

Research on the path of Integrated Development of Culture and Tourism in Shenyang Empowered by AI

Dongyi Wang

College of Management, Shenyang Urban Construction University, Shenyang, Liaoning, China

sycjwdy@163.com

Abstract. Against the backdrop of the in-depth implementation of the Digital China strategy and the rapid development of artificial intelligence technology, AI is emerging as a key enabler of deeper integration between culture and tourism. This article takes Shenyang City as the research object, combining its rich historical and cultural resources, red cultural genes and ethnic intangible cultural heritage characteristics, to explore how AI technology can empower the high-quality development of the cultural and tourism industry. By analyzing the application practices of AI in content creation, intelligent navigation, digital exhibitions, and precise marketing, and combining with the existing cultural and tourism resources in Shenyang, a new form of integrated development of culture and tourism is created, aiming to provide theoretical support and practical paths for Shenyang to build itself into an international cultural and tourism destination in Northeast Asia.

Keywords: Artificial Intelligence; Integration of Culture and Tourism; Precision Marketing.

1. Introduction

In recent years, with the successive release of policy documents such as the "14th Five-Year Plan for the Development of Culture and Tourism", the integration of culture and tourism has become an important means to promote high-quality regional economic development. As a national historical and cultural city and a key urban center in Northeast Asia, Shenyang boasts abundant cultural and tourism resources such as the Shenyang Imperial Palace, the Zhang Family Mansion, and the "September 18th" History Museum, as well as a multi-ethnic cultural heritage including the Manchu and Xibo people. In recent years, the popularity of culture and tourism in Shenyang has continued to rise. In 2023, it received 145 million tourists throughout the year, and the comprehensive tourism revenue reached 149.7 billion yuan, achieving a historic breakthrough [1]. In 2024, Shenyang received over 200 million tourists throughout the year, generating tourism revenue exceeding 200 billion yuan. [2] Against this backdrop, how to leverage artificial intelligence (AI) technology to deepen the integration of culture and tourism, enhance service quality, and activate cultural value has become a key issue that urgently needs to be explored. AI not only enhances the efficiency of cultural and tourism services, but also reconstructs the tourist experience through data mining, intelligent generation, virtual interaction and other means, injecting new vitality into traditional culture.

2. Current Situation and Core Challenges

2.1 Rich Cultural Resources

Shenyang is a national historical and cultural city, with world-class cultural heritage preparatory projects such as the Shenyang Imperial Palace and the Qing Zhaoling Mausoleum. It is also an important witness to modern and contemporary Chinese history, featuring red sites such as the September 18th History Museum, the Former Site of the Communist Party of China Manchuria Provincial Committee, and the Zhang Xueliang Former Residence Exhibition Hall. As the cradle of New China's industry, industrial heritage such as Tiexi Workers' Village and Shenyang Foundry carry the spirit of model workers and the memories of craftsmen from generation to generation. Shenyang is rich in intangible cultural heritage resources. As of 2024, it has 11 national-level intangible cultural heritage items and 41 provincial-level ones, covering storytelling, Northeast Drum, Xibo ethnic

customs, and the brewing techniques of Laolongkou Baijiu, etc. [3], forming a highly distinctive and diverse cultural background.

2.2 Remarkable Development Achievements

Relying on its profound historical and cultural heritage, Shenyang has witnessed a rapid recovery and upgrading of its cultural and tourism industry in recent years under the dual influence of policy guidance and market drive. In 2023, the city coordinated and carried out over 1,000 seasonal theme activities such as "Flowers in Full Bloom in Spring" and "Enjoy Coolness in Summer", successfully creating a new model of integration of culture, sports and tourism. Large-scale performing arts events, such as star concerts, attract tens of thousands of audiences in a single show, giving rise to the "fan economy". Sports events such as the Shenyang Marathon not only enhance the city's vitality but also drive the growth of consumption throughout the entire chain, including hotels, catering and transportation. Particularly worth noting is the transformation of the Fangcheng Cultural Tourism Area in Shenyang. This 1.69-square-kilometer open historical district has, through adopting a renewal approach prioritizing "retention, renovation, and selective demolition," rather than the conventional "demolition-first" model, revitalized and utilized over 30 cultural relics protection units and historical buildings such as the Khan's Palace, the Governor's Mansion of the Three Northeastern Provinces, and the time-honored brands on Zhongjie Street, forming a "Hutong Tracing" cultural tourism route. The annual number of visitors has exceeded 100 million, topping the list of "Must-Visit Scenic Spots in Liaoning" on Ctrip, outperforming many well-known scenic spots [4]. The cultural and tourism agglomeration effect in the core area of Shenyang City has initially taken shape.

