

# Potential for regional tourism promotion through integration of nostalgia tourism and metaverse technology:

## A review of previous research and future prospects

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### Abstract

*Japan is facing the challenges of population decline and aging, and particularly the excessive concentration of people in the Tokyo metropolitan area, which has led to depopulation and economic stagnation in surrounding towns. To revitalize local economies, tourism has become an important strategy, especially with the recent rise of nostalgia tourism. For example, Bungotakada City has successfully attracted visitors through projects such as the “Showa Town.” This study examines how the increasingly widespread use of virtual reality (VR) and augmented reality (AR) technology can more effectively promote nostalgia tourism destinations to enhance tourists’ travel intentions. Before travel, tourists can use VR headsets to preview the scenery and culture of nostalgic travel destinations, sparking their interest and boosting their willingness to visit. During the travel, AR technology can enrich the travel experience, accompanying visitors throughout their nostalgic travel and providing detailed insights into the destination’s historical context. After travel, implementing membership programs can encourage repeat visits. These promotional measures for the three stages of nostalgia tourism aim to enhance the willingness of domestic and international visitors to experience nostalgic travel in Japan, disseminate traditional Japanese culture, and revitalize regional tourism. In this paper, we proposed a conceptual framework to conduct empirical research through reviews of previous research and interviews with local tourism bureaus.*

### Keywords

*nostalgia tourism, metaverse, regional tourism promotion, travel intention, conceptual framework*

### 1. Introduction

Japan is facing the challenges of a declining population and an aging society. By 2024, the population aged 65 and over reached 36.25 million, accounting for 29.3 % of the total population, which is the highest in history and the highest in the world [Ministry of Internal Affairs and Communications, 2024]. In addition, most of the population is concentrated in metropolitan areas, which has led to economic stagnation and population decline in towns, especially those surrounding metropolitan areas. For example, approximately 30 % of the national population lives in the Tokyo metropolitan area [Japan Cabinet Office, 2021], which has led to a decline in the population of surrounding towns while promoting the development of other industries, such as tourism [Japan Tourism Statistics, 2025].

Tourism can be an important driving force for regional revitalization. In this study, we focus specifically on nostalgia tourism. Nostalgia tourism currently takes various forms and continues to evolve in the future [Amano, 2017]. After the economic bubble burst [Saxonhouse et al., 2003], many people who lived through that era still fondly remember the lifestyle of that time [Prayag et al., 2023]. Therefore, nostalgia tourism has been revived in some places, such as Bungotakada City, which has been very successful in promoting nostalgia tourism in Ja-

pan [Hashinaga et al., 2020]. Marketing nostalgia tourism also represents a promising avenue for future development [Dam et al., 2024]. Promoting nostalgia tourism using technology has become increasingly feasible with the advent of the metaverse.

Research on the use of virtual reality (VR) technology for tourism promotion began as early as the 1990s [Feiner et al., 1997]. With the development of VR technology and the widespread use of VR devices in recent years, the threshold for experiencing VR contents in everyday life has become increasingly lower [Fortune Business Insights, 2025]. Additionally, nostalgia tourism has many positive effects on the elderly [Patterson et al., 2025]. Nostalgia tourism takes many forms, such as the example in Bungotakada City. This study emphasizes a form that utilizes metaverse technologies such as VR and augmented reality (AR) to promote nostalgic content before travel and enhance travelers’ understanding of nostalgic architecture and merchandise during their travel.

After reviewing the relevant literature, conducting several field investigations, and interviewing local tourism organizations, this study aims to verify whether the use of VR technology for promotional purposes increases travelers’ willingness to visit a destination. Based on the findings from the literature review and field research, this paper proposes a conceptual framework for promoting regional nostalgia tourism.

### 2. Literature review

This study is designed with the purpose of revitalizing regional tourism in Japan by utilizing nostalgia tourism resource-

es through the development of nostalgia experiences. Nostalgia tourism, which emphasizes nostalgic cultural elements and local traditions, is increasingly recognized as a strategy to attract a wider demographic of tourists and strengthen local cultural identity. By combining these resources with emerging digital technologies, tourism destinations can create innovative products that appeal to both domestic and international markets.

