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A SYSTEMATIC REVIEW OF CONSUMER BEHAVIOUR ACROSS ENGAGEMENT STAGES IN THE METAVERSE

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ABSTRACT. This study provides a structured literature review of consumer behaviour in the metaverse, exploring motivations for metaverse use, adoption, avatar engagement, virtual goods purchases, non-fungible tokens (NFTs), and the impact of brand experiences on real-world product purchase intentions. For this purpose, a systematic review of peer-reviewed articles published over the past two decades was conducted. From an initial pool of 209 articles retrieved from electronic databases, 36 met the inclusion criteria and were thematically analysed. Key trends, knowledge gaps, and future research directions were identified. A novel adaptation of the engagement framework was proposed, categorizing consumer behaviour in the metaverse into three stages: pre-engagement, engagement, and post-engagement. The review reveals that Second Life is the most studied platform, with surveys being the predominant research method. Research has primarily focused on retail, fashion, and tourism, particularly virtual product purchases. Despite providing valuable insights, existing studies reveal substantial research gaps and limited theoretical development. The proposed framework organizes recurring themes and provides a foundation for future research, highlighting the need for empirical evidence to further advance the field. This study is one of the first to systematically review consumer behaviour research in the metaverse and propose a stage-based framework, contributing to theoretical understanding and offering structured directions for future empirical research.

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Introduction

The rapid advancement of digital technologies has fundamentally reshaped consumer behaviour, introducing new interactive retail environments (Dwivedi *et al.*, 2023). Increasingly regarded as a future-oriented platform for e-commerce and retail activity (Fauzi *et al.*, 2025), the metaverse is emerging as a dynamic space for consumer interaction. With more than 665 million monthly active users across multiple platforms (KZero Worldswide, 2024), it is rapidly becoming a critical channel for retailers to connect with consumers.

The metaverse is defined as a network of digitally mediated spaces that immerse users in shared, real-time experiences, the metaverse is characterized by five core features: digital mediation, spatiality, immersion, shared interaction, and real-time operation (Hadi *et al.*, 2024). Although it is still in its early stages, platforms such as Second Life, Roblox, Horizon Worlds, Zepeto, and Decentraland already exhibit these core characteristics and contribute to the growing adoption of the metaverse (Kim, 2021; Yoo *et al.*, 2023) enabling activities such as gaming, socializing, visiting virtual retail stores, and trying on virtual clothing (Dwivedi *et al.*, 2023). As the metaverse evolves, major global brands, including Nike, Adidas, Gucci, and Coca-Cola, are establishing a digital presence through virtual retail stores, events, and digital products (Dwivedi *et al.*, 2023; Hollensen *et al.*, 2023). Examples include Nike's Nikeland in and Gucci's exclusive event in Roblox, or Dolce & Gabbana's digital fashion show in Zepeto (Hollensen *et al.*, 2023).

While previous literature reviews (Aiolfi & Luceri, 2024; Fauzi *et al.*, 2025; Shen *et al.*, 2021) offer valuable insights, notable gaps persist in understanding consumer behaviour within the metaverse. Existing studies primarily address virtual commerce (Fauzi *et al.*, 2025; Shen *et al.*, 2021), teleworking (Chen, 2024), or bibliometric synthesis (Aiolfi & Luceri, 2024), but they do not provide a holistic perspective on consumer engagement. To bridge this gap, this paper synthesises existing literature and proposes a three-stage framework: pre-engagement, engagement, and post-engagement in the context of the metaverse.

This framework draws inspiration from established consumer behaviour models, particularly the Engel-Kollat-Blackwell decision-making process (as adapted by Kaur *et al.* 2023) and the customer journey model by Lemon & Verhoef (2016). By streamlining these into a three-stage model tailored to the immersive characteristics of the metaverse, this study provides a practical lens for analysing consumer behaviour in this emerging context. By categorising existing insights according to the proposed three-stage engagement model, this paper contributes to a clearer understanding of how consumers interact with retailers in the metaverse, offering actionable implications for both researchers and practitioners in the fields of retail and consumer research.

Material and Methods

For the study purpose, a theme-based, structured, systematic literature review (Paul *et al.*, 2023) was carried out. Based on solid methodological principles and systematic investigation, this approach provides a thorough overview of the key themes of the studied field (Tranfield *et al.*, 2003). This study aims to reveal the core factors influencing consumer behaviour in virtual retail environments. This method ensures a careful examination of relevant literature and helps identify recurring patterns, different viewpoints, and new trends (Linnenluecke *et al.*, 2020).

Search Strategy

To identify relevant literature addressing the research objective, a comprehensive search was conducted in two prominent academic databases: Web of Science and Scopus (Linnenluecke *et al.*, 2020; Paul *et al.*, 2023). Boolean operators were used to combine the keywords 'consumer behaviour', 'consumer research', and 'consumer study' with 'metaverse', 'meta universe', and 'virtual world'. This search resulted in a total of 209 articles, 68 from Web of Science and 141 from Scopus.

Inclusion and exclusion criteria

The data underwent a series of systematic steps (Figure 1) to extract relevant insights into consumer behaviour determinants, including duplicate screening, title and abstract evaluation for alignment with research objectives. The next step involved article screening, employing two levels of examination.

