

Marketing in the Metaverse: A Bibliometric Perspective

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ABSTRACT

The metaverse is changing the way customers and companies interact with each other by implementing a fusion of virtual and physical commerce. To understand this new environment, around 2681 Scopus-indexed works ranging from year 1994 to 2025 were bibliometrically analysed. Customer behaviour, blockchain trading, digital advertising, data privacy over the internet, and experiential marketing were among the very important topics that were studied and critically analysed in this study. Themes that focused on immersive branding, direct-to-avatar marketing, multi-platform strategies and ethical concerns were grouped together. Since the entire metaverse market is expected to reach over \$937 billion by year 2030, the research's conclusion demonstrates both the magnitude of the opportunity and the necessary strategic changes. This study provides insights into the underlying trends such as scholars and marketers navigate innovation, cross-reality convergence, and data-driven concerns in the metaverse.

Keywords: Bibliometric Analysis, Consumer Engagement, Metaverse Marketing.



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INTRODUCTION AND RESEARCH AIM

The principles of marketing are being fundamentally transformed by the metaverse, a digital space that integrates both virtual and physical realities (Dwivedi et al., 2022). As platforms such as Roblox, Decentraland, and Horizon Worlds gain traction, marketers are transitioning from conventional advertising methods to engaging, interactive experiences. Nevertheless, the academic discourse surrounding this topic is fragmented; this study addresses this issue through a bibliometric analysis of existing literature, highlighting essential themes, emerging trends, and strategic considerations. This bibliometric study's main goals were to:

- Identify and categorize the important research topics and theoretical frameworks in metaverse marketing.
- Provide useful advice and strategic insights for applying these research trends in order to enhance customer interaction tactics in the immersive and virtual ecosystem.

The above thorough methodological approach offers a very transparent and reproducible framework for upcoming research projects in this rapidly evolving multidisciplinary domain. This paper offers a methodical synthesis to guide future studies and advertising tactics in this dynamic area.

Background and conceptual framework

Metaverse marketing is outperforming conventional marketing and digital tactics, thanks to the immersive technologies, avatar-driven interactions, and the fusion of virtual and real-world experiences (Dwivedi et al., 2022). Brands like Gucci's Roblox virtual garden, are currently creating interactive advertising campaigns that encourage greater involvement, which attracted almost 20 million visitors. This study analyses academic literature from Scopus on topics including consumer interaction, avatar commerce, blockchain technology, and data privacy using a bibliometric technique with VOSviewer (Yaseen et al., 2025). To help marketers navigate this dynamic and rapidly evolving digital ecosystem, the paper clarifies interconnected clusters and key concepts, such as digital ownership, experiential branding, and cross-reality marketing (Khan et al., 2024).

RESEARCH METHODOLOGY

Following Donthu et al. (2021) guidelines, this study employed a comprehensive bibliometric analysis to methodically outline the changing field of metaverse marketing research. Because of its extensive coverage of peer-reviewed literature, the Scopus database was chosen as the sole source of bibliometric data, making it appropriate for in-depth scholarly research. Seven unique and carefully constructed search queries were created as part of the first round of data extraction to gather a wide yet relevant range of metaverse marketing-related literature. These questions included a wide range

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of topics, such as digital branding, immersive technologies, blockchain applications, consumer involvement, experiential marketing, overarching marketing strategies, and ethical considerations. The following describes the queries and the number of documents that corresponded to them:

1. SQ-1: TITLE-ABS-KEY (marketing AND metaverse), 2009–2025 (513 documents).
2. SQ-2: TITLE-ABS-KEY (("digital marketing" OR "brand strategy" OR advertising OR "consumer engagement") AND (metaverse OR "virtual world" OR "immersive environment")), 1998–2025 (338 documents).
3. SQ-3: TITLE-ABS-KEY ((marketing AND metaverse) AND ("future" OR "emerging trends" OR "next generation")), 2009–2025 (190 documents).
4. SQ-4: TITLE-ABS-KEY (("consumer behavior" OR "customer engagement" OR "user experience") AND (metaverse OR "virtual environment")), 1994–2025 (2567 documents).
5. SQ-5: TITLE-ABS-KEY ((marketing OR "digital advertising") AND (metaverse OR "virtual reality" OR "augmented reality") AND ("blockchain" OR "NFT" OR "VR commerce" OR "Web 3.0")), 2011–2025 (135 documents).

