XR ASSOCIATION

XR: THE TECHNOLOGY OF THE FUTURE—TODAY

WHAT IS THE XR ASSOCIATION?

The XR Association promotes the dynamic growth of the XR industry. We convene and educate policymakers, thought leaders, researchers, developers, civil society, and the public on XR's infinite potential and serve as the premiere resource for anyone interested in learning about the applications of immersive technologies. Our members—Oculus from Facebook, Google, HTC VIVE, Microsoft, and Sony Interactive Entertainment—are united in our mission to champion the responsible development and thoughtful advancement of XR solutions that foster positive societal outcomes. Let us help you explore the endless potential of XR.

WHAT IS XR TECHNOLOGY?

XR is an umbrella term encompassing virtual, augmented, and mixed reality technology as well as other forms of alternate, expanded, or immersive reality applications, including those not yet invented.

Virtual Reality (VR)

VR replaces or occludes a user's reality with a new virtual reality. This new reality can be fantastical, like a faraway galaxy, or practical, like a training warehouse.

Augmented Reality (AR)

AR layers virtual content, such as digital objects or information, onto real-world images captured from a device's camera.

Mixed Reality (MR)

MR blends the digital and physical worlds, empowering users to interact with both in real time.

XR is changing the way we learn, do business, and provide essential human services. By delivering efficiencies in manufacturing, enhancing workplace safety, accelerating learning and job training, providing risk-free first responder training, improving healthcare and medical services, and providing rich experiences to individuals living with disabilities, XR is poised to become a part of daily life for users across the globe. XR is the technology of the future—today.

XR IS IMPROVING HEALTHCARE

XR's use in healthcare is on the rise, from the operating room to the medical classroom, from pain management to mental health. Experts estimate that the market for XR in healthcare could reach $7B by 2026. Among other innovations, XR helps surgeons visualize organs, tumors, X-rays, and ultrasounds in real-time and from multiple angles without diverting attention away from their patients. Surgeons at the Cleveland Clinic, for example, are using Microsoft's HoloLens to layer virtual, three-dimensional projections of their patients' anatomies atop their bodies during surgery, improving efficiency and reducing procedure time. XR is also being used to treat patients with dementia and PTSD, and physicians are exploring virtual reality technologies as an alternative to pain relieving prescriptions, including opioids. Learn more about XR's impact on healthcare in XRA's recent letter to the Department of Health and Human Services.

XR IS IMPROVING QUALITY, EFFICIENCY, AND SAFETY IN MANUFACTURING

In the manufacturing sector, XR allows engineers to practice various "what-if" scenarios without risk, ultimately creating efficiencies, reducing errors, and enhancing safety. By wearing AR glasses that overlay images onto their real working environments, for example, engineers at Lockheed Martin can see renderings of cables, bolts, parts, part numbers, and instructions as they assemble F-35 aircrafts. This method increased accuracy to 96%, while increasing assembly speed by 30%. As the lead contractor for NASA's Orion spacecraft, Lockheed Martin is also using AR to increase production efficiency and quality: rather than spending a week on a complex assembly process, technicians wearing AR glasses can finish the same process with fewer errors in less than one day.

XR IS UPSKILLING WORKERS FOR THE 21ST-CENTURY ECONOMY

Rather than rely on a single skillset, workers are increasingly expected to upgrade their skills quickly and efficiently throughout their careers—particularly in industries where generations of technology outpace generations of workers. Case in point, auto mechanics are being trained to service and maintain fully electric vehicles through VR. Engineering giant Bosch and auto giant Ford have teamed up to develop applications where auto technicians use VR to "go inside" an electric vehicle, navigate through various modules as if they were walking through rooms, identify problems, and make repairs.

XR IS ENHANCING THE LIVES OF PEOPLE WITH DISABILITIES

Developers are leveraging XR technology to improve the lives of people living with physical and cognitive disabilities. Michigan State University researchers teamed up with colleagues in Ireland to explore how wearable technologies like Oculus Rift can be used by individuals with autism to navigate virtual social situations and develop life skills that can lead to secure employment and independent living. Beyond making the world more accessible, the XR industry is focused on making XR technology itself more accessible. To that end, XRA recently released a set of best practices for creating programs that can be enjoyed by all.

XR IS BOLSTERING PUBLIC SAFETY

Public safety professionals—from law enforcement and emergency medical services to firefighting and disaster management—are leveraging XR to equip trainees for the challenges they will face in the field. For firefighters, live training exercises can be costly and dangerous. But in virtual reality, trainees can experience real-world simulations in safe and secure virtual environments. VR training can even incorporate peripherals, like a suit that heats up and a hose that feels like it's spraying, to make the trainee's experience fully sensory. Law enforcement officers are using VR to walk in the shoes of their subjects. VR facilitates a perspective shift, imparting an understanding of how officers' body language and chosen commands influence outcomes, helping them to deescalate tense situations.