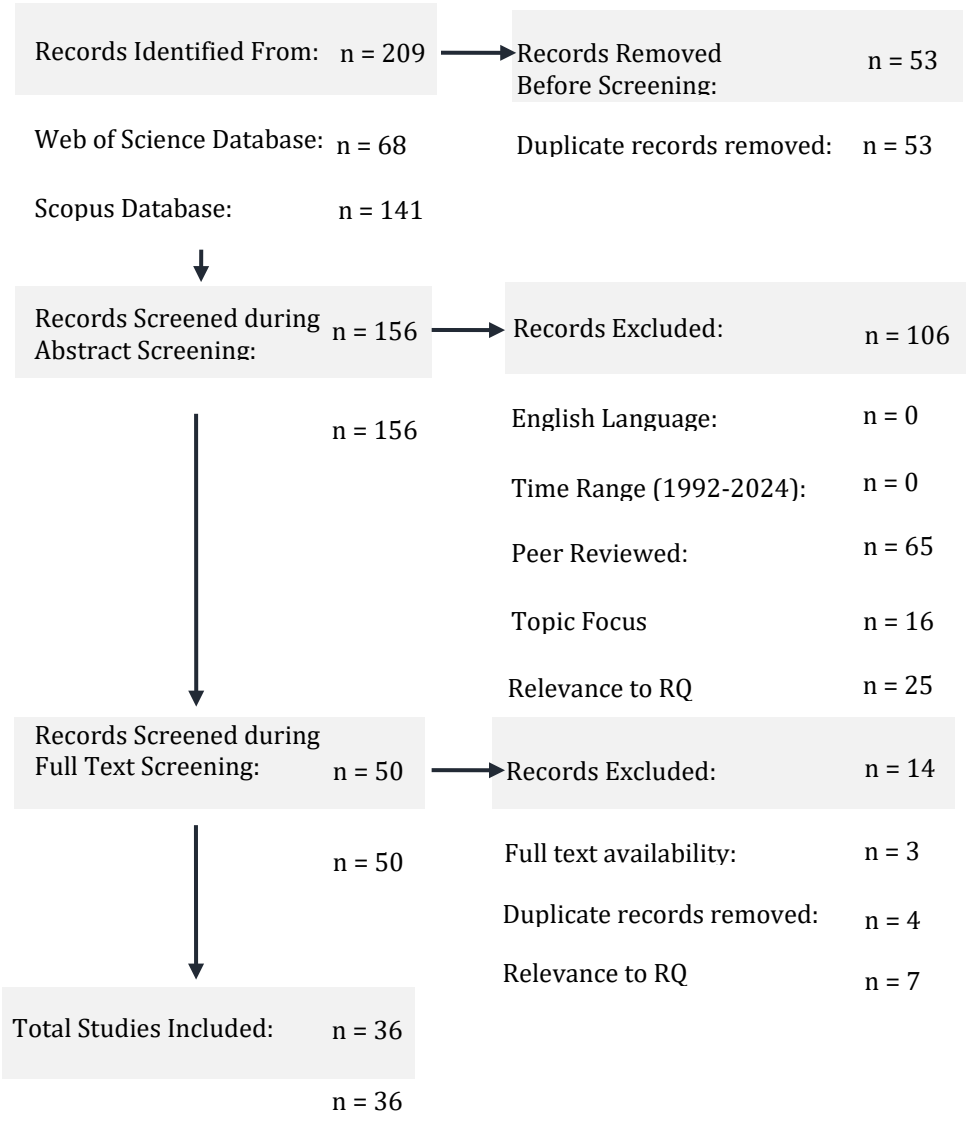

Figure 1. Summary of the review process
Source: Authors' elaboration

The initial level, abstract screening, entailed a thorough review of the titles and abstracts of the 156 articles. Inclusion criteria were carefully defined to ensure the relevance and quality of the articles selected for analysis (Linnenluecke *et al.*, 2020). Firstly, articles must be written in English to facilitate comprehension

and consistency in data interpretation. Secondly, articles had to be published within a specific timeframe, from 1992 (the publication year of Neal Stephenson's "Snow Crash") to May 2024 to capture relevant literature within the context of the evolution of the metaverse and consumer behaviour studies over the past three decades. Thirdly, only peer-reviewed articles were considered, excluding conference proceedings, theses, book chapters, books and other sources. Moreover, articles discussing topics unrelated to consumer behaviour, such as laws, ethics, philosophy, or technical matters, were excluded from the analysis. Lastly, articles were assessed for their alignment with the research objectives.

The second level of the screening process involved the full-text screening of the 50 selected sources. Three inclusion criteria were carefully considered. Firstly, if the full text of an article was unavailable, it was removed from the databases. Secondly, any further duplicates discovered during the full-text screening were removed. Lastly, a comprehensive evaluation was undertaken by three researchers to assess the relevance of the remaining articles to the research objectives. Each researcher reviewed every article, providing a yes or no response indicating whether they deemed the article relevant to the research objectives. In instances where conflicting assessments arose, a discussion was held until a unanimous decision was reached regarding the articles' relevance. The final sample of the literature review consists of 36 articles.

Results

Characteristics of the extracted publications

Publication years

The analysis of publication years reveals notable trends (Figure 2). The earliest article included in this review was published in 2008. The data highlights a gradual increase in scholarly output over the years, with several noticeable peaks. Of the 36 articles analysed in this review, 18 were published over the 15 years from 2008 to 2022, while the remaining half were published within just two years, in 2023 and 2024. Tech giants like Alphabet, Meta, Microsoft, and Nvidia have made significant investments in the development of the metaverse. In October 2021, Facebook CEO Mark Zuckerberg revealed the company's decision to rebrand as Meta, emphasising their strong commitment to the vision of the metaverse (Dwivedi *et al.*, 2022).

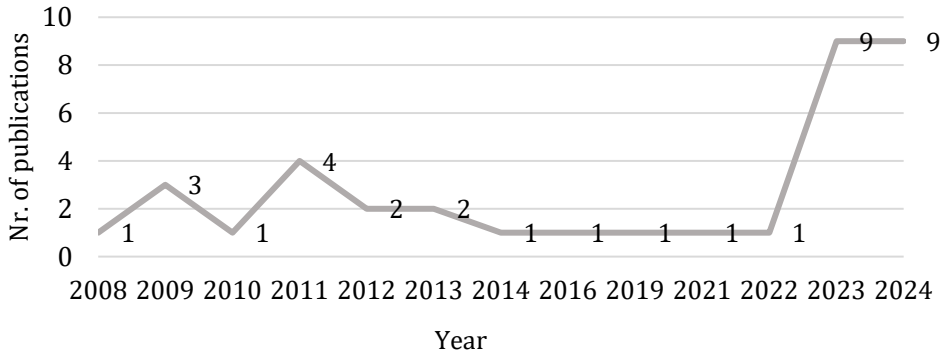

Figure 2. Evolution of published articles regarding consumer behaviour in the metaverse
Source: Authors' elaboration

Journals

Analysing journal publications reveals a diverse landscape of scholarly contributions (Table 1). The 36 articles reviewed were published across 28 distinct journals, indicating a wide dispersion of research. Only eight journals published more than one paper on consumer behaviour in the metaverse, and only 3 of them have consistently featured papers on this topic from the early stages of research to the present, including the International Review of Retail, Distribution and Consumer Research. The reviewed studies are not concentrated in a few dedicated journals, which indicates an extensive interest of the researchers and editors. However, the relatively small overall number of these papers suggests that the field is still in a wayfinding stage.

Table 1. Overview of journals

Journal	Nr. of publications	Paper	Time scope
Innovative Marketing	1	Ainsworth *et al.*, 2008	2008
Electronic Commerce Research	1	Lehdonvirta, 2009	2009
Recherche et Applications en Marketing-English Edition	1	Parmentier & Rolland, 2009	2009
International Review of Retail, Distribution and Consumer Research	2	Frank *et al.*, 2024; Vrechopoulos *et al.*, 2009	2009-2024
Computers in Human Behaviour	2	Mäntymäki & Salo, 2011; Shelton, 2010	2010-2011
Internet Research	1	Barnes & Pressey, 2011	2011
Journal of Research in Interactive Marketing	2	Melancon, 2011; Oyedele & Minor, 2011	2011

Journal	Nr. of publications	Paper	Time scope
Journal of Hospitality and Tourism Technology	1	Huang *et al.*, 2012	2012
Journal of Theoretical and Applied Electronic Commerce Research	1	Koles & Nagy, 2012	2012
Information Technology and Management	1	Cheon, 2013	2013
International Journal of Information Management	2	Mäntymäki & Salo, 2013; Mogaji *et al.*, 2023	2013-2023
Technological Forecasting and Social Change	2	Barnes & Pressey, 2014; Chakraborty *et al.*, 2024	2014-2024
International Journal of Tourism Research	1	Huang *et al.*, 2016	2016
Information & Management	1	Baker *et al.*, 2019	2019
Applied Sciences-Basel	1	Shen *et al.*, 2021	2021
Journal of Service Management	1	Kozinets, 2023	2022
Strategic Change	1	Joy *et al.*, 2022	2022
Heliyon	1	Pellegrino *et al.*, 2023	2023
Journal of Consumer Behaviour	1	Kaur *et al.*, 2023	2023
Psychology and Marketing	2	Dwivedi *et al.*, 2023; Sung *et al.*, 2023	2023
Sosyoekonomi	1	Toraman & Geçit, 2023	2023
Technology in Society	1	Jafar *et al.*, 2023	2023
Tourism Recreation Research	1	Rather, 2023	2023
Asia Pacific Journal of Marketing and Logistics	1	Dang Quan *et al.*, 2024	2024
Journal of Business Research	1	Ahn *et al.*, 2024	2024
Journal of Consumer Psychology	2	Belk, 2024; Hadi *et al.*, 2024	2024
Journal of Global Fashion Marketing	1	Donvito *et al.*, 2024	2024
Journal of Retailing and Consumer Services	2	Bilgihan *et al.*, 2024; Luong *et al.*, 2024	2024
Total	***36***		

