

Implementation of Virtual Reality as an Innovative Strategy in Tourism Marketing

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The tourism sector has undergone significant structural transformation in the post-COVID-19 era, driven by accelerated digitalization, changing tourist behavior, and heightened concerns regarding safety and accessibility. Within this context, Virtual Reality (VR) has emerged as an innovative technological strategy in tourism marketing, offering immersive and interactive experiences that go beyond conventional promotional media. This study aims to examine the role, implementation models, and strategic implications of VR in tourism marketing, with particular emphasis on its application in developing destination contexts such as Indonesia. Using a qualitative literature-based research design, this study address VR applications in tourism promotion, destination development, and visitor experience. Data were analysed thematically following the interactive model of Miles, Huberman, and Saldaña, focusing on three key dimensions: objectives of VR implementation, development frameworks employed, and impacts on tourist perception and behavior. The findings indicate that VR positively influences destination image, perceived attractiveness, and visit intention by enhancing cognitive and affective engagement while reducing perceived risk and psychological distance. Structured development models such as the Multimedia Development Life Cycle (MDLC) and ADDIE are found to support the creation of effective and user-friendly VR tourism applications. Furthermore, VR demonstrates potential to support sustainable tourism by promoting lesser-known destinations, redistributing tourism demand, and reducing physical pressure on environmentally sensitive sites.

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BACKGROUND

Tourism is widely acknowledged as a strategic sector that plays a major role in economic growth, job creation, and both regional and national income. Before the COVID-19 pandemic, tourism represented a substantial segment of global GDP and employment. Although the pandemic caused exceptional interruption, the sector has exhibited robust recovery changes in the post-COVID-19 era. However, this recovery has diverged from pre-pandemic trends. Global and national tourism systems have experienced structural transformation, mainly driven by accelerated digitalization, evolving tourist behavior, and increased uncertainty regarding health, safety, and accessibility.¹

A considerable transformation in contemporary tourism is the expanding contribution of digital technologies in destination marketing and experience design. Tourists now depend more on

digital media to obtain information, assess alternatives, and mitigate perceived risks prior to making travel decisions. Post-2021 studies regularly indicate that travelers prefer immersive, interactive, and experience-oriented content as opposed to static images or textual descriptions.^{2,3} This trend has prompted tourism stakeholders to implement advanced technologies that more suitably fit pre-visit expectations with on-site experiences.

Virtual Reality (VR) has arisen as a highly promising tool in tourism marketing and communication. VR allows users to participate with computer-generated three-dimensional environments that simulate real destinations, enabling virtual exploration of attractions in an immersive way. In tourism, VR applications now surpass promotional visualization to include destination education, trip planning support, cultural interpretation, and alternative visitation options for destinations affected by environmental

vulnerability, overtourism, or restricted access.^{4,5}

Empirical studies from 2020 to 2024 offer significant proof that VR-based tourism experiences positively affect tourists' cognitive and affective responses. Immersive virtual experiences have been found to enhance destination image, increase perceived attractiveness, and strengthen visit intention by reducing uncertainty and psychological distance.⁶ Tussyadiah et al. (2022) demonstrated that presence and enjoyment within VR environments significantly influence tourists' affective connection, which subsequently shapes decision-making mechanisms.⁷ These results align with earlier national-level studies in Indonesia, which indicate that VR enables potential visitors to develop meaningful pre-visit impressions, thereby enhancing marketing effectiveness.^{8,9}

Beyond influencing tourist behavior, VR is becoming widely regarded as a strategic tool for promoting lesser-known

destinations and facilitating sustainable tourism development. Virtual tours enable destinations with limited promotional resources, such as local attractions, rural areas, and emerging tourism regions, to reach wider audiences without considerable investment in physical infrastructure. Recent academic work underscores that VR can redistribute tourism demand, alleviate physical pressure on sensitive sites, and offer inclusive access for individuals limited by distance, cost, or movement limitations.¹⁰ Case studies from Indonesia, including Dinoland Garut and tourism sites in Riau Province, demonstrate how VR applications can broaden promotional reach while boosting informational depth and interactivity.

