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Research Article

Blurring the Lines between Real and Virtual: A Systematic Literature Review of Immersive Technologies in Marketing

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ABSTRACT
Industry 4.0 places immersive technologies at its centre by integrating them across various functional areas of business, including marketing. Use of immersive technologies in marketing, helps transform customer experience by blending real and virtual worlds. A growing number of organizations are actively adopting and planning to adopt immersive technologies owing to their potential to enhance interaction between various business stakeholders. A systematic literature review of academic literature is carried out to study the integration of immersive technologies in marketing and their transformation. The data is analysed using the Biblioshiny app available in RStudio software. The results show that immersive technologies have transformed marketing across various sectors such as healthcare, tourism, and education. Analysis based on sources, authors, countries, documents, and keywords provides an evolution of immersive technology in marketing. In addition, factorial analysis, network creation, and thematic evolution are examined to determine the most influential themes of the literature and identify research gaps. Finally, a framework proposing upcoming research directions for the usage of immersive technologies in marketing is created.

Keywords: Immersive Technology; Virtual Reality; Augmented Reality; Marketing; Systematic literature review (SLR)
JEL code: M31; L86

INTRODUCTION AND LITERATURE REVIEW

Introduction of immersive technologies in the early 1990s altered the field of marketing (Blach *et al.* 1998; Bibri *et al.* 2022). Immersive technology emulates the physical world by simulation, thereby establishing an impression of immersion (Suh and Prophet 2018; Tu and Jia 2024). In addition to a reality-virtuality spectrum, these technologies replicate motion, sound, vision, and haptics (Kozinets 2023). Their applications like Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR), Extended Reality (XR) extend across different functional areas of business, and marketing is no exception to it (Tan *et al.* 2022; Wagner and Cozmiuc 2022; Li *et al.* 2022; Tu and Jia 2024).

The word Immersive Technology is derived from the word "Immersion," which means "a state of being completely involved in something" (Oxford English Dictionary). The psychological condition of immersion is characterized by the feeling that one is encircled by or a part of surroundings that offer a constant flow of experiences and stimulation (Nilsson *et al.* 2016). About virtual environment, the term immersion has been used to refer both to the technology that surrounds a user and the user's reaction to being encircled by technology. In a marketing context, immersion is linked with the submergence of the customer in a VR environment created by immersive technology. In contrast, VR is a computer-generated, dynamic, and immersive digital worlds that isolate the user from his or her physical environment, whereas AR is a representation generated by computers made up of material presented on an actual situation in real time. Another thing about MR is its dynamic spatial coexistence of the real and the virtual substance.

Furthermore, XR is a canopy phrase for AR, VR, and MR. By adopting these technologies, a simulated immersive multicharacter and continuous multi-user environment is formed, a so-called Virtual World (VW), allowing individuals to communicate with one another in (near) real time as characters (Flavián *et al.* 2019; Park and Kim 2024; Arya *et al.* 2024). By providing 360-degree videos of the product, VR/AR headsets help customers to experience the product firsthand and explore it in their own space. These technologies also enable customers to interact in a virtual space where they can select, manipulate, and modify products. Recommendation is also provided to the user based on their interaction and interpreting their psycho-physiological needs in a digital space, thereby creating a unique user experience. The three categories of user

experience are psychological, chronological, and spatial immersion (Nilsson *et al.* 2016). Spatial immersion is coupled with a sense of place and excitement of being in discovery. Temporal immersion is what is made up of the urge to know what will follow next. The cause of emotional immersion is the emotional association of people.

The introduction of the Metaverse in 2021 revolutionized the existing virtual worlds by offering firms and consumers 3D virtual environments that are permanent, exchanged, networked, and immersive for collaboration. The Global metaverse market is anticipated to reach $800 billion by the end of the term, growing at a compound annual growth rate (CAGR) of 40% between 2022 and 2030 (Ghosh *et al.* 2023). Additionally, 70% of business professionals plan to incorporate the Metaverse into their organizational activities, with the potential to provide $4–$5 trillion in value by 2030 across commercial and consumer use cases (McKinsey & Company 2023). This growth is expected to drive the frequent use of new VR headsets and the advancement of peripheral devices such as haptics and displays, alongside innovations in user experience to bolster the consumer market. Moreover, AR product experiences are proving to be more engaging than their non-AR counterparts. Notably, Apple has announced the 2024 release of its Vision Pro AR/VR headset, featuring eye tracking, hand-gesture recognition, and seamless scrolling, setting new standards in MR (McKinsey & Company 2023). Consequently, the implementation of immersive technologies in marketing is emerging as a significant research agenda.

Over the years, many empirical and conceptual studies have contributed to immersive technologies in different marketing contexts. Immersive technologies have been researched in the context of customer satisfaction (Wang *et al.* 2023; Iranmanesh *et al.* 2024), brand experience (Zeng *et al.* 2023; Bogicevic *et al.* 2024), switching behavior (Nugroho and Wang 2023), neuro-communication (Barrientos-Báez and Caldevilla-Domínguez 2023) and purchase intention (Shamsi and Abad 2023; Negm 2024). These studies are mainly confined to the fields of tourism (Wibisono *et al*. 2023; Zhu *et al*. 2023b; Buhalis *et al.* 2023; Sousa *et al*. 2024), retail management (Pangarkar *et al.* 2022; Akbari and Bigdeli 2022; Han 2023; Rejeb *et al.* 2023; Zhang *et al.* 2024), gaming (Lee *et al*. 2018; Hsiao *et al.* 2019; Shen 2019; van Berlo *et al*. 2021; Sharma *et al.* 2024) and healthcare (Kang and Hwang 2022; Ud Din and Almogren 2023). Nevertheless, there is no systematic literature review exclusively focused on the usage of immersive technologies in marketing. This highlights the necessity of conducting a systematic literature review on the above subject to provide a blueprint for upcoming research in the framework of immersive technologies in marketing. Fill in the above gap, the undertaken research answers the following research questions

Research Questions

1. How has immersive technology transformed within the marketing landscape over time?
2. What are the marketing-related concepts and patterns of immersive technology?
3. Identifying the research gaps and putting forward a research framework for the application of immersive technology in marketing?

METHODOLOGY

The study was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, which consists of four steps: identification, eligibility, screening, and inclusion (Kumar 2022). Following this protocol makes systematic review reporting more accurate, thorough, and transparent, which promotes evidence-based decision making (Page *et al*. 2021).