Source: Authors' elaboration

Type of publications and source of data

The majority of the papers were empirical studies (Table 2). These papers focused on presenting new research findings through experiments, surveys, or interviews, contributing with empirical insights. Quantitative surveys were the predominant data-collecting methods, followed by interviews. In addition to these methods, qualitative content analysis, quantitatively controlled laboratory experiments, and mixed-method approaches were also identified.

There was also a notable increase in conceptual papers starting with 2022 (Belk, 2024; Bilgihan *et al.*, 2024; Dwivedi *et al.*, 2023). These conceptual papers focused on developing theoretical frameworks and identifying future research directions. Additionally, two literature reviews critically synthesised existing research (Pellegrino *et al.*, 2023; Shen *et al.*, 2021). Two editorials were also found (Donvito *et al.*, 2024; Mogaji *et al.*, 2023). Lastly, a methodological paper introduced the concept of immersive netnography as a method for data collection in virtual worlds (Kozinets, 2023).

It can be concluded that early studies were characterised by a higher proportion of original research papers, indicating a foundational phase of establishing empirical evidence and methodological approaches within the field. The transition from predominantly empirical research before 2022 to including new conceptual frameworks, literature reviews, editorials, and methodological innovations after 2022 points toward the maturation of the field. It also suggests that the metaverse has become an integrative space for AR (augmented reality), VR (virtual reality), social interactions, and financial transactions, requiring new perspectives on consumer behaviour research and new or integrative models and research tools.

Table 2. Type of publication

Publication type & source of data	**Nr. of publications**	**Publications**	**Time frame**
Original research paper / Empirical study			2009-2024
Quantitative: survey	16	Ahn *et al.*, 2024; Barnes & Pressey, 2011, 2014; Cheon, 2013; Dang Quan *et al.*, 2024; Huang *et al.*, 2012, 2016; Jafar *et al.*, 2023; Mäntymäki & Salo, 2011, 2013; Melancon, 2011; Shelton, 2010; Sung *et al.*, 2023; Toraman & Geçit, 2023; Vrechopoulos *et al.*, 2009; Baker *et al.*, 2019	
Qualitative: interview	3	Kaur *et al.*, 2023; Lehdonvirta, 2009; Parmentier & Rolland, 2009	
Qualitative: observations (user-generated content)	2	Koles & Nagy, 2012; Luong *et al.*, 2024	
Mixed method: Qualitative, Quantitative (survey)	2	Chakraborty *et al.*, 2024; Oyedele & Minor, 2011	
Quantitative: controlled laboratory experiment	1	Frank *et al.*, 2024	

Publication type & source of data	Nr. of publications	Publications	Time frame
Conceptual Paper	7	Ainsworth *et al.*, 2008; Belk, 2024; Bilgihan *et al.*, 2024; Dwivedi *et al.*, 2023; Hadi *et al.*, 2024; Joy *et al.*, 2022; Rather, 2023	2008-2024
Literature review	2	Pellegrino *et al.*, 2023; Shen *et al.*, 2021	2021-2023
Editorial	2	Donvito *et al.*, 2024; Mogaji *et al.*, 2023	2023-2024
Methodological Paper	1	Kozinets, 2023	2022
Total	***36***		

Source: Authors' elaboration

Metaverse platforms

Second Life emerged as the predominant platform in the early studies, featured in 13 publications (Table 3). This platform was extensively researched and represented the foundational metaverse retail environment during that period. Other platforms studied during this period include Habbo Hotel and World of Warcraft, each mentioned in multiple publications, contributing to a diverse but focused scope of research.

In contrast, the most recent papers noticeably lack emphasis on specific metaverse platforms. Only three papers mention one or more platforms and only one paper conducted its study within a metaverse retail store that was developed explicitly for research purposes. The research has a notable gap due to the reliance on general, conceptual approaches rather than empirical validations in actual metaverse settings. Additionally, popular platforms like Roblox, which engage millions of users, remain underexplored in the existing literature.

Table 3. Metaverse platforms

Metaverse platform	Nr. of platform mentions	Publications
Second Life (SL)	13	Barnes & Pressey, 2011, 2014; Cheon, 2013; Huang *et al.*, 2012, 2016; Koles & Nagy, 2012; Lehdonvirta, 2009; Oyedele & Minor, 2011; Parmentier & Rolland, 2009; Shelton, 2010; Vrechopoulos *et al.*, 2009
Habbo Hotel	3	Lehdonvirta, 2009; Mäntymäki & Salo, 2011, 2013
World of Warcraft (WoW)	3	Barnes & Pressey, 2014; Lehdonvirta, 2009; Melancon, 2011

Metaverse platform	Nr. of platform mentions	Publications
Fortnite	2	Ahn *et al.*, 2024; Sung *et al.*, 2023
Roblox	2	Ahn *et al.*, 2024; Sung *et al.*, 2023
Facebook / Horizon	2	Jafar *et al.*, 2023; Sung *et al.*, 2023
Minecraft	1	Ahn *et al.*, 2024
Animal Crossing	1	Ahn *et al.*, 2024
Zepeto	1	Sung *et al.*, 2023
metaverse retail store developed for the study	1	Frank *et al.*, 2024
Total	***29****	

Notes: *Out of 36 papers, 19 (53%) have investigated one or more metaverse platforms 29 times.

Source: Authors' elaboration

Industry focus

Only one-third of the analysed studies were conducted within or referred to a specific industry context (Table 4). Retail is one of the few sectors that have gained academic interest. Since 2022, fashion has become the most prominent industry, appearing in four publications (Donvito *et al.*, 2024; Joy *et al.*, 2022; Luong *et al.*, 2024; Sung *et al.*, 2023). This reflects the growing interest in understanding behaviour within virtual fashion environments (Sina & Wu, 2023), influenced by real-world brands and consumer interactions. This is not surprising, as global fashion retailers were among the early adopters of the metaverse. Tourism is also viewed as a sector with strong potential for immersive technologies (Liberatore *et al.*, 2025), including the metaverse (Rather, 2023). Yet, only three papers have explored and discussed the impact of a metaverse retail environment on consumers in this field. Notably, two of these studies were conducted nearly a decade ago (Huang *et al.*, 2012, 2016).

The metaverse appears particularly relevant for industries where visual, tangible, and multisensory elements are central to the experience. These tangible aspects can be easily translated into virtual items, products, spaces, and personas in the fashion, tourism, and entertainment sectors. The predominance of articles without a specific industrial focus suggests that while there is a growing interest in specific sectors like fashion, a portion of the research remains theoretical or approaches the topic from a general perspective. This further confirms that the current body of literature is still in an early phase. At the same time, this poses an opportunity for future research to delve deeper into industry-specific applications.

