

Sustainable Tourism in the Era of Immersive Technologies: Creative Strategies for Placemaking and Place Branding

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Abstract: The article proposes a critical and interdisciplinary approach that connects emerging technology to territorial regeneration, offering participants new perspectives on sustainable tourism, creativity, and belonging. It is especially relevant for those seeking to understand how cultural and digital practices can transform tourist destinations into spaces of innovation and resilience. The objective of this study is to examine the manner in which emerging technologies – namely, augmented reality (AR) and the metaverse are being utilized in a creative manner within the context of sustainable tourism. This analysis will elucidate the concepts of creative placemaking and place branding. The integration of these references contributes to the field of tourism by demonstrating the potential for emerging technologies to function as strategic, symbolic, and educational tools in the promotion of sustainable tourism. The method employed is a multiple case study (Yin, 2018), analysing four tourist destinations that use emerging technologies. The primary research question pertains to the application of these emerging technologies in the context of sustainable tourism, with a particular focus on the concepts of creative placemaking and place branding. The utilization of augmented reality (AR) in diverse contexts transpires within digital layers, thereby unveiling environmental and symbolic data concerning the destination. This phenomenon extends the conceptual scope of placemaking, which is traditionally understood as a tool for territorial awareness and activation. The proposal's distinguishing characteristic is its interdisciplinary and critical approach, which has the potential to broaden the existing discourse beyond the confines of technological innovation. By repositioning tourism as a cultural practice dedicated to ensuring resilient futures and the collaborative creation of tourist destinations, the proposal offers a novel perspective on the subject. The integration of emerging technologies in sustainable tourism signifies an opportunity to redefine the tourist experience, although it concomitantly poses challenges in its implementation. However, when combined with approaches such as creative placemaking and place branding, these technologies transform tourist destinations into spaces for learning, belonging, and regeneration, thereby promoting sustainable tourism practices. The cases examined demonstrate that creativity is as critical as technological innovation. Collectively, these factors possess the capacity to transform the future of tourism.

Keywords: Sustainable Tourism, Immersive Technologies, Creative Strategies, Placemaking, Place Branding, Territorial Brand.

1. Introduction

Sustainability has shifted from being an option in tourism to an imperative that cannot be ignored (Rasoolimanesh et al, 2020; Agarwal et al, 2024). In light of the mounting demand for authentic and responsible experiences, emerging technologies are emerging as allies in transforming the ways in which tourists interact with destinations (Almeida and Almeida, 2023). Technologies such as augmented reality (AR), virtual reality (VR), extended reality (XR), and metaverse have the potential to transcend mere entertainment, promoting environmental education, raising awareness, and building narratives associated with sustainable tourism. These technologies, however, extend beyond mere recreational devices, serving to foster a sense of belonging, nurture local identities, and promote more conscious practices (Almeida and Almeida, 2025). This debate is relevant as it examines the integration of emerging technologies with placemaking and place branding practices. This exploration contributes to ongoing discussions concerning innovation, experience design, and the development of resilient futures in the tourism sector. A systematic review was conducted to identify creative initiatives that leverage emerging technologies, specifically augmented reality (AR) and the metaverse, in the context of sustainable tourism. This study identified four such initiatives.

The objective of this study is to examine the manner in which emerging technologies – namely, augmented reality (AR) and the metaverse – are being utilized in a creative manner within the context of sustainable tourism. This analysis will elucidate the concepts of creative placemaking and place branding.

The integration of emerging technologies signifies a strategic opportunity to cultivate novel forms of interaction among tourists, destinations, and communities (Paladini and Saha, 2023; Agarwal et al,

2024; Kapoor and Jain, 2024). The present study is founded on three theoretical pillars: creative placemaking, which activates territories through art, culture, and creativity, thereby promoting belonging and community engagement (Markusen and Nicodemus, 2014; Zitcer, 2020; Loh et al, 2024); and place branding, which manages the symbolic image of places based on their uniqueness (Anholt, 2010). The integration of these references contributes to the field of tourism by demonstrating the potential for emerging technologies to function as strategic, symbolic, and educational tools in the promotion of sustainable tourism.

