Why are Immersive Technology Solutions
So Impactful for training and where else are they adding value?

by Camille Donegan

Following on from the article detailing CPA Ireland's Metaverse use of Virtual Reality (VR) for accountancy training, we aim to illustrate the extensive length and breadth of the value immersive technologies bring to a variety of sectors.

Virtual Reality (VR) for Training

Utilising VR headsets for training offers numerous advantages over traditional 2D media or even in-person training, which often lack scalability. The immersive qualities of VR environments create unique training experiences by providing distraction-free settings, fostering emotional connections, and generating a sense of 'being there'. Additionally, VR transcends physical limitations, such as scaling body parts for medical training or allowing users to navigate and assess a built environment before its actual construction.

Research shows that VR training can result in three times more knowledge retention compared to other methods. One of the significant benefits of immersive training is providing a 'safe space to fail', which is crucial for high-risk, dangerous, or costly training scenarios. For instance, in VR, a trainee's mistakes during fire safety or wind turbine training don't result in real-world consequences like equipment damage or personal injury.

Organisations are leveraging VR to train employees in various areas: operating new machinery, improving customer service, preparing for difficult conversations, building empathy, executing processes efficiently, communicating effectively, accelerating sales, negotiating confidently, handling emergencies, and developing leadership skills, among others.

Modern VR solutions are highly advanced, offering personalised training environments and detailed metrics tracking, such as gaze direction, duration, and stress levels during training. Some headsets even incorporate EEG technology to monitor brainwaves, which is particularly valuable in healthcare and mental health training applications.

Immersive video, delivered through VR, is another powerful training tool. These first-person, live-action, 360-degree experiences enable learners to embody a character in a scenario, providing a tangible 'feel' for a particular role or task. Multi-user platforms like Engage and Spatial enable global collaboration in virtual environments. For example, automotive engineers can co-design engines in a virtual space, benefiting from spatially positioned audio that enhances the sense of 'being with' colleagues.

Augmented Reality (AR) for Training

AR's strength lies in its ability to overlay relevant information onto the physical world, enhancing the training experience. AR headsets like Microsoft's HoloLens or Xreal's AR glasses display information directly in the user's field of vision, acting as a heads-up display for information previously contained in

a manual handbook. This feature can save trainees up to 40% of the time they would otherwise spend looking down to consult instructions.

AR is also effective in making the invisible visible, such as visualising pipe networks in buildings or cities. In healthcare, AR can reveal the location of veins, significantly improving the success rate of first-time needle insertions.

Industry Applications

Several Irish companies are pioneering VR and AR training solutions across various industries:

- VRAI create data driven VR simulation training for high hazard environments. Clients include the Irish Defence Forces, the United Nations in Somalia and IAG at Heathrow Airport.

- Innovision create high quality photomontages that can be used for a variety of use cases including visualising a wind farm to scale from various viewpoints.

- Mersus Technology specialise in VR training solutions that help businesses improve their employee training programs by creating immersive, interactive, and engaging training experiences. Clients include Boston Scientific, Siemens and Waterways Ireland.

- UtilityAR creates Augmented Reality solutions for industrial sectors like manufacturing, pharmaceutical, utilities, and data centres. Their clients include BT, Takeda and Dairygold.

A great example of the successful adoption of VR for training is PulseXR, which was designed and co-created with WWETB. Pulse XR is a cutting-edge teaching, learning and assessment virtual reality app for healthcare professionals in collaboration with Emagine, a leader in immersive virtual reality (VR) experiences. The application is set to transform how healthcare students in Ireland learn, practice and perfect their clinical skills in a risk-free, immersive environment.

Following the success of the PulseXR rollout, several other ETBs across Ireland are investigating how bespoke content,

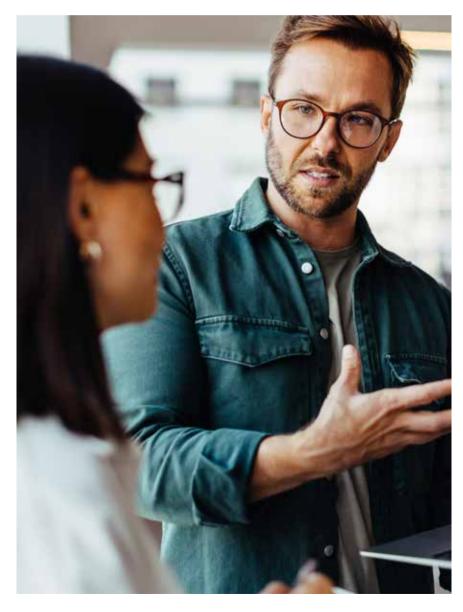as opposed to off-the-shelf apps can add value to their training programmes.

