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From immersion to identity: a systematic review and framework for understanding metaverse consumers

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ABSTRACT

Metaverse marketing has emerged as a rapidly expanding research domain, yet scholarship on consumer behaviour within this context remains fragmented and often embedded within broader marketing or technology reviews. This study addresses this gap through a systematic literature review (SLR) of 84 peer-reviewed journal articles explicitly situated at the intersection of consumer behaviour and marketing in the Metaverse. The review synthesises insights into four thematic domains: (1). consumer engagement, (2). technology adoption, (3). avatar dynamics, and (4). fashion/luxury branding. The review maps three theoretical foundations: motivational, identity-based, and design-oriented perspectives. By integrating these strands, the paper develops a novel conceptual framework that captures how immersive, multisensory, and identity-driven experiences in the metaverse shape consumer–brand interactions and extend into real-world consumption. The analysis highlights the need for metaverse-specific behavioural theorisation and outlines key research gaps, offering a targeted agenda to advance understanding in this evolving field.

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1. Introduction

While initial industry enthusiasm around the Metaverse has moderated since its peak in 2021–2022, with some commentators suggesting that consumer adoption has slowed (CNBC, 2025; Protos, 2024), this cooling period does not signal decline but rather a transition toward more stable, commercially oriented applications. Many analysts and companies continue to invest in its technological foundations, particularly in VR (Virtual Reality)/AR (Augmented Reality), AI (Artificial Intelligence) integration, and decentralised infrastructure. The Metaverse is evolving from its early hype phase toward more targeted, sector-specific applications in marketing, retail, education, and entertainment (Al-Adwan et al., 2025; Bao et al., 2025; Hennig-Thurau et al., 2023). This transition raises a critical question for marketing scholarship: how are consumer behaviours actually forming and translating into value within maturing metaverse environments?

Defined as "*A new computer-mediated environment composed of interconnected virtual worlds where individuals interact and communicate in real time through avatars in a multisensory manner*" (Hennig-Thurau et al., 2023, p. 889), the Metaverse introduces new possibilities for consumer engagement, brand interaction, and digital commerce (Bao et al., 2025). Unlike earlier digital platforms, metaverse environments are immersive, persistent, and identity-driven, allowing consumers to act, interact, and consume through embodied avatars (Al-Adwan et al., 2024). As businesses increasingly experiment with these environments, a systematic understanding of how consumers experience marketing activities in the Metaverse becomes essential rather than optional.

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The rising popularity of immersive platforms is reshaping consumer behaviour, with the boundaries between virtual and physical consumption becoming increasingly blurred (Hollensen et al., 2023; Kozinets, 2023). Within these spaces, users interact socially, purchase digital and physical goods, attend branded virtual events, and customise avatars to express personal identity (Carey, 2022). Technologies such as VR, AR, and non-fungible tokens (NFTs) have transformed marketing practices. Recent work highlights how multisensory brand environments (Bao et al., 2025; Sung et al., 2023) and virtual luxury consumption (Profumo et al., 2024) are shifting consumer expectations beyond the physical realm. However, while individual behaviours and experiences have been examined, they remain scattered across domains, technologies, and theoretical lenses.

For marketers, gaining insight into how consumers navigate virtual environments and make decisions is now a strategic priority (Ferraro et al., 2024). Yet existing research does not offer a consolidated behavioural account capable of informing marketing strategy across sectors. In response, this study systematically reviews the literature on consumer behaviour in metaverse marketing to identify dominant behavioural patterns, theoretical foundations, and methodological trends, while clarifying how virtual-world behaviours relate to broader consumption practices.

Although research on the Metaverse has expanded rapidly across marketing, information systems, computer science, and media studies, comprehensive behavioural synthesis within marketing remains limited. Existing consumer behaviour reviews in metaverse contexts remain fragmented and insufficiently integrative. For instance, Yin and Do (2025) adopt the Scientific Procedures and Rationales for Systematic Literature Reviews (SPAR-4-SLR) and Theory–Context–Characteristics–Methodology (TCCM) frameworks to synthesise empirical studies, offering methodological and contextual insights but without consolidating behavioural themes across marketing domains. Dwivedi et al. (2022) integrate expert commentary with systematic review methods to identify opportunities and challenges, but their scope is broad, positioning consumer behaviour as only one of several marketing priorities. Kaur et al. (2024) narrows the focus to Generation Z, using the Engel–Kollat–Blackwell (EKB) model to map metaverse engagement stages, providing valuable generational insight but limited cross-sector generalisability. Hadi et al. (2024) conceptualise the Metaverse through five defining elements and explore behavioural implications in identity, social influence, and ownership, yet their treatment remains primarily conceptual and not grounded in a systematic synthesis of empirical studies.

While these works have advanced understanding of consumer behaviour in the Metaverse, they typically (1) emphasise methodological classification or conceptual framing rather than behavioural synthesis; (2) examine isolated consumer domains rather than multisensory, immersive practices; and (3) give limited attention to how metaverse behaviours extend into or reshape real-life consumption. Consequently, the field still lacks a consolidated behavioural synthesis that explicitly connects immersive, identity-driven interactions in persistent virtual environments with cross-sector marketing practice.

This study addresses this gap by presenting the first systematic literature review that is explicitly marketing-focused and consumer behaviour–centred, encompassing immersive, interactive, and persistent metaverse environments across industries. In doing so, it bridges fragmented streams of marketing literature and the evolving consumer experience literature, offering a unified conceptual framework to guide future research and practice.

The following research questions guide this study:

RQ1: What is the current state of consumer behaviour research related to marketing in the context of the metaverse?

RQ2: What research methods, article types, and publication outlets have been used in existing studies, and how might these inform future strategies?

RQ3: What is a conceptual framework and research agenda that could guide future metaverse marketing research?

The paper is structured as follows: Section 2 reviews literature, Section 3 outlines methods, Section 4 presents findings, Section 5 offers a framework, Section 6 proposes future research, and Section 7 covers implications and limitations.

2. Previous reviews of the literature

Systematic literature review (SLR) is a structured research method used to provide a comprehensive overview of published studies within a specific field over a defined period (Milian et al., 2019). Given the nascent and fragmented nature of metaverse marketing research, an SLR offers a methodologically rigorous approach to synthesising emergent patterns and surfacing underexplored areas. This approach helps identify well-explored and under-researched areas, allowing scholars to recognise gaps in the literature and contribute to ongoing academic discussions.

Over the past three years, several high-quality systematic and conceptual reviews have synthesised research on the Metaverse across marketing, services, logistics, and consumer behaviour (See Table 1). Lim et al. (2024) adopted a bibliometric approach, mapping publication patterns and thematic clusters across the metaverse literature, providing a broad landscape but without synthesising behavioural insights in depth. Dwivedi et al. (2022) used expert commentary to outline marketing opportunities, challenges, and research priorities, yet their work lacked empirical grounding. Gursoy et al. (2023) advanced a conceptual framework for metaverstic service experiences, emphasising co-creation of purchase experiences; however, their focus on service contexts limits cross-sector generalisation. In contrast, Ritterbusch and Teichmann (2023) approached the field from a definitional standpoint, standardising conceptualisations of the Metaverse while highlighting infrastructural challenges, but omitting behavioural or marketing analysis. Tan et al. (2023) identified six focal areas for marketing and logistics in the Metaverse, offering a broad managerial agenda but little integration of behavioural theory. Yadav et al.

Table 1. Comparison of existing metaverse reviews and this study.