### 2.1 Nostalgia tourism research

Nostalgic tourism emphasizes memory and emotion in shaping travelers' motivations. Nostalgia-themed marketing and advertising evoke familiar sights, sounds, and stories, creating comfort and emotional connection. By highlighting historical environments, traditional lifestyles, or childhood memories, destinations can attract both older visitors who have lived those experiences and younger visitors who are curious about them [Su *et al.*, 2024]. This approach enhances destination identity, strengthens visitor loyalty, and supports sustainable tourism by linking emotional storytelling with cultural heritage [Lin *et al.*, 2020].

In Japan, Bungotakada City's "Showa Town" recreates the mid-20th century Showa era through restored streets, period goods, and themed events [Hashinaga *et al.*, 2020]. It appeals to older visitors who are reliving personal memories and to younger visitors exploring history, thereby broadening the tourism base. The project strengthens cultural identity, stimulates the local economy, and demonstrates how nostalgia tourism can enhance destination branding and support sustainable development.

### 2.2 VR/AR tourism research

Virtual reality (VR) and augmented reality (AR) technologies have become increasingly important in shaping modern tourism experiences, offering opportunities to enhance engagement across all stages of travel [Sato *et al.*, 2016]. What distinguishes nostalgia tourism from other traditional forms of travel is its explicit focus on evoking and reconstructing memories of the past. Unlike general tourism, where the preservation of historical landscapes or objects is not always central, nostalgia tourism often involves destinations where original scenes, buildings, or cultural artifacts have been partially altered or lost over time. In this context, VR and AR technologies are uniquely valuable for promoting nostalgia tourism across different stages of travel. Before travel, VR can recreate historical landscapes or cultural settings that no longer fully exist, allowing potential travelers to vividly experience the "lost past" and develop emotional anticipation. During travel, AR can layer historical imagery, narratives, and reconstructions onto present-day environments, helping visitors situate themselves within the temporal context of nostalgia and enhancing their immersion in the past. After travel, both VR and AR can reproduce key nostalgic scenes that travelers experienced, enabling them to relive and deepen their emotional connection to the destination.

Before traveling, VR can function as a powerful marketing and promotional tool. The use of VR technology in this study refers to employing VR headsets such as VR goggles to provide travelers with immersive experience, thereby promoting nostalgia tourism. Therefore, the lower the barrier to entry for VR experiences, particularly in terms of equipment cost, the better. On this foundation, we should strive to ensure an optimal experience for travelers. By providing potential tourists with immersive, interactive previews of destinations, VR technology allows them to explore key attractions virtually, understand the cultural or historical context, and develop a strong emotional connection before even arriving. This not only stimulates interest but also increases the likelihood of travel planning and booking, effectively transforming curiosity into action.

During the actual travel experience, AR technology can significantly enrich on-site engagement, particularly in nostalgia tourism destinations. AR overlays digital information, historical reconstructions, or interactive multimedia onto real-world environments, allowing visitors to experience the past in a more vivid and tangible way [Yoon, 2023]. For example, in heritage streets or restored nostalgia areas, AR can provide contextual information, immersive storytelling, or gamified interactions that deepen understanding and enjoyment. This combination of education and entertainment strengthens the memorability of the experience, creating emotional resonance with the destination.

After travel, VR contents and related digital strategies can reinforce tourists' emotional attachment and encourage repeat visits. VR experiences can revisit highlights of the before-travel, showcase newly developed attractions, or provide interactive storytelling that extends the journey beyond physical presence [Aurindo *et al.*, 2016]. Such after-travel engagement helps sustain interest, strengthens destination loyalty, and supports long-term tourism development by keeping the destination in the minds of travelers.

Overall, the integration of VR and AR across before-travel, during-travel, and after-travel stages demonstrates their potential to enhance emotional engagement, satisfaction, and revisit intentions. By combining immersive technology with creative marketing and experiential design, tourism destinations can create richer, more personalized, and memorable experiences that appeal to diverse audiences and promote sustainable tourism growth.

### 2.3 Social context

Nostalgia tourism has also been successfully implemented in China. In China, Beijing's Heping Guoju, Changsha's Super Wenheyong, and Chongqing's "Reunion 1980" recreate past decades through nostalgia streets, traditional goods, and cultural experiences [China News, 2021]. These cases show that nostalgia tourism can attract diverse visitors and enhance local cultural identity globally.