Identification, Screening, Eligibility, and Inclusion

The documents were identified from Scopus database using keywords, "augmented reality" or "AR" or "virtual reality" or "VR" or "virtual fit" or "virtual worlds" or "virtual environment" or "virtual space" or "virtual connectivity" or "mixed reality" or "MR" or "extended reality" or "XR" or "metaverse" or "immersive technology" or "immersive" or "immersion" AND "marketing". The initial result of choosing data range as all years (1994-2024) and all document types extracted 4137 documents.

This extraction was further screened to suit the focus area of the study, as concerned subject area were selected as 'business management and accounting', 'social sciences', 'computer sciences', 'engineering', 'psychology', 'arts and humanities', 'decision sciences' and 'Multidisciplinary'. All these documents, being article and review, were limited to the English language and source type journal which resulted in 1814 documents.

Filtered documents were assessed manually, resulting in elimination and exclusion of articles that were from unrelated specializations and not relevant as per the scope of study. Thus, validating final dataset of 956 documents. This refining process of selecting the final dataset for the study is shown in figure 1 using the PRISMA approach (Page *et al.* 2021).

Finally, the dataset was imported into the Biblioshiny app in RStudio for data analysis, visualization, mapping, and concluding the results.

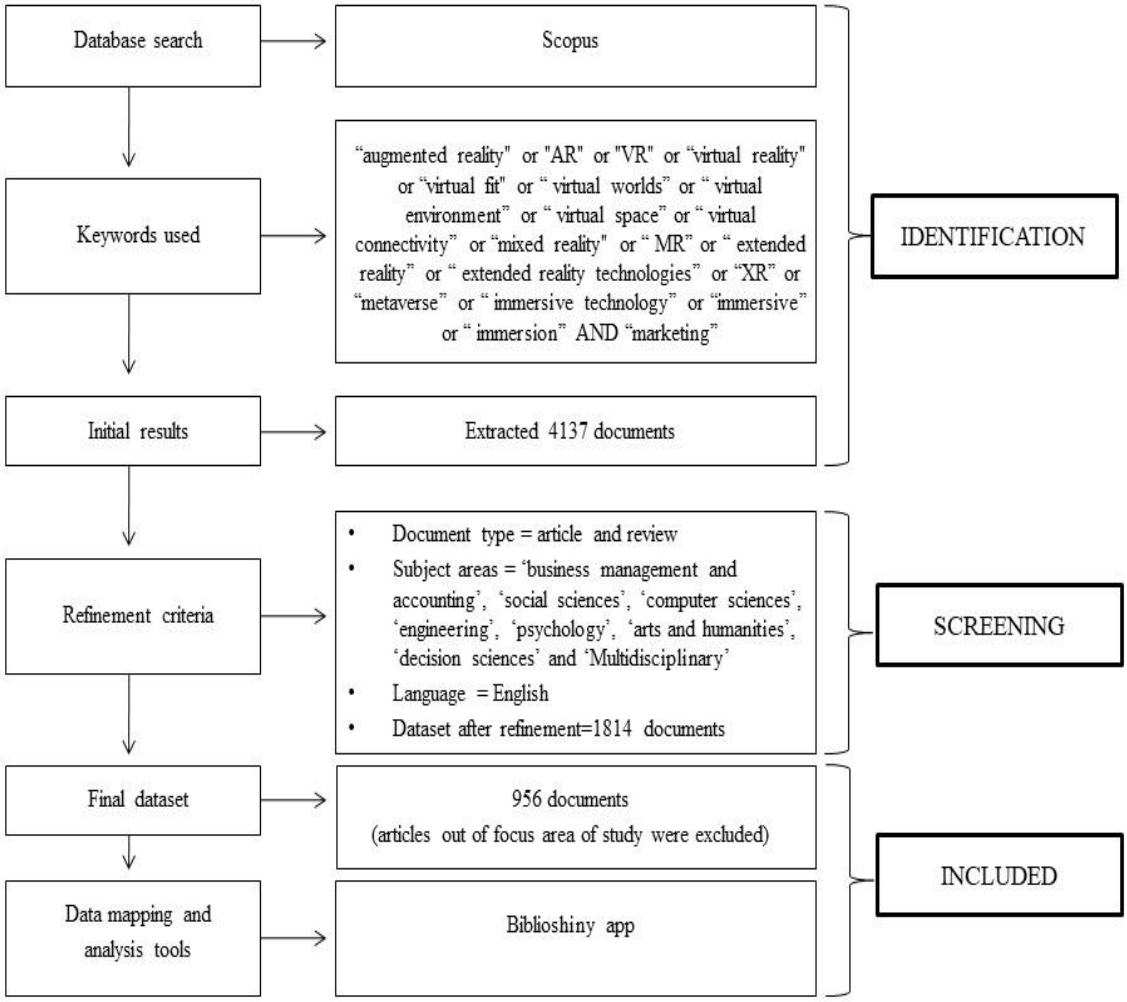


Figure 1: PRISMA approach
Source: Author's Own

RESULTS AND DISCUSSION

Two layers of data evaluation were performed on the documents, first the descriptive analysis was undertaken, followed by visualization that included thematic evolution, thematic map, and trend topics.

Descriptive bibliometric analysis

Table 1 provides primary details of the documentation selected for the study. The final dataset had 468 sources (journals, books, etc.) with 956 documents from the period of 30 years (1994 -2024). Document type included 884 research articles and 72 review papers, out of which 130 were single-authored documents. With the average citation per document being 25.65, the annual growth rate of these documents was found to be 18.26 %. A total of 2395 authors have contributed to this area of study and highlighted 2525 authors' keywords to describe their research.

Table 1. Main information of the documentation

Description	**Results**
Timespan	1994:2024
Sources (Books, Journals, etc.)	468
Documents	956
Annual Growth Rate %	18.26
Document Average Age	4.56
Average citations per doc	25.65
References	51881
Document Contents	
Author's Keywords (DE)	2525
Authors	
Authors	2395

Authors of single-authored docs	130
Authors Collaboration	
Single-authored docs	136
Co-Authors per Doc	3.13
International co-authorships %	27.38
Document Types	
Article	884
Review	72

Source: Biblioshiny App

Figure 2 shows a significant expansion in the sector of immersive technologies in the context of marketing from 2009 onwards. The amount of published articles increased from 63 in 2019 to 190 in 2023.