Author and year	Scope and method	Key contribution	Gaps relative to this study
Lim et al. (2024)	Bibliometric analysis of metaverse scholarship	Procedural guidelines; thematic mapping of research clusters	No integrated synthesis of consumer behaviour; marketing not primary focus
Dwivedi et al. (2022)	Expert commentary on marketing implications	Identifies opportunities, challenges, and a broad research agenda	Not systematic; lacks empirical consumer behaviour focus
Gursoy et al. (2023)	Conceptual framework for service marketing	Co-creation of metaverse purchase experiences	Service-sector specific; no cross-domain behavioural integration
Ritterbusch and Teichmann (2023)	SLR of definitions	Proposes standardised conceptualisations of the Metaverse	No behavioural or marketing-oriented analysis
Tan et al. (2023)	Contributor perspectives on marketing & logistics	Outlines six focal areas and associated research agendas	Broad, multi-sector scope; limited theorisation of consumer behaviour
Yadav et al. (2024)	SLR using marketing mix lens	Links immersive elements to consumer- and firm-level outcomes	Consumer behaviour treated as a subset; lacks identity and real-life behavioural linkages
Yin and Do (2025)	SLR of empirical consumer behaviour studies	Maps methodological and theoretical patterns in the literature	No thematic synthesis for marketing contexts; limited insights into branding
Ambika et al. (2025)	SLR of AR, VR, MR, and 3D in consumer behaviour	Develops integrated Theory–Context–Methodology–ADO (Antecedents, Decisions, Outcomes) framework; offers a cross-sector technology view	Technology-centric; not metaverse-specific; no marketing-domain thematic synthesis
Firmansyah and Umar (2023)	Review of metaverse applications in business	Broad overview of potential applications across sectors	No in-depth behavioural analysis within marketing
Kim (2021)	Early conceptual review of metaverse marketing	Discusses virtual advertising and early marketing opportunities	Narrow scope; lacks behavioural integration and thematic breadth
Kaur et al. (2024)	Qualitative study using EKB model with Gen Z participants	Maps metaverse engagement stages from awareness to post-engagement; offers generational behavioural insights	Limited to Gen Z; lacks cross-sector integration and thematic synthesis for marketing contexts
Hadi et al. (2024)	Conceptual paper on Metaverse and consumer behaviour	Defines Metaverse via five key elements; explores behavioural implications for identity, social influence, and ownership	Primarily conceptual; no systematic review or sector-spanning behavioural synthesis
This study	SLR of consumer behaviour in metaverse marketing	Synthesises 84 studies into four thematic domains; develops conceptual framework linking immersive, identity-driven experiences to real-world consumption	Addresses identity, immersion, branding, and cross-environment behavioural dynamics

(2024) conducted an SLR framed around the marketing mix, linking immersive elements to consumer- and firm-level outcomes; however, their focus treated consumer behaviour as a secondary subset of marketing activities. Yin and Do (2025) applied the SPAR-4-SLR and TCCM frameworks to empirical studies of metaverse-mediated consumer behaviour, providing methodological and theoretical mapping, yet without thematically integrating marketing contexts or branding perspectives. Ambika et al. (2025) widened the scope to immersive technologies: AR, VR, mixed reality (MR), and three-dimensional (3D) views using an integrated Theory–Context–Method (TCM) and Antecedents–Decisions–Outcomes (ADO) framework to examine their influence on consumer behaviour across sectors. They highlighted the affordances of each technology and the value of combining them for unique brand experiences, yet their technology-centric focus meant the Metaverse as a socio-cultural and branding space remained underexplored. Firmansyah and Umar (2023) surveyed business applications of the Metaverse but offered limited insight into behavioural drivers or identity construction. Kim (2021), in one of the earliest metaverse marketing reviews, focused on virtual advertising without considering wider experiential or identity-based consumption.

Across these studies, four key tensions emerge. First, most adopt either a broad marketing/technology scope (e.g. Dwivedi et al., 2022; Lim et al., 2024; Tan et al., 2023) or a service/definition-specific lens (e.g. Gursoy et al., 2023; Ritterbusch & Teichmann, 2023), rather than providing an integrative synthesis centred explicitly on consumer behaviour in metaverse marketing. Where consumer behaviour is addressed (e.g. Yadav et al., 2024; Yin & Do, 2025), it is often treated as one of several marketing mix or sectoral components, limiting conceptual integration of behavioural themes across contexts. Second, different theoretical lenses shape divergent interpretations: technology-focused reviews (e.g. Ambika et al., 2025) tend to frame behaviour in terms of affordances and sensory capabilities, while marketing-focused reviews (e.g. Yadav et al., 2024) emphasise promotional effectiveness and engagement metrics, often overlooking socio-cultural identity work and the ways consumers construct meaning in virtual spaces. This theoretical fragmentation hinders the development of a unified behavioural understanding. Third, there is limited integration across sectoral boundaries, such as service, retail, and entertainment, despite consumers' cross-context journeys within the Metaverse. Existing frameworks also rarely link virtual-world behaviours to their real-life consumption implications, a connection that is increasingly relevant as firms attempt to measure cross-environment effects. Finally, important subfields such as sustainability, accessibility, and ethics in consumer behaviour remain underexplored, despite their growing urgency given the environmental footprint of digital infrastructures, the inclusivity challenges of immersive environments, and the ethical implications of persistent engagement and data use.

The "why now" rationale is underscored by the Metaverse's current position in the technology adoption life cycle, transitioning from the early adopter phase towards the early majority. In diffusion of innovation terms, this is a critical point where behavioural norms, identity expressions, and commercial practices become entrenched. Understanding consumer behaviour in this phase is essential for shaping sustainable, inclusive, and ethically informed marketing strategies in immersive environments.

3. Materials and methods

This review examines the exploration of the Metaverse in marketing scholarship, with a focus on consumer behaviour. It follows a structured review protocol encompassing systematic literature search, screening, and content analysis (Kraus et al., 2022).

3.1. Literature review protocol

The study draws on peer-reviewed articles published in journals ranked by the Australian Business Deans Council (ABDC, 2022), a widely used benchmark for high-quality research in business disciplines (Francke & Carrete, 2023; Hao et al., 2019; McKee et al., 2023). As the ABDC Journal Quality List is not itself a searchable database, it was employed as a journal identification and screening framework. Relevant ABDC-listed journals in marketing and related fields were first identified, after which articles were manually retrieved from each journal via major academic databases, including Web of Science, Elsevier,

Emerald, Sage, and Taylor & Francis. The ABDC list was adopted because it is the only journal quality ranking that integrates both qualitative and quantitative criteria in its evaluation of research quality (Paul et al., 2021).

In addition, the study incorporates journals identified in the Association for Information Systems (AIS) Senior Scholars' Basket of Eight, as the Metaverse is deeply embedded in information systems research, particularly in areas such as virtual environments, digital identity, and immersive technologies, which are core to the AIS disciplinary scope. These journals were accessed through leading academic databases, including Elsevier, Sage, Emerald, and Taylor & Francis, recognised for their relevance in business and marketing research. A keyword search was conducted using terms such as "metaverse," "extended reality," "virtual reality," "immersion," "avatar," and "marketing" within abstracts, titles, and keywords. No date restrictions were applied due to the emerging and rapidly evolving nature of the field. The article selection process followed the PRISMA protocol, ensuring transparency and replicability. The final search was completed on 1 March 2025.

The search initially yielded 172 articles. To ensure thematic relevance, only those directly engaging with consumer behaviour in metaverse marketing contexts were included. The review process adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, a set of guidelines designed to help researchers systematically review and report existing studies (Page et al., 2021). The selection procedure is illustrated in Figure 1.

3.2. Literature screening

A two-stage screening process was applied (see Table 2).

Following this process, 76 articles focusing on metaverse consumer behaviour were selected. An additional 8 studies offering conceptual overviews or future research directions were included for context. Therefore, 84 articles are reviewed in this study.

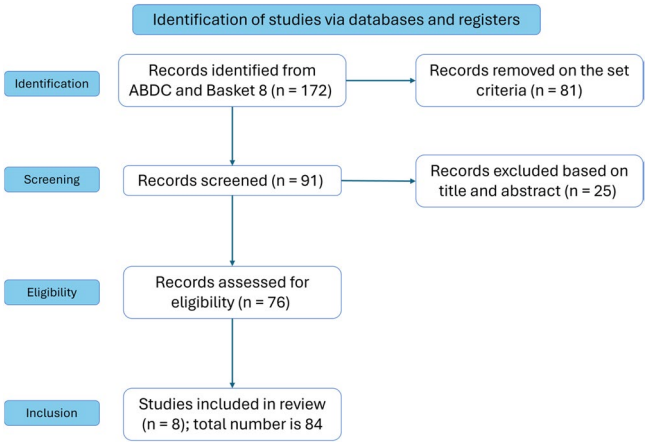

Figure 1. Article selection process.

