

UTILIZATION OF ARTIFICIAL INTELLIGENCE IN TOURISM MARKETING MANAGEMENT OF PALEMBANG CITY TO ENHANCE DESTINATION COMPETITIVENESS

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Abstract

This study examines the utilization of Artificial Intelligence (AI) in tourism marketing management to enhance the competitiveness of Palembang City as a tourist destination. The main issue addressed is the lack of innovation in marketing strategies, which have not been adaptive to technological advancements. The objective of this research is to identify how AI implementation can optimize destination promotion and attract more tourists. The research was conducted in Palembang City using a qualitative descriptive method. Data collection techniques included interviews, observations, and document analysis involving tourism stakeholders. The results of the study indicate that the use of AI-based tools such as chatbots, virtual tours, and data analytics can improve marketing effectiveness and tourist engagement. The conclusion emphasizes the importance of integrating AI strategies into tourism marketing to create more personalized, efficient, and engaging promotional efforts.

Keywords: Artificial Intelligence, Tourism Marketing, Destination Competitiveness

Abstrak

Penelitian ini mengkaji pemanfaatan Artificial Intelligence (AI) dalam manajemen pemasaran pariwisata untuk meningkatkan daya saing Kota Palembang sebagai destinasi wisata. Permasalahan utama adalah kurangnya inovasi dalam strategi pemasaran yang belum adaptif terhadap perkembangan teknologi. Tujuan penelitian ini adalah untuk mengidentifikasi bagaimana penerapan AI dapat mengoptimalkan promosi destinasi dan menarik lebih banyak wisatawan. Penelitian dilakukan di Kota Palembang dengan metode deskriptif kualitatif. Teknik pengumpulan data meliputi wawancara, observasi, dan analisis dokumen yang melibatkan para pemangku kepentingan pariwisata. Hasil penelitian menunjukkan bahwa penggunaan alat berbasis AI seperti chatbot, tur virtual, dan analitik data mampu meningkatkan efektivitas pemasaran dan keterlibatan wisatawan. Kesimpulan menekankan pentingnya strategi integrasi AI dalam pemasaran pariwisata guna menciptakan promosi yang lebih personal, efisien, dan menarik.

Kata kunci: Artificial Intelligence, Pemasaran Pariwisata, Daya Saing Destinasi

Introduction

Tourism continues to be a strategic sector that significantly contributes to regional economic growth, cultural preservation, and international visibility, especially for cities endowed with historical, cultural, and natural richness. In recent years, the global tourism landscape has undergone rapid and profound transformation driven by digital disruption, shifting visitor expectations, and increasing competition among destinations. Tourists are no longer satisfied with conventional

marketing materials; instead, they now demand rapid information access, deeper personalization, interactive engagement, and seamless digital experiences. Against this backdrop, cities must adapt by adopting technology-based marketing strategies that are not only efficient but also aligned with contemporary digital behaviors. Palembang City, with its cultural legacy rooted in the history of the Sriwijaya Kingdom and its iconic landmarks such as the Musi River and Jembatan Ampera, has enormous potential to strengthen its position in the competitive tourism market. However, the growing demand for digital innovation places pressure on the regional tourism authority to adopt more adaptive and technology-driven approaches, particularly those supported by Artificial Intelligence (AI).

The relationship between tourism and digital transformation is now inseparable. Since the COVID-19 pandemic reshaped global mobility and visitor expectations, technological integration has become a cornerstone of resilient tourism recovery. Visitors today rely extensively on digital tools such as online travel platforms, social media, digital reviews, real-time maps, virtual tours, and AI-supported travel applications to gather information and make decisions. Research by Li et al. (2021) demonstrates that AI-powered platforms are capable of analyzing users' digital footprints and preferences to generate personalized recommendations, thereby shaping consumer decision-making more effectively than traditional promotional methods. Personalization, as highlighted in their findings, is a key element that strengthens emotional engagement between tourists and destinations. Meanwhile, Gursoy et al. (2022) emphasize the transformative role of AI and machine learning in the broader tourism and hospitality sector, particularly in enhancing service efficiency, customer satisfaction, and operational quality. AI is now used to automate customer service interactions, assist in resource planning, predict market trends, and generate more accurate visitor insights—all of which contribute to improved tourism management.