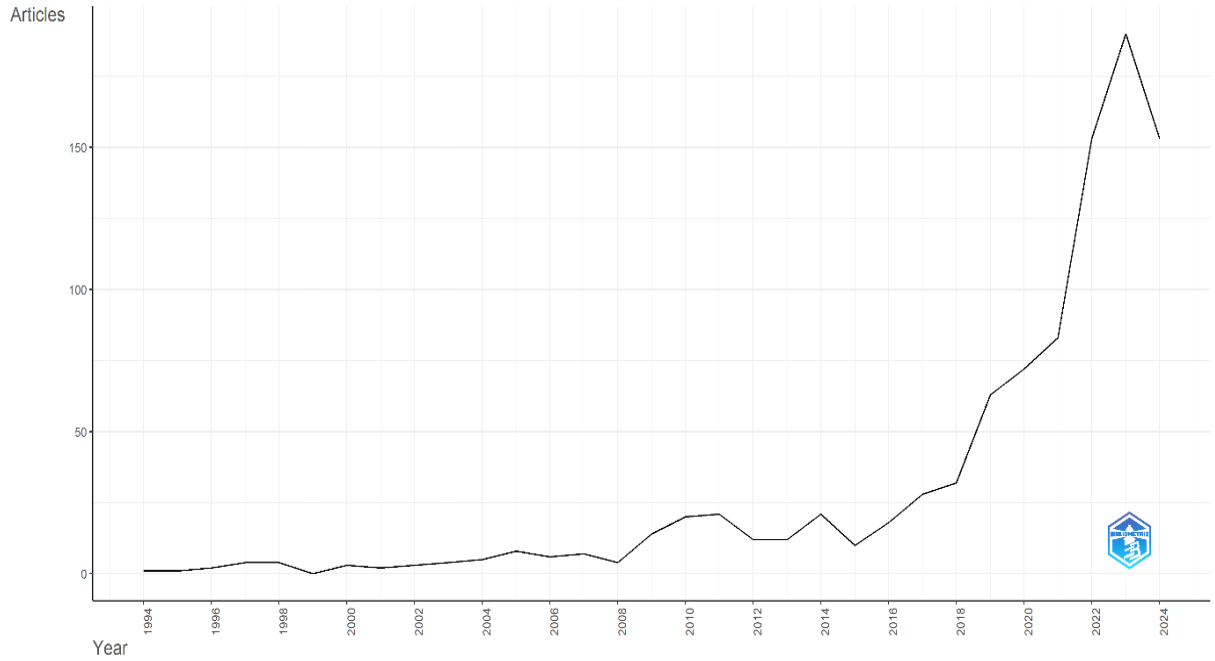


Figure 2. Number of documents produced annually

Source: Biblioshiny App

Sankey plot (Figure 3) shows that the majority of the research associated to immersive technologies like AR, VR, and the metaverse was conducted by Rauschnabel and Dwivedi. These academic literatures were confined to Journals like Psychology and Marketing, Journal of Retailing and Consumer Services, Computers in Human Behavior, etc.

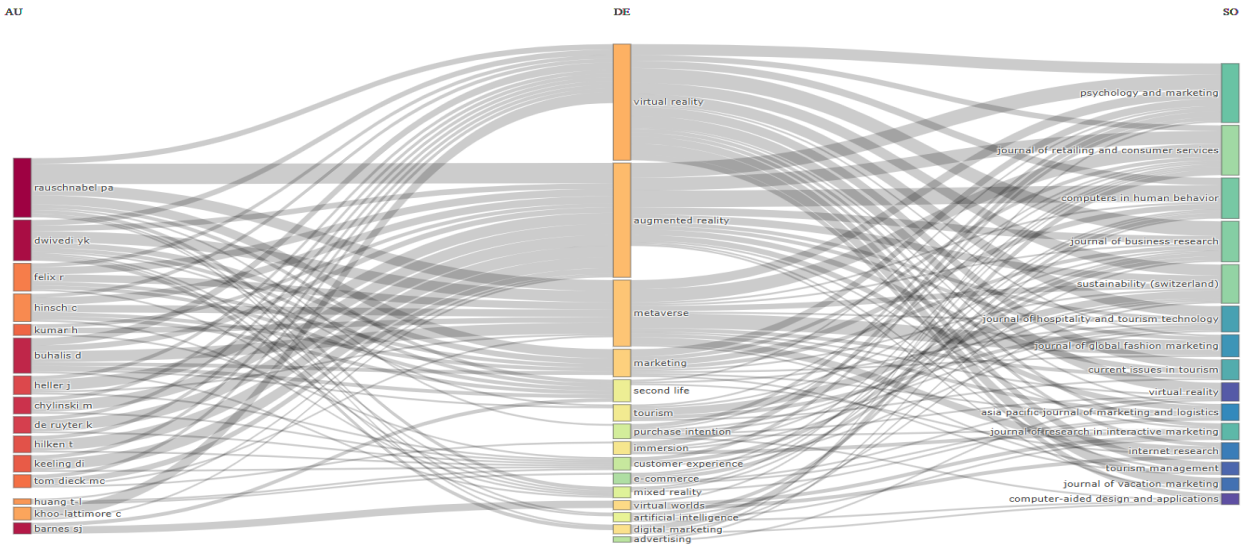


Figure 3. Three-field plot (relationship between authors, keywords, and sources).

Source: Biblioshiny App

Table 2 showcases top journals related to immersive technologies in marketing. The maximum quantity of articles is from "Journal of Retailing and Consumer Services", followed by "Journal of Business Research", "Sustainability", "Computers in Human Behavior", and "Psychology and Marketing", having total citations of 2092, 1458, 175, 689, and 329 respectively.

Table 2. Sources in sequence with the number of articles published, with total citations, and H-index

Sources	Articles	Total citation	H index
JOURNAL OF RETAILING AND CONSUMER SERVICES	36	2092	19
JOURNAL OF BUSINESS RESEARCH	23	1458	20
SUSTAINABILITY (SWITZERLAND)	23	175	8
COMPUTERS IN HUMAN BEHAVIOR	18	689	9
PSYCHOLOGY AND MARKETING	17	329	10
JOURNAL OF RESEARCH IN INTERACTIVE MARKETING	15	123	7
CURRENT ISSUES IN TOURISM	12	649	6
JOURNAL OF HOSPITALITY AND TOURISM TECHNOLOGY	12	320	8
JOURNAL OF GLOBAL FASHION MARKETING	10	70	3
ASIA PACIFIC JOURNAL OF MARKETING AND LOGISTICS	9	72	4

Source: Biblioshiny App

Figure 4 shows a timeline of publications by the 20 authors over the period. The timeline of publishing articles started from 2007 onwards, and the most productive year was 2023. Among these 20 authors, the most productive authors are Rauschnable, Dwivedi, and Barnes, respectively.