Table 2. Inclusion and exclusion criteria.

Criterion type	Description
Inclusion	(1) Articles published in -ranked journals in the ABDC (2022) list and Basket of Eight. (2) Articles focused on "metaverse marketing" as identified in the title, abstract, or keywords. (3) Peer-reviewed journal article and review papers. (4) Articles that specifically address consumer behaviours or marketing practices in the context of the Metaverse. (5) Articles covering various elements of the Metaverse, such as VR, AR, avatars, immersion, and NFTs within marketing contexts.
Exclusion	(1) Articles unrelated to marketing within the Metaverse (e.g. health, education, engineering). (2) Conference proceedings, book chapters, editorial notes, opinion pieces, and magazine articles. (3) Articles without abstracts or complete files. (4) Articles not accessible via the Victoria University of Wellington library system. (5) Duplicate studies or those with insufficient academic relevance.

3.3. Data extraction and coding

For each of the 84 included articles, we extracted bibliographic and methodological information (journal, year, country/region, research design, data collection method, sample, and main theoretical lens), as well as the focal metaverse context, consumer behaviour constructs, and key findings. Data extraction was conducted independently by two authors using a structured Excel template, and any discrepancies were resolved through discussion until agreement was reached.

Following Kraus et al. (2022), we then applied an inductive content analysis procedure. First, all authors read the full texts and generated preliminary codes capturing recurring marketing domains, consumer practices, and theoretical perspectives. Second, these codes were iteratively clustered into higher-order categories reflecting shared patterns in consumer behaviour across studies. Third, through several rounds of comparison and refinement, four overarching thematic domains were identified: (1) consumer engagement and experience, (2) technology adoption and innovation integration, (3) avatar dynamics and virtual influencers, and (4) fashion industry and luxury brands. These themes provided the structure for the narrative synthesis reported in Sections 4 and 5.

3.4. Study quality and risk of bias

The included studies comprised a heterogeneous mix of quantitative, qualitative, conceptual, and review articles, which made the use of a single formal risk-of-bias tool impractical. Consistent with prior narrative SLRs in marketing and consumer research (Ambika et al., 2025), we did not conduct a quantitative quality scoring assessment. Instead, we sought to mitigate quality concerns by limiting the review to peer-reviewed journals listed in the ABDC (2022) ranking and the AIS Senior Scholars' Basket of Eight, and by considering study design, sample characteristics, and clarity of reporting when interpreting findings within the thematic synthesis. We therefore do not present separate numerical quality ratings or certainty-of-evidence scores, but we reflect on limitations of the underlying evidence in Sections 4 and 7.

This review was not prospectively registered in a systematic review registry, and no separate review protocol was prepared.

4. Analysis of results

4.1. Descriptive analysis

The review includes 84 peer-reviewed journal articles on metaverse marketing and consumer behaviours. Figures 2–5 present the articles by type, publication journals, and summarise the number of publications by year and country. 45 articles (53%) use quantitative methods, 14 (17%) adopt qualitative approaches, 9 (11%) are review studies, 14 (17%) are conceptual, and 2 (2%) use mixed methods. This distribution

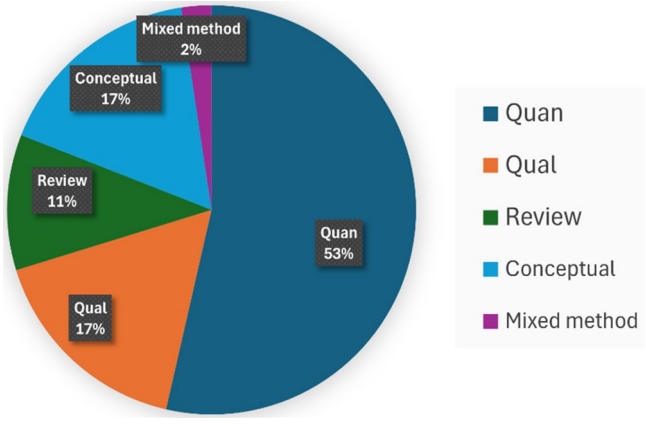

Figure 2. Publications by article types.

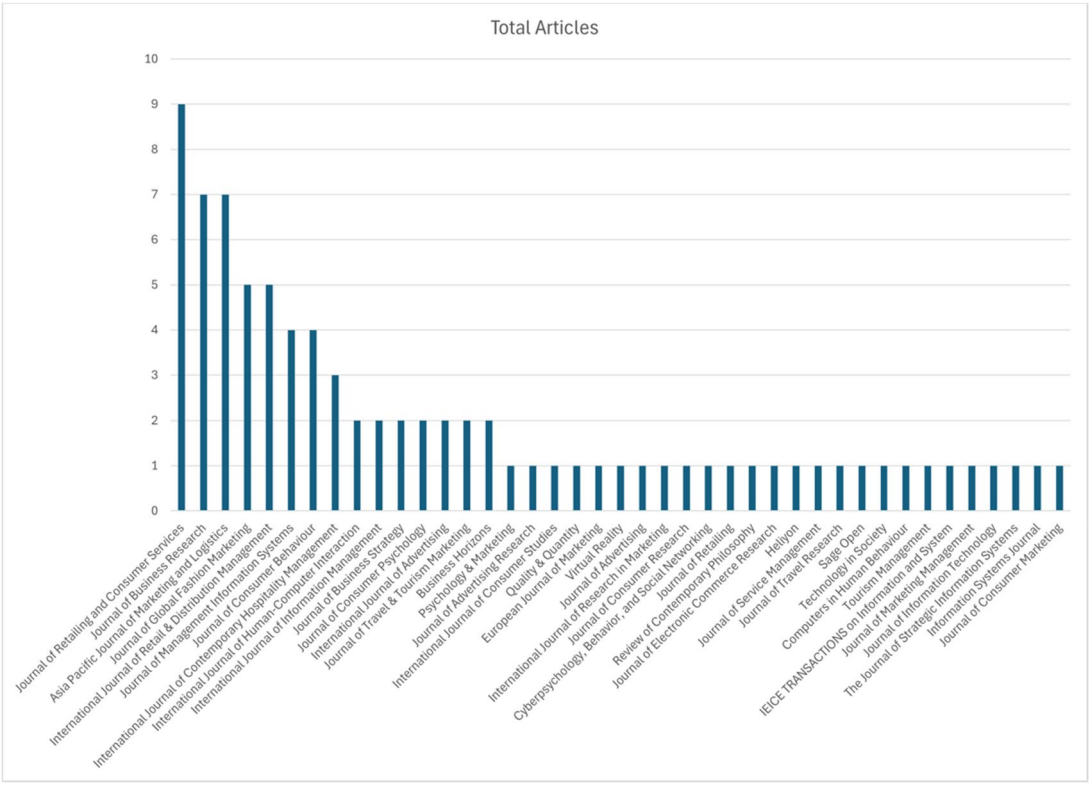

Figure 3. Publications by slot.