Table 4. Industry focus

Industry	Nr. of publications	Publications
Retail	5	Baker *et al.*, 2019; Chakraborty *et al.*, 2024; Dang Quan *et al.*, 2024; Frank *et al.*, 2024; Vrechopoulos *et al.*, 2009
Fashion	4	Donvito *et al.*, 2024; Joy *et al.*, 2022; Luong *et al.*, 2024; Sung *et al.*, 2023
Tourism	3	Huang *et al.*, 2012, 2016; Rather, 2023
Total	***12****	

Notes: *Out of 36 papers, 12 were conducted within or referred to a specific industry context.

Source: Authors' elaboration

Consumer engagement stages in the metaverse

Understanding consumer behaviour in the metaverse requires a framework that capture the unique, interactive nature of this immersive retail environment. Building on the five-stage framework proposed by Kaur *et al.* (2023) and the three-stage customer journey model by Lemon & Verhoef (2016), this study introduces a simplified three-stage framework (Figure 3). This allows to organize studies on consumer behaviour in the metaverse into pre-engagement, engagement, and post-engagement stages, providing a cohesive structure for thematic analysis and addressing key gaps in the existing literature.

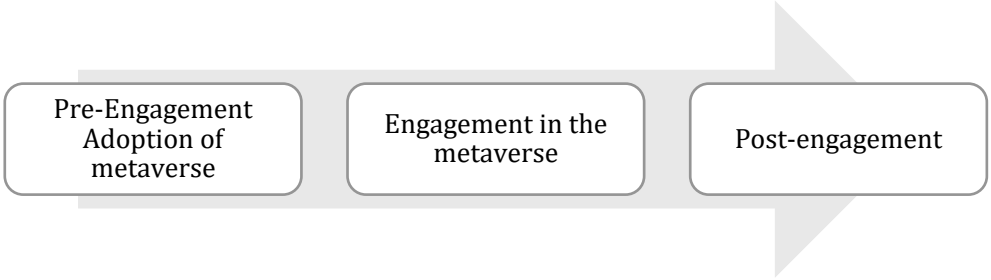

Figure 3. Consumer engagement stages of the metaverse
Source: Authors' elaboration based on Kaur *et al.* (2023) and Lemon & Verhoef (2016)

The concept of engagement was used to structure the themes within each stage (Table 5). Generally, engagement refers to attitudes and behaviours beyond the point of purchase (Lemon & Verhoef, 2016). From an attitudinal perspective, it is described as a "psychological state that arises from interactive, co-creative experiences with a focal agent or object (e.g., a brand) in key service relationships" (Brodie *et al*., 2011, p. 260). From a behaviour perspective, it encompasses purchasing, referral, influencer and knowledge behaviour (Kumar

et al., 2010). Bilgihan et al. (2024) proposed a metaverse engagement model for brand development based on two dimensions (engagement level and immersiveness). The following sections will provide a detailed presentation of each theme.

Table 5. Classification of articles based on consumer engagement stages of the metaverse

Pre-engagement with the metaverse	**Engagement in the metaverse**	**Post-engagement with the metaverse**
Consumer decision-making process regarding the use of metaverse (Kaur *et al.*, 2023)		
Consumer needs – Motivation (Ainsworth *et al.*, 2008; Melancon, 2011) – Identity construction (Parmentier & Rolland, 2009)	**Purchasing virtual goods (non-NFT)** Attitude toward buying virtual products (Baker *et al.*, 2019) – Intention to purchase virtual products (Ahn *et al.*, 2024; Barnes & Pressey, 2014; Cheon, 2013; Jafar *et al.*, 2023; Mäntymäki & Salo, 2011, 2013) – Purchasing virtual products (Koles & Nagy, 2012; Lehdonvirta, 2009; Shelton, 2010)	**Post-engagement evaluation**
Expectations regarding the metaverse (Luong *et al.*, 2024)	**Purchasing digital assets (NFTs)** (Sung *et al.*, 2023)	**Purchase intention of real products** (Huang *et al.*, 2012, 2016; Shelton, 2010)
Consumer adoption of metaverse (Toraman and Geçit, 2023)	**Purchasing in virtual shops** – Intention to use virtual shops (Vrechopoulos *et al.*, 2009; Chakraborty *et al.*, 2024; Frank *et al.*, 2024; Shen *et al.*, 2021) – Impulsive buying in virtual shop (Dang Quan *et al.*, 2024)	

Source: Authors' elaboration

Pre-engagement with the metaverse

Based on the literature review, three themes related to the metaverse's pre-engagement stages were identified: consumer needs for immersive experiences, expectations regarding the metaverse and consumer adoption.

Consumer needs for immersive experiences. The early studies, based mostly on gaming literature, tried to understand consumers' motivations for using different virtual reality platforms. The most important motivations for using a virtual environment are relationship, achievement, manipulation, immersion, and escapism (Yee, 2006). However, studies revealed that motivations differ based on gender (Melancon, 2011; Yee, 2006), age and virtual environmental type (Melancon, 2011). Ainsworth *et al*. (2008) consider that consumer motivations in virtual roles could be explained by possible selves, openness to experience, and social comparison theory. Moreover, the virtual worlds allow consumers to duplicate, improve, transform, or even metamorphose their identities (Parmentier & Rolland, 2009).

Expectations regarding the metaverse. Luong *et al.* (2024) have identified a positive attitude towards metaverse experiences in the fashion industry, driven by excitement and future expectations. They have also noted the presence of non-purchasing behaviour. However, their findings are based on video reviews rather than direct metaverse activities. Non-purchasing behaviour, characterized by curious users exploring the metaverse without making purchases, is present in this early stage of metaverse development. Yet, this has not been explored in the current literature.

Consumer adoption of the metaverse. Consumer adoption of metaverse could be understood through a purchasing decision process and a technology adoption approach. Kaur *et al.* (2023) consider that in the awareness stage, consumers knowledgeable about technology, particularly those who enjoy gaming and virtual reality, are driven to investigate the metaverse. Once they recognise their needs, consumers search for information about the metaverse by watching videos, following influencers, engaging with other gamers, and attending events. This stage is followed by evaluating alternative platforms and the necessary infrastructure for using the metaverse, such as buying or borrowing accessories. Recently, researchers have focused on identifying the main drivers of metaverse adoption through the Technology Acceptance Model (TAM). Toraman and Geçit (2023) showed that perceived usefulness affects the intention to use the metaverse. They also found that perceived usefulness is positively influenced primarily by compatibility and enjoyment.

Consumer engagement in the metaverse

Most reviewed articles study different forms of consumer engagement in the metaverse. Kaur *et al.* (2023) outlined the most important forms of engagement, such as interacting with other users and retailers, dressing up avatars, increasing

immersive time, buying/selling NFTs, and creating/minting NFTs. Based on the literature review, purchasing virtual goods and digital assets and purchasing in virtual shops were identified as themes related to the engagement stage.