6. SQ-6: TITLE-ABS-KEY (("brand strategy" OR "brand experience" OR "experiential marketing") AND (metaverse OR "virtual platforms")), 2016–2025 (45 documents).
7. SQ-7: TITLE-ABS-KEY ((marketing AND metaverse) AND ("data privacy" OR "digital identity" OR "ethical concerns")), 2023–2025 (12 documents).

In total, close to 3,000 documents were initially retrieved across these queries, spanning publication years from 1994 to 2025.

A multi-dimensional analytical approach was undertaken encompassing:

- Descriptive Analysis: Document type distribution, author productivity, citation trends.
- Network Analyses: Co-occurrence (author keywords, index keywords), co-authorship (authors, organizations, countries), citation analysis (documents, authors, sources), co-citation (cited authors, cited sources), and bibliographic coupling (documents, sources).
- Geospatial Analysis: Geographic distribution and international collaboration patterns.
- Temporal Analysis: Keyword and country-level trends over the selected period.

RESULTS AND/OR DISCUSSION AND CONTRIBUTIONS

Based on the bibliometric analysis using VOSviewer and Biblioshiny, it was found that the annual scientific output in the domain of metaverse marketing exhibits a marked upward trajectory, particularly in the post-pandemic era. Between 1993 and 2015, the volume of scholarly work remained modest, with under 100 articles per year, reflecting a nascent interest in the subject. From 2016 onward, however, there was a gradual increase in academic contributions, indicating early explorations into immersive technologies and virtual commerce. A significant inflection point occurred in 2021, coinciding with major technological shifts and corporate strategies—most notably Meta’s (formerly Facebook) repositioning towards the metaverse. This triggered a rapid surge in academic publications, culminating in a peak of over 850 articles in 2023, representing the highest recorded output within the dataset. The abrupt rise signals the metaverse’s transition from a speculative concept to a strategic imperative in marketing research. Although the graph shows a decline in 2024, this is likely attributable to partial indexing of that year’s publications at the time of analysis, rather than an actual downturn in academic activity. The overall trend reinforces the metaverse as an evolving and intensifying research frontier, commanding significant scholarly attention within the marketing discipline.

Table 1 presents a summary of the bibliometric analysis.

Table 1: Summary of the Bibliometric Analysis	
Top 5 authors in terms of number of publications (in parenthesis)	Wang J (23); Wang Y (22); Li Y (19); Kim J (17); Wang X (16)
Top 5 cited publications and number of citations	Dwivedi YK et al (2022) – 1560 citations; O’Keefe GS et al (2011) - 1266 citations; Park SM et al (2022) - 1141 citations; Lessiter J et al (2001) - 867 citations; Shin D et al (2018) - 555 citations
Top 5 cited countries	UK - 6390 citations; Korea - 3720 citations; USA - 3714 citations; China - 794 citations; Germany - 59 citations
Source: Summarised from Biblioshiny Analysis	

The keyword co-occurrence analysis, based on author keywords from 2,681 Scopus-indexed publications, revealed nine distinct thematic clusters that collectively map the intellectual structure of metaverse-related marketing research (Figure 1). The central node in the network is “virtual reality”, underscoring its foundational relevance, followed closely by “metaverse”, which acts as a bridge across technological, experiential, and commercial domains. Cluster-wise segmentation revealed that Cluster 1 centres on immersive user interaction and behavioural design, while Cluster 2 integrates marketing-specific applications such as NFTs, digital marketing, consumer experience, and metaverse tourism. The technologically driven Cluster 3 includes keywords like AI, blockchain, digital twins, and generative AI, highlighting the convergence of deep tech with marketing innovation. Other clusters focused on emotional and perceptual studies

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(Cluster 4), user motivation and engagement (Cluster 5), and interaction environments (Clusters 6 and 8). Notably, the overlay visualization indicates a chronological shift: earlier studies (pre-2020) were dominated by virtual environment design and usability, while recent years (2022–2024) show a surge in applied themes such as metaverse marketing, privacy, user trust, and sentiment analysis. The density visualization further confirms the research intensity around keywords like virtual reality, metaverse, and artificial intelligence, suggesting that future scholarship and marketing strategies will likely revolve around data-driven personalization, gamification, and AI-enabled user engagement within immersive ecosystems.