2. Literature Review

2.1 Sustainable Tourism

As posited by Agarwal et al (2024), Kapoor and Jain (2024) and Rasoolimanesh et al (2020), sustainable tourism is defined as a balance between economic development, environmental preservation, and cultural appreciation. A salient challenge in this endeavour is the education of tourists without compromising the integrity of the experience. Moreover, the concept encompasses the preservation of natural and cultural resources (Zolfaniet al, 2015; Dangi and Jamal, 2016), waste management, carbon mitigation, the local economy, community well-being, and social equity (Dangi and Jamal, 2016). A variety of stakeholders, public policies, regulatory frameworks, and ethical practices are also implicated (Rasoolimanesh et al, 2020). This phenomenon, characterized by its intricate nature, underscores the pivotal role those technological advancements play in shaping sustainable tourism practices (Paladini and Saha, 2023).

2.2 Creative Placemaking and Place Branding

The concept of placemaking entails the revitalization of a specific locale through the implementation of artistic, cultural, and creative elements. This approach fosters community engagement and fosters a sense of belonging among its inhabitants (Markusen and Nicodemus, 2014; Zitcer, 2020; Loh et al, 2024).

Place branding seeks to build, transmit and manage a symbolic image of a place. This process of affective transformation prioritizes the memory and diversity of a local (Anholt, 2010; Almeida, 2018). This approach transcends conventional marketing strategies by incorporating elements of the territory's identity, thereby fostering a sense of cultural and historical resonance.

Place making and place branding are different concepts. Place making is about creating functional and attractive places to meet the needs of local residents of a place while keeping the focus on sustainable practices. Place branding is how image and reputation is managed to attract external agents such as tourists. Place making is bottom up and participatory while place branding is usually top down and strategic from a marketing perspective. Lastly, place making is the on-the-ground experience and if it does not match with the place branding activities where the promise is created, then there will be no tangible benefit.

The extant literature on sustainable tourism places significant emphasis on environmental preservation and the education of tourists. Research conducted by Almeida and Almeida (2025), for instance, suggests that immersive technologies have the potential to augment creative practices, including placemaking and place branding, through the integration of cultural and digital narratives. This integration has the potential to contribute to the strengthening of territorial identity and the creation of more participatory and conscious experiences.

3. Methodology

The method employed is a multiple case study (Yin, 2018), analysing four tourist destinations that use emerging technologies. The primary research question pertains to the application of these emerging technologies in the context of sustainable tourism, with a particular focus on the concepts of creative placemaking and place branding.

The research is of a documental nature, involving the analysis of destinations that utilize technology in their sustainable tourism strategies, with the selection criteria being:

- The creativity of the technological application is a subject that merits close examination.
- The initiative’s environmental and social contributions must be assessed.
- The present study will examine the role of narrative engagement in shaping tourist awareness.
- The establishment of a connection with the tourist destination, as well as its cultural and environmental characteristics, is of paramount importance.

The four cases were selected to illustrate geographical diversity and varying degrees of innovation in the use of immersive digital technologies. Additionally, the cases highlight practices that can be replicated in diverse tourism contexts.

The information was derived from a variety of documents pertaining to the initiatives in the destinations.

A content analysis was conducted to identify categories and patterns in the experiences analysed (Bardin, 2011). The following categories and patterns were identified:

- The objective is to raise tourists’ awareness of sustainable practices.
- The promotion of a sense of belonging to the local community is of paramount importance.
- The importance of recognizing and appreciating local cultures, as well as the necessity of fortifying territorial identity, cannot be overstated.
- The following is a list of environmental education strategies.

