

ROLE OF VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR) IN RESHAPING TOURISM MARKETING AND DESTINATION EXPERIENCE

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Abstract

The fast development of Virtual Reality (VR) and Augmented Reality (AR) has drastically changed marketing and destination experiences in tourism. The current review paper explores the effects of immersive technologies in transforming tourist experiences throughout the pre-trip stage, on-site stage, and post-trip stage. Based on recent empirical and conceptual research, the paper identifies the use of VR in providing relevant previews of destinations, improving the intention to travel, and sustaining a destination image, whereas AR enriches real-world orientation, narrative, and interpretation. The review also discusses the implementation of Artificial Intelligence to personalize and make smart recommendations. Results show that VR and AR enhance booking intentions, emotional engagement, satisfaction, and loyalty, and facilitate sustainable and accessible tourism. Nevertheless, some obstacles to this, including the high cost of implementation, lack of access to technology, ethical issues, and the digital divide are still there. On the whole, immersive technologies are considered as competitive-differentiation strategies and tools of experiential value creation in contemporary tourism marketing.

Keywords: *Tourism Industry, Marketing Strategies, Destination Previews, Artificial Intelligence, Tourism Marketing.*

I. INTRODUCTION

The current trend of information and communication technology has resulted in a massive digital transformation of the global tourism industry within the last decade. Virtual Reality (VR) and Augmented Reality (AR) are some of these innovations that proved to be powerful and can transform tourism marketing strategies and make destinations more enjoyable. These immersive technologies fill the imagination and reality divide, allowing the user to explore the destinations, engage with digital objects superimposed on the real world, and have an experience of the attraction before traveling choices are made [1]. Generally tourism marketing systematically depended on brochures, static websites, photographs and video promotion to draw potential traveling. Although these approaches are not outdated, the contemporary visitor is increasingly demanding interactive, personalized, and interesting contents that minimise the amount of uncertainty and maximise the confidence in their decisions [2]. VR enables the user to have full immersion in a 360-degree simulation of such places as hotels, heritage sites, museums, and natural locations to get a glimpse of what traveling would be like. AR, however, is used to add value to on-site experiences, adding digital content, to real-life environments, e.g., historical details, navigation instructions, cultural stories, using smartphones or wearable devices [3], [4].

VR and AR application in tourism marketing is in line with the changing consumer trends in digital dependence, experience-driven consumption, and authenticity. Prospective customers will be able to take a virtual tour of hotel rooms, view theme parks, or observe cultural events, and they will become more emotionally engaged and have more intentions to reserve [5]. To destination marketers and tourism organizations, the technologies present new storytelling channel that can help them to stand out in a very competitive market. In addition to that, VR and AR are also associated with the improvement of the destination experience through the encouragement of interactive learning, cultural interpretation, and accessibility [6]. AR is used in museums and heritage locations to recreate history or pre-historic buildings, and VR promotes virtual exploration of distant or delicate ecological regions, and is part of sustainable tourism. These technologies are also inclusive to people who cannot move around, reaching a broader scope of tourism services [7].

A. Virtual and augmented reality in tourism

Users may virtually explore places because to VR's ability to create completely immersive, simulated settings. However, AR enhances travel experiences without taking people out of

their settings by superimposing digital features on top of real-world surroundings. All of these technologies together are transforming how individuals find, organize, and enjoy travel [8]. By improving engagement, enhancing accessibility, and influencing travel choices, they provide real value. The advantages of virtual reality travel experiences are numerous, ranging from digitally seeing a location prior to making a reservation to visiting historical sites in real time. By combining the real and virtual worlds, technologies such as location-based apps, marker-based augmented reality, and Simultaneous Localization and Mapping software (SLAM) provide for more intelligent and user-friendly travel experiences [9].

1. Use cases of augmented and virtual reality in the travel industry

Before, during, and even in substitute of actual travel, augmented and virtual reality are revolutionizing the way people approach tourism. These technologies are being used by the industry for a variety of purposes, such as:

- **Discovering destinations from home:** Travelers may virtually explore places before making travel plans or as part of a virtual tourism experience via VR travel experiences. Users may experience the environment as it truly is, whether they are strolling through the streets of Rome or visiting the famous alleys of Kyoto. This lessens the uncertainty that comes with preparation while boosting enthusiasm and confidence [10].
- **Touring hotels and accommodations virtually:** Virtual hotel tours now allow visitors to enter hotels, resorts, and rental properties. This openness fosters trust and gives guests the ability to base their judgments on the hotel's services, design, and atmosphere. This improves satisfaction and establishes reasonable expectations [11].
- **Promoting destinations through immersive marketing:** Through the introduction of immersive campaigns, tourism boards and travel agencies are adopting virtual reality in travel marketing. Virtual and augmented reality techniques in tourism are increasing the persuasiveness, interactivity, and engagement of promotional content, from virtual travel expos to personalized trip previews [12].
- **Training travel staff using simulations:** VR is being used in the tourist industry by hotels, airlines, and tour operators to teach employees on emergency response, safety procedures, and customer service. Without the dangers and expenses of actual training settings, these simulations produce realistic scenarios [13].

