

REDESIGNING OPERATIONS WITH ENHANCED REALITY APPLICATIONS

Leverage the power of augmented and virtual reality to design custom solutions that simplify and improve your business workflow for training and maintenance

While Augmented Reality (AR) and Virtual Reality (VR) technologies are not new, advances in computing power, data storage, and image processing techniques have brought new opportunities for businesses to improve product design, training, operations, and maintenance processes. AR/VR are two different but related technologies that merge a visual environment with real-time data, simulated data, audio, and video collaboration tools.

Companies are seeing real benefits using AR/VR applications to simplify complex operations, reduce the risk of worker error or injury, save costs, and scale workforce expertise more quickly. Cyient has developed a platform to deliver rich user experiences with VR Training applications and AR-Assisted Maintenance applications for industries including energy, utilities, manufacturing, transportation, communications, aerospace and defense, and healthcare.

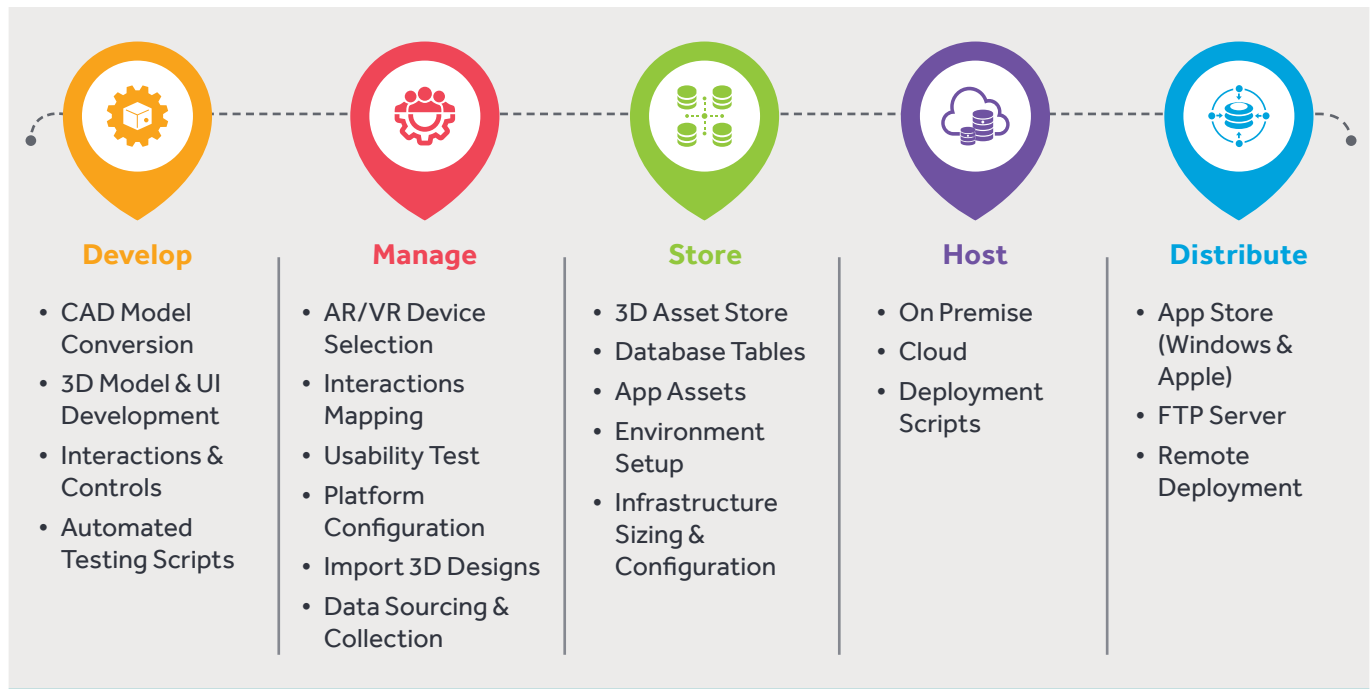
Our solutions span the entire lifecycle of AR/VR application development. From technology consulting to the design, development, delivery, and support of customized content and solutions, we create applications compatible with leading VR and AR endpoint devices that educate, engage, and inspire.

With Cyient's AR/VR applications, organizations can:

- Improve workforce expertise
- Streamline training and knowledge transfer
- Reduce training costs for remote field activities such as inspections and repairs
- Simplify operations and maintenance procedures
- Enable quick access to information and expertise
- Reduce production and maintenance errors
- Prevent workplace injuries and accidents
- Improve quality and customer experience
- Reduce costs and time involved in product design and development

AR/VR Application Development at Cyient

Combining Cyient's engineering and domain knowledge with our experienced software developers, graphic designers, and animation experts, Cyient caters to a diverse set of requirements and market demands. We utilize customer inputs from 3D models, point cloud data, animation, 360-degree video, photogrammetry, IoT and business system data, and documentation to create interactive content for a variety of immersive applications. We engage customers first by understanding their challenges and focusing on the desired business outcome.