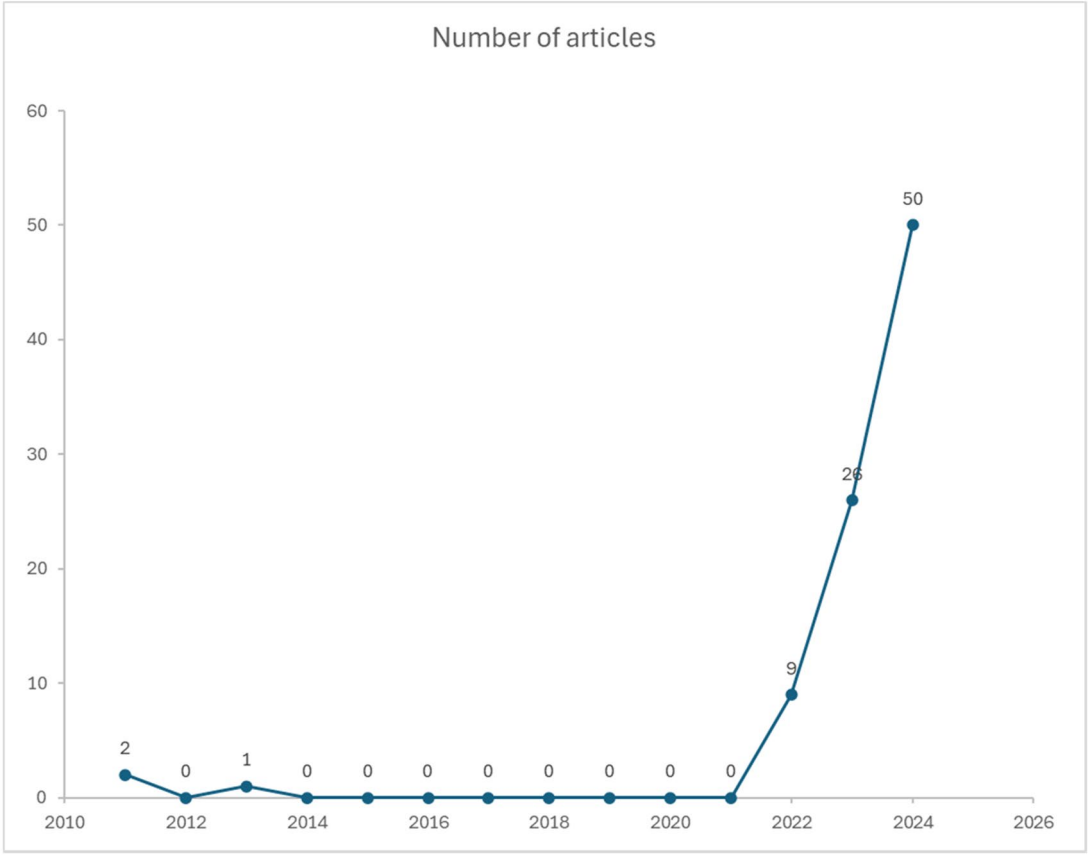

Figure 4. Number of publications by year.

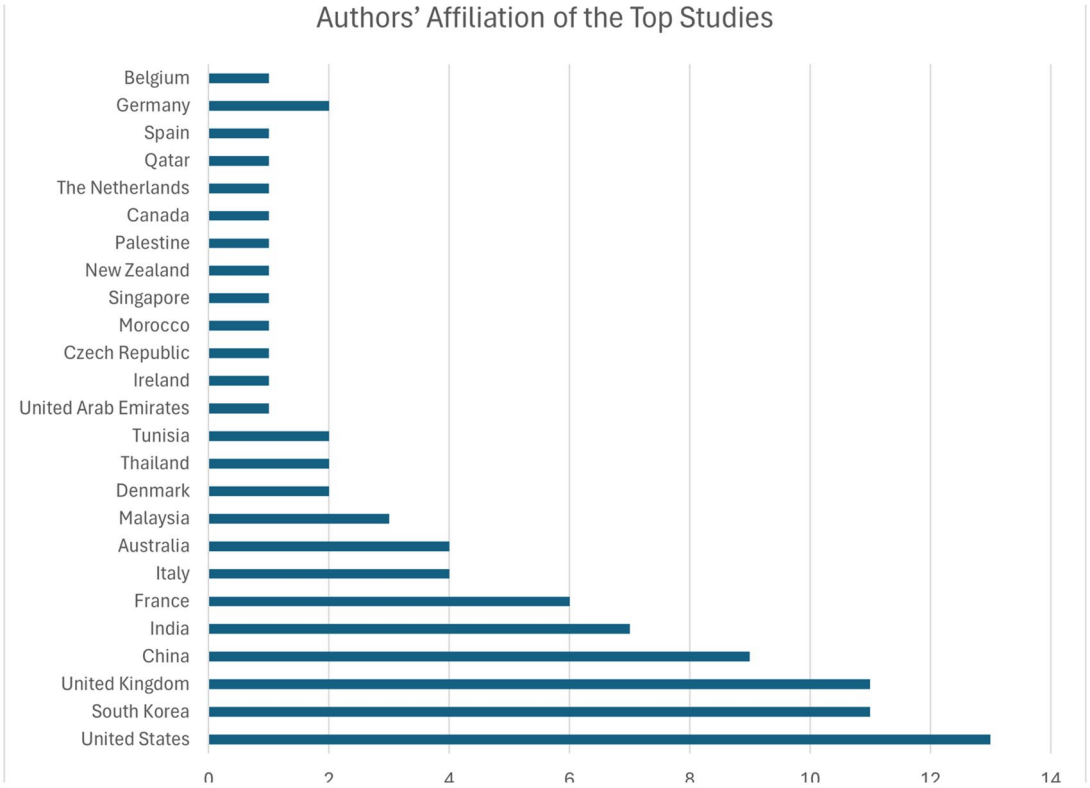

Figure 5. Number of publications by country.

underscores the dominance of quantitative research, highlighting the field's focus on empirical analysis of consumer engagement in the Metaverse. This dominance of quantitative approaches suggests that the field has thus far prioritised hypothesis testing and large-scale survey or experimental designs to capture measurable outcomes such as engagement, purchase intention, and brand attitude. While such methods offer statistical generalisability, they may overlook the rich contextual and socio-cultural dimensions of consumer behaviour in virtual environments. The scarcity of ethnographic, longitudinal, or mixed-method studies indicates a methodological blind spot that limits understanding of the evolving, situated, and identity-driven aspects of metaverse consumption.

The reviewed studies were published across a diverse set of journals, reflecting growing scholarly interest in metaverse consumer behaviour across disciplines, shown in Figure 3. The *Journal of Retailing and Consumer Services* led with 9 articles, followed by both the *Asia Pacific Journal of Marketing and Logistics* and the *Journal of Business Research with* 7 each. Other notable outlets include the *Journal of Global Fashion Marketing* (5 articles) and the *Journal of Management Information Systems* (4). Several journals contributed two or fewer articles, indicating a wide but uneven distribution of research. This spread highlights the interdisciplinary relevance of the topic, engaging fields such as marketing, retail, hospitality, psychology, and information systems.

Although the metaverse concept has existed for decades, academic research on consumer behaviour in metaverse marketing only gained momentum recently. As shown in Figure 4, publications rose sharply from just 5 in 2022 to 48 by 2024. This surge reflects increasing adoption of metaverse platforms and corporate investment (Hennig-Thurau et al., 2023). The limited early output suggests the field is still emerging, offering ample opportunities for future research (Dwivedi et al., 2022). Since the final conclusion for 2025 is not yet complete, the table does not show data for 2025.

Geographically, the United States, South Korea, and the United Kingdom dominate the literature, with notable but smaller contributions from China, India, and France (Figure 5). This distribution underscores a concentration of research in technologically advanced, high-investment markets, raising questions about the under-representation of developing economies and culturally diverse contexts. Given the global nature of metaverse adoption, future research would benefit from broader geographical coverage to capture varied consumer behaviours shaped by differing economic, cultural, and regulatory environments.

4.2. Thematic analysis

Four prominent themes emerged from the systematic review of 84 articles focusing on consumer behaviours within metaverse marketing. These themes resulted from the inductive coding process described in Section 3.3 and illustrate how consumer engagement has evolved through immersive technologies, novel digital identities, and innovative marketing strategies (see Figure 6).

