



INTO THE FUTURE -  
REVOLUTIONIZING HEALTHCARE  
WITH APPLE VISION PRO

## Disrupting the Healthcare Industry with Apple Vision Pro

Apple has a long-standing tradition of introducing revolutionary technological innovations and this time the launch of the Apple Vision Pro has undeniably set new benchmarks in this ever-evolving landscape of immersive experience. This innovation is all set to bring a step closer to experiencing spatial computing which seamlessly blends the digital and physical worlds allowing novel and thrilling experiences in various domains such as education, entertainment, and healthcare.

Apple CEO Tim Cook envisions the future of healthcare as one where healthcare is simplified, patients are treated like valued customers, and systems and applications are designed to enhance the performance of medical professionals. This attainable objective is gradually gaining traction, with Apple making significant and consistent progress in the healthcare sector. The launch of HealthKit, ResearchKit, and the acquisition of various startups such as Glimpse for

medical data management are a few cases that reveal Apple's early adoption of health apps, giving it a significant advantage in the healthcare industry.

For years Apple has been increasingly focusing on healthcare technologies and this continued innovation is now being showcased in Apple's new Vision Pro which offers an immersive experience from clinical education and training, surgical planning, and medical diagnostics, to mental health and wellness. The headset's exceptionally high-resolution immersive data visualization capability with truly hands-free and user-friendliness features opens new horizons of endless possibilities for medical professionals, caregivers, and patients.

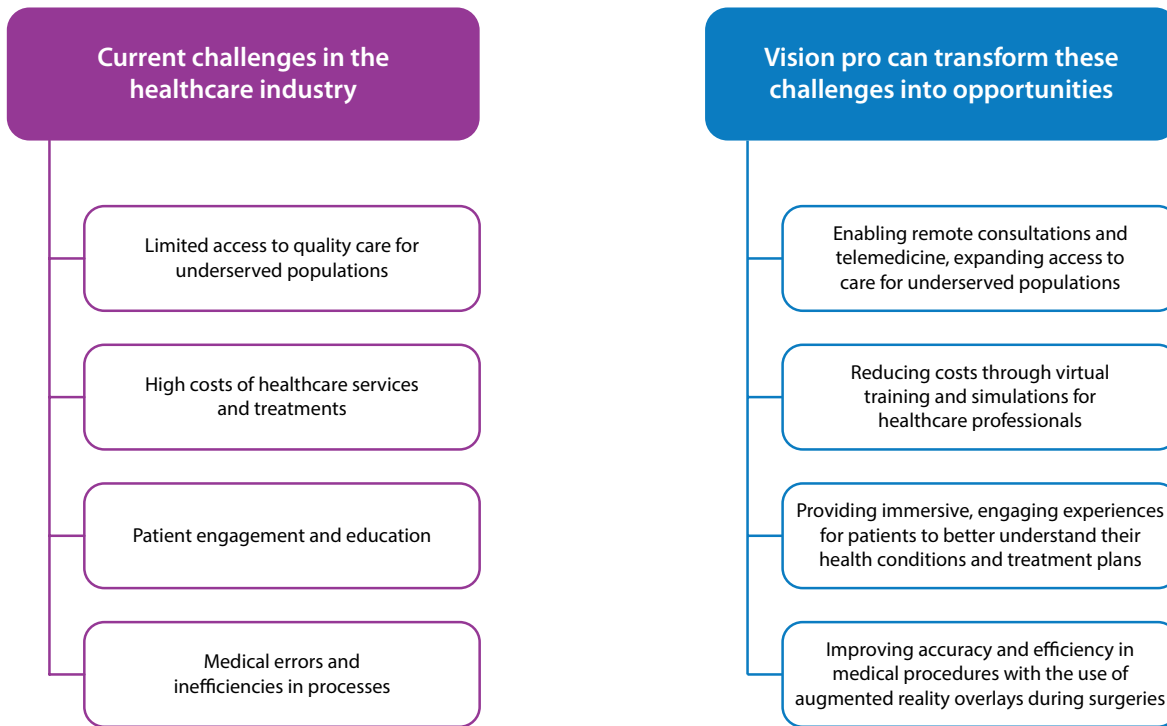
A surgeon preparing before a critical operation on a Vision Pro, a nurse receiving training in a virtual setting using a headset, or a medical student delving into human anatomy studies with

immersive layered imaging techniques are some of the recent examples of Apple Vision Pro that have helped us to understand the intuitive meaning of engaging with the human body and virtual surroundings. However, these features caught everyone's attention when a nurse assisted a team of surgeons during spine surgery in the UK by accessing live data feeds, aiding in surgical preparation, monitoring progress, and choosing appropriate instruments.