Japan's tourism development is strongly influenced by both government policies and social trends. The Japan Tourism

Agency actively promotes the flexible use of historical and cultural resources to develop nostalgia tourism cities [Japan National Tourism Organization, 2025]. By leveraging heritage sites, traditional architecture, and local cultural practices, the government aims to attract both domestic and international visitors, enhancing regional economic growth and cultural preservation.

Demographic changes in Japan also shape tourism patterns. The increasing proportion of elderly citizens has led to a rise in senior tourism, as older travelers often seek leisure activities that are culturally enriching, safe, and accessible [Japan Tourism Statistics, 2025]. This trend has encouraged the development of tourism services and destinations tailored to the needs of older visitors, including nostalgia-oriented experiences that resonate with their personal and collective memories.

At the same time, Japan's mature tourism industry could attract a substantial number of overseas tourists. International visitors are drawn not only to iconic modern attractions but also to destinations that offer historical charm and immersive cultural experiences. The combination of domestic policy support, demographic shifts, and strong international demand provides fertile ground for the growth of nostalgia tourism. By integrating historical resources, accommodating an aging population, and catering to global visitors, Japan needs to demonstrate how social and policy contexts can shape the development of specialized tourism experiences.

### **3. Potential case study sites in Japan**

To gain a deeper understanding of nostalgia tourism development in Japan, we conducted interviews and field investigations in Atami City and Gotemba City in Shizuoka Prefecture. Atami City, a renowned hot-spring destination, is actively exploring strategies to enhance its tourism appeal and attract a wider audience. According to interviews with local tourism organizations, the city is currently focusing on promoting the commercial streets surrounding the hot-springs, as well as organizing nighttime firework activities. These efforts aim to diversify the visitor experience beyond traditional daytime spa visits, creating a more dynamic and engaging tourism environment that can cater to both domestic and international visitors.

Beyond these initiatives, Atami City is exploring the potential of integrating historical buildings into tourism offerings. Many structures in the city possess significant architectural and cultural heritage, and there is interest in developing them as key elements of nostalgia tourism. By transforming these older buildings into focal points of nostalgic experiences, the city can provide visitors with a tangible connection to the past while maintaining contemporary convenience.

Therefore, there are possibilities of the application of modern technologies such as VR and AR to promote long-established hot-springs. VR contents could allow potential visitors to preview the historical ambiance of the hot-springs, while AR could enrich on-site experiences with interactive storytelling, historical reconstructions, or guided tours, enhancing both the

educational and entertainment value of the attractions.

In Gotemba City, located near the iconic Mount Fuji, our field investigations focused on the utilization of historical and cultural resources to develop nostalgia tourism. The area has a rich historical background, including Fuji-no-makigari, a large-scale hunting event arranged by Shogun Minamoto no Yoritomo in 1193, and is home to numerous shrines and other traditional structures. By integrating these sites into tourism planning, Gotemba City has the potential to create attractions that combine cultural heritage with modern leisure activities, offering visitors a layered and immersive experience. For instance, historical narratives related to Fuji hunting can be presented alongside contemporary shopping or sightseeing opportunities, allowing tourists to engage with both past and present within the same visit.

These initiatives in Atami City and Gotemba City exemplify a strategic approach to the fusion of traditional and modern tourism resources. In Atami City, the combination of long-established hot-springs, historical buildings, and potential VR/AR applications provides a multi-dimensional visitor experience that appeals to a variety of age groups, particularly the increasing number of senior tourists in Japan. In Gotemba City, the careful integration of historical hunting grounds, shrines, and cultural landmarks with popular modern attractions demonstrates how nostalgia and contemporary leisure can coexist, creating tourism products that are both educational and entertaining. This approach not only attracts diverse visitor segments but also reinforces local cultural identity and promotes the preservation of historical resources.