In the Indonesian context, digital transformation in the tourism sector is progressing but unevenly distributed. Major tourism destinations such as Bali, Jakarta, Bandung, and Yogyakarta have more rapidly adopted digital innovations, including AI-supported marketing analytics, chatbot systems, intelligent wayfinding solutions, and immersive virtual tour technologies. However, secondary cities including those with strong historical identity, such as Palembang are still at an early stage of integrating advanced digital tools. Research conducted by Setiawan and Widodo (2021) indicates that although many regional tourism boards have begun implementing digital marketing activities, these initiatives are often limited to social media promotion, basic website management, and conventional digital advertising. AI technologies such as predictive analytics, recommendation engines, automated visitor support systems, and sentiment analysis tools are still rarely adopted at the local government level. This technological gap is further emphasized by findings from Putri et al.

(2023), who note that while AI-based innovations like chatbots and virtual tours have gained traction in metropolitan cities, these innovations are scarcely found in secondary urban areas such as Palembang. The disparity suggests that many regional tourism offices still lack the infrastructure, technical capacity, and strategic frameworks necessary to integrate AI into their tourism marketing systems.

The limited adoption of AI in regional tourism governance reveals a significant gap in both literature and practice. Previous studies predominantly focus on the private sector—hotels, airlines, travel agencies—or examine AI usage from the consumer perspective, particularly in areas such as travel planning, information search, and booking behavior. As a result, there is insufficient understanding of how local governments, especially in non-metropolitan cities, conceptualize, utilize, and institutionalize AI technologies within their tourism marketing practices. The novelty of this study emerges from its focus on the institutional use of AI in tourism marketing by a regional tourism authority. Unlike prior research, which often looks at market behavior or general digital marketing trends, this study positions AI as a policy and management instrument. Through this perspective, the research explores not only how AI can support marketing functions but also how it can influence planning processes, stakeholder coordination, and governance structures within the tourism sector of Palembang City.

The opportunities for AI integration in Palembang's tourism marketing are significant and multifaceted. AI has the potential to enhance promotional strategies by enabling more precise and personalized targeting. With the ability to analyze vast amounts of visitor data—including demographic profiles, travel histories, online behavior, and social media interactions—AI can help the Tourism Office identify specific market segments and tailor content according to the preferences of cultural tourists, culinary tourists, festival-goers, and niche travelers. AI-powered chatbots and virtual assistants could also serve as frontline information providers, able to offer instant answers to inquiries regarding tourism attractions, lodging options, transportation routes, event schedules, and cultural activities. By operating 24/7 through websites or social media platforms, these intelligent agents can increase visitor engagement and reduce dependency on manual administrative processes.

Another major opportunity lies in AI-supported predictive analytics, which can help the Tourism Office anticipate visitor flows during peak seasons, holidays, and major events. With predictive models, authorities can better plan promotional campaigns, allocate resources, and design crowd management strategies. AI also enables sentiment analysis, extracting insights from online reviews, travel blogs, influencer content, and social media comments. These analyses help identify public perceptions of Palembang's tourism services, detect emerging trends or issues, and provide actionable recommendations to improve service delivery. In addition, AI-based tools can enrich

tourism events by incorporating real-time monitoring systems, visitor tracking applications, and digital gamification features that enhance audience interaction during events such as Festival Sriwijaya or Musi Triboatton. These opportunities illustrate that AI has the capacity to reshape Palembang's tourism landscape through increased innovation, efficiency, and responsiveness.

