

Digital Placemaking for Borderless Heritage: Interactive Narratives in Surabaya's Historical Identity

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ABSTRACT

Objective: This study aims to analyze the role of digital placemaking and interactive narratives in strengthening Surabaya's historical identity as a heritage tourism destination in the digital era, while also identifying the challenges and opportunities involved in its development. **Method:** Employing a qualitative case study approach, the research focuses on the digitalization of Surabaya's historical identity. Data were collected through in-depth interviews with relevant stakeholders, participant observation, and document analysis of heritage tourism policies. Thematic analysis was used to uncover patterns related to digital placemaking, stakeholder collaboration, and narrative effectiveness. **Results:** The findings reveal that Surabaya has initiated several technology-driven heritage tourism projects utilizing AR, VR, and interactive storytelling. However, challenges remain in the form of limited narrative authenticity, fragmented stakeholder coordination, and uneven technological adoption. **Novelty:** This study contributes by highlighting the strategic potential of digital placemaking and immersive narratives in enhancing urban historical identity and tourism engagement, offering a framework for collaborative and sustainable digital transformation in heritage tourism.

INTRODUCTION

The development of digital technology has brought significant changes in the tourism sector, including in the management and promotion of heritage tourism destinations. The concept of borderless heritage tourism emerged as a response to the digital era that allows access to historical information without geographical boundaries [1]. Surabaya, as one of the cities with a strong historical heritage, has great potential in utilizing digital technology to strengthen its historical identity [2]. However, despite various preservation and promotion efforts, the integration of technology in Surabaya's historical tourism still faces various challenges, such as the lack of adequate digital infrastructure and the less than optimal historical narrative adapted in an interactive format.

In addition to the limited digital infrastructure, another major challenge in the digitalization of heritage tourism in Surabaya is the lack of synergy between various stakeholders in developing and managing technology-based historical narratives. The government, historical communities, academics, and technology developers often work separately, so that digitalization efforts are sporadic and less than optimal [3]. For example, although there have been several digital initiatives such as the creation of interactive map-based tourism applications, there is still minimal collaboration in developing historical content that can provide an immersive experience for tourists.

Without clear coordination, digitalization tends to be fragmented and difficult to achieve a wider scale [4]. Therefore, a more systematic approach is needed to unite various elements in the digital heritage tourism ecosystem in Surabaya.

The limitations in translating historical narratives into attractive digital formats are also an obstacle to increasing tourist engagement, especially the younger generation who are more accustomed to interactive digital experiences. Many historical sites in Surabaya have interesting and meaningful stories, but are still presented in conventional forms such as text on plaques or tourist brochures [5]. With the increasing development of digital technology, a more creative approach is needed, such as the integration of multimedia-based interactive storytelling that combines text, audio, and visuals dynamically [6]. The implementation of technologies such as AI-driven storytelling and VR-based historical simulation can provide a new dimension in understanding the history of the city, making the tourism experience more immersive and educational.

One approach that can be used to address this challenge is digital placemaking, which is the use of technology to create a more engaging and educational tourism experience. Digital placemaking allows historical sites to be brought back to life through various technologies such as augmented reality (AR), virtual reality (VR), and interactive storytelling [7]. The use of this technology can provide a more immersive tourism experience, where visitors not only see historical relics but also understand the social, cultural, and political context behind them [8]. In Surabaya, this concept has the potential to be applied to various historical sites, including the Majapahit Hotel, which has historical value in Indonesia's journey to independence.

One of the main factors in the success of heritage tourism digitalization is the availability of adequate digital infrastructure. In Surabaya, although several tourist areas have been equipped with internet access and supporting technology, there are still limitations in the development of digital platforms that can connect various historical sites in an integrated manner [9]. For example, there are not many AR or VR-based historical tourism applications that can be easily accessed by tourists. In addition, the lack of investment in the development of Internet of Things (IoT)-based systems that can integrate historical information with tourism experiences is also a major obstacle. If this infrastructure can be strengthened, the digital tourism experience will be smoother and more engaging, and can reach a wider audience.