- **Enriching on-ground experiences with AR:** When visitors arrive at their location, augmented reality in tourism may assist them in navigating cities, museums, and other attractions that offer interactive information and deep layers of historical context. Travelers may connect more deeply and meaningfully through AR-enabled retail experiences, gamified museum tours, or AR-powered city guides.
- **Improving accessibility and inclusivity:** Travel is more inclusive thanks to AR and VR in tourism, particularly for those with physical impairments. They may explore famous sites through virtual tours without having to deal with the difficulties of physically traversing the landscape. However, while discovering cultural assets, AR-powered gadgets can assist remove linguistic obstacles [14].
- **Promoting sustainable travel alternatives:** VR travel experiences provide environmentally beneficial options as the industry deals with the problems of overtourism and the growing carbon impact of tourism. Virtual eco-tours provide a sense of adventure while simultaneously lowering carbon footprints and increasing knowledge of sustainability [15].

2. Importance of VR and AR in travel industry

VR and AR enable more immersive and captivating travel and business experiences that go beyond conventional methods of consumer interaction. AR enables businesses to provide consumers with the opportunity to virtually evaluate products before making a purchase, resulting in a more informed decision and overall satisfaction [11]. Augmented reality, for example, has been used in contemporary marketing to display virtual goods on IKEA and to fit makeup in Sephora storefronts. In addition to encouraging brand loyalty, this interactive element makes the customer's experience more enjoyable [16]. Virtual reality is also offering travelers the chance to experience and visualize online glimpses of the destinations they are planning to visit when they enter new cities, hotels, and points of interest. This plans the path of travelers, improving their travel experiences. Because VR provides users with a preview of the city, their accommodations, and their modes of transportation, it also helps reduce travel anxiety [17].

Since many of the processes don't require a human to be on-site, businesses and travel agencies may employ both VR and AR to adopt cost-effective solutions. VR eliminates a number of issues, including the requirement for in-person travel, and enables meetings, conferences, training, and other events to take place virtually in a corporate setting [18].

These issues are relevant to corporate plans and even travel agencies, which is why businesses are increasingly using augmented and virtual reality. They also aid in cutting costs and enhancing management, training, and customer service effectiveness. The way that customers behave and how industries are perceived will thus alter as these changes occur throughout time [19].

B. Role of Virtual and augmented reality in tourist experiences

Virtual (VR) and Augmented Reality (AR) revolutionize destination experiences by creating immersive, and interactive journeys that span the entire travel cycle. VR enables, "try-before-you-buy" 360-degree virtual tours for inspiration, while AR enhances on-site visits with digital overlays, providing historical, navigation, and interactive, real-time information.

- **Immersive Technologies Transform Pre-Trip Planning:** Because immersive technologies provide virtual previews of places and activities, they have a big impact on the pre-trip preparation stage. Travelers may virtually explore possible places with VR and AR applications. They may make well-informed decisions and create anticipation for the next trip by seeing museums, famous sites, and natural marvels from the comfort of their homes [10].
- **Real-Time Navigation and Information Retrieval with AR:** By offering contextual information and real-time navigation, augmented reality improves the on-site experience. Tourists are aided in traversing unfamiliar destinations by AR applications. They enhance users' comprehension and pleasure of the surroundings by superimposing digital information on the real world, assisting them in locating historical context, sites of interest, and interactive guides [20].
- **Personalization and Recommendations by AI:** Through advice and support, artificial intelligence helps create smooth, customized travel experiences. To provide tailored suggestions for events, restaurants, and attractions, AI systems examine user preferences, past data, and real-time inputs. Instant support is provided by chatbots and virtual assistants, which address inquiries and resolve problems, thereby improving convenience and satisfaction [3].
- **Emotional Engagement and Enhanced Storytelling:** Immersion technologies improve narrative and evoke strong emotions in visitors. By immersing people in stories, reliving historical events, or allowing them to experience cultural customs directly, virtual reality and augmented reality foster emotional ties. A greater

understanding of the local culture and empathy are fostered by immersive storytelling [7].