A comparative analysis was also conducted to identify convergences and distinctions between the initiatives, focusing on highlighting good practices and their potential for replication in other destinations. To achieve this objective, the information was systematically organized into analytical tables, such as Table 1, which describes the initiatives in each destination. Despite the qualitative nature of the research, the validity of the conclusions was assessed by comparing the observed good practices

4. Results and Discussions

A systematic review was conducted to identify creative initiatives that leverage emerging technologies, specifically augmented reality (AR) and the metaverse, in the context of sustainable tourism. This study identified four such initiatives (see Table 1). The aforementioned experiences illustrate the manner in which the convergence of technology, creativity, and sustainability can serve to reinforce the symbolic construction of places, engage visitors, and strengthen the bond between tourists and destinations.

Table 1: Case initiatives

Initiative	Place	Description	Focus on Sustainable Tourism	Level of Creativity	Creative Initiative	Engaged Narrative	Creative Tourism and Place Branding	Link
WWF Free Rivers	Global	AR app that shows the impacts of dams on rivers and communities	Environmental education on river preservation	High	Immersive and interactive visual experience in AR	Stories of river ecosystems and local populations	Builds empathy with environmental causes and gives visibility to the geopolitics of water	link
Coral AR Education	Australia (Great Barrier Reef)	Using AR to show damage to reefs and ways to preserve them	Education about vulnerable marine ecosystems	High	Interface that overlays images of corals with and without degradation	Stories about the impact of tourism on reefs	Raises awareness of responsible tourism and reinforces Australia’s environmental branding	link

Initiative	Place	Description	Focus on Sustainable Tourism	Level of Creativity	Creative Initiative	Engaged Narrative	Creative Tourism and Place Branding	Link
Urban Panels with AR	Paris and London	Screens showing real-time air pollution with AR visualization	Encouraging the use of clean transport	Medium-high	Urban campaigns that mix art, data and AR	Narrative of the city as a living organism in transformation	Engages tourists with urban environmental causes, reinforcing the city's green image	link
Amazon in AR in metaverse	Brazil	AR experience in schools, museums and tourist centers showing deforestation. Metaverse Combined with AR to Show the Impacts of Amazon Destruction.	Environmental education and forest conservation	Very high	Comparative visualization of preserved vs deforested forest	Emotional connection with the forest and indigenous peoples	Reinforces the role of the Amazon as a global symbolic and environmental asset	link

Among the initiatives examined (Table 1), the Amazon AR case demonstrated the most significant symbolic impact on global place branding, while Coral AR Education stood out for its effectiveness in environmental education. This comparison underscores the significance of creativity and cultural narrative in engaging tourists, equating them with technological sophistication.

It was highlighted that technologies enrich the tourist experience, while operating as devices for environmental education, social awareness, and identity affirmation, in dialogue with the concept of creative placemaking (Richards and Duif, 2018). The potential of place branding was highlighted (Anholt, 2010), demonstrating how digital narratives reinforce the identity attributes of the destination, thereby transforming it into a symbolic platform for engagement. The Amazônia in AR initiative, for instance, positions the forest as a symbolic global asset, promoting the Amazônia brand as the guardian of planetary biodiversity – a perspective aligned with the concept of territorial branding with purpose (Almeida, 2018).

From a technological perspective, Guttentag (2010) and Dieck and Jung (2017) have emphasized the potential of augmented reality (AR) to create immersive experiences, contributing to experiential and educational tourism.

The utilization of augmented reality (AR) in diverse contexts transpires within digital layers, thereby unveiling environmental and symbolic data concerning the destination. This phenomenon extends the conceptual scope of placemaking, which is traditionally understood as a tool for territorial awareness and activation. Therefore, the results of this study reinforce the notion that the creative application of emerging technologies in sustainable tourism contributes directly to the debates proposed by the ICTR'2026 on creative placemaking, place branding, and building resilient futures in global tourism. The following recommendations are provided:

Recommendations: (1) The integration of immersive technologies into sustainable tourism is a potential outcome of public policies. (2) The development of local narratives that articulate identity, culture, and the environment is another potential outcome. (3) Furthermore, the promotion of partnerships between governments, businesses, and communities to create meaningful and scalable experiences is a third potential outcome.