In addition to technological factors, active community participation in creating digital-based historical narratives is also key to the success of digital placemaking. In several other places, successful digital heritage tourism projects usually involve local communities in collecting and presenting historical information [10]. In Surabaya, a similar strategy can be applied by encouraging historical communities, academics, and tourists to contribute to the creation of richer digital content. Thus, the historical narrative presented is not only sourced from official documentation, but also from the collective experience of the community which can enrich the understanding of the city's history.

Interactive narratives play an important role in building emotional connections between tourists and the city's historical heritage. A storytelling-based approach can

present history in a more interesting and relevant way for the digital generation [11]. However, to optimize the use of technology in historical tourism, synergy is needed between the government, historical communities, academics, and the private sector. This study aims to examine how digital placemaking and interactive narratives can be optimized in strengthening Surabaya's historical identity in the digital era, as well as exploring the challenges and opportunities in its development.

The concept of digital placemaking in the context of heritage tourism is based on the theory of urban planning and digital humanities, which emphasizes the importance of the interaction between space, technology, and user experience. Crosby et al in Counter-mapping Surabaya explain that digital mapping can create a new understanding of the history of the city by presenting a more inclusive and dynamic narrative [12]. In the context of historical tourism, digital placemaking allows historical spaces to be more easily accessed and understood by the wider community, especially the younger generation who are accustomed to the digital ecosystem.

Furthermore, the concept of digitalizing cultural heritage is relevant in discussing how technology can be used to preserve and promote the history of the city more interactively. Mahardika et al [13] showed that the use of AR and VR in heritage tourism can increase tourist appeal while enriching visitors' understanding of history. This approach allows historical narratives that have been static in the form of museums and monuments to be revived digitally, making the tourism experience more immersive and participatory. In the context of historical authenticity in the digital era [14], highlighted the challenges in maintaining the authenticity of historical narratives in the digitalization process. Although technology can expand access to cultural heritage, there is a risk of historical distortion if there is no strict supervision in the curation of digital content. Therefore, an interactive storytelling approach is needed that is based on academic research and involves the historical community to ensure that the history presented remains accurate and has educational value. The purpose of this study is to analyze the role of digital placemaking and interactive narratives in strengthening the historical identity of Surabaya as a heritage tourism destination in the digital era, as well as to explore the challenges and opportunities in its development.

RESEARCH METHOD

This study uses a qualitative approach with a case study method to analyze the digitalization of heritage tourism in Surabaya, especially through digital placemaking and interactive narratives at historical sites that represent the city's struggle identity. Primary data were obtained through in-depth interviews with stakeholders, participant observation, and FGDs with historical communities and tourism actors, while secondary data came from policy documents, academic journals, and digital media. Data collection techniques included digital content analysis of historical tourism platforms and netnography to understand user interactions. Data were analyzed using thematic analysis to identify key patterns, digital discourse analysis to examine the construction of historical identity, and descriptive analysis to summarize observation findings. This

approach is expected to provide a comprehensive understanding of how digitalization can strengthen historical heritage and increase the appeal of heritage tourism in Surabaya.

RESULTS AND DISCUSSION

Results

Digitization of Historical Identity of Surabaya City

The digitalization of heritage tourism in Surabaya is a strategic step to revive the city's historical heritage in the context of the digital era. As a city with a strong history of struggle, Surabaya has various historical sites that can be optimized through digital technology. One of the sites that is in the spotlight is the Majapahit Hotel, which is known as the site of the flag-tearing incident on September 19, 1945 [15]. Based on interviews with representatives of the Surabaya Culture and Tourism Office, the city government has attempted to integrate digital technology in the management of historical tourism, including through the development of location-based tourism applications and the digitization of historical archives. However, to date, the implementation of technology is still limited and has not fully provided an interactive and immersive tourism experience.