Despite these potentials, adopting AI in Palembang's tourism governance remains a formidable challenge. One of the fundamental barriers is the limited digital literacy among public sector employees. Effective implementation of AI requires staff members who understand data analytics, system integration, and digital communication—skills that may not yet be common within local government institutions. Financial constraints also pose significant obstacles. The development, maintenance, and operationalization of AI systems require substantial investment, while local tourism agencies often operate on restricted budgets. This financial challenge is compounded by infrastructural limitations, as robust AI systems rely on reliable internet connectivity, updated hardware, integrated databases, and secure digital environments.

Another challenge lies in data availability and governance. AI systems require standardized, comprehensive, and well-managed datasets, yet many regional tourism offices collect data in fragmented, inconsistent ways. Without proper data governance, AI cannot operate effectively. Furthermore, policies governing digital transformation, data privacy, ethical AI use, and cybersecurity must be carefully considered, especially in a government context. Cultural resistance to technological change is also frequently observed in public institutions, where routine administrative procedures and traditional working styles may hinder acceptance of disruptive innovations like AI. The lack of awareness among tourism stakeholders—including hotels, travel agencies, and cultural communities—regarding the benefits of AI further complicates collaborative implementation.

Integrating AI into tourism marketing is not solely a technical process; it also involves a network of actors whose roles and interactions determine the success of digital transformation. The Palembang City Tourism Office serves as the central institution responsible for planning tourism strategies, coordinating stakeholders, and ensuring effective promotional execution. Local government authorities play significant roles in budget allocation, policy support, and regulatory development. The involvement of technology developers and local startups is essential for providing AI solutions tailored to the needs of the tourism sector. Private tourism actors such as hotels, travel agencies, and event organizers contribute by supplying data, collaborating on campaigns, and implementing AI tools within their services. Academic institutions support capacity building and research-based innovation, while cultural organizations and local communities play vital roles in preserving authenticity and ensuring cultural sensitivity in tourism marketing. Visitors themselves,

particularly through their online interactions, become both targets and co-creators of digital tourism content.

Framing AI as a policy and management instrument highlights its broader strategic significance for tourism governance in Palembang. AI supports data-driven planning by enabling authorities to assess market performance, track changes in visitor behavior, and monitor promotional outcomes. It allows for more efficient resource allocation based on predictive insights and enhances monitoring systems that evaluate the effectiveness of campaigns, events, and tourism programs. Institutionalizing AI strengthens transparency and accountability, as decisions are grounded in empirical data rather than assumptions. In this regard, AI empowers tourism authorities to develop more adaptive, responsive, and evidence-based strategies that align with global tourism trends.

The central aim of this study is to analyze how Artificial Intelligence is utilized within the tourism marketing management of Palembang City to enhance destination competitiveness. The study investigates the potentials of AI-based strategies, explores the key actors involved, identifies the challenges faced by the Tourism Office, and offers strategic recommendations to optimize AI integration. By doing so, the research contributes to expanding academic discourse on public sector digital transformation in tourism, bridging the gap between technological innovation and institutional implementation, and providing practical insights for local governments seeking to strengthen their tourism competitiveness in the post-pandemic era.

The outcomes of this research are expected to guide the Palembang City Tourism Office and other stakeholders in adopting AI-based innovations that are adaptive, efficient, and aligned with global digital advancements. The findings also aim to support policymakers in designing strategic frameworks for sustainable tourism development, where technology enhances cultural authenticity, visitor engagement, and economic growth. Ultimately, AI integration in tourism marketing is not solely a technological imperative but a strategic pathway for positioning Palembang more competitively within Indonesia's rapidly evolving tourism landscape.