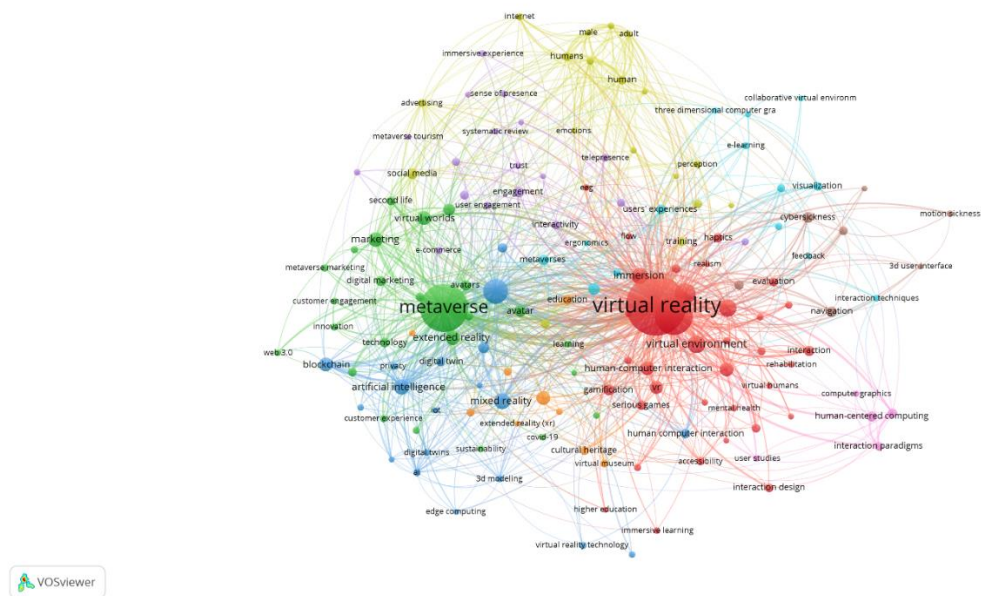


Figure 1: Keyword Co-occurrence Network Visualization - This network visualization represents the co-occurrence of author keywords in the metaverse marketing literature. Nodes represent individual keywords, with size indicating frequency of occurrence and proximity indicating semantic similarity. Thematic clusters are color-coded, revealing nine dominant research domains such as virtual reality (red), the metaverse ecosystem (green), artificial intelligence and blockchain (blue), user behaviour and social media (purple), and human-computer interaction (brown).

The co-citation analysis of cited sources and authors was performed with VOSviewer, utilizing a minimum citation count of 120 for authors (yielding 151 eligible authors) and 80 for sources (yielding 103 eligible sources). This two-layered mapping provides a strong image of the intellectual structure guiding the new field of metaverse marketing. The co-citation network of cited authors indicates three discrete yet interrelated thematic clusters that together define the scholarly basis of metaverse-related marketing research (Figure 2). The first and most theoretically grounded cluster centers on psychological realism and virtual reality. The most well-known writers in this category include Slater M., Steed A., Bailenson J.N., and Sanchez-Vives M.V., who have written seminal works on presence, embodiment, and sensory immersion in virtual environments. In order to comprehend how marketing stimuli work in virtual worlds, their study offers fundamental psychological and perceptual ideas that serve as the basis for customer behaviour in immersive settings. The second group, which includes writers like Dwivedi Y.K., Buhalis D., Kim J., and Belk R., focuses on systems like digital marketing and customer involvement. These academics provide strategic perspectives on how digital transformation, platform-based interactions, and information systems are changing contemporary marketing. Their work demonstrates how companies are leveraging immersive technologies to improve their consumer experiences and generating value at the organizational level. It covers topics such as digital personalization, marketing analytics, and technology adoption. This group positions digital systems as both catalysts and facilitators of marketing innovation by addressing behavioural marketing paradigms in conjunction with new technical developments. Under the direction of researchers Wang Y., Liu Y., Zhang Y., and Chen J., the third group reflects a growing scholarly contribution from the East Asian intellectual community. They look at social networking platforms, gamification, mobile commerce, and confidence in digital systems, with a special emphasis on WeChat and Alibaba.