2.3 Structural Shortcomings Restrict High-Quality Development

Despite its outstanding achievements, Shenyang's cultural and tourism industry still faces three deep-seated contradictions. First of all, cultural resources are "dormant", and the conversion efficiency is relatively low. A large number of cultural relics, sites and intangible cultural heritage skills still remain at the static display level. Tourists stay for a short time and the proportion of secondary consumption is low, reflecting the experience gap of consumers. The second issue is the homogenization of product supply and the lack of leading roles led by major ips. At present, tourism products are still dominated by sightseeing types, and immersive, interactive and customized content is scarce. No original cultural and tourism super symbol with national influence has been created yet. The last issue is the lagging service level, limited international appeal, and weak appeal to overseas tourists. There are still shortcomings in multilingual services, barrier-free facilities, and smart navigation.

3. AI Empowering New Forms of Integration in the Cultural and Tourism Industry

3.1 Make Culture Tangible and Touchable

Facing the predicament of cultural and tourism development in Shenyang, AI offers a promising solution to overcome these bottlenecks, bringing cultural relics to life. Specifically, intelligent question-answering systems based on large models can be deployed in key venues. When tourists face a charred mooncake, they can ask by voice: "Who left this?" How did people in Shenyang celebrate the Mid-Autumn Festival at that time? The system, based on the library's archives, local Chronicles, and oral history databases, generates concrete and story-telling responses, and even simulates the voice and tone of the citizens of that time to tell the story. In the Shenyang Imperial Palace, AR glasses can be combined to superimpose scenes of Qing Dynasty court life, achieving a "time-traveling" exhibition experience and allowing the dormant history to "speak".

3.2 Precise Service

By applying AI technology, a transformation from "uniformity for all" to "personalized strategies for each tourist" can be achieved. The system can intelligently generate personalized routes based on data such as tourists' age, interest tags, and travel duration. Meanwhile, lightweight interactive products such as the "AI Intangible Cultural Heritage Workshop" mini-program have been developed, allowing tourists to deeply experience Shenyang's culture. This not only lowers the participation threshold but also strengthens regional cultural identity, effectively making up for the current shortcoming of narrow channels for the dissemination of intangible cultural heritage.

3.3 Data-driven Urban Cultural and Tourism Operations

By applying big data and AI technologies, the refined operation capacity of urban management can be enhanced. By integrating multi-source data such as public security, transportation, meteorology, and ticketing, a city-level cultural and tourism governance center can be built to achieve a closed loop of passenger flow prediction, resource scheduling, and public opinion response, in order to address the imbalance between the surging number of tourists and the city's carrying capacity.

However, the application of technology must adhere to cultural subjectivity. AI is a means rather than an end. In the process of promoting digitalization, the principles of not fabricating historical facts, not using machines to replace human emotional expression, and not destroying the original cultural space should be adhered to. The application of data must be led by historians and inheritors of intangible cultural heritage in the design of the content framework to prevent algorithms from exhibiting data bias or lacking emotional authenticity.

4. Conclusion and Prospects

AI provides crucial technological support and practical pathways for transitioning Shenyang's cultural-tourism integration from concept to implementation. By activating dormant resources, reshaping tourist experiences, and optimizing urban management, Shenyang is strategically transforming from a transportation hub into a destination for culturally immersive tourism. The framework in this study offers valuable reference for the digital development of other historical and cultural cities.

The core future task lies in deepening the integration of technological applications with industrial development. This requires establishing sustainable business models and scientific evaluation systems to ensure that AI applications deliver measurable benefits in enhancing tourist satisfaction, promoting cultural dissemination, and stimulating industrial value. If Shenyang can systematically develop a new "AI + Cultural Tourism" ecosystem based on its unique cultural DNA, it will be well-positioned to forge a distinctive and competitive role in the Northeast Asian cultural-tourism landscape.

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