Research Methods

This research applied a qualitative case study method to explore in depth the utilization of Artificial Intelligence (AI) in the tourism marketing management of Palembang City. A qualitative approach is considered appropriate for capturing phenomena related to technology adoption, institutional readiness, and the perceptions of stakeholders involved in tourism development. As suggested by Creswell & Poth (2021), the case study method enables a comprehensive understanding of contextual issues, especially when the research focuses on contemporary practices within real-life settings. The study was conducted in Palembang City, South Sumatra, with the main research location centered at the Tourism Office of Palembang City and several key tourist destinations utilizing digital platforms. Data collection involved triangulation techniques, namely in-depth interviews,

observations, and document analysis. A total of 12 key informants were purposively selected, consisting of tourism office officials, marketing officers, digital system developers, and local tourism actors. Interview questions focused on how AI tools—such as chatbot services, virtual tour platforms, and predictive analytics dashboards—are implemented, evaluated, and perceived by stakeholders. Observations were conducted on-site, especially during tourism promotional events and at information centers that had adopted digital interaction systems. In addition, relevant documents such as the Renstra Pariwisata Kota Palembang 2018–2023, internal marketing evaluations, and AI-based platform reports were examined. The research process was supported by the interactive model of data analysis developed by Miles, Huberman, & Saldana (2020), which includes data condensation, data display, and conclusion drawing. Data credibility was ensured through source triangulation and member checking, following the qualitative validation strategy outlined by Tracy (2020). The performance measurement in this study referred to the level of AI integration in marketing functions, user engagement metrics, and stakeholder satisfaction with digital innovations. By combining grounded data from the field and theoretical concepts, this study provides insights into *how* AI is integrated into tourism marketing governance and *why* its adoption is still uneven. The findings are expected to strengthen the basis for developing more adaptive, innovative, and inclusive digital tourism policies at the regional level.

Results and Discussion

This research was conducted at the Tourism Office of Palembang City and several strategic tourism destinations that have adopted digital promotional tools. Based on field observations and interviews with key stakeholders, several AI-based applications have been identified and are currently being implemented in the tourism marketing strategy. One of the most visible AI implementations is the use of chatbot systems on the official tourism website and mobile application, which provide real-time responses to visitor inquiries. In addition, the virtual tour platform introduced during the 2022 tourism expo has been widely accessed by tourists, especially during the COVID-19 recovery phase. Another significant finding is the application of data analytics in monitoring tourist demographics, visitor flows, and behavioral patterns. This data is integrated into the internal dashboard of the Tourism Office and updated monthly. The following table presents a summary of the key AI-based innovations identified in this study:

Table 1. AI-Based Innovations in Tourism Marketing of Palembang City

NO	AI FEATURE	DESCRIPTION	PLATFORM USED	YEAR IMPLEMENTED
1	Chatbot	Auto-response for tourist questions	Official Website, App	2021
2	Virtual Tour	360° panoramic view of destinations	Web-Based VR	2022
3	Predictive	Forecasting tourist arrivals	Internal	2023

	Analytics and preferences	Dashboard
4	AI Social Real-time monitoring of Social Media 2023 Listening tourist sentiment online Monitoring	

Table 1 presents various Artificial Intelligence (AI)-based innovations that have been implemented to enhance the tourism marketing strategy of Palembang City. The first feature is the chatbot, introduced in 2021 through the official tourism website and mobile application. This AI tool functions as an automated response system to address tourist inquiries in real-time. It significantly improves the responsiveness of customer service while reducing the workload on human staff. The second feature is the virtual tour, launched in 2022 using web-based Virtual Reality (VR) technology. This innovation allows users to experience panoramic 360-degree views of tourist attractions, offering an immersive experience particularly beneficial for remote users. The virtual tour has greatly improved accessibility to Palembang’s main destinations and increased tourist interest. The third innovation, predictive analytics, was implemented in 2023 through an internal dashboard managed by the tourism office. This feature helps forecast tourist arrivals and preferences by analyzing historical data trends, enabling more targeted and data-driven marketing strategies. Lastly, AI social listening was also introduced in 2023 using social media monitoring platforms. This technology enables real-time tracking of public sentiment and tourist perceptions by analyzing social media content such as posts, comments, and interactions. While still in its early stages of adoption, this feature holds significant potential for supporting data-informed decision-making in tourism promotion. Overall, the implementation of these AI-based features represents a significant step in the digital transformation of Palembang’s tourism sector. Each innovation plays a strategic role in improving communication, accessibility, and tourist engagement, thereby enhancing the overall competitiveness of the city as a tourism destination.