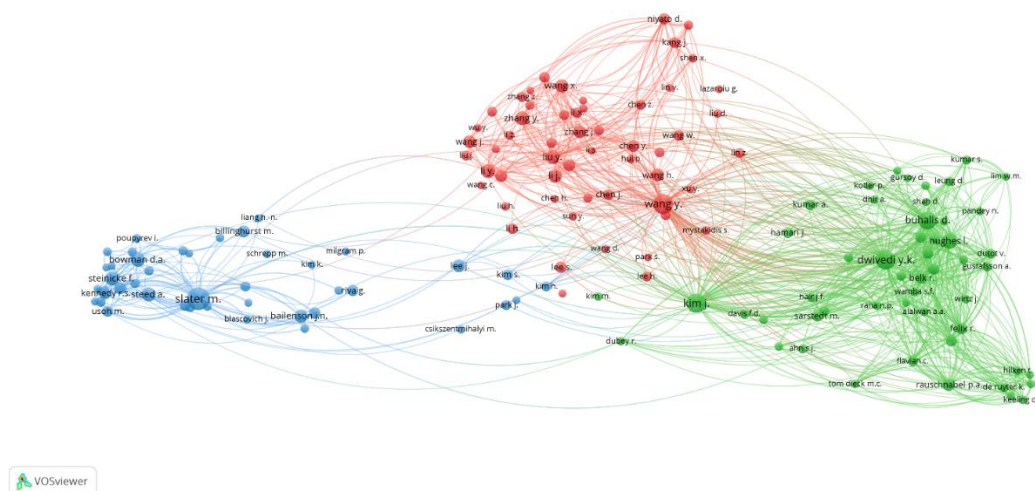
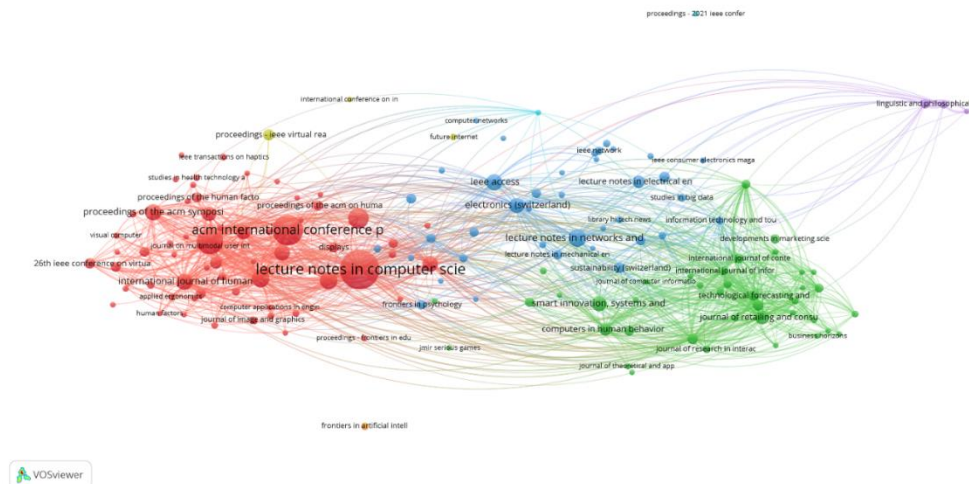


Figure 2: Cited Authors Network Visualization - Clusters of frequently co-cited authors revealing core intellectual contributors in metaverse marketing.

This sector provides insights into user behaviour and commercial behaviour in technologically affluent markets and is reflective of the adoption of metaverse technologies in dense digital economies. Including them not only indicates the area's speedy embrace of digitization but also establishes it as one of the contributors to worldwide debates on immersive trade and virtual promotion.