- **Sustainable Tourism and Ethical Considerations:** When using immersive technology, ethical and sustainable tourism issues are crucial. Sustainable tourism practices necessitate convergence with immersive technologies. It is crucial to use these technologies ethically while protecting the environment and cultural heritage. Furthermore, ethical issues pertaining to data security and privacy need to be addressed. AI-powered applications also threaten the livelihoods of tour guides [10].
- **Positive Impact on Overall Satisfaction and Loyalty:** Overall visitor pleasure and loyalty are favorably impacted by the incorporation of immersive technology. Due to their improved experiences, tourists that use immersive technology express greater levels of enjoyment. They are more like to suggest travel locations or service providers with immersive features, which boosts customer loyalty and promotes goodwill [3].
- **Challenges in Accessibility and Adoption:** Although the study mostly supported the anticipated benefits of immersive technology for visitor experiences, certain surprising trends were worth mentioning. The difficulties with adoption and accessibility, especially for older people and those who have less access to expensive gadgets, emphasize how crucial it is to take the digital divide into account when putting immersive technology solutions into practice. These unforeseen difficulties highlight the necessity of more user-friendly and inclusive designs in order to guarantee wider adoption [15].

II. LITERATURE REVIEW

(Abid, 2025) [21] explores how virtual reality (VR) may revolutionize tourist marketing, highlighting how it can improve sustainability and efficiency. It seeks to close the gap between VR's theoretical developments and real-world tourist uses. Research shows that virtual reality (VR) improves travel decision-making, increases customer engagement, and creates immersive destination branding. Virtual tours, interactive advertising, and customized experiences are just a few examples of VR-driven marketing tactics that have greatly changed customer behavior and raised booking conversion rates. There are still issues, though, such obstacles to accessibility, expensive implementation, and possible differences between virtual and real-world experiences. By providing immersive previews, increasing consumer trust,

and bolstering sustainability initiatives, virtual reality (VR) offers tourist marketers a competitive edge. To fully realize VR's promise, policymakers and business executives must overcome infrastructure and ethical issues.

(Bansal & Pawar, 2025) [22] Augmented reality (AR) and virtual reality (VR) are revolutionizing how people travel and explore. Even before they go on their trip, travelers may now see more engaging and interactive previews of hotels, activities, and locations thanks to these technologies. While VR produces a fully simulated experience, like a walk through a castle or a boat trip on a lake, AR adds digital layers to the actual world, such as displaying historical details or instructions. These techniques are being used by tourism firms, such as upscale hotels like Udaipur's Taj Lake Palace, to draw visitors, boost reservations, and provide individualized experiences. They contribute to the accessibility, emotional resonance, and engagement of travel, particularly for those with financial or physical constraints. AR and VR are becoming crucial components of contemporary tourist promotion, with advantages for both travelers and businesses, even though cost and availability to technology continue to be obstacles.

(Mukherjee & Majumdar, 2025) [23] examines the many approaches to destination branding in connection to augmented reality. By analyzing a consumer's digital footprint, AR and VR have made it possible to create individualized travel experiences in response to the shifting market environment, increasing visitor pleasure and engagement. Through interactive platforms, 360-degree models, and virtual tours, it may provide tourists with a more engaging pre-travel experience. Travel-related businesses may employ AR and VR to draw tourists by providing a range of deals and experiences, which will boost their earnings. People who have mobility issues or are unable to travel great distances might find pilgrimage locations easier to visit thanks to augmented reality technologies. By exhibiting personalized offers and experiences based on travelers' preferences and offering engaging, aesthetically attractive material, travel agencies may use virtual reality into their business models to draw in more bookings and income. The goal of the project is to use augmented reality to investigate how tourists engage with their destinations.

(TEKIN, 2025) [24] The tourism sector has seen a revolution because to Augmented Reality (AR) technology, which combines digital material with the real world to improve visitor experiences. This essay examines augmented reality's function in tourism, its range of uses, and the advantages it provides to both travelers and companies. This study demonstrates how

AR is transforming cultural heritage, navigation, marketing, and customization in tourism by reviewing the body of current research and case studies. AR has a huge potential to improve accessibility, efficiency, and engagement in the travel industry. As the technology develops, it will play an ever-more-important role in determining future travel experiences.