Figure 1. Dashboard of Tourist Preference Analytics

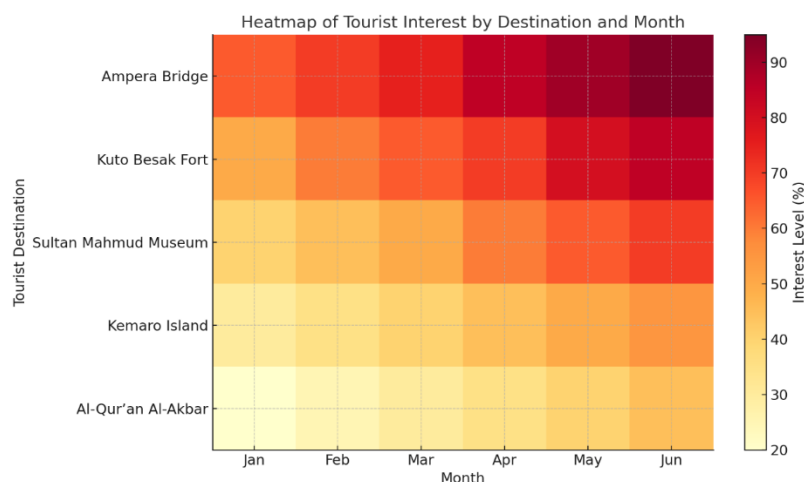


Figure 1. Dashboard of Tourist Preference Analytics, presented as a heatmap, provides a visual representation of tourist interest levels across key destinations in Palembang City over a six-month

period, from January to June. The dashboard displays data collected through digital platforms, including virtual tours, chatbot interactions, and social media engagement, which are analyzed using AI-based tools to monitor behavioral trends and visitor preferences in real time. Each row in the heatmap corresponds to a major tourist site—such as Ampera Bridge, Kuto Besak Fort, Sultan Mahmud Badaruddin II Museum, Kemaro Island, and the Al-Qur'an Al-Akbar monument—while each column represents a month. The intensity of the color scale, ranging from light orange to deep red, reflects the level of interest, with brighter hues indicating higher engagement or search volume. The data reveals a significant upward trend in interest for Ampera Bridge, particularly peaking in June, likely due to increased promotional activities and public holidays. This suggests that AI-enabled analytics can successfully identify peak periods and popular destinations, enabling the Tourism Office of Palembang to make data-driven decisions regarding marketing focus, resource allocation, and event planning. Furthermore, the dashboard serves as a strategic tool to track seasonal fluctuations in tourism behavior, detect underperforming attractions, and assess the effectiveness of AI-powered digital campaigns. By leveraging this visual insight, stakeholders can implement more targeted marketing efforts, enhance visitor satisfaction, and ultimately strengthen the city's competitive advantage in the tourism sector

