

Global Immersive Technology in Military & Defense Market 2023

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Abstracts

Description

The global market for immersive technologies deployed in military and defense exhibits robust growth prospects, projected to rise at a CAGR of 17.6% between 2023 and 2029. This rapid pace of expansion is expected to generate over USD 3.7 billion in additional market value within the next five years.

The proliferation of immersive technologies like augmented reality (AR), virtual reality (VR) and mixed reality (MR) in defense stems from the sector's deepening push towards digitalization, data analytics and networked systems. By enabling real-time visualization and interaction with complex data streams, immersive interfaces enhance decision-making and coordination for military leaders.

Specifically, immersive technologies empower commanders with data-driven insights for optimized strategic and tactical planning. Highly realistic simulated environments facilitate practical training across diverse combat situations without real-world risks and costs. AR overlays provide soldiers with amplified situational awareness and mission-critical information on the field. Control and coordination of autonomous defense systems is enhanced using immersive interfaces.

Defense agencies are also leveraging VR and MR to bolster cybersecurity %li%creating simulated environments for military personnel to experience sophisticated cyberattacks and strengthen protection capabilities. As network-centric warfare and digitalization become entrenched, immersive technologies are playing an indispensable role in securely integrating systems and personnel.

For instance, mixed reality headsets allow commanders to visualize and manipulate complex battlefield data in 3D space, identifying threats and opportunities in an intuitive format. This facilitates rapid, informed decisions. Augmented reality helmets feed soldiers real-time visual overlays with mission updates, target recognition and navigation %li%dramatically improving situational awareness during high-risk maneuvers.

By training extensively in VR-constructed simulated environments, troops and pilots learn to handle diverse combat scenarios before real-world deployment. VR also enables safe education regarding operation and maintenance of sophisticated defense equipment. For cybersecurity training, virtual attacks teach personnel to recognize and respond to cyber threats.

As immersive technologies mature, their massive potential across military training, field operations, maintenance, cybersecurity, logistics and vehicle piloting will catalyze adoption growth. Defense agencies are investing in customized AR, VR and MR solutions that provide personnel with actionable data while boosting safety and capabilities. This will propel the global defense immersive technology market's ascent.

Market Segmentation

This industry report offers market estimates and forecasts of the global market, followed by a detailed analysis of the component, technology, application, and geography.

By Component

Hardware

- Headsets

- Head-Mounted Display (HMD)

- Handheld Devices

- Others

Software

Visualization And Documentation

3D Modelling

Navigation

Others

By Technology

Augmented Reality (AR)

Virtual Reality (VR)

Mixed Reality (MR)

By Application

3D Modeling

Simulation and Training

Maintenance And Monitoring

Situational Awareness

By Region

North America

Europe

Asia-Pacific

Rest of the World

Simulation and training represents the largest application area within the military immersive technology market by revenue contribution. This segment is forecast to

expand at a CAGR of 18.1% through 2029. The extensive use of immersive technologies like virtual reality (VR) and augmented reality (AR) for defense training stems from the key benefits simulation provides for personnel preparation:

Realistic Environments %li%VR allows trainees to interact with digital reconstructions of real-world environments mapped to actual battlefield terrain or military bases. Visual and audio fidelity evokes visceral reactions, driving learning.

Safety %li%Dangerous maneuvers like flight and combat training can be practiced extensively without real risks or expenses through simulated training. This avoids casualties and lowers costs.

Consistency %li%VR training ensures every recruit gains standardized experience regardless of external conditions. Parameter control facilitates objective assessment.

Efficiency %li%Simulation reduces time required for personnel to achieve combat readiness by amplifying training iterations in a condensed timeframe. Higher throughput results.

Flexibility %li%Diverse battlefield, cybersecurity and equipment use scenarios can be simulated as required to build all-round expertise across roles and missions.

AR overlays real-time performance metrics and environment data during live training to boost situational awareness. VR duplicates equipment use for maintenance education.

Key technology trends energizing military simulation and training include haptics, AI/ML, tracking and connectivity. Haptics simulate physical sensations through tactile feedback gloves and suits, intensifying realism. AI and ML enable reactive environments adapting to actions. Tracking facilitates full-range mobility. Multiuser networking allows collaborative exercises. As immersive simulation matures, it will transform defense training programs by optimizing engagement, personalization, reinforcement and integration with live counterparts. This creates unprecedented readiness for the challenges of modern defense operations.

North America represented the largest regional market for immersive technology in the military and defense sector in 2022, registering a CAGR of 17.3% historically. The region is forecast to continue exhibiting robust growth driven by the presence of major industry participants and substantial technology investments by the US defense establishment.

The predominant global position of North America in this market is underpinned by:

Concentration of Key Players: North America, especially the US, is home to leading developers of defense-grade immersive technology including Microsoft, Magic Leap, Facebook/Meta, Google/Alphabet, Applied Research Associates (ARA), Collins Aerospace and others. Collaboration between defense agencies and these pioneering companies continues to advance the state-of-the-art.

High Defense Spending: The US defense budget exceeded USD 700 billion in 2022, reflecting the immense resources channeled into equipping personnel with cutting-edge capabilities. Immersive interfaces for training, awareness and maintenance represent priority areas for ongoing modernization.

Early Adoption of Innovation: Defense organizations like DARPA and the military branches have consistently been early adopters of emerging technologies such as AR, VR and MR over the past decades, building deep domain expertise and use cases.

Specifically within North America, the US commands the lion's share, poised to grow at a CAGR of 17.9% driven by surging activity across the American defense innovation ecosystem. Initiatives include augmented reality headsets for soldiers, VR cybersecurity training, mixed reality command centers, immersive maintenance simulations and more. Sustained leadership in cutting-edge defense technologies and the ongoing modernization of warfighting capabilities will fuel the rapid growth of immersive solutions within the U.S. military over the next decade. Backed by private sector partnerships, North America is primed to continue dominating the global military immersive technology landscape.

Major Companies and Competitive Landscape

The report also provides analysis of the key companies of the industry and their detailed company profiles including Bohemia Interactive Simulations k.s., CAE Inc., Dimension NXG Pvt. Ltd., HTX Labs, LLC, Indra Sistemas, S.A., Lockheed Martin Corporation, Microsoft Corporation, OPERATOR XR LLC, Red Six Aerospace, Inc., Simx Ltd., Thales S.A., ThirdEye Gen, Inc., Varjo Technologies Oy, VirTra Inc., Vrgineers, Inc., among others. In this report, key players and their strategies are thoroughly analyzed to understand the competitive outlook of the market.

Why Choose This Report

Gain a reliable outlook of the global immersive technology in military & defense market forecasts from 2023 to 2029 across scenarios.

Identify growth segments for investment.

Stay ahead of competitors through company profiles and market data.

The market estimate for ease of analysis across scenarios in Excel format.

Strategy consulting and research support for three months.

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