4.2.1. Consumer engagement and experience

Consumer engagement and experience lie at the heart of metaverse marketing, where immersive technologies foster deeper consumer-brand relationships through multisensory and interactive environments (Hennig-Thurau et al., 2023). Studies indicate that the Metaverse reshapes engagement through three primary sub-streams: sensory integration, value and flow appeals, and social presence and trust (see Appendix 1).

Recent literature establishes sensory integration as a cornerstone of consumer engagement in the Metaverse. Multisensory cues consistently enhance immersion, emotional resonance, and brand interaction. For example, non-visual stimuli like olfactory and haptic elements can deepen immersion and enrich consumer perception (Cowan et al., 2023; Puntoni, 2024), while engaging sensory features can improve user mood and increase their intention to revisit virtual environments (Choi et al., 2023; Luong et al., 2024). The effectiveness of these strategies is amplified when virtual experiences convincingly blur the line between the synthetic and the authentic, creating more memorable interactions (Golf-Papez et al., 2022). Consequently, immersive design has become a central brand strategy for fostering loyalty (Rather et al., 2024), facilitating complex purchase decisions (Mladenović et al., 2024), and turning passive users into active brand participants (Brodie et al., 2013). This growing body of work suggests a comprehensive engagement model where sensory-driven immersion is not merely aesthetic but a strategic tool for enhancing both customer experience and brand visibility (Bilgihan et al., 2024; Hollensen et al., 2023).

Value and flow lie at the core of metaverse engagement, as hedonic enjoyment and utilitarian benefits jointly shape consumer motivation and interaction. For instance, metaverse ads that align with users' emotional and practical needs yield higher relevance and impact (Kim & Lee, 2024). Similarly, enjoyment is not merely additive but foundational to long-term loyalty and engagement (Hollensen et al., 2023; Ahn et al., 2023). This dual value model is strengthened by flow theory, which explains how consumers become deeply immersed when interactions are seamless and rewarding. Flow states where users lose track of time are triggered by intuitive design and real-time responsiveness (Hollensen et al., 2023). These immersive states are linked to heightened satisfaction and continued platform use. Importantly, this value-flow dynamic translates into concrete behavioural outcomes. Enjoyable branded worlds foster deeper interaction and increase perceived symbolic and practical value (Wongkitrungrueng & Suprawan,

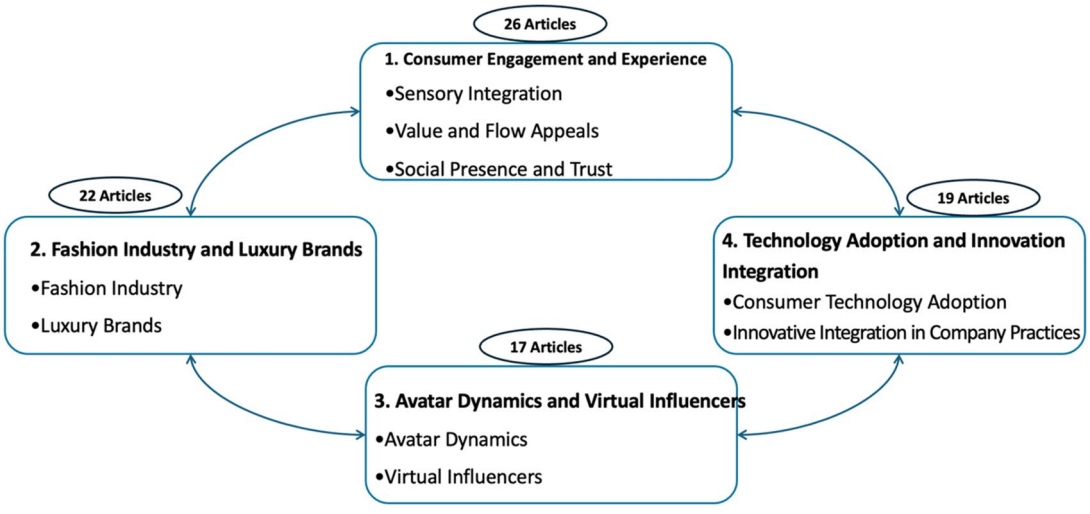

Figure 6. Consumer behaviour studies based on metaverse marketing areas.

2024). Similarly, metaverse affordances such as interactivity and realism enhance trust, self-efficacy, and flow, collectively driving consumer engagement (Zhong & Hamouda, 2024). AR adds a further layer. Flow experiences arising from high-involvement virtual product engagement, especially in fashion, have been shown to influence purchase intent and brand loyalty (Serravalle et al., 2023). Moreover, recent research into metaverse gaming reveals how diverse player motivations shape distinct value experiences, further validating the importance of tailored flow states in enhancing user retention and word-of-mouth (Zhou et al., 2025).

Social presence and trust are central to shaping meaningful consumer engagement in the Metaverse. Together, they foster a sense of connection and safety that drives interaction. Keegan et al. (2024) identify core social components such as presence, identity, and relationships as essential for enhancing customer experience and sustaining engagement. These factors provide a blueprint for platforms aiming to encourage community-driven participation. Trust becomes particularly critical in intimate or high-stakes contexts, such as dating or data sharing. Chakraborty et al. (2023) find that users' trust perceptions, shaped by privacy safeguards and verification protocols, significantly influence their willingness to engage and stay on metaverse platforms. This trust-social presence synergy also impacts brand interaction. Similarly, socially rich and trialable environments can drive real-world purchasing behaviours, highlighting the crossover between virtual engagement and offline consumption (Mansoor et al., 2024). Recent research also emphasises how the Metaverse is becoming embedded in daily routines, suggesting that its role in everyday life enhances the authenticity and persistence of social presence (Wang et al., 2025). Across these studies, sensory integration, flow, and social presence consistently function as psychological and social mediators that translate metaverse technological affordances into meaningful consumer engagement outcomes.

4.2.2. Technology adoption and innovation integration

This theme explores how consumers and the subsequent impact on marketing strategies and brand interactions adopt emerging technologies within the Metaverse (see Appendix 2). The literature is divided into two key streams: consumer technology adoption and firm-led innovation in marketing practice. Research shows that technologies like AR, VR, and NFTs are reshaping how consumers interact in the Metaverse. AR enhances online shopping through customisation and ease of use, encouraging repeat engagement (Carey, 2022; Lai et al., 2025). Broader studies highlight how AR and VR replicate real-world interactions to enrich virtual experiences (Dwivedi et al., 2022), while adoption patterns can be predicted through models like Bass diffusion (Lee et al., 2011). This stream reveals that technology adoption in the Metaverse operates primarily as an antecedent condition, shaping how consumers subsequently engage with brands through functional, hedonic, and symbolic modes.

Consumer openness varies; some resist, others embrace these tools depending on factors like perceived usefulness and enjoyment (Romano et al., 2022). However, barriers remain security, privacy, and lack of standards hinder broader adoption (Gupta et al., 2024). NFTs, meanwhile, introduce new forms of digital ownership. They redefine value perception by blending technological novelty with emotional and economic appeal (Arya et al., 2024; Bao et al., 2025; Xie et al., 2024). Scarcity, authenticity, and brand association make them particularly attractive to Gen Z and Millennials (Sung et al., 2023). Beyond technical factors, social interaction and psychological drivers like escapism and telepresence also influence adoption, with personal traits, especially among Gen Z, playing a key role (Chakraborty et al., 2023; Natarajan et al., 2024). Consumer behaviour in the Metaverse is further shaped by elements such as identity, social influence, and digital ownership (Hadi et al., 2024). Virtual settings allow users to express themselves and make decisions in ways distinct from the physical world. A holistic view reveals that functional, social, and personality-based drivers work together in shaping adoption (Yuan et al., 2024). Recent studies also highlight how ongoing advancements in immersive technologies, including VR and AR, will likely unlock new waves of consumer adoption by enhancing realism, embodiment, and interactivity (Lowry et al., 2025). As the Metaverse evolves through a familiar hype cycle, sustained innovation across hardware and software is expected to overcome current adoption barriers and reposition the Metaverse as a long-term societal transformation (Dincelli & Yayla, 2022).