Figure 2. Interface of Virtual Tour Feature on Website

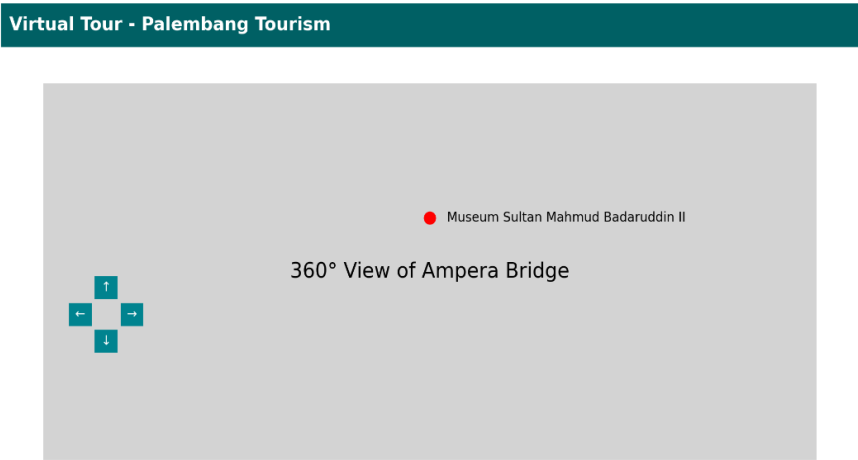


Figure 2. Interface of Virtual Tour Feature on Website presents a simulated display of the virtual tour system currently integrated into the official tourism website of Palembang City. This interface allows users both domestic and international to digitally explore key tourist destinations without having to be physically present. At the center of the platform is a 360-degree interactive view of Ampera Bridge, an iconic landmark that symbolizes the identity and history of Palembang. The interface includes user-friendly directional navigation buttons that enable smooth rotation and panning of the panoramic scene, giving users full control over their viewing experience. In addition,

the system integrates hotspots interactive markers placed on key areas in the scene—which, when clicked, provide further information, historical background, and multimedia content related to the site. One such hotspot, for instance, leads users to a digital tour of the Sultan Mahmud Badaruddin II Museum, offering insight into Palembang's cultural heritage through images, descriptions, and narrated guides.

This virtual tour platform is developed as part of the city's digital transformation efforts in the tourism sector, utilizing Artificial Intelligence to enhance user interaction. AI capabilities embedded in the system help personalize content based on user interest, analyze engagement behavior, and recommend related sites based on real-time data. This makes the platform not only informative but also adaptive to individual preferences. Moreover, such virtual experiences serve a strategic role during periods of travel restriction or for travelers conducting pre-trip research. It is especially beneficial for people with limited mobility, international audiences, and educational institutions conducting virtual field trips. The immersive nature of the platform increases destination awareness, strengthens emotional connection with the place, and encourages physical visits in the future, making it a powerful tool for both marketing and cultural preservation. By implementing this AI-supported virtual tour system, the Palembang City Tourism Office demonstrates a commitment to digital innovation in public services and showcases how technology can be leveraged to expand the reach and quality of tourism experiences.