(Yan & Du, 2025) [25] investigates how visitors' travel inclinations are affected by the use of virtual reality (VR) technology to recreate historic neighborhoods. It emphasizes the importance of imagination as a psychological activity, which is not well covered in the literature at the moment. Information richness, ease of use, and interaction authenticity are three important technical aspects of VR-based historical district reconstruction that are used in this study to develop and validate an integrated model that looks at how consumer cognitive processes (elaboration and imagination quality) affect learning benefits and field travel intention. The findings show that visitors' elaboration and imagination quality are much enhanced by the VR environment's information richness, usability, and authenticity of interaction. Learning advantages and field trip intention are positively impacted by these cognitive processes. Despite the fact that learning benefits do not directly influence field travel intention, this study emphasizes the essential mediation role of cognitive processes in the theoretical context of VR technology in tourist behavior research. In order to enhance the cognitive engagement of visitors and enhance their motivation to travel, the study provides empirical support for the digital preservation of historic districts and the design of VR experiences. In the context of VR development, it underscores the significance of adopting a comprehensive strategy that prioritizes interaction authenticity, interface usability, and content richness.

(Jayamani et al., 2024) [26] Immersion technologies like “virtual reality (VR), augmented reality (AR), and artificial intelligence (AI)” are becoming revolutionary tools as the travel industry continuously looks for new and creative methods to engage and fascinate tourists. These technologies' capacity to enhance visitor experiences is examined in this study. This paper explores how “VR, AR, and AI contribute” to immersive and customized travel experiences through a thorough examination of recent applications and case studies. Key findings show that although AI improves travelers' experiences through tailored suggestions, real-time language translation, and adaptive trip planning, VR and AR can offer virtual travel previews, historical context, and interactive storytelling. The enormous potential of these

technologies to transform the travel industry and make it more memorable, accessible, and engaging is highlighted by this study.

(Kieanwatana & Vongvit, 2024) [27] investigate the connections between virtual experiences, perceptions of the place, and intention to visit by looking into how VR influences passengers' decision-making. Regarding virtual experiences, destination images, and their influence on travel intention, the study suggests strong evidence for these specific correlations. This study demonstrates how virtual experiences and geographical pictures significantly boost travel intention, highlighting VR's potential as a powerful tool for destination marketing. Although additional research is required to fully understand the impact of safety and recognition, the results underscore the importance of sensory stimulation, novelty, excellent content, and easily accessible information in the creation of immersive virtual experiences, as well as the role of recognition in the promotion of a positive destination image.

(Ariza-colpas et al., 2023a) [28] This literature review's specific goal is to identify and comprehend the major advancements being made in the field of augmented reality application as a technological aid for visitor experiences. To address the numerous developments in augmented reality and tourism, a study based on the analogy of the Tree of Science and scientometric analysis was carried out. This analysis produced two pertinent views about the data. The first concentrated on the many scientometric data pertaining to nations, writers, academic institutions, or research or technology development facilities that now produce novel augmented reality-based tourist apps. The second examined the beginnings of the fundamental contributions of research and its historical development using an evolutionary analysis based on the Tree of Science. According to this study, the problem is still relevant now and has become even stronger in the wake of the epidemic, as several technology advancements have made it possible for individuals to visit tourist and cultural destinations without ever leaving their homes.

(Alyahya & Mclean, 2022) [29] in an effort to understand the impact of virtual reality (VR) on the perceptions of a destination and the impact of the various sensory information levels that are transmitted through VR experiences on the construction of mental images, perceptions of the destination, and intention to visit. We address this using a multi-study experimental design. Initially, in research 1, we show that VR contributes to improving preexisting customer perceptions of a travel destination. Second, we confirm that, when compared to less immersive technologies (such as websites), virtual reality (VR) has a more

beneficial impact on sentiments regarding a place. Third, study 2 demonstrates that the amount of sensory information included in VR experiences considerably affects the mental pictures produced, the sense of presence in the experience, attitudes about the place, and visitation intentions.

(Nair & Antony, 2018) [30] highlights how tour operators may expand their travel operations by using virtual reality as an innovative marketing strategy. A relatively new technology, virtual reality, or augmented reality, has been adopted by the majority of businesses to enhance the consumer experience. In an effort to provide their clients with a more accurate representation of the destination they intend to visit prior to their arrival, tour operators have implemented this technology. Many tour operators have seen an increase in sales as a result of tourists seeking additional services that ensure their choices are acceptable. The issue of virtual reality in tourism is as specialized as the technology itself, and it may be examined from a number of angles, including user-friendliness, feasibility, expense, and business support. With all the various options that travel agencies and tour operators may provide, the constantly evolving and rising tourism business has to be innovative to keep travelers interested. As a result, the study clarifies the advantages of using virtual reality in the travel industry and how useful it can be as a creative marketing tactic.

