Chapter 18
A Review Study on the Challenges and Opportunities in Implementing the Metaverse in Healthcare:
An Asian perspective

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ABSTRACT

Recently, metaverse technology has drawn considerable attention in the healthcare industry as a result of multifold technological advancements in the last decade. Metaverse is likely to have a significant impact on our digital lives in the near future by enhancing our interactions, and our working and playing habits. However, it poses a variety of challenges that require special attention and proactive action to be taken. In this study, the authors examine the challenges and opportunities associated with implementing metaverse solutions in Asian healthcare systems. These include infrastructure, cultural considerations, regulatory frameworks, and privacy concerns. These are among the critical factors affecting metaverse solutions development in these systems. China, Bangladesh and Japan. Japan has the highest market size per user in terms of average market size, which was 219.2 dollars in 2022 and will increase to 632.2 dollars in 2030. This study provides essential insights about the metaverse's deployment, acceptance by the young generation, and future recommendations.

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1. INTRODUCTION

The rising costs of healthcare, substantial infrastructure requirements, growing populations, and an excess of healthcare personnel have revealed the lack of sustainability in healthcare systems for the future. The COVID-19 pandemic has forced healthcare practitioners and entrepreneurs to actively seek solutions for efficiently handling patients outside of conventional healthcare institutions. Technological advancements have made it possible to practice telemedicine and telehealth, which allows for remote connection with healthcare professionals without the need to be physically present in the precise same location. However, the process of transforming the healthcare sector is considerably more intricate. Researchers have been studying the virtualized operation of healthcare within the metaverse. Schroeder (2008) states that there is no concrete universally agreed-upon description for a virtual environment, emphasizing the necessity for a clear and concise definition.

However, on the basis of recent research studies (Weinberger 2022, Park and Kim 2022 Zhang et al., 2022 Ritterbusch and Teichmann 2023) Metaverse represents the convergence of several technological advancements, including artificial intelligence, virtual reality, augmented reality, internet of medical devices, robotics, quantum computing (Singh et al., 202). This combination offers opportunities to identify novel approaches for delivering high-quality healthcare treatment and assures an integrated procedure for patient care (Lee and Yoon 2021, Sharma et al., 2021, Chengoden et al., 2023).

Several countries in Southern Asia are investing heavily in developing the metaverse within their healthcare systems, including India, China, Bangladesh, and Japan, which represents an opportunity to become more innovative. Using virtual consultations and telemedicine can help healthcare providers and patients overcome accessibility barriers. The use of remote consultations and telemedicine can be used to provide remote healthcare without sufficient medical resources (Omboni et al.,2022).

Simulating real-life situations in a metaverse can also improve medical practitioners' competence and knowledge. The use of virtual fascinating environments can improve health literacy of patients and make virtual rooms more realistic (Hamilton et al., 2021). The use of metaverse improve chronic illness management and elder care, as it will allow remote monitoring of patients, which is particularly useful for chronic illnesses (Bansal et al., 2022). Virtual workspaces can be beneficial to doctors and healthcare professionals. Through collaborative research and innovation, healthcare can be advanced throughout the world and support their establishment. Metaverses have the potential to reduce stress and establish a favorable environment for mental health.

Data visualization and pharmaceutical research can be facilitated by using metaverse-based technology in the research world. To achieve the goal of improving care for patients efficiently, effectively, and ethically, technology must be incorporated. Regulatory compliance, data security, and ethical considerations are all key factors in successful implementation of metaverse in healthcare. Health care faces some challenges posed by the metaverse even though it represents a promising future technology. Data privacy and security may be a concern with immersive technologies due to the sensitive nature of patient information.

Data breaches and unauthorized entries must be prevented to maintain confidence in healthcare systems. Additionally, healthcare professionals face significant challenges in compliance with regulatory requirements, as they are required to navigate a complex landscape of rules, standards, and guidelines to comply with ethical norms. Tech giants of China such as Tencent and Alibaba are driving the development of the metaverse (Deloitte report 2021-22). However, a major challenge is in efficiently handling rigorous governmental regulations, particularly concerning content control and ensuring data privacy