This is not the only incidence when the device has been made up in an operating room to assist surgery. Surgeons at Chennai's GEM Hospital are using Apple Vision Pro to carry out laparoscopic surgeries ranging from gall bladder procedures to surgery to treat stomach cancer, and fistulas and hernias. The device enabled the surgeons to view procedures spatially displaying essential information such as X-rays, CT scans, and MRI reports, while also allowing real-time connection with experts.



## Apple Vision Pro Transforming Healthcare Challenges into Opportunities



## Emerging Use Cases of Vision Pro in Healthcare



### Augmented Healthcare Training and Education

Apple Vision Pro offers immersive capabilities with best-in-class resolution to replicate real-world work scenarios at a 1:1 scale, fostering a dynamic and engaging learning environment. Boston Children's Hospital launched a Cyrano Health app for Apple Vision Pro which offers an immersive training platform for nurses and healthcare professionals giving them lifelike simulations that imitate the experience of working with medical equipment. Apple has also spotlighted the launch of Elsevier's Complete HeartX – the first

heart education experience in spatial computing that would bridge the gap between theoretical and practical knowledge. The app provides an immersive learning experience to learn about the heart through interactive 3D models, images, and simulations which would help users to discover the workings of the heart like never before.

### Assisted Surgical Preparation

The Vision Pro offers healthcare professionals realistic simulations of surgical dealings, enabling them to practice and enhance their surgical abilities by providing a touch-free heads-up display, enabling real-time

data analysis, assisting in surgical instruments and procedures thereby helping in minimizing human errors, and boosting surgical success rates. Stryker, a medical company renowned for its Mako Smart Robotics utilized in various joint replacements, is collaborating with Apple Vision Pro. Through its new myMako app, surgeons can immerse themselves in a 3D visual experience to visualize and simulate surgical procedures before performing them on actual patients. This preoperative planning would help them develop effective surgical strategies and enhance their understanding of complex surgical procedures.

## Advanced Treatment and data-informed diagnosis

Vision Pro headset offers an immersive platform for examining high-resolution radiology images. The integration of 3D DICOM images and 4K rendering technology enables radiologists to examine medical images with exceptional detail and sharpness, resulting in early detection, precise diagnoses, treatment plans, and monitoring of treatment responses.

Developed to leverage the unique features of Apple Vision Pro, Visage

Ease VP facilitates immersive and spatial medical imaging encounters. Its unparalleled eye-tracking technology allows the spatial headset to detect conditions like cancer, cardiovascular issues, retinal diseases, and neurological disorders. Through advanced visualization tools, high-definition screens, and integrated AI (Artificial Intelligence) algorithms, Vision Pro transforms into a powerful processing unit for medical imaging, providing profound insights into patients' health and enabling proactive health monitoring.

## Improved Wellness and Mental health

Mixed reality has been used to augment mental healthcare; however, Apple's Vision Pro elevates this experience with the Xiaia app which aims to help people with anxiety, addiction, depression, and pain management. The app includes a 3D avatar that provides AI-powered conversational mental health support to users can analyze a user's facial expressions to identify signs of depression and anxiety and can assess stress levels thereby setting a calming spatial environment where they can engage in deep breathing exercises and meditation.



## Challenges While Adopting Vision Pro for Healthcare

Adopting Vision Pro for healthcare app development presents several challenges.

Firstly, there are stringent healthcare regulations and privacy concerns regarding data security and confidentiality, as the device gathers detailed insights into user data without clear visibility for third-party apps, making compliance with regulations like HIPAA or GDPR difficult.