Supplementing author analysis cited source co-citation mapping captures another triadic pattern (Figure 3). The initial and most impactful set includes journals most linked to marketing and consumer research, including the Journal of Business Research, Journal of Marketing, Journal of Consumer Research, and Journal of Marketing Research. These sources anchor the scholarly dialogue in core marketing theory, customer digital journeys, and brand experience frameworks. Their prevalence confirms that metaverse marketing, as much as it is a technology-based discipline, still has its foundations grounded in classical and modern consumer science. The second category highlights the media and psychological aspects of the metaverse, as seen in outlets like IEEE Access, Frontiers in Psychology, Virtual Reality, and Plos One. These journals examine cognitive involvement, affective emotions, and behavioural reactions to simulated stimuli—providing insights into consumer perception and interaction with artificial digital worlds. This cluster emphasizes the interdisciplinary nature of metaverse marketing that draws on neuroscience, human-computer interaction, and affective computing to recognize the influence of virtual experiences on consumer decision-making. The third grouping consists of journals that are from information systems and service innovation, and some of these include the International Journal of Information Management, Tourism Management, Telematics and Informatics, and the Journal of Business Strategy.

They look at the wide-ranging effects of incorporating the metaverse into smart tourism, service delivery, and organizational change. According to their results, the metaverse is seen as a whole ecosystem that transforms business processes, customer interactions, and cooperative value generation rather than just as a marketing tool. As demonstrated by the co-citation networks of sources and authors, metaverse marketing research lies at the nexus of three academic fields: digital system design, immersive psychology, and strategic consumer science. This convergence demonstrates the field's intrinsic interdisciplinary nature, since technological platforms are used as environments that mimic, impact, and improve customer experiences in addition to serving as distribution channels. The integration of psychological realism, marketing strategy, and platform logic offers a comprehensive framework for future researchers and practitioners to conceptualize, measure, and implement marketing strategies within the metaverse. Ultimately, the co-citation analysis uncovers a dynamic knowledge ecosystem that amalgamates emotional, cognitive, and technological dimensions—providing fertile ground for both theoretical development and practical innovation in the immersive marketing landscape.



At the source level, journals such as Lecture Notes in Computer Science, ACM International Conference Proceedings, IEEE Access, and Computers in Human Behaviour are strongly coupled, indicating that these publication outlets always make use of a shared base of references. This network reflects how metaverse marketing is multidisciplinary in nature—crossing computer science, psychology, human-computer interaction, and marketing. The high-density red cluster centred on ACM and Lecture Notes highlights the technical bias of foundation studies, but green clusters (e.g., Journal of Business Research, Psychology & Marketing) indicate the behavioural and managerial perspective. This two-domain combination demonstrates that researchers from technology and business fields are constructing research paths based on intersecting literature, indicating a transforming transdisciplinary paradigm.

By defining pioneering ideas such as immersive engagement, avatar commerce, and blockchain branding, this research enriches marketing theory. It provides a clear platform for subsequent studies on how consumer behavior changes in virtual worlds. It equips marketers with the information they require to develop morally responsible advertising, including data-driven personalization and cross-reality advertising. Platform dynamics and digital ownership allow businesses to establish credibility and enduring relevance. More broadly, this research points to a cultural shift toward hybrid digital existence and calls for responsible innovation to ensure the metaverse is used as a platform for inclusive, open, and meaningful consumer-brand connections.

The global distribution of research on metaverse marketing reveals a distinct concentration of academic activity in a select group of technologically advanced economies. United States emerges as the dominant contributor to scholarly output, indicating its centrality

In contrast, Africa, South America, and parts of Southeast Asia display limited academic representation, underscoring a gap in global inclusivity and indicating underexplored contexts for metaverse adoption and localized marketing strategies. The uneven geographic spread suggests that much of the current discourse is shaped by the Global North, with future research needing to engage with culturally diverse and emerging markets to better understand regional consumer behaviour, technological adoption curves, and infrastructural constraints. Overall, metaverse marketing research is heavily clustered in countries with digital maturity, leaving fertile ground for cross-cultural and cross-regional comparative studies that explore unique socio-economic and technological conditions.

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