Purchasing virtual goods. Metaverse users can engage in financial activities (e.g. buying and selling virtual goods for their avatars). Researchers have tried to identify the most important determinants of consumer attitude (Baker *et al.*, 2019), intention to buy (Ahn *et al.*, 2024; Barnes & Pressey, 2014; Cheon, 2013; Jafar *et al.*, 2023; Mäntymäki & Salo, 2011, 2013) and purchasing habits (Koles & Nagy, 2012; Lehdonvirta, 2009; Shelton, 2010), studying various platforms and virtual goods (Table 6).

Table 6. Studied virtual goods

Authors	**Virtual goods**	**Platforms**
Shelton, 2010	entertainment/recreation; accessories, apparel and appearance; technology/gadgets; home and garden; and business.	Second Life
Mäntymäki & Salo, 2011	collectible items, clothes, pets, and furniture, and premium memberships provide a mechanism for differentiation from other users.	Habbo Hotel
Mäntymäki & Salo, 2013	collectible items, clothes, pets, and furniture, and premium memberships provide a mechanism for differentiation from other users.	Habbo Hotel
Baker *et al.*, 2019	Clothes	Second Life
Jafar *et al.*, 2023	Goods for avatars	n.s.
Ahn *et al.*, 2024	Goods for avatars: fashion and body	Fortnite, Minecraft, Roblox, Animal Crossing

Source: Authors' elaboration

Lehdonvirta (2009) suggests that virtual goods purchases can be categorized like real products based on functionality, hedonic, and social attributes. Unlike real-life consumption, virtual purchases allow instant acquisition of items reflecting desired values, creating a more dynamic retail environment (Koles & Nagy, 2012). Shelton (2010) notes similar buying patterns in both virtual and real worlds across product types like entertainment, apparel, and technology. Additionally, purchasing behaviour is shaped by both intrinsic and extrinsic motivations, particularly the influence of other users (Mäntymäki & Salo, 2011, 2013).

Researchers have identified metaverse-specific factors that boost enjoyment and encourage exploration. Researchers have identified metaverse-specific factors that boost enjoyment and encourage exploration (Mäntymäki & Salo, 2011),

and is shaped by social presence and telepresence, the latter distinguishing virtual worlds from web environments (Baker *et al.*, 2019). Telepresence also impacts purchase intentions (Jafar *et al.*, 2023). Flow, influenced by interactivity, vividness, and involvement, enhances purchase willingness (Cheon, 2013). More recently, connectedness and playfulness were shown to improve self-expansion, increasing virtual item purchase intentions (Ahn *et al.*, 2024).

Besides the good experiences, virtual worlds can also have a dark side, including user addiction, escape from reality, and even harassment and manipulation. These issues are mostly related to video games. Yet, Barnes & Pressey (2014) found that experience-oriented virtual worlds did not present the same dangers as goal-oriented virtual worlds, and addiction did not influence spending intention in these environments.

Purchasing digital assets (NFTs). The current review identified only one study focusing on NFT buying behaviour. While explanations of virtual goods are predominantly based on TAM (Baker *et al.*, 2019; Mäntymäki & Salo, 2011, 2013) or the S-O-R Theory (Jafar *et al.*, 2023), NFT buying behaviour is explained differently through Game and Prospect Theory (Sung *et al.*, 2023). Sung et al. (2023) found that consumers' attention toward scarce and authentic NFTs is driven by perceived economic and social value, with purchasing decisions influenced by the potential gains and losses of acquiring blockchain-certified NFTs.

Purchasing in virtual shops. Virtual worlds offer a more interactive shopping experience than traditional e-commerce. Baker *et al.* (2019) identify telepresence as a key factor differentiating consumer attitudes toward virtual shops versus web-based e-commerce. Features such as product accessibility, detailed information, customized searches, avatars for product trials, virtual assistants, and personalized recommendations enhance the shopping experience (Chakraborty *et al.*, 2024).

Shen *et al*. (2021) identify key factors influencing purchase intentions and essential design elements in virtual commerce. Studies on virtual store servicescape focus on layout (Vrechopoulos *et al.*, 2009), atmospherics (Dang Quan *et al.*, 2024), and fidelity (Frank *et al.*, 2024). Research also shows that impulse buying is more common in virtual retail environments (Dang Quan *et al.*, 2024; Vrechopoulos *et al.*, 2009). Chakraborty *et al.* (2024) apply Uses and Gratifications (U&G) Theory to explain the shift from entertainment-driven usage to motivations based on information-seeking, status, and experience-sharing. The fidelity of the virtual experience also influences consumer visits to virtual stores (Frank *et al.*, 2024).

Post-engagement in the metaverse

In the present review, two key themes emerged concerning the metaverse's post-engagement stages: evaluating metaverse experiences and subsequently purchasing real-world products. Kaur *et al.* (2023) emphasize that metaverse users share their positive experiences, influence others, and are often motivated to create content and tutorials. Additionally, the post-engagement stage extends to the metaverse's impact on real-world consumption patterns. This spillover effect, is particularly evident in the tourism sector, where it significantly influences users' intentions to visit real-world destinations (Huang *et al.*, 2012, 2016) and leads to higher levels of engagement and positive experiences (Liberatore *et al.*, 2025).

Theories explaining consumer engagement in different stages

The metaverse represents an entirely new retail environment, raising questions about whether existing theories and models can adequately explain consumer behaviour. As a result, it is unsurprising that researchers employ various approaches to study it.

In the pre-engagement stage, researchers explain behaviour through different motivations (Melancon, 2011), technology adoption (Toraman and Geçit, 2023), and the Engel-Kollat-Blackwell consumer decision-making process (Kaur *et al.*, 2023). During the engagement stage, the first theme, examining why consumers purchase virtual goods, is explained through various theories, with TAM being notably influential (Baker *et al.*, 2019; Mäntymäki & Salo, 2011, 2013). The second theme, involving the purchase of digital assets, is analysed using Game Theory and Prospect Theory, particularly in the context of NFTs (Sung *et al.*, 2023). The adoption of virtual shops is explored through both TAM (Vrechopoulos *et al.*, 2009) and U&G Theory (Chakraborty *et al.*, 2024). In the post-engagement stage, the intention to purchase real products is analysed using theories similar to those applied in the engagement stage, including flow theory (Huang *et al.*, 2012; Oyedele & Minor, 2011) and technology adoption models (Huang *et al.*, 2016).

Discussions

Future research directions

The following sections offer detailed explanations and outline future research directions, organized by the stages of consumer engagement with the metaverse.

Pre-engagement of the metaverse

Consumer needs for immersive experiences. Studies on consumers' needs for using virtual worlds and their identity-building date back to the early days of the metaverse, with platforms like World of Warcraft and Second Life. Therefore, this field should be further developed with newer platforms such as Roblox, Sandbox, Decentraland, Horizon Worlds, and Zepeto. Additionally, research should focus on users' motivations to explore various virtual worlds within the metaverse, including Vans World, Nikeland, Gucci, and Tommy Hilfiger on Roblox. Previous studies have identified different user segments, and this approach should continue with the emergence of new platforms.

Expectations regarding the metaverse. Excitement and future expectations drive positive attitudes towards the metaverse, but their impact on behaviour remains unclear. Non-purchasing behaviour, where users interact, socialize, and create content without monetary transactions, is particularly underexplored. Future research should empirically examine this behaviour, including its motivations, evolution over time, and variations across different platforms. Additionally, studying how demographic and psychographic factors affect non-purchasing behaviour could provide valuable insights and enhance strategies for engagement.