From the firm's perspective, marketing in the Metaverse requires rethinking traditional strategies. Immersive environments virtual stores, 3D try-ons, and avatar-based interactions create new touchpoints

for consumer engagement. For instance, visual design features in virtual stores can elevate brand perception and drive preference (Han et al., 2022). Strategic tools like willingness-to-pay models align marketing efforts with consumer expectations (Du et al., 2023). Sensory immersion and interoperability are also key. Tactile and visual cues can influence engagement and satisfaction (Dwivedi et al., 2022; Richter & Richter, 2023), while emotional expression and virtual product trials redefine service quality (Gadalla et al., 2013). SMEs, too, benefit from virtual platforms to globalise brand presence and gather market insights (Hassouneh & Brengman, 2011). Meanwhile, digital assets such as NFTs and cryptocurrencies are reshaping consumer perceptions of ownership and value, encouraging deeper involvement in brand ecosystems (Belk et al., 2022). Recent studies also show that firms are actively shaping how the Metaverse is defined and used, highlighting the importance of critically engaging with emerging narratives (Dolata & Schwabe, 2023). Additionally, value creation increasingly relies on immersive engagement and ecosystem collaboration, pushing marketing strategies beyond traditional formats (Krüger et al., 2025). These findings suggest that innovation does not directly generate value; instead, its impact depends on how technological affordances are translated into engagement modes via consumer perceptions of usability, trust, and identity relevance.

4.2.3. Avatar dynamics and virtual influencers

This theme explores how avatars and virtual influencers (VIs) shape consumer behaviour in the Metaverse, focusing on their psychological, social, and symbolic roles in brand interaction (see Appendix 3). Central to this discussion is the theoretical understanding that avatars act as extensions of the self, drawing on self-congruence theory (Park & Kim, 2024), where alignment between a user's self-concept and their digital representation strengthens brand engagement and purchase intent.

Avatars, as user-controlled digital identities, have been shown to influence engagement, emotional connection, and purchase behaviour. Key findings find three dimensions: presence and immersion, identity expression, and customisation and congruence. Studies highlight the role of avatars in enhancing immersion through gamified and XR-based brand experiences (Arya et al., 2024). Meanwhile, avatar realism fosters psychological presence and social closeness, thereby increasing consumer trust and interaction quality (Frank et al., 2024; Kim et al., 2023). From a symbolic perspective, avatars act as tools for identity exploration and social signalling. Research indicates that users tailor their avatars to reflect aspirational or hidden aspects of themselves, thereby influencing emotional investment and loyalty (Jin, 2024; Taylor et al., 2024). This is particularly evident in luxury and exclusive settings, where avatars reinforce status and brand affiliation. Further, self-congruence between user and avatar (Park & Kim, 2024) enhances personal relevance and behavioural intention, especially when customisation allows alignment with one's self-image. Xie et al. (2024) add that avatar characteristics should be strategically tailored to product types, emphasising realism for experiential goods and brand alignment for search goods. Virtual influencers extend the avatar concept by combining AI-generated personas with strategic brand messaging. Their persuasive power lies in parasocial relationships, anthropomorphism, and the perception of authenticity. Studies show that traits such as attractiveness, credibility, and homophily enhance engagement and emotional connection (Kumar & Shankar, 2024), while parasocial interaction mediates users' willingness to accept endorsements (Meng et al., 2024). However, perceived artificiality can weaken brand trust. Liu and Lee (2024) and Koles et al. (2024) find that authenticity concerns limit VI effectiveness, particularly for hedonic or emotionally-driven products, where human influencers outperform due to deeper emotional resonance. Conversely, VIs are more effective for utilitarian or tech-forward products, where novelty and functionality take precedence (Belanche et al., 2024; Shao, 2024). Moreover, congruence between influencer type and product category is critical; mismatches can diminish persuasion (Franke et al., 2023). Concerns around data privacy and ethical boundaries are also emerging. As VIs become more lifelike and widespread, scholars highlight the need for transparent practices and regulatory oversight to ensure user trust and protect consumer rights (Liyanaarachchi et al., 2024). Overall, while virtual influencers offer novel pathways for brand storytelling and segmentation, their success hinges on thoughtful design, strategic alignment, and maintaining relational authenticity (El Hedhli et al., 2023; Song et al., 2024). Overall, this literature positions avatars and virtual influencers as identity-mediating interfaces that connect psychological states (e.g. self-congruence, parasocial attachment) with distinct engagement modes. Through avatars, consumers shift from functional interaction toward symbolic and

hedonic engagement, ultimately shaping behavioural and emotional outcomes such as purchase intention, loyalty, and brand trust.

4.2.4. Fashion and luxury branding in the metaverse

This theme explores how immersive technologies are reshaping consumer engagement, identity expression, and value creation in the fashion and luxury sectors (see Appendix 4). The fashion industry has rapidly embraced metaverse technologies such as AR, VR, and NFTs, leading to a redefinition of consumer-brand interactions. These technologies not only enhance visual appeal but fundamentally reshape experiential marketing by facilitating avatar personalisation, virtual try-ons, and gamified retail environments. Unlike utilitarian product categories, fashion and luxury branding in the Metaverse predominantly generate symbolic and emotional outcomes, with behavioural outcomes often mediated by identity expression and experiential value rather than price sensitivity. Luong et al. (2024) and Profumo et al. (2024) illustrate how these tools enable immersive, identity-driven experiences that engage consumers beyond traditional product ownership. Brands like Nike and Gucci have capitalised on this by using NFTs and digital collectables to foster emotional attachment and brand loyalty, particularly among digitally native consumers. Avatar congruence plays a key psychological role here, as shown by Kim and Bae (2024) and Donvito et al. (2024), who find that avatars reflecting users' self-concepts heighten brand attachment and purchase intent. Emotional triggers such as nostalgia and aspiration, as explored by Barhorst et al. (2023), also enhance user-brand relationships in virtual environments. However, ongoing challenges such as trademark protection and platform functionality (Kim et al., 2025) highlight the need for strategic foresight and regulatory clarity.

Luxury branding in the Metaverse extends traditional notions of exclusivity and prestige into digital contexts. Core to this transformation is the use of blockchain-backed NFTs that allow for verifiable digital ownership, reinforcing scarcity and symbolic value (Bao et al., 2025; Sung et al., 2023). These digital assets appeal to consumer desires for uniqueness, while also enabling customisation and emotional engagement through interactive experiences (Kniazeva et al., 2024; Nawres et al., 2024). Emotional resonance is further highlighted by studies such as Jiang et al. (2023), which identify fantasy, fun, and affect as central to virtual luxury consumption. Research by Murtas et al. (2024) and Pangarkar and Shukla (2023) shows how "phygital" experiences help preserve brand heritage while reaching new audiences through immersive storytelling. Technological ease of use remains a key moderator, as noted by Yu et al. (2024), while gamification and platform design continue to influence brand equity (Arya et al., 2024). Importantly, Zhang et al. (2024) identify diverse consumer profiles shaped by factors such as power distance, self-monitoring, and need for uniqueness, which influence responses to luxury cues in the Metaverse.

5. Theory

Research on metaverse marketing draws from a wide range of theoretical lenses, which can be grouped into motivational, identity-based, and design-oriented perspectives (see Table 3). Each category addresses different dimensions of how consumers behave in immersive environments, and together they inform the integrated framework developed in this review.

Motivational perspectives focus on why consumers engage with the Metaverse, emphasising the fulfilment of psychological needs, the pursuit of immersive enjoyment, and the evaluation of perceived value. For example, Uses and Gratifications Theory (Katz et al., 1973) explains how users actively choose metaverse platforms to satisfy needs for entertainment, social interaction, or escapism, as observed in studies examining virtual concerts and branded game worlds (Cowan et al., 2023). Flow Theory describes how deeply immersive experiences, such as interactive fashion shows or multiplayer VR events, create a state of absorption that drives repeat engagement (Choi et al., 2023). Construal Level Theory and the Theory of Consumption Values have been used to explain how consumers weigh functional, social, and emotional benefits when deciding whether to participate in metaverse-based brand activities (Chakraborty et al., 2025).