Secondly, the prohibitive cost and limited accessibility, with only 5% of Americans having used it, pose affordability issues in the healthcare industry. Although a more affordable version is rumored to be in development, priced between \$1,500 to

\$2,500, it may still be prohibitive.

Thirdly, the device's limitations such as short battery life, weight, and difficulty in passing through VR (Virtual Reality) in bright operating rooms limit its application to minor procedures. Lastly, the scarcity of high-quality medical images for training impedes its broader use in diagnostics, as obtaining such data is resource-intensive and time-consuming.

As we enter a new phase of technological progress, the healthcare sector is brimming with opportunities and challenges. To ensure the widespread

adoption of technology in healthcare, it is crucial to use it effectively and ethically. Overcoming these challenges necessitates a collaborative effort involving various experts such as surgeons, data scientists, ethicists, and cybersecurity specialists. However, Apple has enabled certain privacy and security capabilities, empowering users to maintain control over their data through features like Optic ID authentication, data encryption, inaccessible to external apps, and so on. With all these efforts Apple is making constant efforts to create a healthcare revolution in telemedicine, chronic disease management, and preventive healthcare.

## Transformative Potential of Apple Vision Pro in Healthcare with Infosys

Infosys, as a company, has invested in this emerging technology space for many years. We have a dedicated 'Center of Excellence (CoE)' focusing on Immersive experiences, covering the entire reality spectrum from Captured, Assisted, Augmented, Mixed, and Virtual Reality (VR) along with Spatial Computing.

As part of this evolving journey, we have been actively engaged with our customers via first-of-its-kind (FOIK) projects, workshops, design thinking sessions, and building relevant solutions

for clients across industries. Since Apple Vision Pro's inception last year, Infosys has been investing in creating an end-to-end development environment and making the device available across various Innovation Hubs for the teams to get hands-on exposure to this upcoming technology.

As a result of these consistent efforts, the Infosys team created a detailed point of view (POV) and ported 4-5 existing AR/VR/MR applications onto Vision Pro. Based on all this practical understanding, Infosys