Consumer adoption of metaverse. The metaverse is still in the early adoption stage, and the literature based on the Technology Adoption Model is scarce. Therefore, it is essential to understand the main predictors of metaverse adoption. Venkatesh (2024) argues that the Unified Theory of Acceptance and Use of Technology (UTAUT) should be tested in the context of the metaverse. Moreover, they argue that other constructs, such as playfulness, could be integrated into the model. However, the paradigm shift introduced by the metaverse requires the development of new constructs specific to this environment, such as augmented reality and immersive experiences. These new constructs will imply new relationships, potentially influencing how existing constructs operate. This could require the development of an entirely new theory.

Consumer engagement in the metaverse

Purchasing virtual goods. Virtual goods are digital items that exist solely within virtual retail environments, such as games and virtual worlds (Lehdonvirta & Castronova, 2014). These goods include avatar clothing, weapons, virtual furniture, currencies, characters, and tokens, which became popular in games. Virtual goods can be purchased on most metaverse platforms with a gaming element. For instance, while playing the core game is typically free, skins and customisation options require payment, as seen in Roblox, Fortnite, and League of Legends.

The most challenging task is converting metaverse users into consumers, which involves purchasing virtual or real products. Therefore, it is unsurprising that most research has focused on how consumers purchase products within the metaverse. However, future research should emphasise comparative studies of the buying and selling processes for different types of virtual goods, such as functional, hedonic, or social items. Comparative studies should be conducted on platforms like Roblox, Sandbox, Decentraland, Horizon Worlds, and Zepeto. Further research should address how consumers perceive the value of virtual goods (Aggarwal *et al.*, 2025) and the factors influencing this perception. There is a substantial body of literature on purchase decision mental accounting related to sources of funds, intended use of funds, pricing, and payments. Examining the mental accounting processes involved in paying for virtual goods would be particularly insightful, especially exploring the sources of funds used for these purchases (e.g., whether the funds come from the child or the parent).

Purchasing digital assets (NFTs). NFTs are unique digital assets that certify ownership of a specific item, whether an intangible digital object such as videos, images, and tweets or a tangible item like real-world artwork or event tickets (Wilson *et al.*, 2022). Examples of NFT purchases include the acquisition of virtual real estate on platforms like Decentraland or participation in exclusive virtual events, like fashion shows, where users can make purchases during the experience (Sung *et al.*, 2023). Future research should explore the buying and selling processes of these digital assets, particularly consumer trust and risk perception in NFT transactions.

Purchasing in virtual shops. A virtual shop is defined as a component of a virtual world where consumers, represented by avatars, interact with other avatars, including buyers and sellers, to purchase virtual or real products (Hassouneh & Brengman, 2015). This type of shopping experience adds a new dimension to traditional e-commerce by enabling users to engage in a shared, immersive virtual retail environment, enhancing the social and interactive aspects of the shopping process (Hassouneh & Brengman, 2015). For example, Nikeland and VansWorld have established virtual shops within their Roblox games, where users can browse virtual goods. Although some items are free, most require purchase (Hollensen *et al.*, 2023). Further research should investigate how consumers behave in different virtual retail shops (browsing, trying on, purchasing) and how the distinct features of these shops influence consumer behaviour.

Post-engagement in the metaverse

The impact of metaverse experiences on real-world consumer behaviour opens up new possibilities for brands in omnichannel retailing. Retailers may be interested in how personalised experiences influence customer retention

and how community-building activities enhance user loyalty. Additionally, exploring methods for collecting and analysing consumer feedback in virtual environments and assessing the effects of metaverse experiences on real-world shopping habits could provide valuable insights.

Conclusions

Theoretical implications

Based on the literature review, two distinct theoretical frameworks were proposed: one to explain consumer adoption of the metaverse and another to address engagement and post-engagement behaviours. UTAUT and UTAUT2 serve as foundational models for studying adoption, with potential extensions to include motivational factors. For consumer engagement, these models can be expanded to include metaverse-specific variables, such as immersion time, and new dependent variables like real-world purchasing behaviour. Flow theory may also provide valuable insights into engagement. Additionally, other psychological theories and engagement models could be applied to the engagement and post-engagement stages, with the development of new theoretical approaches encouraged (Table 7).

Table 7. Proposed theories for future research

Engagement stage	Theme	Theoretical implication
Pre-Engagement of the metaverse	Consumer needs for immersive experiences Expectations regarding the metaverse Consumer adoption of metaverse	- Testing UTAUT/UTAUT2 - Call for a new theory regarding adoption
Engagement in the metaverse	Purchasing virtual goods Purchasing digital assets NFTs Purchasing in virtual shops	- Testing UTAUT/UTAUT2 - Testing Flow theory - Adopting psychology theories that support the concept of customer engagement in metaverse
Post-engagement in the metaverse	Retention and loyalty	- Call for an integrated theory regarding engagement and post-engagement

Source: Authors' elaboration

Managerial implications

This study offers managerial insights for marketers. In the pre-engagement stage, retailers should focus on understanding user motivations, such as self-expression and identity-building. For example, Nike's Nikeland on Roblox and Gucci's virtual stores cater to users' desires to personalize avatars. Additionally, exploring non-purchasing behaviours like socializing can help retailers foster organic engagement. During the engagement stage, it is crucial for retailers to design immersive and interactive shopping experiences that resonate with consumers. Vans' virtual store in Roblox, where users can try on and purchase virtual sneakers, exemplifies the potential of gamified retail environments. Marketers should also prioritize strategies that enhance the perceived value of virtual goods and NFTs, such as digital art sold in Decentraland. Empirical findings by Aggarwal *et al*. (2025) highlight that while perceived value significantly enhances consumers' behavioural intentions, perceived risk has a detrimental effect particularly in contexts like virtual fitting rooms. In the post-engagement stage, retailers should encourage loyalty through personalized experiences. Coca-Cola's virtual experiences in Decentraland offer consumers rewards and engagement opportunities. Finally, understanding how metaverse interactions influence real-world behaviour, such as physical product purchases, can inform omnichannel strategies, while feedback collection through in-game surveys and sentiment analysis can refine long-term engagement strategies.

Limitations and future research

This structured literature review examines consumer behaviour within the metaverse by synthesizing insights from peer-reviewed articles over the past two decades. It provides a comprehensive overview of the current state of knowledge, highlighting key trends and identifying gaps. The present analysis introduces a three-stage framework (pre-engagement, engagement, and post-engagement) to understand consumer interactions with the metaverse. Future research is recommended to build on this framework, developing separate models for the initial engagement stage and an integrated model for the subsequent stages. In addition, specific research directions are proposed for each stage of consumer engagement.

While this study utilized a systematic, thematic literature review, it has certain limitations. The screening process, despite efforts to ensure consistency, may have introduced bias or excluded relevant studies due to its reliance on subjective judgment. Moreover, articles published after May 2024 were not considered. These limitations highlight areas for future research that can further advance understanding of consumer behaviour in the metaverse

REFERENCES

Aggarwal, A., Sharma, R., & Singh, P. (2025). Will I virtually try and buy? – exploring the adoption of virtual fitting rooms through the lens of perceived value, risk, and consumer characteristics. *The International Review of Retail, Distribution and Consumer Research,* 35(1), 1-32. https://doi.org/10.1080/09593969.2024.2449253.