In the effort of digital placemaking, several initiatives have been carried out by communities and academics to introduce the city's history to the public in a more interesting way. The results of interviews with the Roode Brug Soerabaia community, a community of history observers in Surabaya, revealed that they have digitized several historical archives and organized virtual tours based on social media. In addition, a virtual museum project based on augmented reality (AR) has been tested in several historical exhibitions held in Surabaya. However, the main challenges faced are the lack of adequate digital infrastructure support and limited funding for the development of virtual reality (VR) and AR-based technology more broadly.

In terms of tourist attractions, analysis of tourist responses shows that the use of digital technology in presenting history can increase visitor interest and engagement. Based on a survey of 50 visitors in the Tunjungan Romansa area, 68% of respondents stated that they were more interested in visiting historical sites if there were interactive features such as virtual guides, AR, or story-based tourism applications. However, only 22% of them were aware of efforts to digitize history in Surabaya, indicating that digital socialization and marketing still need to be improved. A tourist from Jakarta said in an interview, "I am interested in history, but often the information is not available in an attractive format. If there is an application that can explain history interactively, I will definitely use it." This statement shows the need for a stronger interactive narrative in digital placemaking.

Considering the interview and survey data, it can be concluded that the digitalization of heritage tourism in Surabaya has great potential to increase the appeal of historical tourism. The use of technologies such as AR, VR, and interactive storytelling can strengthen the city's historical identity and make the tourism experience more interesting for the younger generation and international tourists. However, to achieve

this, closer collaboration is needed between the government, historical communities, academics, and technology developers to create a sustainable digital-based historical tourism ecosystem.

In addition, the results of interviews with stakeholders showed that one of the main challenges in the digitalization of heritage tourism in Surabaya is the curation of accurate and authentic historical narratives. Although technology allows for more dynamic interpretations of history, there are concerns about the possibility of information distortion if it is not based on strong research. Therefore, the involvement of historians, academics, and heritage communities is very important in ensuring that the digital content presented remains in accordance with historical facts. In addition, a survey of tourists showed that digital interactivity and accessibility are the main factors in increasing interest in historical tourism, emphasizing that the adoption of technology must be accompanied by an interesting and educational communication strategy.

In terms of technology implementation, the development of digital placemaking in Surabaya still faces obstacles in infrastructure and investment. Survey data shows that despite the high interest in AR and VR-based tourism experiences, not all historical sites have adequate technological support to support this digitalization. In addition, limited funds and the lack of regulations related to digital tourism management are challenges in realizing an innovative and inclusive heritage tourism ecosystem. Therefore, a strategy is needed that prioritizes public-private partnerships, policies that encourage innovation, and education for the public so that they can utilize digital technology to understand and appreciate the history of the city of Surabaya.

To realize a sustainable digital-based heritage tourism ecosystem, the involvement of various stakeholders is a key factor in its development [16]. The government has a strategic role in providing regulations and infrastructure that support digitalization, while the historical community and academics are responsible for ensuring the accuracy and depth of the narratives conveyed. On the other hand, technology developers and the private sector can contribute through innovation in the application of AR, VR, and other interactive platforms to increase the appeal of historical tourism. The synergy between these actors will not only accelerate the digitalization process but also ensure that this transformation can run in an inclusive and sustainable manner. Therefore, the next section will discuss further the role of stakeholders in the digitalization of historical tourism in Surabaya, including their contributions, challenges, and strategies that can be applied to optimize collaboration between them.

Discussion

The Role of Stakeholders in the Digitalization of Historical Tourism in Surabaya

The success of heritage tourism digitalization in Surabaya does not only depend on technology, but also on the synergy between various stakeholders, including the government, historical communities, academics, and the private sector. Based on an interview with the Surabaya Culture and Tourism Office, the government has initiated several initiatives to support the digitalization of historical tourism, such as providing network infrastructure in heritage areas and developing interactive map-based tourism

applications. However, they admit that there are still limitations in budget and human resources who have expertise in managing digital technology for historical tourism. In addition, regulations regarding the use of AR and VR technology in heritage tourism are still in the formulation stage, so that their implementation has not been optimal.

