

# **The metaverse, social networking platforms and emerging technologies and their interplay with data privacy and cyber security in industry practice: Barriers and solutions.**

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## **Abstract**

The metaverse, social networking platforms and emerging technologies, such as generative artificial intelligence (gen AI), virtual reality (VR) and augmented reality (AR), have fast evolved consumer-brand relationships and gained much attention in the industry and in academia. As much as these technologies offer a myriad of opportunities for businesses and academia alike, they present a number of barriers, including but not limited to data privacy and security, which has not yet been addressed by researchers in this context. In response to this lack of knowledge, this interdisciplinary research seeks to: 1. explore the role of the metaverse, social networking platforms and emerging technologies in industry practice; 2. uncover the barriers to their implementation; 3. identify suitable solutions for their effective and efficient implementation; and 4. explore cyber security and privacy issues related to the use and adoption of the metaverse, social networking platforms and emerging technologies.

## **Background**

It is estimated that 600 million users globally engage monthly on virtual worlds, such as: Roblox, Minecraft and Fortnite (Mitham, 2023). Additionally, over 63% of the world's population is using social media and over 66% are using the internet (Hootsuite, 2024). Furthermore, there are predictions that by 2026, 25% of the population will spend at least an hour per day in the metaverse (Rimol, 2022). Notably, the number of AR and VR users is expected to reach 3.6 billion by 2028 (Jayaraman, 2024). These trends are impacting on the industry and academia alike, emphasizing the increasing importance of the metaverse, social media and emerging technologies in transforming the industry. Notably, the global users' uptake in these technologies is driving digital innovation and transformation within businesses and higher education institutions (Ly & White, 2023; Pathak-Shelat & Mehta, 2023). With the advent of the metaverse, digital transformation in industries such as higher education, for example, is entering a new era of virtual university environments (Hassanzadeh, 2022). Metaverse technologies are becoming a pivotal driver of global competition, such as, competition among higher education institutions to attract top students and researchers (Burnett et al., 2022). Similarly, digital twin technology offers a way for fashion, retail, mining, sustainability and industrial businesses, to conduct their operations in

the virtual world, reshaping thus the consumer-brand relationship (dos Santos et al., 2022; Yu et al., 2022; Liu et al., 2021; Maizi & Bendavid, 2021).

Undoubtedly, these technologies raise data privacy concerns due to the collection, storage and sharing of their personal and sensitive information (Mwesiumo et al., 2021; Preibusch, 2013). This data could be illegally accessed, leading to privacy violations, the undermining of brands' reputations, and eroding their stakeholders' digital trust (Chen et al., 2023). This distrust could hinder the adoption of innovative technologies by brands.

At present there is insufficient enquiry into this phenomenon, which this research seeks to address. This project sets out to provide new insights into the barriers which cyber security and privacy issues present in the metaverse, social networking platforms and emerging technologies in contemporary industry practice across various sectors of the marketplace.

### **Research Questions**

The following research questions present an opportunity for this research to address:

1. What are the motivating factors for brands to adopt new technology in their customer-brand relationship management?
2. What are the barriers to the adoption of the metaverse, social media and emerging technologies in the higher education teaching and learning context?
3. What are the solutions to the adoption of the metaverse, social media and emerging technologies in the higher education teaching and learning context?
4. What are the barriers to the adoption of the metaverse, social media and emerging technologies in industry practice?
5. What are the solutions to the adoption of the metaverse, social media and emerging technologies in industry practice?
6. What are the potential cyber security issues related to the adoption of the metaverse, social media and emerging technologies in industry practice?
7. What are the implications on data privacy in adopting the metaverse, social media and emerging technologies in industry practice?

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