Ahn, S., Ellie Jin, B. & Seo, H. (2024). Why do people interact and buy in the Metaverse? Self-Expansion perspectives and the impact of hedonic adaptation. *Journal of Business Research*, 175, 114557. https://doi.org/10.1016/j.jbusres.2024.114557.

Ainsworth, A. B., Bonifield, C., & Tomas, A. (2008). Where avatars come from: Exploring consumers' motivations in virtual worlds. *Innovative Marketing,* 4(4), 6-13. https://www.businessperspectives.org/index.php/journals/innovative-marketing/issue-117/where-avatars-come-from-exploring-consumers-motivations-in-virtual-worlds.

Aiolfi, S., & Luceri, B. (2024). See you on the Metaverse: A bibliometric expedition through the Metaverse landscape. *Technological Forecasting and Social Change,* 207, 123605. https://doi.org/10.1016/j.techfore.2024.123605.

Baker, E. W., Hubona, G. S., & Srite, M. (2019). Does 'being there' matter? The impact of web-based and virtual world shopping experiences on consumer purchase attitudes. *Information & Management,* 56(7), 103153. https://doi.org/10.1016/j.im.2019.02.008.

Barnes, S. J., & Pressey, A. D. (2011). Who needs cyberspace? Examining drivers of needs in Second Life. *Internet Research,* 21(3), 23-254. https://doi.org/10.1108/10662241111139291.

Barnes, S. J., & Pressey, A. D. (2014). Caught in the web? Addictive behavior in cyberspace and the role of goal-orientation. *Technological Forecasting and Social Change,* 86, 93109. https://doi.org/10.1016/j.techfore.2013.08.024.

Belk, R. (2024). The digital frontier as a liminal space. *Journal of Consumer Psychology*, 34(1), 167-173, https://doi.org/10.1002/jcpy.1357.

Bilgihan, A., Leong, A. M. W., Okumus, F., & Bai, J. (2024). Proposing a metaverse engagement model for brand development. *Journal of Retailing and Consumer Services,* 78, 103781. https://doi.org/10.1016/j.jretconser.2024.103781.

Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer engagement: Conceptual domain, fundamental propositions, and implications for research. *Journal of Service Research,* 14(3), 252-271. https://doi.org/10.1177/1094670511411703.

Chakraborty, D., Polisetty, A., & Rana, N. P. (2024). Consumers' continuance intention towards metaverse-based virtual stores: A multi-study perspective. *Technological Forecasting and Social Change,* 203, 123405. https://doi.org/10.1016/j.techfore.2024.123405.

Chen, Z. (2024). Metaverse office: Exploring future teleworking model. *Kybernetes,* 53(6), 2029-2045. https://doi.org/10.1108/K-10-2022-1432.

Cheon, E. (2013). Energizing business transactions in virtual worlds: An empirical study of consumers' purchasing behaviors. *Information Technology and Management,* 14(4), 315-330. https://doi.org/10.1007/s10799-013-0169-6.

Dang Quan, T., Tan, G. W.-H., Aw, E. C. X., Cham, T. H., Basu, S., & Ooi, K. B. (2024). Can you resist the virtual temptations? Unveiling impulsive buying in metaverse retail. *Asia Pacific Journal of Marketing and Logistics,* 36(10), 2259-2280. https://doi.org/10.1108/apjml-09-2023-0911.

Donvito, R., Acuti, D., & Song, S. (2024). Fashion and the metaverse: Implications for consumers and firms. *Journal of Global Fashion Marketing,* 15(1), 1-5. http://doi.org/10.1080/20932685.2023.2293290.

Dwivedi, Y.K., Hughes, L., Baabdullah, A.M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M.M., Dennehy, D., *et al.* (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy, *International Journal of Information Management*, 66, 102542. https://doi.org/10.1016/j.ijinfomgt.2022.102542.

Dwivedi, Y. K., Hughes, L., Wang, Y., Alalwan, A. A., Ahn, S. J. (Grace), Balakrishnan, J., Barta, S., et al. (2023). Metaverse marketing: How the metaverse will shape the future of consumer research and practice. *Psychology & Marketing,* 40(4), 750-776. https://doi.org/10.1002/mar.21767.

Fauzi, M. A., Cheng, J. K., Kamaruzzaman, Z. A., Mustapha, M. R., Mohd Aripin, N., Musa, R., Alimin, N. S. N., et al. (2025). E-commerce and the metaverse: Present and future trends of consumers' adoption. *The International Review of Retail, Distribution and Consumer Research,* 35(2), 1-21. https://doi.org/10.1080/09593969.2025.2455742.

Frank, D.-A., Peschel, A. O., Otterbring, T., DiPalma, J., & Steinmann, S. (2024). Does metaverse fidelity matter? Testing the impact of fidelity on consumer responses in virtual retail stores. *The International Review of Retail, Distribution and Consumer Research,* 34(2), 251-284. https://doi.org/10.1080/09593969.2024.2304810.

Hadi, R., Melumad, S., & Park, E. S. (2024). The metaverse: A new digital frontier for consumer behavior. *Journal of Consumer Psychology,* 34(1), 142-166. https://doi.org/10.1002/jcpy.1356.

Hassouneh, D., & Brengman, M. (2015). Retailing in social virtual worlds: Developing a typology of virtual store atmospherics. *Journal of Electronic Commerce Research,* 16(3), 218-241. http://www.jecr.org/node/471.

Hollensen, S., Kotler, P., & Opresnik, M. O. (2023). Metaverse – the new marketing universe. *Journal of Business Strategy,* 44(3), 119-125. https://doi.org/10.1108/JBS-01-2022-0014.

Huang, Y. C., Backman, K. F., Backman, S. J., & Chang, L. L. (2016). Exploring the implications of virtual reality technology in tourism marketing: An integrated research framework. *International Journal of Tourism Research,* 18(2), 116-128. https://doi.org/10.1002/jtr.2038.

Huang, Y. C., Backman, S. J., & Backman, K. F. (2012). Exploring the impacts of involvement and flow experiences in Second Life on people's travel intentions. *Journal of Hospitality and Tourism Technology,* 3(1), 4-23. https://doi.org/10.1108/17579881211206507.

Jafar, R. M. S., Ahmad, W., & Sun, Y. (2023). Unfolding the impacts of metaverse aspects on telepresence, product knowledge, and purchase intentions in the metaverse stores. *Technology in Society,* 74, 102265. https://doi.org/10.1016/j.techsoc.2023.102265.

Joy, A., Zhu, Y., Peña, C., & Brouard, M. (2022). Digital future of luxury brands: Metaverse, digital fashion, and non-fungible tokens. *Strategic Change,* 31(3), 337-343. https://doi.org/10.1002/jsc.2502.

Kaur, J., Mogaji, E., Paliwal, M., Jha, S., Agarwal, S., & Mogaji, S. A. (2024). Consumer behavior in the metaverse. *Journal of Consumer Behaviour,* 23(4), 1720-1738. https://psycnet.apa.org/doi/10.1002/cb.2298.

Kim, J. (2021). Advertising in the metaverse: Research agenda. *Journal of Interactive Advertising,* 21(3), 141-144. https://doi.org/10.1080/15252019.2021.2001273.

