Enhancing safety protocols: the new age of training

The very nature of the energy sector demands an emphasis on safety. We are taking the very essence of power and attempting to harness it, transferring it into applications that run every core component of our entire way of life. Dangerous work requires extraordinary people to manage it, and a rigorous safety regime to ensure that we don't lose control, even for a single moment. Safety training is therefore paramount, but could virtual reality signal a new era?

Safety training in high-risk industries has always been a high-concept, high-cost necessity that often doesn't stick the landing. It's a catch-22 that companies struggle with. You can do as many on-site demonstrations and all-day seminars as you want, but neither is going to ever replicate the complex conditions that could require immediate action to resolve. At least, that was the case before the emergence of virtual reality (VR) as a safety training delivery platform.

Traditional safety training limitations

From the smallest spill to a significant incident, any accident that occurs on-site begs the question: could this have been avoided? Employees in this field often work in challenging conditions, whether it's at great heights, in tight spaces, or around equipment with potential hazards.

Safety measures are taught both on-site and in the classroom or digital environment, to ensure that employees are measuring up to requirements for personal protective equipment (PPE), hazardous material identification, the proper use of safety equipment, standards put in place by the Occupational Safety and Health Administration (OSHA), and more. These are all essential, valuable components to keeping a company on point to stay safe, but they all lack one thing: a comparable component to training in real emergencies

and the ability to let employees train at far-off facilities.

Doing either of those activities in real life would skyrocket costs and be questionable at best in terms of risk versus reward. Putting employees in danger to train them on safety protocol doesn't pass the smell test. Clearly, an alternative solution is necessary.

The shift to VR safety training

While the earliest incarnations of successful VR applications have largely been in the entertainment and gaming industries, the true value of the technology is finally being unearthed as the next stage of evolution for industry-specific training.

Immersive learning: bridging the reality gap

VR and its cousin, augmented reality (AR), offer unprecedented opportunities in the safety training industry. Using a VR headset guarantees immersion. The technology can break free of the constraints that have limited safety training to a hypothetical pursuit for decades. It allows workers throughout the industry a 'hands-on', practical application of their knowledge and skills in an environment that can simulate any scenario while keeping the employee not only safe, but with the tremendous power to replay the training again and again without any additional cost.

On-site training is limited by a follow-the-leader mentality, where workers are shown proper processes rather than allowed to explore them. Classroom training, whether physical or theoretical, is static and more concerned with punching in the correct response to questions rather than the actual application of knowledge.

VR exceeds both, offering sensory engagement, 3D spatial awareness, and interactivity, all within a realistic environment. The technology has already made industry-changing differences in fields like aviation and medicine, and is now bringing that remarkable leap forward to training protocol.

While the technology is dazzling, the real benefits come from the practical and psychological elements of training in a virtual environment.

The scenarios that a VR trainer can put forth are impressively accurate, allowing the user to 'forget' that they might be sitting at their cubicle or home office and fully engage their skills in learning and problem-solving for the tasks at hand.

Perhaps the most important component of this is that employees can learn from their mistakes without real-world consequences.

Tasks inside the VR training module can be repeated as many times as necessary to get the job done right every time, without the need to constantly reset parameters in a real-life version. Those tasks can be customised precisely to different locations, job roles, and skill levels so that the unique challenges of every employee can be laid out, taken on, and eventually conquered.

Customisation and real-time feedback: tailoring the VR experience

Once trainees are comfortable with the VR interface, they will begin to feel comparable emotions to those that would be experienced in real-life scenarios, including stress, relief, happiness, and even the flow of adrenaline when faced with a new challenge.

Unlike in real life where such applications need a third party to grade performances and return results over time, VR safety training can provide immediate, real-time feedback as an employee is working through scenarios, allowing them to see the results of their choices and find the proper way forward to a satisfying result.

The ability to upload digital versions of real facilities into the VR environment is another advantage that moves it leaps and bounds past traditional interfaces. If an employee in Amsterdam can learn how to use the precise controls and functions of a terminal in Hong Kong, imagine the resources that can be saved!

VR safety training in action

Using VR for safety training has already taken flight with fantastic results. ISOVER, an insulation materials manufacturer from the Saint Gobain group, with roots dating back more than 80 years, recently invested in VR safety training. The company traditionally used planned downtime of its high-powered machinery as an opportunity to train hands-on.

However, such a directive put all sorts of shackles on the company, most notably that if staff members hadn't received enough training to master key skills by the time the window of time closed, there was no means of developing them further that could give the same high level of hands-on training. For a company like ISOVER that is entirely reliant on its manufacturing efficiencies, shutdowns due to human error or safety hazards can cost several hundred thousand dollars per minute according to industry studies.

While many companies develop their training modules for online and in-person efforts, VR safety training requires collaboration with experts in the field. It requires partnerships between tech companies that know how to create authentic simulations and established training providers that understand the protocols and procedures of creating coursework that not only satisfies a company's requirements, but also understands the needs of a wide variety of learners at various stages of their professional careers.