Furthermore, both cases highlight the importance of flexible and innovative tourism planning in response to Japan's evolving social and demographic context. With a growing elderly population, there is an increasing demand for tourism experiences that are culturally meaningful, safe, and accessible. At the same time, Japan's mature tourism industry continues to attract significant numbers of overseas visitors, many of whom are interested in experiencing the country's unique history and heritage. By leveraging nostalgia and historical resources while incorporating modern technologies and interactive elements, cities like Atami City and Gotemba City can meet these diverse needs and enhance the overall quality of the tourism experience.

Overall, the initiatives in Atami City and Gotemba City illustrate how Japanese cities can strategically integrate traditional heritage, modern leisure activities, and innovative technologies to create distinctive nostalgia tourism experiences. By carefully balancing cultural preservation with contemporary development, these destinations provide models for sustainable tourism growth that not only attract visitors but also strengthen regional identity, foster community pride, and enhance the long-term economic and cultural value of historical resources. The fusion of traditional and contemporary tourism resources represents a forward-looking approach that aligns with global trends in experiential tourism and offers valuable insights into

other regions seeking to capitalize on their cultural and historical assets.

#### 4. Conceptual framework

##### 4.1 Presentation of the conceptual model

We propose a conceptual model integrating the tourism behavior process and the role of VR/AR technologies to explore the potential of combining nostalgia tourism with metaverse technologies for regional tourism promotion. The tourism behavior process is divided into three stages: before-travel, during-travel, and after-travel. At each stage, VR and AR technologies are expected to influence visitor experiences in different ways.

Before traveling, VR contents can provide immersive previews of destinations and evoke nostalgia. By connecting travelers emotionally with memories of the past or cultural heritage, VR experiences can enhance travel motivation and intention to visit. During the travel, AR can overlay digital information onto historical landscapes or cultural resources, increasing visitors' sense of presence and engagement. Particularly in nostalgia tourism, interactive AR experiences can provide both educational and entertainment value, creating memorable and emotionally resonant experiences.

After travel, VR and AR can be used to encourage revisit intention. For example, VR content can recreate highlights of previous visits, while AR-based interactions can introduce new experiences, reinforce emotional attachment and sustain long-term loyalty.

Overall, the proposed conceptual model illustrates a causal structure as shown in Figure 1 below.

That is, VR/AR technologies provide emotional and experiential value that directly shapes visitor motivation at each stage of the tourism process. This model theoretically clarifies the strategic potential of technology utilization in promoting regional tourism by integrating nostalgia tourism experiences with immersive digital technologies.

##### 4.2 Positioning of nostalgia tourism

Nostalgia tourism represents a novel approach to regional tourism promotion, distinct from conventional strategies. Nostalgia tourism initiatives, such as those implemented in Atami City and Gotemba City, typically focus on leveraging physical cultural and historical resources, promoting commercial streets, organizing events, and revitalizing historical sites to attract visitors. While these measures are effective in enhancing nostalgia tourism appeal, they often rely on on-site experi-

ences and may have limitations in reaching wider audiences or providing fully immersive engagement.

In contrast, nostalgia tourism leverages VR, AR, and other immersive digital technologies to expand the scope and depth of tourism experiences beyond the physical constraints of destinations. By creating virtual environments or augmenting real-world sites with interactive digital content, nostalgia tourism can evoke nostalgia, enhance presence, and provide personalized experiences that traditional methods cannot fully achieve. For example, visitors who cannot travel to Atami City or Gotemba City in person can still engage with nostalgia streets, historical landmarks, and cultural narratives through VR previews, while on-site AR applications can enrich the experience for those physically present.

The integration of metaverse technologies into existing initiatives demonstrates both complementarity and innovation. In Atami City, VR and AR could enhance the promotion of hot-springs and historical buildings, offering previews before-travel or interactive on-site engagement. In Gotemba City, digital augmentation can highlight historical sites, such as shrines or Fuji hunting grounds, blending cultural heritage with contemporary shopping and leisure activities. This integration enables tourism planners to combine traditional resources with modern technology, increasing accessibility, engagement, and revisit intention.

Finally, nostalgia tourism occupies a unique position as a hybrid strategy that complements conventional tourism promotion. By bridging physical and digital experiences, it expands visitor reach, deepens emotional and cognitive engagement, and offers a forward-looking model for sustainable regional tourism development.