Koles, B., & Nagy, P. (2012). Virtual customers behind avatars: The relationship between virtual identity and virtual consumption in Second Life. *Journal of Theoretical and Applied Electronic Commerce Research,* 7(2), 87-105. https://doi.org/10.4067/S0718-18762012000200009.

Kozinets, R. V. (2023). Immersive netnography: A novel method for service experience research in virtual reality, augmented reality and metaverse contexts. *Journal of Service Management,* 34(1), 100-125. https://doi.org/10.1108/JOSM-12-2021-0481.

Kumar, V., Aksoy, L., Donkers, B., Venkatesan, R., Wiesel, T., & Tillmanns, S. (2010). Undervalued or overvalued customers: Capturing total customer engagement value. *Journal of Service Research,* 13(3), 297-310. https://doi.org/10.1177/1094670510375602.

KZero Worldswide. (2024). The most prominent players in KZero's Q1 2024 metaverse universe chart. Available at https://kzero.io/2024/01/16/prominent-players-kzero-q1-2024-metaverse-universe-chart/.

Lehdonvirta, V. (2009). Virtual item sales as a revenue model: Identifying attributes that drive purchase decisions. *Electronic Commerce Research,* 9(1), 97-113. https://doi.org/10.1007/s10660-009-9028-2.

Lehdonvirta, V., & Castronova, E. (2014). *Virtual economies: Design and analysis.* MIT Press. https://doi.org/10.7551/mitpress/9525.001.0001.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing,* 80(6), 69-96. https://doi.org/10.1509/jm.15.0420.

Liberatore, A., Sousa, A. E., Cardoso, P., & Pais, S. (2025). Immersive technologies in Italian cultural tourism: An exploratory analysis of visitor satisfaction and predictive modeling. *Studia Universitatis Babeş-Bolyai Negotia,* 70(2), 43-76. https://doi.org/10.24193/subbnegotia.2025.2.

Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management,* 45(2), 175-194. https://doi.org/10.1177/0312896219877678.

Luong, V. H., Tarquini, A., Anadol, Y., Klaus, P., & Manthiou, A. (2024). Is digital fashion the future of the metaverse? Insights from YouTube comments. *Journal of Retailing and Consumer Services,* 79, 103780. https://doi.org/10.1016/j.jretconser.2024.103780.

Mäntymäki, M., & Salo, J. (2011). Teenagers in social virtual worlds: Continuous use and purchasing behavior in Habbo Hotel. *Computers in Human Behavior,* 27(6), 2088-2097. https://doi.org/10.1016/j.chb.2011.06.003.

Mäntymäki, M., & Salo, J. (2013). Purchasing behavior in social virtual worlds: An examination of Habbo Hotel. *International Journal of Information Management,* 33(2), 282-290. https://doi.org/10.1016/j.ijinfomgt.2012.12.002.

Melancon, J. P. (2011). Consumer profiles in reality vs fantasy-based virtual worlds: Implications for brand entry. *Journal of Research in Interactive Marketing,* 5(4), 298-312. https://doi.org/10.1108/17505931111191500.

Mogaji, E., Wirtz, J., Belk, R. W., & Dwivedi, Y. K. (2023). Immersive time (ImT): Conceptualizing time spent in the metaverse. *International Journal of Information Management,* 72, 102659. https://doi.org/10.1016/j.ijinfomgt.2023.102659.

Oyedele, A., & Minor, M. S. (2011). Customer typology: 3D virtual world. *Journal of Research in Interactive Marketing,* 5(1), 29-49. https://doi.org/10.1108/17505931111121516.

Parmentier, G., & Rolland, S. (2009). Consumers in virtual worlds: Identity building and consuming experience in Second Life. *Recherche et Applications en Marketing (English Edition),* 24(3), 43-55. https://doi.org/10.1177/205157070902400302.

Paul, J., Khatri, P., & Kaur Duggal, H. (2024). Frameworks for developing impactful systematic literature reviews and theory building: What, why and how? *Journal of Decision Systems,* 33(4), 537-550. https://doi.org/10.1080/12460125.2023.2197700.

Pellegrino, A., Wang, R., & Stasi, A. (2023). Exploring the intersection of sustainable consumption and the metaverse: A review of current literature and future research directions. *Heliyon,* 9(9), e19190. https://doi.org/10.1016/j.heliyon.2023.e19190.

Rather, R. A. (2023). Metaverse marketing and consumer research: Theoretical framework and future research agenda in tourism and hospitality industry. *Tourism Recreation Research,* 48(6), 781-789. https://doi.org/10.1080/02508281.2023.2216525.

Shelton, A. K. (2010). Defining the lines between virtual and real world purchases: Second Life sells, but who's buying? *Computers in Human Behavior,* 26(6), 1223-1227. https://doi.org/10.1016/j.chb.2010.03.019.

Shen, B., Tan, W., Guo, J., Zhao, L., & Qin, P. (2021). How to promote user purchase in metaverse? A systematic literature review on consumer behavior research and virtual commerce application design. *Applied Sciences,* 11(23), 11087. https://doi.org/10.3390/app112311087.

Sina, A. S., & Wu, J. (2023). The effects of retail environmental design elements in virtual reality (VR) fashion stores. *The International Review of Retail, Distribution and Consumer Research,* 33(1), 1-22. https://doi.org/10.1080/09593969.2022.2049852.

Sung, E. (Christine), Kwon, O., & Sohn, K. (2023). NFT luxury brand marketing in the metaverse: Leveraging blockchain-certified NFTs to drive consumer behavior. *Psychology & Marketing,* 40(11), 2306-2325. https://doi.org/10.1002/mar.21854.

Toraman, Y., & Geçit, B. B. (2023). User acceptance of metaverse: An analysis for e-commerce in the framework of technology acceptance model (TAM). *Sosyoekonomi,* 31(55), 85-104. https://doi.org/10.17233/sosyoekonomi.2023.01.05.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management,* 14(3), 207-222. https://doi.org/10.1111/1467-8551.00375.

Venkatesh, V. (2024). Paradigm changing metaverse: Future research directions in design, technology adoption and use, and impacts. *SSRN.* https://doi.org/10.2139/ssrn.4720945.

Vrechopoulos, A., Apostolou, K., & Koutsiouris, V. (2009). Virtual reality retailing on the web: Emerging consumer behavioural patterns. *The International Review of Retail, Distribution and Consumer Research,* 19(5), 469-482. https://doi.org/10.1080/09593960903445194.

Wilson, K. B., Karg, A., & Ghaderi, H. (2022). Prospecting non-fungible tokens in the digital economy: Stakeholders and ecosystem, risk and opportunity. *Business Horizons,* 65(5), 657-670. https://doi.org/10.1016/j.bushor.2021.10.007.

Yee, N. (2006). The demographics, motivations, and derived experiences of users of massively multi-user online graphical environments. *Presence: Teleoperators and Virtual Environments,* 15(3), 309-329. https://doi.org/10.1162/pres.15.3.309.

Yoo, K., Welden, R., Hewett, K., & Haenlein, M. (2023). The merchants of meta: A research agenda to understand the future of retailing in the metaverse. *Journal of Retailing,* 99(2), 173-192. https://doi.org/10.1016/j.jretai.2023.02.002.