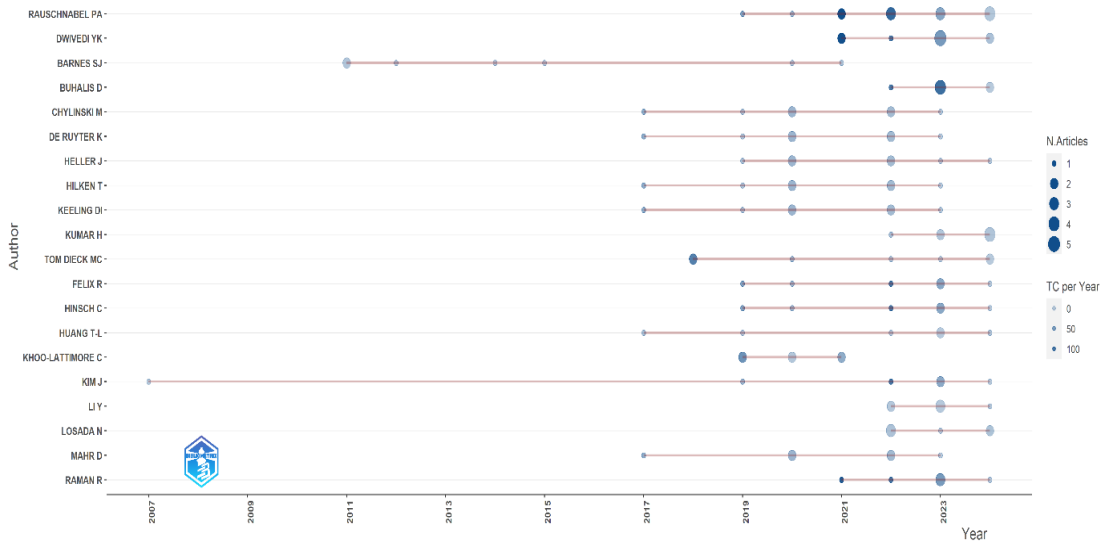


Figure 4. Authors' production over time

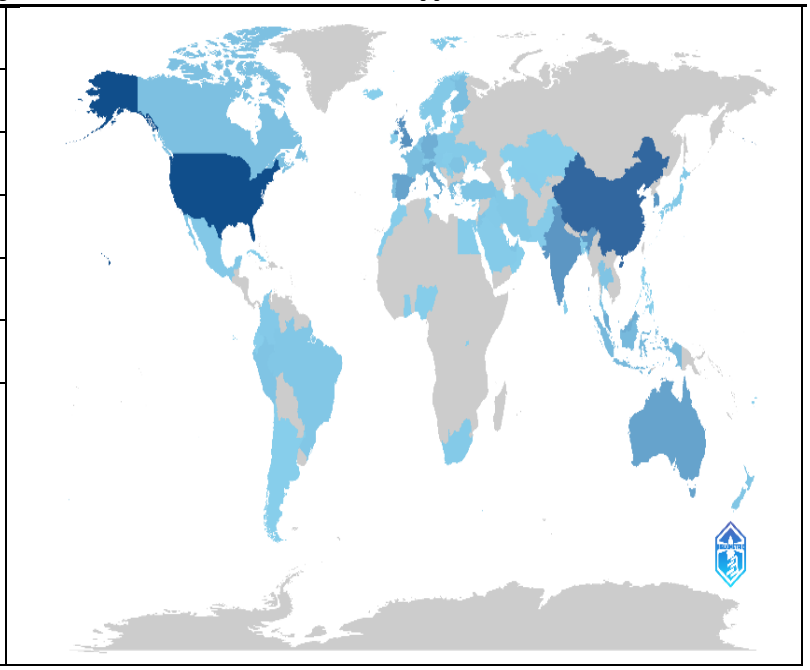
Source: Biblioshiny App

The top countries (Table 3) advancing the field of immersive technologies in marketing are the USA, followed by China, the UK, India, and South Korea. The majority of the research related to immersive technologies is confined to the USA and China. This can be attributed to the location of firms researching on immersive technologies in these nations, eg, Amazon – USA, Apple- USA, Google- USA, Meta- USA, and technologies related to immersive technology are under research in China (advanced 9D VR, medical iMEC, cryptocurrency). Furthermore, these nations also have grants specific to research on immersive technologies, like the National Natural Science Foundation of China, the Humanity and Social Science Youth Foundation of the Ministry of Education of China Grant, Shantou University STU Scientific Research Initiation Grant, and the Humanities and Social Science etc.

Table 3. Countries' scientific production

Region	No. of Documents
USA	417
CHINA	328
UK	193

INDIA	173
SOUTH KOREA	171
SPAIN	134
AUSTRALIA	132
MALAYSIA	101
GERMANY	98
ITALY	97



Source: Biblioshiny App

Evolution of Immersive Technologies in Marketing

A thematic transformation of the immersive technologies in marketing is shown in Figure 5. The period under this study is divided into three cutting points, namely 2017, 2020, and 2022, creating four time slices based on the distribution of publications every year.

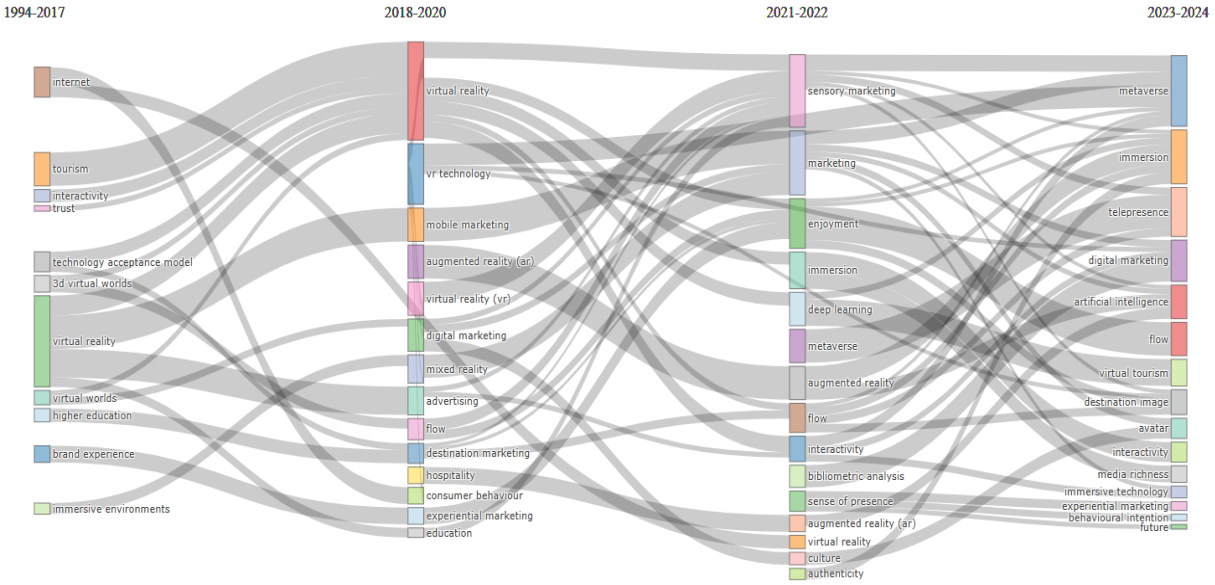


Figure 5: Thematic Evolution of immersive technologies in marketing

Source: Biblioshiny App

Time slice from 1994 to 2017

Initially internet was primarily used as a medium for implementing immersive environments. Most of the researches were focused on creating 3D virtual worlds mimicking the real world. During this time, the focus of the developers was on improving interactivity and developing trust to foster a better brand experience. The use of immersive technologies was in the area of education and tourism. Thus, the challenge for the researchers was to develop technology acceptance(TAM) among the customers.