Table 3. Theoretical lenses adopted in the literature.

Theory type	Theory	Definition	Authors/year
Motivational Theories	Users and Gratification Theory	Individuals actively seek out media and content to satisfy specific needs and desires, such as entertainment, social interaction, or information-seeking (Katz et al., 1973).	Katz et al. (1973); Lee et al. (2011); Natarajan et al. (2024); Rather et al. (2024); Sung et al. (2023); Wongkitrungrueng and Suprawan (2024)
	Construal Level Theory	The psychological distance from objects or events affects how abstractly or concretely people think (Kim & Lee, 2024).	Kim and Lee (2024); Choi et al. (2023); Kim et al. (2023); Kim et al. (2025)
	Flow Theory	A state of deep immersion and engagement in an activity, where individuals experience focused attention and enjoyment (Cowan et al., 2023).	Cowan et al. (2023); Zhong and Hamouda (2024); Serravalle et al. (2023)
	Theory of Consumption Values	Consumers' choice behaviours are influenced by multiple consumption values, such as functional, emotional, social, epistemic, and conditional values (Chakraborty et al., 2025).	Chakraborty et al. (2025); Donvito et al. (2024); Chakraborty et al. (2023)
	Experience Economy Theory	Consumers seek experiences as a form of value creation, beyond goods and services, focusing on memorable and engaging events or environmets (Song et al., 2024).	Song et al. (2024); Sung et al. (2023)
Design-Oriented Frameworks	Stimulus-Organism-Response (S-O-R)	Environmental stimuli affect internal organismic states, which in turn drive behavioural responses, explaining consumer behaviour and experiences in various contexts (Jafar et al., 2023).	Jafar et al. (2023); Jafar et al. (2024); Xie et al. (2024)
	Affordance Theory	The perceived and actual properties of an object or environment allow users to perform actions, focusing on the interaction between agents and their environment (Shin, 2022).	Shin (2022); Keegan et al. (2024); Zhong and Hamouda (2024)
	Media Richness Theory	Communication effectiveness depends on the medium's ability to convey rich information, which includes multiple cues, immediacy of feedback, and personal focus (Bilgihan et al., 2024).	Mladenović et al. (2024); Bilgihan et al. (2024)
Identity and Social Theories	Social Cognitive Theory	Individuals' identification with social groups influences their attitudes and behaviours in digital contexts (Zhong & Hamouda, 2024).	Zhong and Hamouda (2024)
	Proteus Effect	An individual's behaviour in virtual environments is influenced by the characteristics of their digital avatar (Jin, 2024).	Jin (2024)

Identity-based perspectives examine how metaverse participation supports self-expression, social identity, and relationship-building. The Proteus Effect suggests that users' behaviour aligns with the characteristics of their avatars, influencing confidence, sociability, and even brand preference (Zhong & Hamouda, 2024). The Extended Self framework explains how digital possessions, customised avatars, and branded virtual goods become part of consumers' self-concept, fostering stronger brand attachment. Social Cognitive Theory highlights observational learning and peer influence, showing how avatar-mediated interactions in social VR can model consumption practices and spread brand meanings within communities.

Design-oriented perspectives address how technological and platform features shape behaviour. Affordance Theory examines the action possibilities offered by platform and how these features enable new forms of shopping, socialising, or brand co-creation (Shin, 2022). Media Richness Theory explains

how communication quality through high-resolution visuals, spatial audio, and real-time interactivity affects trust, engagement, and perceived brand authenticity (Bilgihan et al., 2024).

While metaverse marketing has evolved rapidly, much of its theoretical grounding still draws on legacy models from media, psychology, and consumer behaviour (Veras et al., 2023; Yeung et al., 2021). Earlier frameworks, such as those proposed by Gursoy et al. and Yadav et al. have been instrumental in shaping digital marketing scholarship; however, they often overlook the embodied, persistent, and multisensory nature of metaverse interactions. Features such as avatar continuity, sensory immersion, and parasocial engagement fundamentally shape the commercial and social dynamics of the Metaverse (Hadi et al., 2024; Jin, 2024; Murtas et al., 2024), yet remain underdeveloped in prior models. To address this gap, the present study introduces an integrative conceptual framework that was derived through an inductive synthesis of insights from 84 systematically reviewed articles, with selective adaptation from existing models to ensure metaverse-specific applicability. The framework is primarily descriptive, mapping the current state of scholarship, but also carries a normative dimension by signalling where future research should concentrate.

The proposed framework comprises four interconnected domains: antecedents, mediators, engagement modes, and outcomes (Figure 7). The framework should be read from left to right, illustrating how technological, individual, and strategic antecedents influence consumer outcomes indirectly through experiential and psychological mediators that shape distinct forms of engagement.

Antecedents encompass technological affordances (e.g. avatars, NFTs), user dispositions (e.g. digital fluency, identity salience), and brand strategies (e.g. gamification, virtual stores), which jointly initiate immersive brand encounters (Arya et al., 2024; Bilgihan et al., 2024; Keegan et al., 2024). These antecedents give rise to psychological and social mediators, including presence, flow, trust, and parasocial bonds. Presence is heightened by avatar customisation and realism (Luong et al., 2024), while parasocial relationships with virtual influencers strengthen engagement when avatars exhibit human-like traits (Kumar & Shankar, 2024; Meng et al., 2024). Engagement modes are categorised into functional (goal-driven browsing), hedonic (aesthetic and emotional enjoyment), and symbolic (identity expression through avatars or NFTs) (Barhorst et al., 2023). These engagement modes, in turn, lead to diverse outcomes: behavioural (purchase intention, content sharing), emotional (satisfaction, loyalty), and cognitive (perceived innovativeness) (Jafar et al., 2023).

Compared with earlier frameworks, this model explicitly integrates the sensory and identity-driven dimensions of the Metaverse, recognises symbolic engagement as a distinct mode of consumer–brand interaction, and maps cross-environment effects that link virtual engagement to real-world consumption. Its boundaries lie in the temporal and topical scope of the review. focusing on peer-reviewed literature from 2019 to 2024, which may underrepresent emerging industry-driven innovations. Nonetheless, by making the development process transparent and clarifying its scope, the framework offers both a synthesis of current knowledge and a structured agenda for advancing metaverse marketing research.

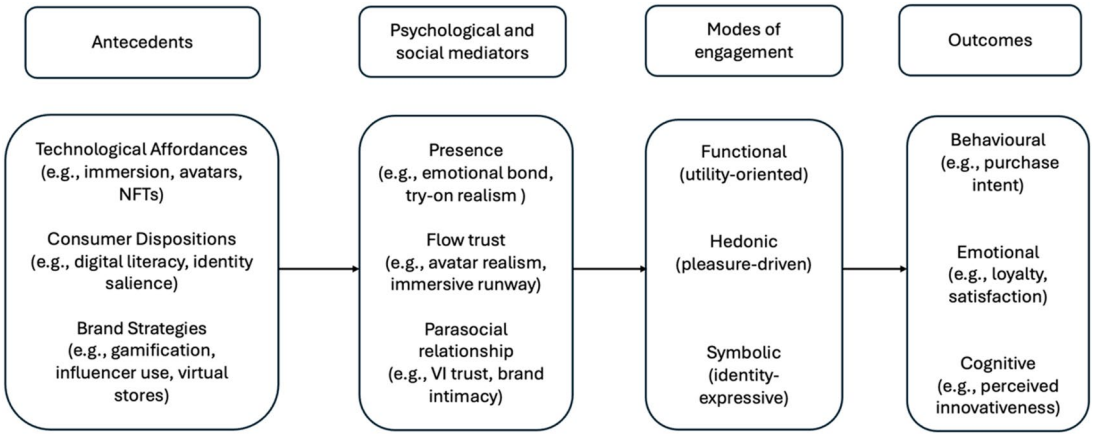

Figure 7. Conceptual framework for metaverse marketing.