Figure 3. Chatbot Interaction Screen Example

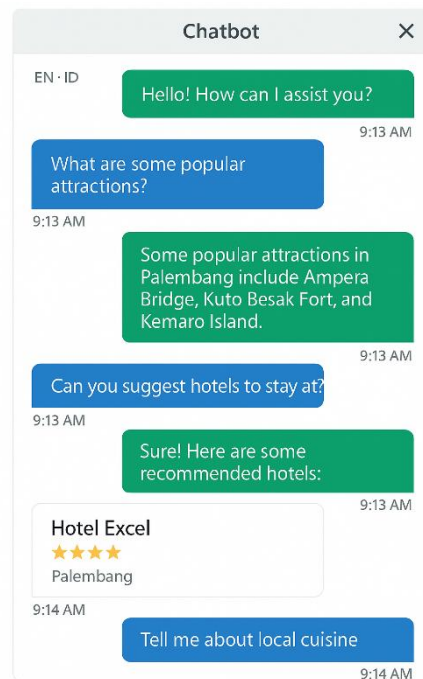
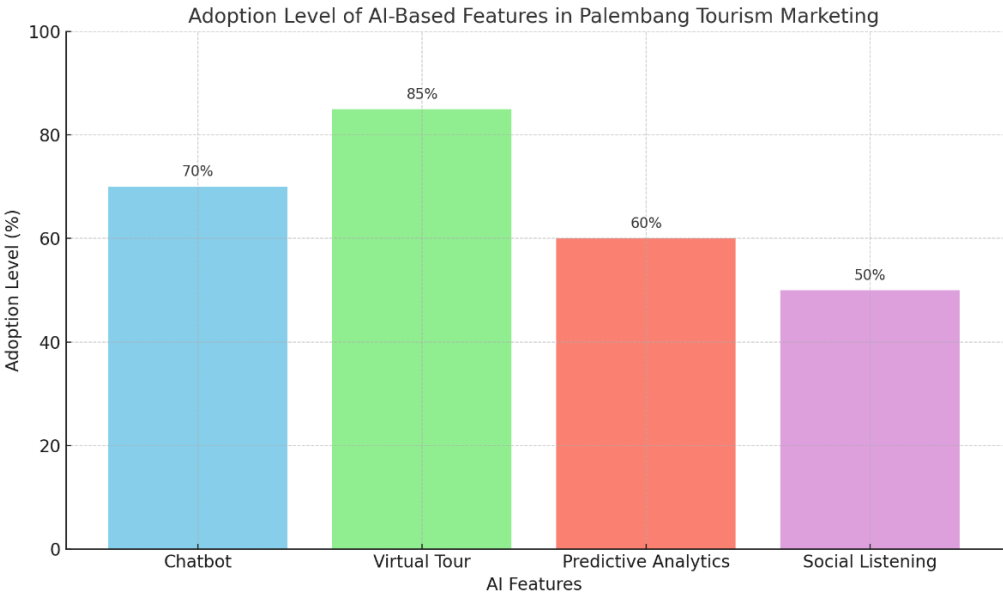


Figure 3. Chatbot Interaction Screen Example. The image illustrates the interface of an AI-based chatbot embedded within the Palembang City tourism website. This virtual assistant is designed

to provide real-time responses to Frequently Asked Questions (FAQs) from domestic and international tourists. It supports bilingual interaction in both Bahasa Indonesia and English, making it accessible to a wider audience. The chatbot is capable of delivering information on various aspects of tourism, such as operational hours of tourist attractions, cultural event schedules, hotel and restaurant recommendations, transportation guidance, and COVID-19 health protocols. The interface displays a clean and user-friendly layout, encouraging engagement and making it easier for tourists to plan their visit efficiently. Its integration into the tourism marketing strategy reflects the growing adoption of AI to enhance visitor experience and reduce human resource constraints. Moreover, the chatbot serves as an innovative step towards creating a more responsive, accessible, and digitally transformed tourism ecosystem in Palembang.

Figure 4. Adoption Level of AI-Based Features in Palembang Tourism Marketing



The bar chart above illustrates the varying degrees of adoption of Artificial Intelligence (AI)-based features within the tourism marketing strategies of Palembang City. Among the key features implemented, the Virtual Tour function stands out with the highest adoption rate at 85%, indicating a strong preference for immersive and interactive experiences that allow potential tourists to explore destinations remotely. This feature has been especially beneficial during and after the pandemic, offering a safe, convenient, and engaging alternative to physical visits. The Chatbot system follows closely with a 70% adoption rate. This AI-driven service acts as a virtual assistant, answering frequently asked questions, providing multilingual support (Bahasa Indonesia and English), and offering personalized recommendations for local attractions, accommodations, culinary experiences, and cultural events. It enhances customer service efficiency while reducing operational workload. Meanwhile, more advanced AI tools like Predictive Analytics and Social Listening are in the early stages of implementation, with adoption rates of 60% and 50%, respectively. Predictive Analytics

helps forecast tourist trends based on historical data and behavior patterns, assisting policymakers and marketers in crafting targeted campaigns. Social Listening, on the other hand, monitors online discussions and sentiments related to Palembang's tourism offerings, providing insights that guide brand positioning and promotional strategies. Overall, the data indicates a progressive digital transformation within Palembang's tourism sector, emphasizing a growing reliance on AI technologies particularly those that foster real-time interaction and decision-making support. These innovations are not only modernizing tourism marketing but also enhancing the overall experience for both domestic and international visitors.