III. RESEARCH GAP

Despite the fact that existing literature demonstrates the potential transformative power of Virtual Reality (VR) and Augmented Reality (AR) in tourism marketing, there are still a number of gaps. Majority of the studies revolve around pre-travel virtual experience or isolated case study of AR use with little integrative research encompassing the whole tourist experience- ranging between inspiration to post-visit loyalty. The empirical data on the comparison between the VR and AR effectiveness among various demographic groups, especially older generations and technologically disadvantaged demographics, is lacking. Moreover, little focus has been given to the behavioral results in the long term, like repeat visitation and brand attachment. The moral issues, the digital divide, and socio-economic effects on the traditional tourism stakeholders (tour guides) also need an in-depth scholarly investigation within a single conceptual framework.

IV. OBJECTIVES

1. To study the virtual and augmented reality in tourism.
2. To study the application of augmented and virtual reality in the travel industry.
3. To study the importance of VR and AR in travel industry.
4. To study the role of Virtual and augmented reality in tourist experiences.
5. To study the various literature's perspective on virtual reality and augmented reality in tourism marketing and destination experience.

V. RESEARCH METHODOLOGY

The methodology of the review paper is qualitative and descriptive research, which is founded on the systematic analysis of secondary data. The peer-reviewed journal articles, conference papers, industry reports, and recent empirical studies published within the period between 2018 and 2025 were reviewed to get an insight into the changing role of VR and AR in marketing tourism and destination experience. The review is a synthesis of the findings concerning the pre-trip planning, immersive marketing strategies, on-site augmentation, personalisation with the help of AI and sustainability issues. The thematic and theoretical similarities, technological aspects (e.g., sensory immersion, authenticity of interaction), and behavioral consequences (e.g., travel intention and satisfaction) were compared to outline the similarities between them. The methodology focuses on thematic classification and critical analysis to establish trends, problems, gaps in research and future directions in immersive tourism technologies.

VI. DISCUSSION

The review shows that VR and AR are changing tourism marketing by replacing passive promotion with active involvement. VR enhances the image formation and the intention to travel through providing realistic previews, sensory experiences and emotional involvement. AR is used to improve on-site experiences by providing real-time navigation, reconstructing the past, gamification, and contextual storytelling. Research always demonstrates that immersive technologies have a positive impact on the attitude of tourists, their imagination and cognitive interest, which, by extension, influence the intention to visit and satisfaction. Customization of suggestions and smooth travel planning are also backed up by the use of AI. In addition, VR can contribute to sustainable tourism by providing a more environmentally friendly virtual solution of virtual heritage sites and by digitally preserving them. There are

however barriers to implementation in form of high costs, technology complexity, privacy concerns and access gaps that restrict large scale adoption. The digital divide and the authenticity gap between the virtual and real experiences is an essential issue that should be addressed through strategy.

VII. RECOMMENDATIONS

- Develop integrated VR and AR strategies covering the entire tourist journey (pre-trip, during-trip, post-trip).
- Invest in user-friendly and cost-effective immersive solutions to encourage broader adoption.
- Incorporate AI-driven personalization to enhance engagement and customer satisfaction.
- Ensure ethical data management and privacy protection in immersive applications.
- Design inclusive platforms to reduce the digital divide among elderly and rural populations.
- Promote sustainable tourism practices through virtual eco-tours and digital heritage preservation.
- Provide training programs for tourism stakeholders to effectively implement immersive technologies.
- Conduct longitudinal empirical studies to measure long-term impacts on loyalty and destination branding.

VIII. CONCLUSION

The review shows that Virtual Reality (VR) and Augmented Reality (AR) are transforming the concept of tourism marketing and destination experiences to one that is no longer aimed at using traditional promotional strategies but rather involves immersion, interaction, and customized engagement strategies. VR improves pre-travel decisions based on real simulation, image of destination, emotional attachment, and the intention to visit. AR augments it with on-site experiences, contextual information, navigation support, interactive narrative, and re-creation of cultures. It has been demonstrated empirically that immersive technologies positively affect tourist satisfaction, loyalty, and promotion by word of mouth. They also offer possibilities of sustaining tourism through giving virtual substitutes to physical tourism and enhancing digital conservation of heritage sites. Moreover, the

incorporation of AI-based customization also increases the convenience and interaction of the travelers. These benefits notwithstanding, the threats of cost, technological infrastructure, accessibility, authenticity gaps, and ethical issues should be mitigated to implement it in an inclusive and responsible manner. Digital divide elimination and creation of friendly systems are still vital to expand the adoption. Conclusively, neither VR nor AR is just a technological addition, but a strategic facilitator that is changing the tourism marketing paradigms and the experiences of destinations, making immersive innovation a foundation of the future digital tourism system.

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