6. Future research agenda

Future research (Table 4) is built on the proposed framework, which outlines six key domains: technological affordances, consumer dispositions, brand strategies, psychological and social mediators, engagement modes, and consumer outcomes. First, regarding technological affordances, prior studies have been dominated by visual immersion, often neglecting haptic, auditory, and olfactory elements. These additional sensory channels are central to presence, flow, and habit formation yet remain empirically underexplored. Linking back to design-oriented theories such as Affordance Theory and Media Richness Theory, future research should use biometric and neuromarketing approaches to capture the impact of multisensory stimuli on trust and engagement.

Second, consumer dispositions like digital literacy and identity salience have largely been treated as static variables in adoption models. However, as shown in our framework, dispositions evolve dynamically, shaping how users transition between functional, hedonic, and symbolic modes of engagement. Identity-based perspectives, such as the Proteus Effect and Extended Self highlight the need for longitudinal and ethnographic designs that can track how avatars and digital possessions gradually become integral to consumer self-concept.

Third, brand strategies including gamification, NFTs, and virtual stores have often been examined in isolation. Yet our synthesis suggests that their real potential lies in orchestration, where different strategies interact to co-create symbolic value and authenticity. Motivational theories such as the Experience Economy can guide research into how integrated strategies deliver both hedonic and identity-driven outcomes across consumer journeys.

Fourth, psychological and social mediators such as trust, flow, and parasocial bonds are critical mechanisms in our framework but are currently undertheorised in metaverse contexts. Future research should

Table 4. Future research directions.

Framework domain	Future research questions and methodological suggestions
• **Technological Affordances: Expanding Multisensory Embodied Research**Current work is dominated by visual immersion, overlooking haptic, auditory, and olfactory affordances.	**RQ1:** How does congruence between sensory inputs (visual, auditory, haptic) influence presence and flow? **RQ2:** What is the incremental impact of haptic or olfactory cues on hedonic engagement and satisfaction? **Methodology:** Use neuromarketing (EEG, fMRI) and biometric tracking (GSR, heart rate) alongside qualitative interviews.
• **Consumer Dispositions: Rethinking Adoption through Dynamic Models**Dispositions like digital literacy and identity salience evolve over time but are often treated as static.	**RQ1:** How do skills and motivations shift with prolonged metaverse use, leading from functional to symbolic engagement? **RQ2:** How does avatar persistence shape self-concept and brand loyalty? **Methodology:** Longitudinal ethnographic studies tracking evolving identities and dispositions.
• **Brand Strategies: Balancing Innovation and Value Co-creation**Current research isolates NFTs, gamification, and virtual stores, overlooking their synergies.	**RQ1:** How do integrated strategies (e.g. gamification + NFTs) create cohesive consumer journeys and symbolic value? **RQ2:** How does consumer co-creation affect authenticity and trust, and what are its boundaries? **Methodology:** Path modelling and SEM to test interdependent effects of multiple strategies.
• **Psychological and Social Mediators: Exploring Trust and Parasocial Interaction**Trust, flow, and parasocial bonds are central mechanisms but remain undertheorised in AI-mediated contexts.	**RQ1:** At what point does avatar realism trigger an "uncanny valley" that erodes trust? **RQ2:** How do parasocial relationships with virtual influencers differ from those with human influencers in stability and behavioural impact? **Methodology:** Experiments comparing human vs AI avatars, combined with sentiment analysis of user-generated content.
• **Modes of Engagement: Differentiating Functional, Hedonic, and Symbolic Patterns**Engagement modes are fluid but under differentiated in prior research.	**RQ1:** What are the pathways by which consumers transition between engagement modes (e.g. functional → hedonic → symbolic)? **RQ2:** Which affordances and strategies most effectively stimulate each mode? **Methodology:** Behavioural analytics and sequence analysis of metaverse platform data.
• **Consumer Outcomes: Bridging Branding with Sustainable Behaviour**Current research overlooks sustainability and ethical implications of digital goods.	**RQ1:** Does symbolic digital ownership reduce physical consumption or introduce new energy-intensive cycles (e.g. NFTs)? **RQ2:** How do consumers construct the value of non-physical goods, and how does this affect perceptions of brand innovativeness or luxury? **Methodology:** Choice-based conjoint analysis combined with qualitative exploration of ethical reasoning.

examine, for example, the "uncanny valley" of avatar realism and the stability of parasocial relationships with AI-driven virtual influencers compared to human influencers. Such work will extend identity-based and social-cognitive theories by situating them in persistent, AI-mediated environments.

Fifth, modes of engagement functional, hedonic, and symbolic require more nuanced investigation. Our review shows that these modes are often collapsed or under differentiated in prior research. Future studies should examine how consumers move between engagement modes, what design features stimulate these shifts, and whether symbolic engagement reliably predicts long-term outcomes such as loyalty and advocacy.

Finally, consumer outcomes must be reconsidered in light of sustainability and ethics. Current research focuses on behavioural and emotional outcomes such as purchase intention and satisfaction, but the cognitive and moral dimensions of digital consumption remain underexplored. Do digital goods substitute for physical ones, or do they create new cycles of digital materialism with significant energy costs? Here, construal-level and consumption-value theories can guide research into how consumers evaluate the trade-offs between virtual and physical value creation.

Across these six domains, there is a pressing need to move beyond adapted legacy models and develop metaverse-specific theories. Constructs such as avatar persistence, immersive co-presence, and symbolic value creation demand fresh conceptualisation. Methodologically, scholars should combine behavioural analytics with ethnographic and mixed-method designs to capture embodied experiences and evolving identities over time. Practically, managers must learn to design multisensory, emotionally resonant, and symbolically meaningful experiences that foster trust and sustainability.

7. Conclusion

This review synthesised 84 peer-reviewed journal articles to examine how consumer behaviour has been systematically studied in the context of metaverse marketing. Four overarching thematic areas emerged: consumer engagement and experience, technology adoption and innovation integration, avatar dynamics and virtual influencers, as well as the fashion industry and luxury brands.

7.1. Theoretical contributions

This study makes a clear theoretical contribution by providing a marketing-focused, behaviour-centred, and timely systematic literature review of consumer behaviour in metaverse marketing. As research in this area has expanded rapidly and unevenly across disciplines, existing insights have become fragmented and difficult to consolidate. By synthesising up-to-date empirical and conceptual studies, this review offers a timely and structured overview of how consumer behaviours are currently understood in immersive, avatar-mediated environments. Integrating findings across consumer engagement, technology adoption, avatar dynamics, and fashion and luxury branding, the study extends traditional consumer behaviour models by highlighting embodied presence, avatar continuity, and parasocial interaction as key behavioural mechanisms. In doing so, it clarifies how metaverse consumption differs from conventional digital contexts and provides a solid theoretical foundation for future metaverse marketing research.

7.2. Managerial implications

From a managerial perspective, this review provides practical guidance for firms seeking to operate effectively in metaverse environments. First, it shows that immersion is a behavioural driver, not simply a technological feature, meaning brands should prioritise coherent virtual spaces, sensory design, and continuity across experiences. Second, consumer adoption of metaverse technologies depends less on novelty and more on usability, trust, and perceived personal value, requiring managers to balance innovation with simplicity and transparency. Third, avatar-based marketing and virtual influencer strategies must emphasise authenticity, consistency, and narrative coherence, as consumers quickly resist artificial or overly commercialised representations. Finally, for fashion and luxury brands, the Metaverse should be leveraged as a space for symbolic and experiential value creation, rather than price-driven transactions.

7.3. Limitations

This study is limited by its focus on articles from ABDC-ranked journals, which may exclude relevant insights from other sources. Additionally, the thematic analysis was conducted manually, potentially limiting scalability and objectivity. Future research could adopt a more comprehensive approach by incorporating broader data sources and using large language model–assisted tools for theme identification.

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Author contribution

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Data availability statement

No data was used for the research described in the article

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