Tourism

In tourism, VR and AR add significant engagement value. Imagine standing at a ruined castle and using your smartphone to see the castle as it once stood, complete with historical characters and stories. VR can transport visitors to another time and place, offering an immersive, interactive experience.

Irish companies developing VR and AR tourism experiences include:

- Emagine are an award-winning Irish creative studio, Emagine are at the fore of the extended reality (XR) content industry. They have built VR and AR applications across

industry verticals such as tourism and healthcare.

- Imvizar utilise augmented reality through next-generation immersive experiences, to craft narratives in a truly immersive and engaging way.

- Algorithm blends creativity and cutting-edge technology to create stunning visual experiences. Clients include Irish National Opera, Dingle Oceanworld and RTE.

- Volograms mission is to bring reality capture making content creation for AR and VR as simple as recording a video. Their algorithms can transform a 2d video of a person presenting to a 3d hologram (or vologram – volumetric hologram) mesh, just like Princess Leia in Star Wars!

Healthcare

Healthcare is leveraging AR and VR in profound ways. VR helps paraplegic patients regain bladder control through phantom limb simulations that stimulate neural pathways. AR devices can identify veins by detecting the infrared light absorption of haemoglobin, projecting a visual map of veins on the skin's surface. This technology makes clinicians 3.5 times more likely to successfully insert a needle on the first attempt.

Education

As you may imagine, of all the ways in which spatial technologies like VR and AR could prove to be transformative, the potential they have for education is one of the most exciting. Learning is about interaction and discussion as much as it is about absorbing facts. That's why the unique feeling of presence and immersion that these technologies create can be so impactful in education. Teachers and lecturers can present interactive 3d models of any object, from a jumbo jet airplane to a mitochondrion cell structure.

In 2024, Meta will launch a platform specifically for use by educators which will ease deployment of VR for education as well as increase adoption by schools and universities by easing friction.

Overcoming Barriers

Despite their benefits, immersive technologies face misconceptions that hinder their adoption:

1. 'VR makes people sick': Early VR technology had issues with refresh rates, lag, and latency, but these have been significantly improved. Developers now follow user experience design principles to mitigate motion sickness.

2. 'It's just for kids/games': This misconception leads to missed opportunities for organisations. While entertainment uses are well-known, VR and AR offer substantial business value.

3. 'VR is dead': VR has experienced adoption cycles, but its value is now well-documented. As development

costs decrease and AI adds efficiencies, more organizations will utilize AR and VR for training.

4. 'I tried it once and didn't like it': One poor experience should not deter further exploration, similar to how a single bad TV show wouldn't stop someone from watching television entirely.

5. 'VR is isolating': While VR headsets immerse users in different environments, they enhance training and entertainment. VR experiences often increase interest in real-world activities, such as visiting a vacation location.

In conclusion, immersive technologies like VR and AR are revolutionizing training across industries. They offer scalable, effective, and engaging solutions that overcome many traditional training limitations. By providing safe, interactive environments for learning, these technologies can enhance knowledge retention, improve performance, and reduce risks. As development costs continue to decrease and AI-driven efficiencies emerge, the adoption of VR and AR for training is likely to grow, driving significant benefits for organisations and individuals alike. At Eirmersive we are here to support and promote the growth of the sector in Ireland.

Eirmersive is the Voice of the Irish Immersive Technology Sector. Our vision is for Ireland to be a go-to destination for Immersive Technology solutions by 2030. Our mission is to Steer the evolution of Irish Immersive Technology sector to elevate it globally. We do this by Building Awareness of the transformative potential of immersive technology solutions, promoting adoption and spotlighting the talented players in the Irish Ecosystem as well as through developing the skills and talent pipeline along with our partners at Creative and Cultural Industries Skillnet. See eirmersive.com.

See Eirmersive's recent Irish Immersive Technology Strategy for Growth report, funded by Skillnet:

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The benefits of Immersive Technology for training include:

- Makes training more innovative and engaging.

- Enables experiences that are impossible through any other digital medium.

- Teaches through doing, rather than theoretical concepts.

- Offers a safe practice space that encourages users to learn from their mistakes.

- Can transport you anywhere and even into the perspective of another human being.

- Encourages employees to explore at their own pace and in their own style.

- As colleagues can be together in virtual environments while physically remote, there is a reduction of travel and training costs as well as a decreased carbon footprint for the training.

Camille Donegan

Camille is a Virtual Reality consultant and content producer with 15-year parallel careers in both technology and the arts (theatre, film, radio). She is the interim CEO of Eirmersive, the voice of the Irish Immersive Technology sector.