Time slice from 2018 to 2020

During these years, the focus was on technologies like VR, AR, and MR. There was a redefinition of the subsets of digital marketing, i.e., mobile marketing and experiential marketing. The application of immersive technology also transformed the advertising industry, leading to changes in consumer behaviour. The application of immersive technologies has extended to the fields of education, hospitality, and destination marketing. This period also showed increased research in the field of technical specifications supporting AR, VR, and MR. The theoretical foundation of immersive

technology shifted from technology acceptance to flow theory by moving away from one's current reality and into a state of centered attention and concentration (Han *et al.* 2020).

Time slice from 2021 to 2022

During this time, immersive technologies led to the development of a new concept called "immersion". There was increased research on the investigation of consumer responses to AR/VR-enhanced environments. There was also a rise in the research related to sensory marketing, sense of presence, and interactivity. With the launch of the metaverse and machine learning methods (deep learning), the research shifted towards developing a deeper understanding of psychological concepts like enjoyment, online culture, and authenticity (identity, behaviour, content).

Time slice from 2023 to 2024

During this time slice the usage of immersive technology had expanded into the fields of digital marketing, virtual tourism, destination image, experiential marketing and customer behavioural intention. Presence of metaverse platform led to development of concepts like immersion and telepresence. This time also saw increased focus on customer response towards avatar building, development, usage and its interaction.

Themes and Trends of immersive technology in marketing

Themes of immersive technology in marketing

The thematic map for the application of immersive technology in marketing was created based on the author's keywords (Figure 6), resulting in four quadrants. The emerging marketing themes in the field of immersive technologies are user experience, luxury brands, and empathy. This is consistent with the business environment, which saw the launch of notable luxury firms like Gucci, Louis Vuitton, Balenciaga, Dolce & Gabbana, etc.. These brands also launched on the metaverse in collaborations with Roblox, Fortnite, and the UNXD platform to connect with audiences, creating unique digital experiences and exploring innovative marketing strategies.

The niche themes are Industry 4.0, learning, visit intention, and online retail. These themes required more research and linking with immersive technologies. Immersive technologies are the foundation of the fourth industrial revolution (Industry 4.0), wherein they support training, simulation, maintenance, designing, production, quality control, and risk management. Thus, these themes need to be researched in the context of manufacturing, retailing, and learning (online and offline firms).

The motor themes include artificial intelligence(AI), authenticity, satisfaction, and video games. Currently, immersive technologies are explored in the context of video games, human response (satisfaction), and authenticity (avatar, content, interaction). Immersive technologies need to focus on their application in other industries like manufacturing (product designing and prototyping), real estate (virtual tours of property, personalisation of space), entertainment (enhancing live performances, theme parks, digital art installations and exhibitions), automotive (Advanced driver-assistance systems, car designing), etc.

The basic themes include virtual reality(VR), immersion, sensory marketing, marketing strategy, blockchain, experience, virtual tourism, and interaction. Their application can be further studied in different fields like psychology (experience), haptics (interaction, sensory marketing), strategic management (marketing strategy) and human computer interaction (immersion, blockchain).

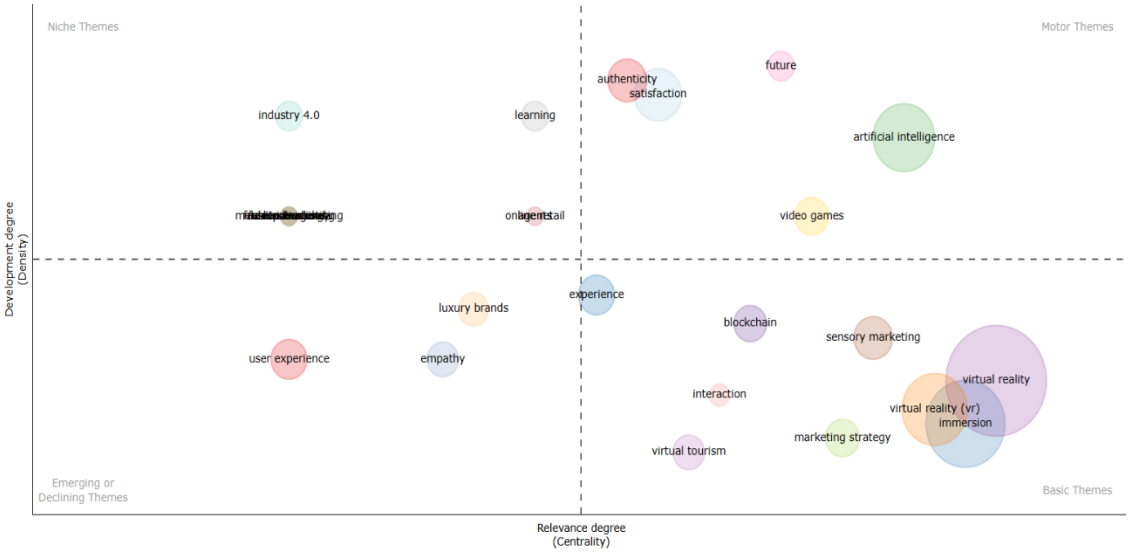


Figure 6. Thematic map
Source: Biblioshiny App

Note: Niche themes: well developed, isolated with strong internal linkages; Emerging themes: either

emerging or declining and so underdeveloped; Motor themes: well defined & developed; Basic themes: crucial research areas lacking complete development.

Trends of immersive technology in marketing

Trending topics based on authors' keywords from 2007 to 2024 are shown in Figure 7. This plot presents trending topics according to the author's analysis of keywords. Based on the storyline, blockchain, brand engagement, and digital fashion are the current trending topics (2024) of research, whereas digital marketing, metaverse, and immersion were trending in 2023.

