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DEPARTMENT OF INFORMATION TECHNOLOGY

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Virtual Reality & Augmented Reality

Welcome to the edition of the IT-BULLETIN on Virtual Reality (VR) and Augmented Reality (AR) Newsletter! In this monthly publication, we bring you the latest news, trends, and developments in the exciting worlds of VR and AR.



INTRODUCTION

Virtual Reality (VR):

Virtual Reality (VR) is a technology that creates a completely immersive, computer-generated environment or world in which users can interact with and explore. VR typically involves the use of specialized hardware, including headsets and controllers, to simulate the user's presence in this virtual environment. Here are some key characteristics of VR:

- Creates immersive, computer-generated environments.
- Uses headsets and controllers for full immersion.
- Users feel present in a virtual world.
- Ideal for gaming, simulations, and training.
- Aims for complete separation from the real world.



Augmented Reality (AR):

Augmented Reality (AR) is a technology that overlays digital information, such as images, videos, or 3D models, onto the real world. Unlike VR, AR does not replace the real world but enhances it by adding a digital layer. AR is often experienced through smartphones, tablets, AR glasses, or headsets. Here are some key characteristics of AR:

- Overlays digital content onto the real world.
- Enhances the real world with digital elements.
- Users can see both real and digital simultaneously.
- Practical applications like navigation, gaming, and education.
- Provides contextually relevant information in real-time.

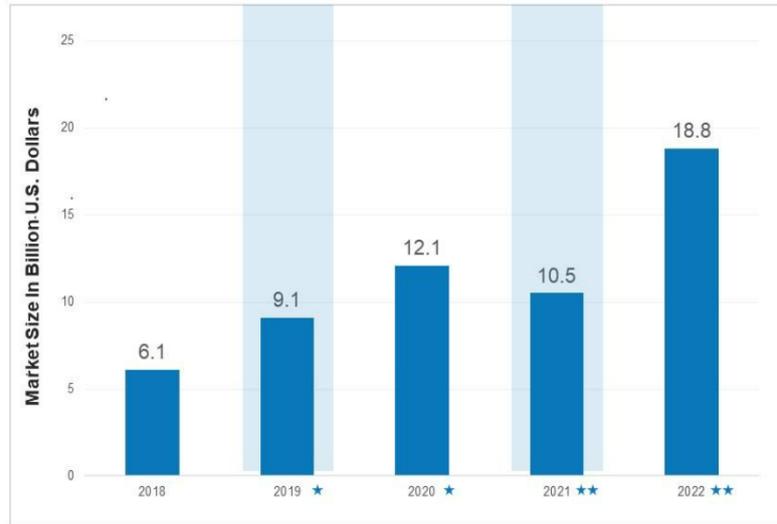


In summary, Virtual Reality (VR) immerses users in a completely virtual environment, while Augmented Reality (AR) overlays digital information onto the real world. Both technologies have diverse applications and continue to evolve, offering exciting possibilities for entertainment, education, healthcare, and many other fields.

MARKET SIZE:

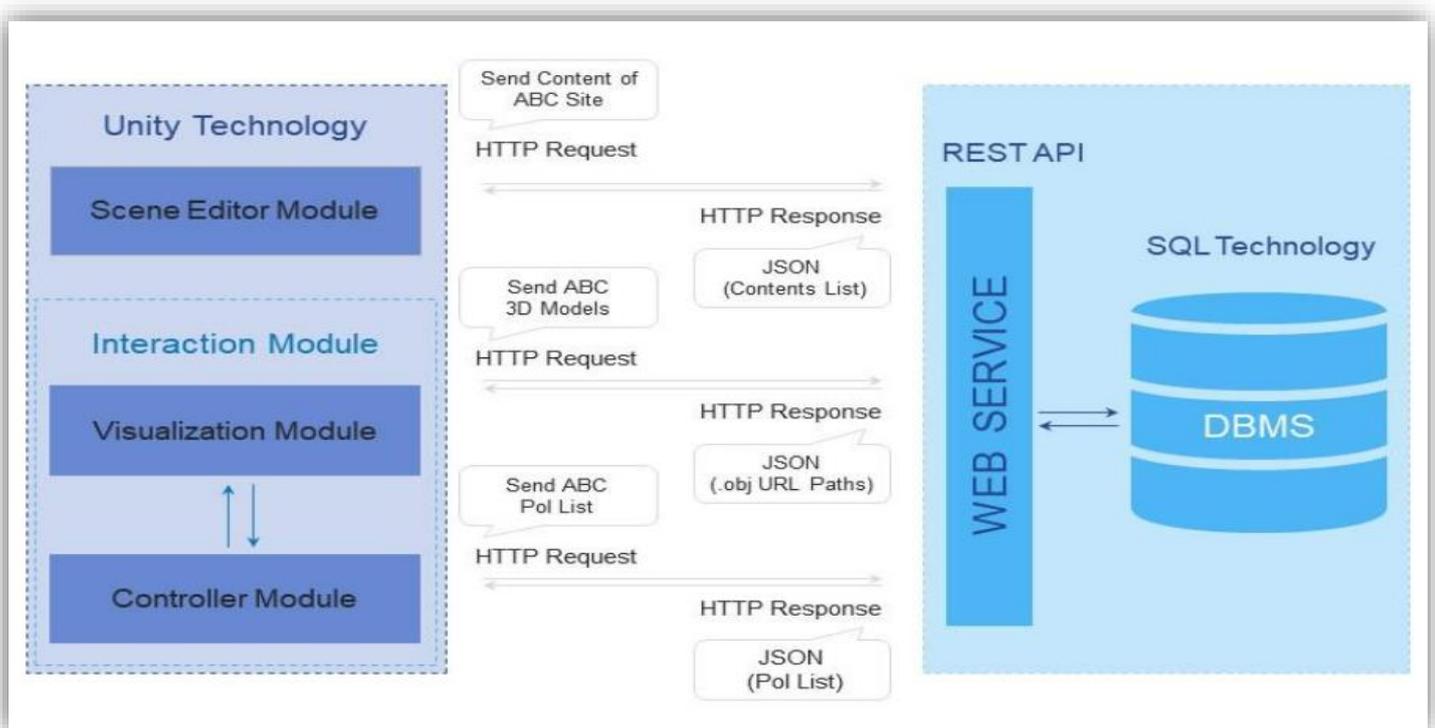
Key Takeaways

- » 75% of businesses with large-scale VR and AR deployments saw over 10% operational advantages, which equates to millions in US dollars in some cases, tens or hundreds of millions of dollars
- » In 2020, the VR and AR markets grew approximately **\$18.8 billion**
- » Some independent analysts predict that by 2025, the market for immersive technology will be worth **\$500 billion** or more



