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ABSTRACT

The Metaverse, a hypothetical virtual space where people interact with digital environments, has gained attention as a transformative concept in various industries like education, healthcare, and business. However, a comprehensive understanding of the Metaverse's research landscape and future prospects is essential to guide further exploration and decision-making in this dynamic field. On the basis of the preliminary analysis and the existing literature, the comprehensive bibliometric analysis of the Metaverse is anticipated to reveal a number of themes that span the vast spectrum of its applications. The objective of the analysis is to provide a comprehensive overview of the current state and future prospects of the Metaverse by analyzing past and present research trends and predicting future research directions. The research collected 928 journal articles from the Web of Science database using bibliometric methods. Through co-citation and co-word analysis, the study identifies the most influential publications, outlines the knowledge structure, and forecasts future developments. The study identified four distinct clusters for co-citations analysis and five distinct clusters for co-word analysis. Despite the growing importance of the Metaverse in various aspects of human life, more scholarly efforts are required to provide a comprehensive overview of its research landscape. This article provides illuminating insight into the expanding field of Metaverse research and its applications to human life. The study concludes with a comprehensive explanation of Metaverse research and perspectives on the field's future development. This is the first study to present a knowledge structure of the Metaverse via a science mapping methodology.

1. Introduction

The Metaverse is a term used to describe a hypothetical virtual space where people can interact with digital environments and other users in a shared online world (Allam et al., 2022). It is essentially a three-dimensional immersive virtual reality environment that simulates a real-world experience with the help of advanced technologies such as augmented reality, virtual reality, and blockchain (Al-Gnbri, 2022). In the Metaverse, users can create and customize their avatars, explore virtual spaces, engage in social activities, participate in games and contests, and conduct business transactions (Buhalis et al., 2023). The Metaverse concept was first introduced in Neal Stephenson's 1992 novel "Snow Crash," which described a virtual world called the Metaverse (Garon, 2022). Since then, the idea of the Metaverse has gained traction in popular culture, especially in the context of online gaming and social networking (Bibri, 2022). In recent years, however, the Metaverse has also emerged as a potential frontier for innovation and transformation in various industries, including education, healthcare, retail, and finance (Monaco & Sacchi, 2023).

The Metaverse is a potential solution to some of the limitations of the current online environment, such as the need for more interactivity, immersion, and social presence (Zallio & Clarkson, 2022). By facilitating real-time interaction among users and digital objects within a shared virtual space, the Metaverse can facilitate new forms of collaboration, communication, and creativity (Mourtzis et al., 2022). As such, it has attracted the attention of scholars, practitioners, and policymakers interested in exploring this emerging technology's possibilities and implications (Dwivedi et al., 2022). Therefore, it is important to gain insights into the past and future trends of the Metaverse through a rigorous and systematic analysis.

Bibliometric analysis, as a quantitative and data-driven approach, offers a systematic way to examine the scholarly landscape of the Metaverse (Dawson, 2022). By leveraging WoS databases and analytical methods such as co-citation analysis and co-word analysis, this analysis can be used to study relationships between scientific publications and