From 2022 onwards, topics related to the metaverse, digital marketing, and immersion increased. The concepts "trust" and "virtual environment" showed a consistent trend from 2004 and 2010 onwards. This indicates that despite of wider adoption of immersive technologies, stakeholders are still not able to trust them completely. Though attempts have been made by researchers to examine customers' trust and their attributing factors, still more exploration needs to be done (Connolly 2008; Jin and Lee 2010; Chesney *et al.* 2017; Tan and Saraniemi 2023; Martí-Testón *et al.* 2023; Le *et al.* 2023). Thus, future research can be directed towards understanding the significance of trust for marketing and its stakeholders when using immersive technology.

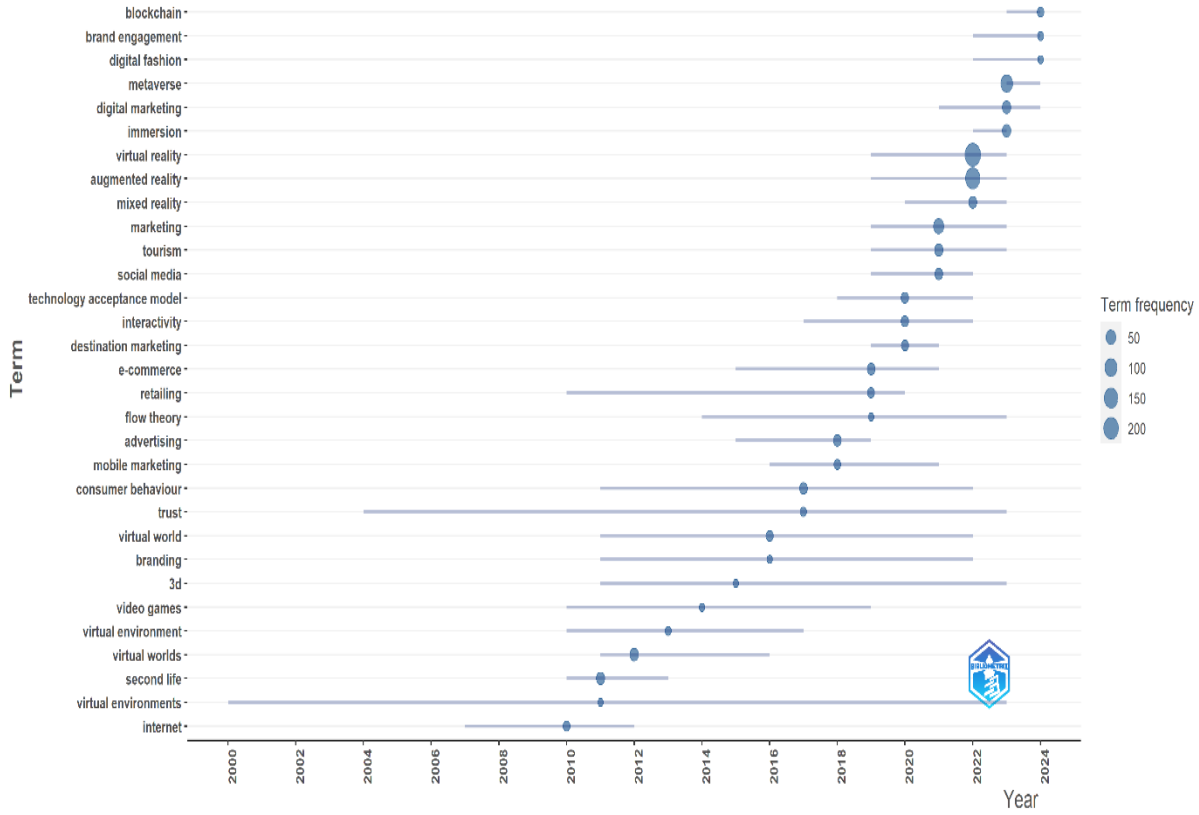


Figure 7. Trend topics
Source: Biblioshiny App

Research gaps identified in the current literature

Through a comprehensive evaluation of past literature, researchers have identified the following shortcomings in research on the progress of immersive technologies in marketing:

1. Limited research on significant marketing functions- the existing research on immersive technologies in marketing is mainly focused on product visualization (Recalde *et al*. 2024), customer experience (Huang and Chung 2024; Álvarez Márquez and Ziegler 2024), and interactive advertisement (Yang *et al*. 2020; Yang and Zhang 2023). Research can be focused on less explored marketing functions like customer relationship management, brand loyalty, product development, and event marketing. Learning about these overlooked domains can give insightful information about how businesses can use immersive technologies to gain an edge over competitors.

2. Limited research on cross-cultural marketing- immersive technologies facilitate virtual cultural encounters, interactive narratives, and product visualization, empowering individuals to investigate diverse cultures, traditions, and heritage (Zhu *et al*. 2023a) from any location. They possess the capacity to enhance cultural education and provide virtual excursions of significant landmarks and festivals, thereby rendering cultural experiences more attainable (Gonçalves *et al*. 2022; Martí-Testón *et al.* 2023). Still, there aren't enough comprehensive studies focused on how these technologies perform and resonate across cross-cultural settings. The challenge lies in understanding cultural differences in user experience, adapting and localizing content correctly, gaining

insights into diverse consumer behaviors, creating effective measurement metrics, and managing different ethical and privacy standards. Overcoming these challenges is essential for crafting culturally relevant and impactful marketing strategies that resonate with global audiences and enhance the effectiveness of these technologies.

3. Lack of cross-sector and country collaborations – although immersive technologies have offered significant potential across various marketing sectors like tourism (Chen *et al.* 2023; Guo *et al.* 2023), education (Dhar *et al.* 2021; Zhao *et al.* 2023), healthcare (Gerup *et al.* 2020; Kang and Hwang 2022; Musamih *et al.* 2023), and retail (Vaidyanathan and Henningsson 2023; Alesanco-Llorente *et al.* 2023), effective cross-sector collaboration is limited. By uniting experts from sectors like technology, design, and marketing, companies can develop immersive experiences tailored to specific industries. For example, collaboration between a gaming company and a fashion brand can help establish a virtual changing room so that clients may try on clothing in a virtual setting. Similarly, a partnership between a healthcare provider and a technology firm could help develop VR-based therapy sessions for mental health. Thus, such collaborations not only drive advancements in immersive technology but also offer a unique value proposition to customers.

Furthermore, there are limited studies related to cross-country research in this field. By partnering with companies from different regions, organisations can customise their product offers. For example, collaboration between design and technology firms from different regions could help in creating immersive experiences that blend in perfectly traditional cultural elements perfectly with cutting-edge technology. Additionally cross cross-country partnerships can enable the sharing of knowledge and innovative ideas, fostering a competitive and collaborative global market.