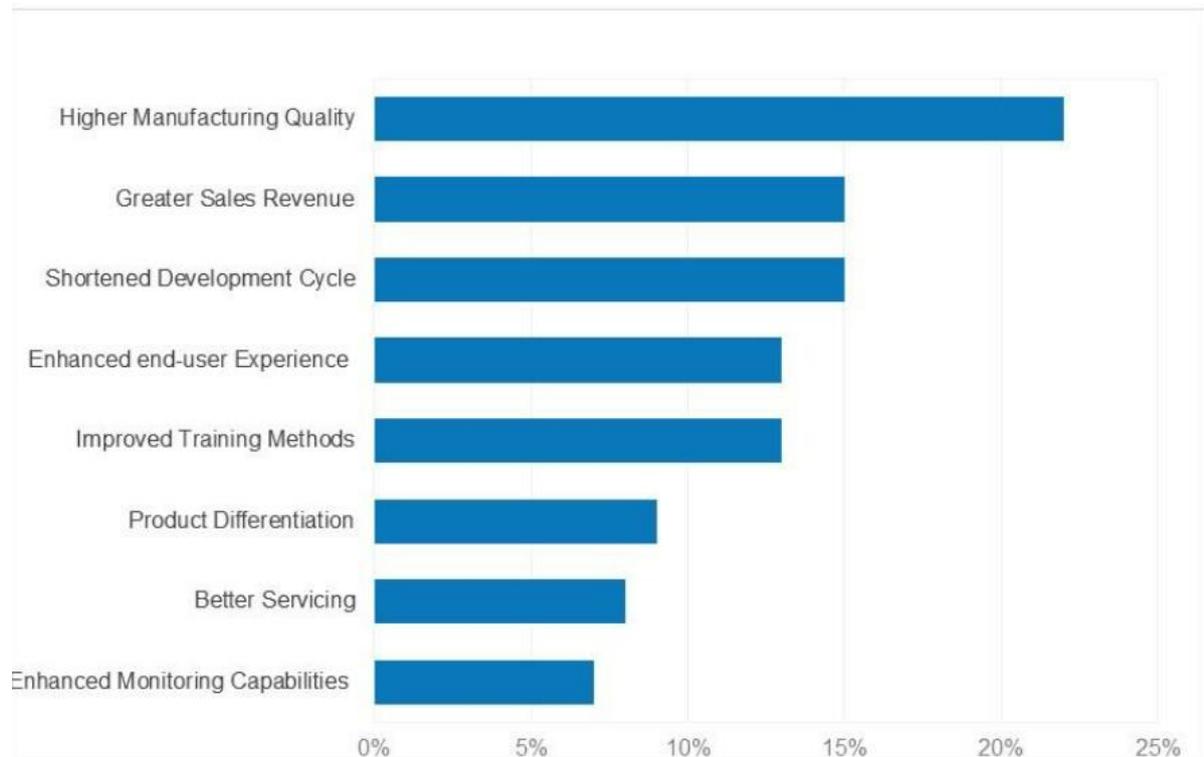
SOFTWARE ARCHITECTURE OF VR SYSTEMS

- A database, a web service, a scene editing module, a visualization module, and a controller module make up the software architecture of the VR system
- SQL database, in particular, is in charge of the virtual scene's data
- Web service uses the HTTP protocol to allow bidirectional communication between the database and the other components
- Unity, a cross-platform game engine, was used to create the scene editor, visualization, and controller modules



IMPACT OF IMPLEMENTING AR/VR IN BUSINESS

- » Drastic increase in manufacturing quality of the products and received huge sales revenues
- » Development life-cycle of the products is decreased, and end-users are happy with the services and products



Career Paths in AR and VR:

- ***VR/AR Developer:***

Role: Develop software and applications for VR and AR experiences.

Skills: Programming languages (e.g., C#, C++, Unity, Unreal Engine), 3D modeling, game design, and knowledge of VR/AR hardware.

- ***UX/UI Designer for AR/VR:***

Role: Create user interfaces and experiences optimized for VR and AR.

Skills: Design principles, 3D modeling, understanding of user behaviour in immersive environments.

- ***AR/VR Content Creator:***

Role: Produce 360-degree videos, animations, and interactive content.

Skills: Video production, animation, 3D modeling, storytelling, and familiarity with VR/AR tools.

- ***AR/VR Hardware Engineer:***

Role: Design and develop VR/AR hardware components, including headsets and sensors.

Skills: Electrical engineering, optics, hardware design, and proficiency in CAD software.

- ***AR/VR Researcher:***

Role: Conduct research to advance VR and AR technologies.

Skills: Strong foundation in computer science, mathematics, and problem-solving abilities.

- ***AR/VR Project Manager:***

Role: Oversee the development and execution of VR/AR projects.

Skills: Project management, communication, and knowledge of VR/AR development processes.

- ***AR/VR Marketer:***

Role: Promote VR/AR products and experiences to target audiences.

Skills: Marketing strategy, digital advertising, and understanding of VR/AR capabilities.

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