AR/VR Platform Key Functions

The features integrated into our AR/VR applications include:

- Virtual environments at scale
- Zoom in/out, rotate view
- Remote support with real-time audio and streaming video (AR)
- Shared experience for multi-user collaboration
- Teleport and free-roam within the application boundary
- Assembly/disassembly and maintenance activities
- Voice command (AR)
- Interaction and control of realistic tools or objects
- Simulate actions (turn, grab, push/pull)
- Flexibility to adapt content to local languages for user
- Creation of realistic textures
- Ability to add effects with lighting, highlights, or audio
- Overlay information such as:
 - Safety warnings: Maintenance history
 - Process steps: Inspection checklist
 - Maintenance instructions: Quality checklist
 - Parts list: Inventory

Lube Oil System VR Training Use Case


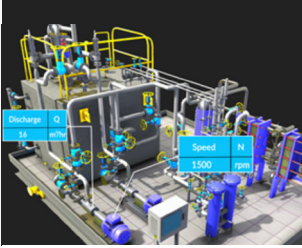
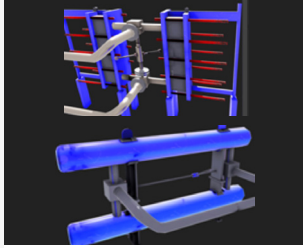

An oil & gas client engaged Cyient to develop a VR PoC to reduce their technician training costs by simulating realistic systems and processes in a lube oil processing

plant. Targeting a VR training application for the HTC Vive headset, Cyient enabled an entirely immersive user experience converting CAD models and developing a digital replication of the environment and equipment with features such as free-roam movement and teleportation, controller-based interactions with virtual objects, and equipment cross-sections. Machine and enterprise data were integrated to simulate status information as well as performance levels, instructions, and safety messaging. In addition, ground tracking and 3D object recognition features were demonstrated. This VR training application was developed to train maintenance technicians without requiring them access to the actual machines and systems.

Cyient's application development approach saw this oil & gas client along the complete customer journey:

- Business outcome goal
- Requirements gathering
- Storyboard design
- Input assessment
- Art assets for the UI/UX
- 3D model development
- Feature implementation
- Testing and quality control
- Deliver alpha build
- Deliver VR training application and AR/VR Content Manager
- Provide support and maintenance

Virtual Reality Use Case - Lube Oil System

VR - Use Cases	VR Training Maintenance Training	Simulate Operations Improve Processes	Product Demonstration Educate Customers	Design Simulations Visualize at Scale
VR Advantage/ Value	 <ul style="list-style-type: none"> Virtual environment enables practice on realistic scenarios Interaction and control of tools and equipment improves retention Structure training with step-by-step instructions, learning objectives, safety warnings or quality checks 	 <ul style="list-style-type: none"> Integrate simulation software results with VR Simulation models are converted into dynamic linked libraries and run within virtual reality software Create scenarios like system start up and shut down sequence to display vital system parameters displayed on virtual reality model. 	 <ul style="list-style-type: none"> Virtual demonstration that allows customers to visualize and walk-through dynamically configured package Customer can dynamically change and compare equipment configurations and options in the virtual environment based on their specifications Immersive demos provide better product understanding and improved user experience 	 <ul style="list-style-type: none"> Plan, analyze, and inspect virtual product before physical prototyping Shorten design iterations and reduce development time Experiment with different design or layout options to optimize process
Traditional	<ul style="list-style-type: none"> Expert trainers on-site or in classroom setting Videos depicting practice scenarios 	<ul style="list-style-type: none"> Computer simulations validated with expensive physical prototypes Visual representation of simulated results limited 	<ul style="list-style-type: none"> Web, video, or in-person product demonstrations Navigation around models is not possible 	<ul style="list-style-type: none"> Technical document such as 2-D drawings, computer 3-D models, physical prototypes

The Cyient Advantage

As a global engineering solutions provider serving multiple industries, Cyient has an extensive partner ecosystem that enables us to support a wide range of requirements. We have worked with international universities and industry-leading 3D software partners to integrate the latest technology and tools to accelerate application development and create a high-quality, high-impact experience.

Our team helps customers create business value through technology implementations. When our clients adopt AR/VR, we work with them to ensure reality technologies enable them to achieve business goals and generate interactive, engaging, and personalized training experiences for the users.

Cyient can help you seamlessly integrate AR/VR into your existing business processes and maximize effectiveness for training, remote assistance maintenance processes, and interactive marketing applications.

Customer Value

Cyient's approach to AR/VR has been shaped by decades of industry and engineering experience, along with demonstrated digital technology expertise. Having built an extensive portfolio of immersive applications, we can effectively respond to new AR/VR project demands and help organizations:

- Enable virtual training and education for the workforce
- Augment processes with IoT and enterprise system data
- Enhance brand image and advertising impact
- Simulate pre-construction walk-throughs and virtual tours
- Integrate with predictive maintenance solutions

The value of AR/VR applications lies in blending the real operational environment with a digitally augmented or virtual environment. To ensure successful business outcomes, we work closely with our clients, combining technical and creative expertise to reshape training and maintenance applications to provide experiential learning for the next generation workforce.

Get the full effect by viewing a live demonstration of our AR/VR solutions.

To request a demo or pricing details, contact Cyient at arvr@cyient.com



For more information scan the QR code or visit us at: cyient.today/ar-vr

Cyient (Estd: 1991, NSE: CYIENT) is a global engineering and technology solutions company. As a design, build, operate & maintain partner for leading organizations worldwide, we take solution ownership across the value chain and leverage the power of digital technologies and advanced analytics, along with domain knowledge and technical expertise, to solve complex business problems. With more than 15,000 employees globally, our industry focus includes aerospace and defense, healthcare, telecommunications, rail transportation, semiconductor, industrial, and energy.

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