4. Less availability of studies in the context of ethical consideration related to immersive technologies in marketing- Although these technologies provide highly engaging and tailored marketing experiences, they also bring up ethical issues (Tan and Salo 2023), such as the risk of manipulation, breaches of privacy (Qin *et al.* 2024), and the collection of sensitive biometric information without clear consent. Continuous research on trust issues (Chesney *et al.* 2017; Tan and Saraniemi 2023) reveals that consumers are often cautious about how to use these immersive technologies. This ongoing distrust underscores the need for more dedicated research on ethical standards and guidelines to ensure that immersive marketing practices are transparent, uphold consumer rights, and prioritize the protection of user data and well-being. Upcoming studies and business strategies must focus on developing trust since it is necessary for the broad acceptance and commercial success of immersive technology in marketing.

Future research framework

The future research on immersive technology in the context of marketing can be subdivided into four parts, as shown in Figure 8.

Trends in immersive technologies: Trends in immersive technologies are swiftly reshaping the marketing environment by introducing creative methods to captivate consumers. VR and AR spearhead this movement by delivering completely immersive and enhanced real-world experiences, respectively, enabling brands to craft unforgettable and engaging campaigns. Mixed Reality (MR) and Extended Reality (XR) further unify, enabling simultaneous communications between the physical and virtual worlds, fostering seamless marketing interactions. The incorporation AI (Rana *et al.* 2022; Nalbant and Aydin 2023) elevates these technologies by customizing content and forecasting consumer behaviour, while improvements in Internet connectivity guarantee that these immersive experiences are available in real-time. Emergence of 3D worlds (Wu *et al.* 2022; Xu 2023), propelled by platforms such as Roblox, VRChat, and the metaverse, enables brands to construct entire virtual environments for customer engagement. Moreover, Computer Vision empowers immersive technologies to comprehend and interpret the physical environment, boosting the authenticity and interactivity of these experiences. Computer-Aided Design (CAD) (Yang and Zhang 2023; Wang and Sun 2023) is vital in crafting intricate and realistic digital models, further narrowing the divide between reality and virtual experiences. Collectively, these trends are redefining how brands interact with customers, providing them with engaging, interactive, and personalized experiences.

Application of immersive technology in marketing: Immersive technology is transforming the marketing landscape by offering distinctive and interactive applications across diverse sectors. Telepresence (Han *et al.* 2020; Ying *et al.* 2022) facilitates brands in establishing real-time, remote interactions with consumers, thereby enhancing customer service and engagement. Virtual worlds and the metaverse present extensive environments for marketing endeavours, wherein brands can develop virtual storefronts (Zhang *et al.* 2023), organize events (Steriopoulos and Ooi 2023), and cultivate communities, analogous to platforms such as Second Life (Dwivedi *et al.* 2022) and renowned video games (Cheng *et al.* 2022; Sharma *et al.* 2024). Virtual try-on (Lavoye *et al.* 2023; Tawira and Ivanov 2023) functionalities in the retail sector permit customers to digitally experience products before purchase, thereby enriching the shopping experience. In the realm of tourism, immersive technologies provide virtual tours of destinations, assisting prospective travellers in their exploration and procedures to make decisions. Healthcare marketing employs VR to replicate medical procedures (Gerup *et al.* 2020; Dhar *et al.* 2021) for educational objectives, whereas in the field of education, immersive experiences enrich learning by delivering interactive and engaging content. Advertising has transformed sensory marketing (Petit 2019; Huang and Chung 2024), wherein immersive technologies engage multiple senses, thereby crafting memorable brand experiences. Social media and digital marketing incorporate AR filters and VR advertisements, rendering

content more engaging and shareable. Mobile marketing (Alesanco-Llorente *et al.* 2023; Qin *et al.* 2024) harnesses AR to devise interactive campaigns that are accessible via smartphone, thus consolidating the link connecting the digital and real worlds. These applications highlight the multifaceted and vital role of immersive technology in creating impactful marketing strategies.

Impact (individual and organisational): Immersive technologies are having a tremendous impact on the individual and organizational aspects of marketing by changing the way brands connect with customers. In e-commerce, immersive environments create a phygital experience (Pangarkar *et al.* 2022; Batat 2023) that seamlessly merges physical and digital interactions, increasing consumer satisfaction by providing more engaging and interactive purchase experiences. These technologies improve the customer experience by providing greater involvement, such as virtual try-ons, avatars, and personalized suggestions, which increases buy intent and brand loyalty (Bousba and Arya 2022; Arya *et al.* 2024). Gamification components boost consumers' mental imagery and engagement, making brand encounters more memorable and entertaining. Immersive technologies help businesses develop stronger brand relationships by promoting deeper consumer interaction and social presence. Data-driven insights enable personalization, which allows firms to tailor experiences to individual tastes. Overall, the use of immersive technologies in marketing improves the consumer experience while also driving organizational growth by developing new ways to engage and retain customers.

Adoption of immersive technologies in marketing: The application of immersive technology in marketing is an interdisciplinary phenomenon, combining knowledge from numerous sectors to develop creative customer engagement techniques. Psychology and sociology provide insights into customer behavior, enabling marketers to use immersive experiences to affect emotions and social relationships. Organizational management and business studies provide frameworks for incorporating these technologies into firm operations while assuring alignment with strategic objectives. Media studies and art are critical components in creating captivating and visually appealing material that resonates with people. Economics and mathematics offer analytical methods for evaluating the effects of immersive technology on consumption patterns and return on investment. Information systems and communication technologies serve as the foundation for technical infrastructure, enabling easy deployment and interaction across several platforms. In education, immersive technologies are utilized to improve learning and training programs, exhibiting their applicability beyond traditional marketing. These disciplines work together to promote the broad use of immersive technologies in marketing, making it an efficient instrument for developing customized, engaging, and effective marketing campaigns.

