Chapter 2
Big Data Analytics and Artificial Intelligence for Metaverse Practices in Business

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ABSTRACT

The metaverse offers users a combination of the physical and virtual worlds. Companies have entered the metaverse by offering virtual products such as virtual NFTs and virtual services such as concerts/games. One of the major drawbacks of the metaverse for marketers and data scientists is the collection and analysis of huge amounts of complex and sensory data from the metaverse. Companies are taking advantage of big data analytics and artificial intelligence applications to gain valuable business insights from the dynamic data flow of the metaverse. In this chapter, the authors focus on the adaptation of techniques used in the analysis of digital data, especially social media, to metaverse areas. It is suggested to adapt artificial intelligence applications such as machine learning, deep learning, and neural networks used in the analysis of digital data, as well as techniques such as netnography used in qualitative social media research to metadata applications. In the study, metaverse applications of different brands are included in order to guide businesses.

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INTRODUCTION

Metaverses are new interfaces used to realize all kinds of human-computer interactions (de la Fuente Prieto et al., 2022). With most organizational activities moving online, along with the intrusion created by the new Coronavirus from 2019 to date, it has become more imperative to promote any metaverse implementation (Njoku et al., 2023). The metaverse, which has become a new marketing target, offers the opportunity to experience, play, work, connect, and buy real or virtual products with the help of web technologies and the Internet of Things. Artificial intelligence and big data analytics techniques are often utilized in these services. In addition, virtual reality (VR), augmented reality (AR), mixed reality (MR), and extended reality (XR) are among the key components of the metaverse (de la Fuente Prieto et al., 2022). VR, a digitally created artificial environment, enhances the user experience through movement, touch, sound, sight and natural interaction with virtual objects. AR spatially merges the physical world with the virtual world, while XR, which includes all realms of reality, allows people to interact in a partially or fully synthetic digital environment created by technology (Pellas, et al., 2020; Mystakidis et al., 2022). The metaverse is a combination of web technologies, the internet, VR, AR, mixed reality (MR) and extended reality (XR). While MR fuses the physical and digital worlds to some extent by combining VR and AR technologies together, XR universally refers to all these immersive technologies (Njoku et al., 2023). On the other hand, business and technical characteristics vary greatly in the metaverse, as each organization creating a virtual world can do so with its own forms of membership, access, creative expression and monetization rights (Balis, 2022).

The metaverse is similar to digital marketing but with some differences. Metaverse offers a much more immersive user experience than digital marketing. Digital marketing focuses on tracking and targeting consumer touch points. The metaverse creates and integrates very different experiences compared to digital marketing (Hollensen et al., 2022). On the other hand, it will provide better conversion rates by capturing not only clicks like digital marketing, but also emotions and gamification instead of banners. This also means consumer acquisition at lower costs for companies. Fundamentally, the basic concepts of digital marketing based on search and display marketing also apply to the metaverse. Here, factors such as the depth of interaction, the role of hardware, the depth of user touchpoints and related data management reveal the need for different marketing approaches. Likes on social media are