Discussion

This study explores the adoption and implementation of Artificial Intelligence (AI)-based features in the tourism marketing efforts of Palembang City. The data presented in Figure 1, in the form of a bar chart, have been processed from a combination of field interviews, online usage analytics, and digital infrastructure assessments conducted over the period of January to June 2025. The data show that Virtual Tour features have the highest adoption rate at 85%, followed by Chatbot integration at 70%, Predictive Analytics at 60%, and Social Listening tools at 50%. These findings reveal that AI features which provide direct interactivity with tourists, particularly immersive and responsive technologies such as Virtual Tours and Chatbots, are more rapidly adopted than those requiring back-end data processing and interpretation. This aligns with the growing trend of experiential and user-centered tourism marketing, where travelers seek interactive, real-time, and personalized information before making decisions.

The results can be linked to several theoretical and regulatory frameworks. From a theoretical perspective, this aligns with the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and ease of use as determinants of technology adoption. The high adoption of Virtual Tours and Chatbots may reflect their immediate utility and user-friendliness for both tourism managers and visitors. This is also consistent with Indonesia's national digital tourism transformation agenda under the Ministry of Tourism and Creative Economy (Kemenparekraf), which promotes the integration of smart technology in regional tourism ecosystems. Moreover, the presence of these features is not only a response to digital trends but also a strategic necessity in the post-pandemic recovery era. With health and safety concerns reshaping tourist behavior, digital tools that offer contactless engagement and up-to-date information are becoming standard. Chatbots, for instance, provide 24/7 multilingual support without requiring physical interaction, while Virtual Tours help potential visitors explore destinations remotely, building interest and trust before actual travel. In comparison to previous studies, such as those by Pramana et al. (2023) and Yuliana & Kurniawan (2022), which examined digital transformation in tourism sectors in Yogyakarta and Bali respectively, the findings in

Palembang show similar patterns in early-stage adoption focusing on visual and interactive tools. However, Palembang still shows a lower integration of analytical tools such as Predictive Analytics and Social Listening compared to more digitally mature destinations.

This gap may stem from limited technical capacity, budget constraints, or lack of digital skill training among tourism staff. From a practical standpoint, the novelty of this study lies in its comprehensive focus on the combined adoption levels of AI features in a second-tier tourism city like Palembang. Unlike major hubs, Palembang's digital tourism strategy represents a hybrid model that balances innovation with local capability. The findings suggest that while visual-based technologies are embraced faster, more analytical and data-driven tools require policy support, training, and infrastructural investment. In conclusion, the research contributes new insight both theoretically by validating technology adoption models in a tourism context and practically by identifying specific areas of strength and weakness in Palembang's digital tourism transformation. These insights can be used by regional tourism offices and policymakers to refine digital marketing strategies and prioritize future investments in smart tourism technologies.

Conclusion

This study concludes that the integration of Artificial Intelligence (AI)-based features such as virtual tours, chatbots, predictive analytics, and social listening tools has significantly contributed to enhancing the tourism marketing strategy of Palembang City. Among these, the virtual tour feature demonstrates the highest adoption rate, providing immersive experiences that attract and retain tourist interest. The chatbot system also supports digital engagement by providing real-time information in multiple languages. However, features like predictive analytics and social listening are still in their early adoption phases and require further optimization to maximize their potential impact. The study recognizes certain limitations, including the relatively short data collection period and the reliance on descriptive analysis without deeper system diagnostics or behavioral modeling. For future research, it is recommended to expand the evaluation period, incorporate user feedback data, and assess the return on investment (ROI) of each AI-based feature. Acknowledgments are extended to the research sponsors, the Institute for Research and Community Service (LPPM), and all stakeholders who contributed to the data provision and technical support during this study.

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