step to blunting the impact of the skills gap. Vuforia Augmented Reality Solutions help address workforce issues by bringing digital technology to frontline workers and eliminating the reliance on paper. AR-guided work and training instructions accelerate learning curves and help frontline employees do their jobs more efficiently, accurately, and safely.

Learn how Vuforia AR work instructions improve quality, boost operational efficiency, and drive continuous improvement at: <https://www.ptc.com/en/products/vuforia>



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