The proposal's distinguishing characteristic is its interdisciplinary and critical approach, which has the potential to broaden the existing discourse beyond the confines of technological innovation. By repositioning tourism as a cultural practice dedicated to ensuring resilient futures and the collaborative creation of tourist destinations, the proposal offers a novel perspective on the subject.

5. Conclusion

The integration of emerging technologies in sustainable tourism signifies an opportunity to redefine the tourist experience, although it concomitantly poses challenges in its implementation. However, when combined with approaches such as creative placemaking and place branding, these technologies transform tourist destinations into spaces for learning, belonging, and regeneration, thereby promoting sustainable tourism practices. The cases examined demonstrate that creativity is as critical as technological innovation. Collectively, these factors possess the capacity to transform the future of tourism.

The limitation is attributed to the modest number of cases that were analysed, thereby creating opportunities for further research. Furthermore, it is advised that interviews with a variety of stakeholders be incorporated to enhance comprehension of the ramifications that emerging technologies are having on various sectors.

Ethics Declaration

We state that ethical clearance was not required for this research.

AI Declaration

AI tools were not used the creation of this paper.

References

- Agarwal, R. et al (2024) "Four decades of sustainable tourism research: Trends and future research directions", *International Journal of Tourism Research*, Vol. 26, No. 2, e2643.
- Almeida, G.G.F. (2018) *Marca territorial como produto cultural no âmbito do Desenvolvimento Regional*, Doctoral Thesis in Regional Development, Universidade de Santa Cruz do Sul.
- Almeida, G.G.F. and Almeida, P. (2025) "Metaverse as a strategy for global tourism destinations with territorial brand: Digital tools for sustainability in tourism", *Proceedings of the 6th MTCO25*, Istanbul, Turquia.
- Dangi, T.B. and Jamal, T. (2016) "An Integrated Approach to Sustainable Community-Based Tourism", *Sustainability*, Vol. 8, No. 5, pp. 475.
- Dieck, M.C. and Jung, T. (2017) "Value of augmented reality at cultural heritage sites: A stakeholder approach", *Journal of Destination Marketing and Management*, Vol. 6, No. 2, pp. 110–117.
- Guttentag, D.A. (2010) "Virtual reality: Applications and implications for tourism", *Tourism Management*, Vol. 31, No. 5, pp. 637–651.
- Kapoor, D. and Jain, A. (2024) "Sustainable tourism and its future research directions: a bibliometric analysis of twenty-five years of research", *Tourism Review*, Vol. 79, No. 3, pp. 541–567.
- Loh, C.G. et al (2024) "Placemaking in practice: Municipal arts and cultural plans" approaches to placemaking and creative placemaking", *Journal of Planning Education and Research*, Vol. 44, No. 3, pp. 1679–1690.
- Markusen, A. and Nicodemus, A.G. (2014) "Creative placemaking: How to do it well", *Community Development Investment Review*, Vol. 2, pp. 35–42.
- Paladini, S. and Saha, K. (2023) "The quest for sustainability in lower orbit: Conceptual models for space tourism", *International Journal of Tourism Research*, Vol. 25, No. 3, pp. 333–349.
- Rasoolimanesh, S.M., et al (2020) "A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals", *Journal of Sustainable Tourism*, Vol. 31, No. 7, pp. 1497–1517.
- Richards, G. and Duif, L. (2018) *Small Cities with Big Dreams: Creative Placemaking and Branding Strategies*, Routledge, New York.
- Zitcer, A. (2020) "Making up creative placemaking", *Journal of Planning Education and Research*, Vol. 40, No. 3, pp. 278–288.
- Zolfani, S.H., et al (2015) "Sustainable tourism: a comprehensive literature review on frameworks and applications", *Economic Research-Ekonomska Istraživanja*, Vol. 28, No. 1, pp. 1–30.