Despite its increasing potential, the implementation of VR in tourism experiences numerous challenges. Research from 2021 to 2024 consistently identifies obstacles related to the technology framework, content quality, user digital skills, and organizational readiness (Guttentag, 2022; Beck et al., 2023). Additionally, scholars emphasize that VR cannot fully substitute for physical travel experiences, mainly due to limited social interaction and multisensory engagement. Tourist acceptance of VR as either a complementary or substitute experience is notably shaped by individual motivation, prior travel experience, and perceived usefulness.³

With these in mind, opportunities and constraints, additional academic research is necessary to comprehensively evaluate the role, benefits, and limitations of Virtual Reality as a tourism marketing strategy, especially in developing contexts such as Indonesia. An enhanced comprehension of how VR influences tourist perception, motivation, and decision-making is essential to confirm that technological adoption enhances sustainable destination development and long-term competitiveness.

METHOD

This study adopts a qualitative research approach, implementing a literature-based research design. A qualitative approach is especially appropriate for investigating developing phenomena such

as the application of Virtual Reality (VR) in tourism marketing, where theoretical frameworks are still evolving and empirical evidence remains fragmented across disciplines.^{11 12} By synthesizing existing scholarly work, this study objectives to develop a comprehensive understanding of how VR has been implemented and evaluated within the context of tourism development in Indonesia.

Data were collected through a structured literature review of peer-reviewed journal articles, conference proceedings, and academic research reports focusing on the implementation of VR in tourism marketing and destination development. The selection criteria included: (1) relevance to VR applications in tourism, (2) empirical or conceptual focus on marketing, visitor experience, or destination promotion, and (3) publication between 2020 and 2024 to ensure contemporary relevance. The reviewed studies comprise various research approaches, including qualitative case studies, system development research (e.g., VR tour applications), and purposeful analyses examining the role of immersive technologies in tourism promotion.

The literature-based design enables the combination of insights from tourism studies, information systems, and digital marketing research, as a result supporting interdisciplinary interpretation. This strategy is notably suitable for detecting trends, similarities, and divergences across multiple empirical contexts and implementation models.

Data analysis followed a thematic qualitative analysis procedure guided by the interactive model proposed by Miles, Huberman, and Saldaña (2014).¹³ The analysis involved three main stages: data reduction, data display, and conclusion drawing and verification. First, relevant information from each study was systematically extracted and reduced by centering on main objectives, methodological designs, technological frameworks, and reported outcomes of VR implementation. Second, the extracted data were organized through thematic categories to facilitate cross-study comparison and pattern identification. Finally, interpretative analysis was conducted to synthesize findings and

derive conceptual insights regarding the strategic role of VR in tourism marketing.

The analytical focus was structured around three principal dimensions. The first dimension examined the objectives of VR implementation in tourism, including promotional enhancement, visitor engagement, educational purposes, and sustainability considerations. The second dimension analysed the development methods and models applied in VR-based tourism applications, with particular attention to frameworks such as the Multimedia Development Life Cycle (MDLC) and the ADDIE instructional design model, which are commonly employed in digital tourism system development. The third dimension evaluated the reported impacts of VR on destination promotion and tourist behavior, including destination image formation, visit intention, participant interaction, and decision-making processes.

This thematic and comparative approach allows for analytical generalization rather than statistical inference, supporting the discovery of broader conceptual patterns and strategic implications (Yin, 2018).¹⁴ By comparing findings across multiple studies, this research provides an integrative perspective on the opportunities and limitations of VR as a tourism marketing strategy in developing destination contexts.

DISCUSSION

The findings of this study indicate that Virtual Reality (VR) has increasingly been adopted as an innovative and interactive medium in tourism promotion, reflecting broader trends in digital transformation within the tourism industry. VR enables destinations to move beyond usual, one-dimensional promotional tools toward immersive experiences that actively capture the interest of potential tourists. Consistent with the findings of Djamil and Sulistyo (2022), enjoyment and experiential pleasure emerge as essential elements of user acceptance of VR technology. This aligns with international studies demonstrating that hedonic value significantly influences tourists' attitudes toward immersive technologies and improves their willingness to use VR-

based tourism applications (Kim, Lee, & Jung, 2022; Loureiro, Guerreiro, & Ali, 2023).

Moreover, the ability of VR to present destinations through rich, elaborate visualization plays a central contribution to developing tourist intention. Prambayun et al. (2022) found that realistic virtual representations of destinations positively influence tourists' desire to visit, a finding that corresponds with wider empirical evidence suggesting that VR reduces perceived risk and psychological distance between tourists and destinations (Tussyadiah et al., 2022). By allowing potential visitors to explore destinations virtually prior to travel, VR facilitates cognitive and affective engagement that supports destination image formation and decision-making activities.