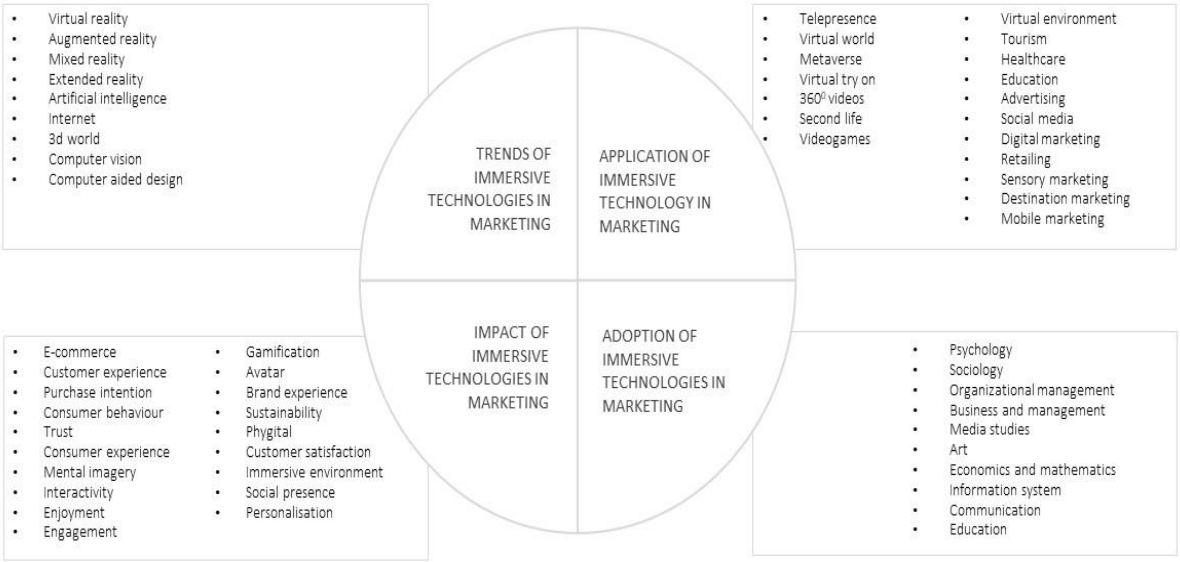


Figure 8: framework for immersive technologies in marketing

Source: Author's Own

4. Implications of the study

The evolution of immersive technologies has transformed marketing in many ways. Its ability to provide tele-presence helped various industries like tourism, healthcare, education, advertising, retailing, etc., to embed a sensory feeling and offer a multidimensional experience. Beyond these, immersive technologies are being used in the product design process, brand experience, event marketing, real estate (Sahray *et al.* 2023; Hajrasouliha 2024), sports, and entertainment marketing. Customers can use immersive technology to visualize and interact with prototypes

before they are made (Chu and Pan 2024). Brands are utilizing VR and AR to build immersive storytelling activities that enable consumers to interact with their company narrative even more dynamically and memorably (Wang 2024; Bogicevic *et al.* 2024). Companies are utilizing immersive technologies to host virtual trade exhibitions, product launches, and events (Steriopoulos and Ooi 2023; Behúnová *et al*. 2023). This helps firms to reach a larger audience by offering interactive product demonstrations and networking opportunities in a virtual environment.

Immersive technologies also help in building trust among the consumers by facilitating interaction, engagement, personalization, and enjoyment (Alimamy and Gnoth 2022; Leveau and Camus 2023; Song et al. 2024). Customized suggestions offered on applications and websites like Netflix, Amazon, and Google create trust in the consumer's mind, predicting intention for website-based shopping.

Studies (Chesney *et al.* 2017; Le *et al.* 2023) have shown that information-rich virtual worlds help in reducing trust deficit in e-commerce. Simulated environment provided by immersive technologies leads to a greater level of customer satisfaction and enhanced brand experiences. Gamified marketing activities helps in creating affective brand engagement which is leading to change in the consumers' brand preferences pattern (Bousba and Arya 2022; Wang 2024). These technologies help customers in building avatars and modifying the content as per their imagination, creating phygital experiences (Hsiao *et al.* 2019; Tawira and Ivanov 2023). Brands shown in VR games evoke feelings in players, which in turn influence their propensity to buy (van Berlo *et al.* 2021).

Adoption of Immersive technology as a marketing tool is based on theories of various areas such as psychology, information processing, sociology, business management, media, and communication. Authors (An *et al*. 2021; Lu *et al*. 2022; Chen *et al*. 2023; Wei 2023) have researched the effect of immersive technologies under the perspective of cognition, theory of planned behavior, motivation, stimulus organism response theory, and flow theory in the framework of tourism, healthcare, and destination marketing.

Authors have also researched the impact of immersive technologies from the perspective of social exchange theory, grounded theory in the Style scene and brands (Arya *et al.* 2024). Different researchers (Jing and Zhiming 2023; Tawira and Ivanov 2023) have studied the impact of immersive technologies under the purview of Sundar's theory of interactive media effects (TIME), transmedia storytelling theory in the context of purchase intention, customer satisfaction, consumer behavior, and their experience.

Also, authors (Chiu *et al.* 2021; Du *et al.* 2022; Sung *et al*. 2022) researched the impact of immersive technologies under the preview of theory of information system success model, technology acceptance model and information processing theory in the scenario of suggestions for marketers and retailers for evaluating consumers satisfaction and utilizing these to transforms marketing by creating efficient strategies. Analysis of the dataset also suggested some themes for future research, such as metaverse, avatar, virtual reality, immersion, and artificial intelligence. These are the most important themes for future research in immersive technologies.

CONCLUSION, FUTURE RESEARCH DIRECTIONS, AND LIMITATIONS:

Prior studies have been confined to immersive technologies (VR, MR, AR) and their limited application, like product demonstration, immersive experience, virtual try-ons, and interactive advertising. Thus, it would be interesting to explore the scope of immersive technologies in marketing in different industries like food and beverage, automotive, telecommunications, etc. This would help sectoral marketing managers to draft sector-wise strategies for the implementation of immersive technologies in marketing.

The study summarizes the past researches from the various stakeholder views i.e., developers, industry experts, consumers, etc. It would be worth examining how stakeholders with different roles view usage of immersive technology in marketing. This would also highlight the challenges and issues faced by the different stakeholders in implementing these technologies in marketing.

This bibliometric study analyses the transformation and development of immersive technologies in marketing. The research also highlighted the differential growth of documents about marketing via immersive technology in different countries. Since countries vary in their development, understanding, acceptance, and implementation of immersive technology in marketing due to technology level, capital investment, and human resources, it would be interesting to explore the growth of immersive technology from cross cross-country collaboration view. This would provide policymakers with in-depth recognition of obstacles and openings for the acceptance of immersive technology in marketing.
This study is based on the bibliometric evaluation of immersive technologies applied in marketing, with specified search terms on the theme. After the refinement process from Scopus databases in the past 30 years (1994–2024) final dataset of 956 documents was attained. If the researcher had chosen different keywords, the outcomes would have been different. Assimilation of available knowledge is a vital part of the bibliometric evaluation.

Despite these drawbacks, the objective of this study is to offer a thorough review of the research studies undertaken about immersive technologies in marketing. This study tries to present a complete scientific and thematic analysis to identify directions for future

researchers. This will help in the expansion and advancement of research on this topic.

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