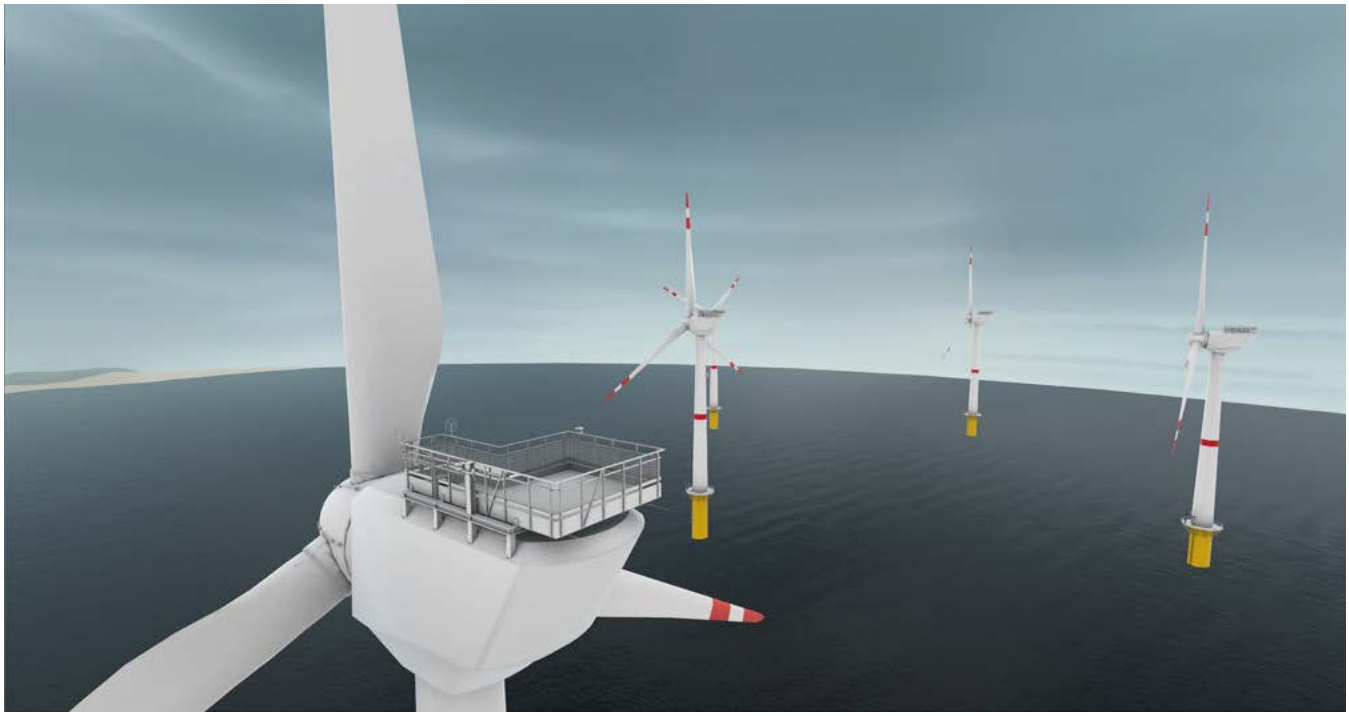
Such collaborations are already solidifying, as evidenced by Maersk Training's August 2023 announcement of a strategic partnership agreement with SynergyXR.

With a catalogue of more than 200 courses and close to half a century of training under its belt, Maersk Training is a great example of an industry leader recognising the prowess of spatial computing and expanding its business in response to changing times, tech, and opportunities.

Measurable improvements

One of the overarching difficulties of safety training has always been being able to accurately measure its effectiveness. Employees can receive a certificate or get a minimum score on an end-of-course test, but how do we see the true value?

Using VR hardware allows companies to track their employees' performance in



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safety modules via countless sources, including measuring progress through a course, how many times replays are necessary to complete a task, and what rate of completion the employee has.

There's also continuous monitoring of data that shows what sort of decision-making is taking place, producing patterns of behaviour that might not be visible to the naked eye. When modules are interacting, even voice recognition and analysis can play a part, along with body position, movement, and retinal eye tracking, showing exactly what your employees are looking at, how they're reacting to it, and what emotions are coming through in their word choices.

The future of safety training

Like any technological revolution opportunity, the main barriers to the adoption of VR safety training are cost and comfort. For many firms, the hardware can be seen as pricey and impossible to use without proper guidance, but the same argument could be made for modern innovations that are now indispensable, like video conferencing, cloud computing, and even the Internet itself.

The initial investment for VR safety technology might seem steep, but it's important to consider the long-term picture.

Over time, the cost of implementing VR safety training often proves to be more economical than its traditional counterparts.

With modules that can be endlessly repeated for onboarding new employees or refreshing current workers, you're looking at a scalable solution that saves money in the long run. Plus, when it comes to meeting the ever-growing demand for rapid deployment and scalability, traditional training methods simply can't compete.

As safety protocols and industry standards evolve, VR modules can be updated or created from scratch at a fraction of the time and cost it would take to revamp traditional training programs. This level of agility makes VR safety training not just a smart choice, but an essential one for companies looking to stay ahead in a fast-paced world.

Towards safer tomorrows: the VR impact

The advent of cutting-edge technology and strategic partnerships between tech and training firms has significantly expanded the horizons of safety training within the energy sector. Traditional methods like on-site training and seminars have their value, but VR introduces an additional layer of flexibility and control.

Companies no longer need to allocate hefty budgets for travel to distant training locations or invest in costly seminars. VR provides full autonomy over safety training variables, empowering companies to adapt and maintain compliance effortlessly while achieving consistently high levels of safety.

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About the author

Mads Troelsgaard is the co-founder and CEO of SynergyXR, one of Europe's leading XR software developers and platform providers.

With more than 10 years of industry experience, including being the CEO of Unity Studios, he is regarded as one of the world's most knowledgeable XR executives and a prolific thought leader.

Mads has dedicated his corporate life to bridging the real and virtual worlds!

About SynergyXR

SynergyXR sees a present and a future, where extended realities, like augmented and virtual reality, will continue to revolutionize the way we work, live, and play.

With extensive expertise and experience within the manufacturing and energy sector, and specialized solutions for technical training and onboarding, they are committed to helping these technologies become the norm.

By designing and building people-first solutions, they help bring XR technology, such as Virtual Reality and Augmented Reality, to the people today, not tomorrow.