From a technological and system development perspective, studies examining VR tourism applications consistently point out the value of structured development frameworks. Research by Fatma et al. (2022) and Latifah and Ameliya (2025) demonstrates that development models such as the Multimedia Development Life Cycle (MDLC) and ADDIE are effective in producing VR tourism applications that are functional, user-friendly, and information-rich.^{15 16} The results are supported by broader digital tourism research, which highlights that usability, content quality, as well as system dependability are fundamental for boosting the effectiveness of immersive technologies (Beck, Rainoldi, & Egger, 2023). VR-based applications that successfully combine accurate information with immersive visual experiences are more likely to sustain user engagement and strengthen promotional outcomes.

Beyond marketing effectiveness, VR also exhibits significant potential in contributing to sustainable tourism objectives. Virtual tours can serve as alternative or complementary experiences that reduce physical visitation pressure on environmentally sensitive or culturally vulnerable destinations. Permatasari and Pratama (2022) highlight that VR can support destination conservation by offering meaningful experiences without direct environmental impact.¹⁷ This perspective is supported by Bec et al. (2021) and Sigala (2023), who argue that

immersive technologies can contribute to demand management strategies through redistributing tourist interest and mitigating overtourism. However, the extent to which VR can function as a substitute rather than a complement to physical travel is subject to debate.

Several studies caution that VR experiences are limited in their ability to replicate the full multisensory and social dimensions of on-site tourism. While VR can effectively convey visual and spatial information, it cannot fully reproduce embodied interactions, social encounters, and sensory stimuli such as smell or touch, which are essential to authentic tourism experiences (Guttentag, 2022). As a result, VR is more appropriately positioned as a pre-visit or complementary tool rather than a replacement for actual travel. Tourist acceptance of VR is therefore contingent on individual motivations, prior travel experience, and perceived usefulness, as demonstrated in recent technology acceptance studies within tourism contexts (Kim et al., 2022).

Another major obstacle identified across the literature concerns disparities in technological readiness and digital competence, particularly in local destinations and rural or village-based tourism areas. Deficient infrastructure, limited access to digital devices, and insufficient human resource capacity may hinder the long-term sustainability of VR implementation (Sigala, 2023). Without coordinated policy support, training programs, and sustained technological investment, VR initiatives risk becoming isolated pilot projects rather than integrated components of destination marketing strategies.

Taken together, these findings suggest that while VR represents a powerful method for augmenting tourism promotion, its successful integration requires a holistic and strategic approach. Effective VR adoption depends not only on technological capability but also on institutional readiness, participant coordination, and alignment with broader destination development goals. Long-term planning and cross-sector partnerships are therefore important to ensure that VR plays a substantial role in both tourism market strength and environmental responsibility.

CONCLUSION

Virtual Reality (VR) is a key technological innovation with great potential as an effective instrument for tourism marketing and destination development. Based on the synthesis of recent academic studies, this research demonstrates that VR is effective in enhancing destination attractiveness, expanding promotional reach, and positively influencing tourists' interest, motivation, and intention to visit. By delivering immersive and interactive representations of destinations, VR enables potential visitors to form well-informed and emotionally engaging pre-visit perceptions, consequently boosting destination image and marketing effectiveness.

Beyond its marketing function, VR also presents meaningful opportunities to support sustainable tourism development. Virtual tourism experiences can serve as complementary alternatives to physical visitation, particularly for environmentally sensitive or culturally fragile destinations. By enabling virtual exploration without direct physical impact, VR may contribute to reducing overtourism pressures and promoting more balanced destination management. However, the extent to which VR can mitigate environmental impacts depends on its integration within broader sustainability-oriented tourism policies and management strategies.

Despite these advantages, the successful implementation of VR in tourism remains contingent upon a number of key factors. Content quality, technological infrastructure, organizational readiness, and user acceptance play a decisive role in determining the efficacy and durability of VR initiatives. Importantly, VR should not be positioned as a substitute for actual travel experiences, as it remains limited in replicating the multisensory, social, and cultural dimensions of on-site tourism. Rather, VR is most effective when employed as a complementary tool that enhances pre-visit engagement, destination interpretation, and post-visit memory reinforcement.

Future research is therefore encouraged to move beyond conceptual and descriptive analyses by conducting empirical investigations into the causal effects of VR on tourists' decision-making

processes, satisfaction, and behavioral outcomes. Additionally, integrating VR with other immersive technologies, such as Augmented Reality (AR) and mixed reality, may further enhance levels of immersion, interactivity, and personalization in tourism experiences. Such research will be fundamental to furthering theoretical understanding and informing evidence-based strategies for the effective and sustainable adoption of immersive technologies in tourism marketing

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