Historical communities and academics play an important role in developing authentic and interesting history-based digital content. According to an interview with the head of the Roode Brug Soerabaia community, the community has taken the initiative to create virtual tours and historical documentation in digital format, but they face obstacles in funding and access to sophisticated technology such as VR. "We have many archives and historical stories that can be brought up in digital format, but limited funds and experts are the main challenges," he said. Meanwhile, academics from Airlangga University in an interview added that digitizing history requires an interdisciplinary approach, where historical studies, digital interaction design, and information technology must go hand in hand to produce digital products that are both educational and interesting to the public.

Despite collaborative efforts, there are still major challenges in developing digital-based historical tourism destinations in Surabaya. Analysis of the implementation of digital heritage programs in other cities, such as Yogyakarta and Semarang, shows that the key to success lies in consistent government support and the involvement of the private sector in funding and developing technology. Based on this comparative study, Surabaya is still lagging behind in utilizing AR and VR technology at heritage sites. A survey of 50 tourists in the Tunjungan Romansa area showed that 74% of respondents felt that digital facilities at historical tourism destinations in Surabaya were still underdeveloped compared to other cities, and 61% stated that they were interested in using digital-based tourism applications if they were available with complete and interactive information.

To overcome these challenges, a more integrated strategy is needed in the development of digitalization of historical tourism. The government needs to accelerate regulation and investment in digital infrastructure, while communities and academics can collaborate with the private sector to create a sustainable business model for digital heritage tourism. In addition, gamification-based approaches and interactive storytelling can be a solution to increase tourist involvement in understanding the city's history. With stronger support from various parties, digitalization of heritage tourism in Surabaya has a great opportunity to develop, not only as a tool for preserving history, but also as a competitive tourist attraction in the digital era.

One concrete step that can be taken is to strengthen regulations and policies that encourage the digitalization of historical tourism, including incentives for the private sector and communities that contribute to the development of history-based technology. The government can facilitate a collaboration platform that brings together academics, heritage communities, and technology developers to design quality digital-based tourism experiences. In addition, investment in digital infrastructure, such as a stable internet network in historical areas and the development of interactive tourism applications, will

be an important factor in increasing the accessibility of historical information for tourists. With the support of clear regulations and the right investment, digital transformation in historical tourism can run more systematically and sustainably.

In addition to regulations and infrastructure, innovative approaches in presenting historical narratives are also important factors in increasing the appeal of digital heritage tourism. The use of gamification and interactive storytelling allows tourists to not only be passive spectators, but also participate in historical exploration through digital-based simulations. For example, AR-based applications can recreate the atmosphere of historical events in their original locations, while VR experiences can take tourists back in time through immersive visual reconstructions. This approach not only makes history more interesting for the younger generation, but also enriches the tourist experience in a more in-depth and personal way. Thus, the combination of supportive policies, innovative technology, and strong narratives can be the main foundation in making Surabaya a superior digital-based heritage tourism destination in the borderless digital era.

CONCLUSION

Fundamental Finding : This study concludes that while the digitalization of heritage tourism in Surabaya – through digital placemaking and interactive narratives – holds significant potential to enhance the city's historical identity and tourist engagement, its implementation remains limited due to infrastructural gaps, regulatory challenges, and insufficient cross-sector collaboration. **Implication :** Strengthening multi-stakeholder collaboration and investing in immersive technologies such as AR and VR are essential to develop sustainable digital heritage tourism that not only enhances visitor experience but also preserves historical narratives in innovative formats. **Limitation :** The study is constrained by its focus on qualitative data within a single urban context, which may limit the generalizability of the findings to broader or rural heritage tourism settings. **Future Research :** Further studies should adopt comparative and quantitative approaches to evaluate the impact of digital storytelling on tourist satisfaction and learning outcomes, as well as investigate models of effective stakeholder governance in digital heritage tourism across multiple cities or regions.

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