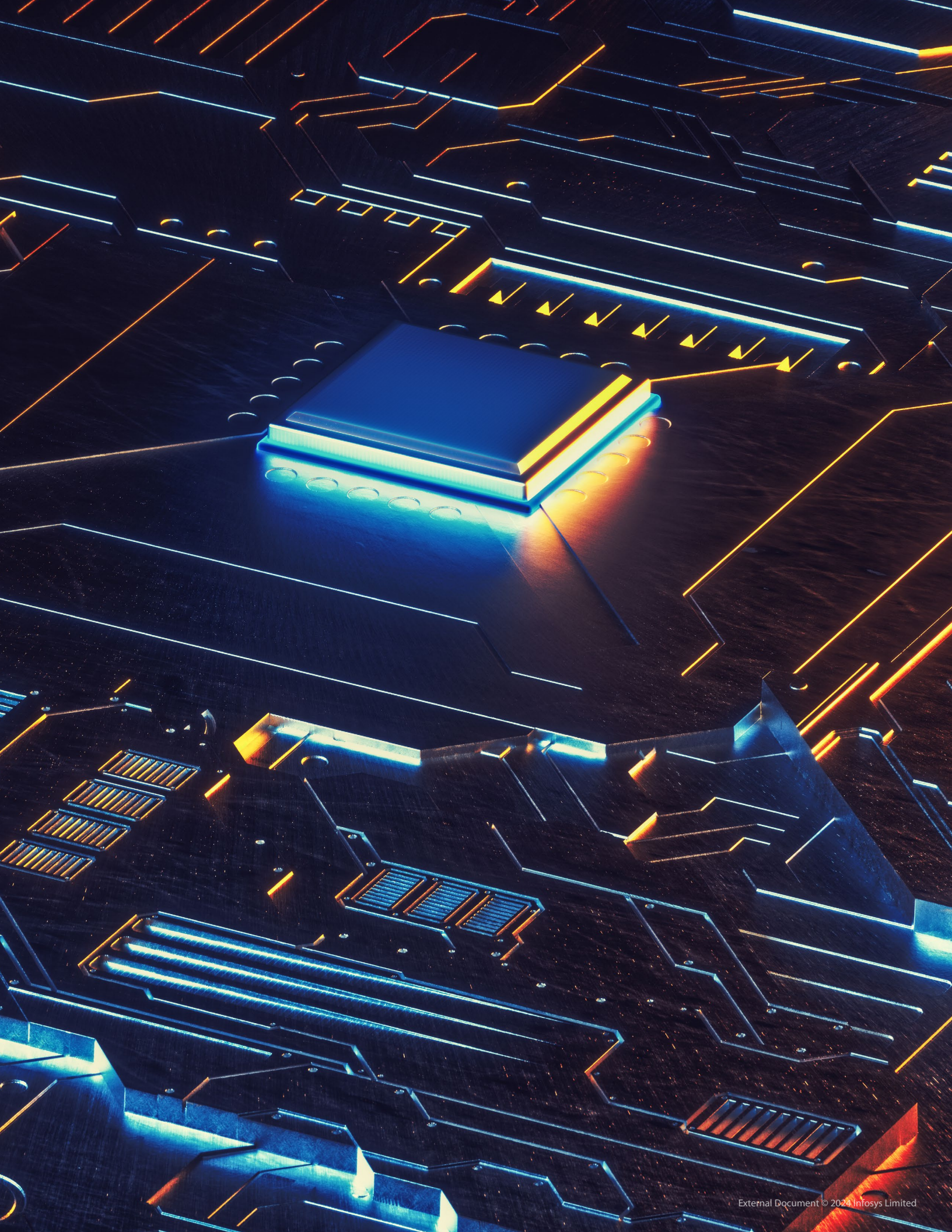
is pursuing client opportunities in the healthcare sector in areas such as Medical Training, Digital twin, Collaboration, Productivity improvement, and so on. A leading global medical device company is exploring the opportunity with Infosys to migrate dozens of their existing Unity3D applications in a cost-effective & scalable manner. Similarly, a large medical system company is exploring options to create a Digital Twin of a medical/OT room for layout planning, visualization & interaction in 3D.

### What's Next with Apple Vision Pro in Healthcare

Apple Vision Pro's innovative integration within healthcare offers a vision of a future where technology and healthcare converge to deliver more effective, efficient, and personalized experiences. By transforming medical training and education, enhancing patient diagnosis and treatment, and improving overall patient care, Apple Vision Pro is at the forefront of this revolutionary journey. Its capabilities in immersive learning, patient engagement, and remote healthcare delivery highlight the device's potential to significantly impact multiple aspects of healthcare. Utilizing the device's spatial computing features, healthcare providers can deliver services that are not only more accessible and personalized but also more engaging and effective. Although the integration of Apple Vision Pro into healthcare is still in its early stages, its potential is clear: it promises a transformative future, ready to meet the challenges and opportunities of the 21st century.







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Parul is a Senior Consultant at iCETS, specializing in the analysis of the latest trends and groundbreaking technologies that are transforming various industries. Her expertise lies particularly in emerging technologies such as AI, the Metaverse, extended reality, and beyond. Parul is dedicated to understanding how these innovations are impacting different sectors. With a background spanning across marketing, operations, business research, analytics, strategy, and consulting, she is a passionate technology enthusiast who excels at finding innovative solutions to help businesses remain competitive and stay ahead of the curve.



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Sameer leads Infosys Extended Reality (XR) and Metaverse CoE, with the vision to enable Infosys to become a leader in the fourth wave of the Digital technology era. He focuses on incubating emerging technology-led solutions in XR and Spatial Computing spaces in the form of IPs, Platforms, Framework, and Accelerators, and adoption of the technology in an Enterprise context, 'FOIK' projects execution, and so on. With 26+ years of industry experience, Sameer has been instrumental in conceptualizing/ building many products, platforms, and solutions in the area of Advanced Mobility, Location Services, Wearables, Artificial Intelligence, ChatBot, Computer Vision, Augmented Reality, Virtual Reality, and Mixed Reality.

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