##### 4.3 Indicators and measurability: Theoretical proposal

To evaluate the effectiveness of integrating nostalgia tourism with metaverse technologies, it is essential to propose measurable indicators that capture both psychological and physiological responses of tourists. Psychological indicators can include visitor satisfaction, nostalgia-related emotions, and travel motivation. These measures allow researchers and practitioners to assess immersive experiences, such as VR previews or AR-enhanced on-site interactions, influence emotional engagement and the intention to visit or revisit a destination. Standardized surveys and questionnaires can be employed to quantify these subjective experiences, providing comparable data across different tourism sites or visitor segments.

In addition to psychological metrics, physiological indica-

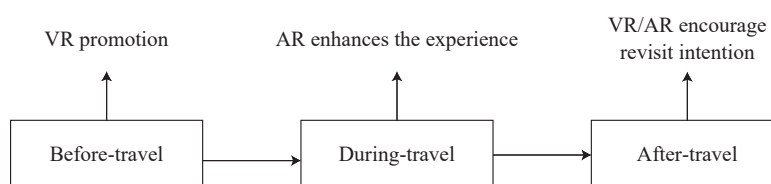


Figure 1: Promotion framework

tors offer an objective approach to assessing visitor responses. Techniques such as near-infrared spectroscopy (NIRS) can capture real-time changes in cognitive load, emotional arousal, and stress levels during immersive tourism experiences [Doi et al., 2013]. While the practical application of these methods may be more relevant for subsequent research stages, their theoretical inclusion highlights the potential for a multi-dimensional evaluation framework that combines subjective and objective data.

By integrating psychological and physiological indicators, researchers can develop a comprehensive understanding of how metaverse technologies impact tourist experiences at each stage of the tourism process—before-travel, during-travel, and after-travel. This dual-level measurement framework not only facilitates rigorous academic assessment but also provides actionable insights for tourism planners seeking to optimize nostalgia tourism offerings and technology integration. In doing so, it establishes a foundation for evidence-based strategies to enhance visitor satisfaction, emotional engagement, and long-term loyalty.

## 5. Future directions

Based on the conceptual framework and theoretical proposals presented in this study, several avenues for future research can be identified to further explore the potential of combining nostalgia tourism with metaverse technologies. First, empirical research is necessary to validate the proposed conceptual model. Small-scale experiments and qualitative investigations can provide preliminary evidence regarding the effects of VR and AR on nostalgia, immersion, travel motivation, and revisit intention. Such studies would allow for refinement of measurement indicators and methodological approaches.

Second, future studies should target diverse visitor segments, including elderly tourists and international travelers, who may have differing expectations, technological familiarity, and cultural perspectives. Understanding how these groups respond to immersive nostalgia tourism experiences is essential for designing inclusive and effective interventions.

Third, the integration of emerging technologies such as AI-guided tours and multi-sensory VR presents promising opportunities. Combining these innovations with AR on-site experiences could enhance personalization, deepen immersion, and offer novel interactive elements that further strengthen visitor engagement. Research examining the synergistic effects of these technologies would provide valuable insights for both theory and practice.

Finally, policy implications should be considered. Insights from empirical research can inform strategic decisions regarding tourism digital transformation (DX), regional revitalization, and nostalgia tourism initiatives. By aligning technology-driven nostalgia tourism with broader policy goals, destinations can not only enhance visitor satisfaction but also contribute to sustainable local economic development, cultural preservation, and public well-being.

In conclusion, future research should adopt an interdisciplinary approach, combining tourism studies, cognitive and affective science, and digital technology development. Through rigorous empirical validation, technological innovation, and policy-oriented investigation, the integration of nostalgia tourism and metaverse technologies holds the potential to create emotionally rich, immersive, and sustainable tourism experiences.

## 6. Conclusion

We conceptually linked nostalgia tourism with regional tourism, providing a structured framework to understand how VR and AR technologies can enhance nostalgia-driven tourism experiences. By referencing practical initiatives in Atami City and Gotemba City, we demonstrated the applicability of the framework in real-world settings, showing how historical and cultural resources can be integrated with immersive technologies. The main contribution lies in proposing a theoretical model that informs both academic research and practical tourism planning. Future empirical studies are needed to validate the framework and accumulate actionable knowledge that supports tourism promotion while addressing evolving social needs.

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