

New Paths and Practical Explorations for the Collaborative Development of Henan's Cultural and Tourism Industry through Digital Intelligence

Chenge Li^{1*}, Shuwen Fu¹, Lu Wang¹

¹ College of Art and Design, Zhengzhou University of Light Industry, Zhengzhou, China

Email Address

1247567853@qq.com (Chenge Li)

*Correspondence: 1247567853@qq.com

Received: 21 June 2025; Accepted: 16 July 2025; Published: 8 August 2025

Abstract:

Against the backdrop of the rapid development of digital intelligence technologies such as the Internet, big data, and cloud computing [1], the cultural and tourism industry is undergoing a full-chain reconstruction driven by digital intelligence. Henan, as an important cradle of Chinese civilization, boasts rich cultural and tourism resources. The collaborative development of its cultural and tourism industry through digital intelligence is of great significance for enhancing industrial competitiveness and achieving transformation and upgrading. In recent years, the accelerated iteration and in-depth integration of digital intelligence technologies have influenced many fields, including the cultural and tourism industry [2]. At the national level, several policies have been successively issued to emphasize promoting the digitalization, networking, and intelligent development of the cultural and tourism industry, and to drive the integrated development of culture and tourism through digital intelligence [3]. In this context, although Henan's cultural and tourism industry has made certain partial breakthroughs in collaborative development through digital intelligence, it still faces in-depth challenges. Therefore, exploring new paths and practices for the collaborative development of Henan's cultural and tourism industry through digital intelligence is of important practical significance. This paper focuses on the collaborative development of Henan's cultural and tourism industry through digital intelligence, aiming to construct a full-chain framework of "theoretical analysis - practical strategies - path design - policy support". The purpose is to provide a systematic solution for the digital intelligence transformation of Henan's cultural and tourism industry, and promote the benign interaction between cultural inheritance and economic development.

Keywords:

Henan Culture and Tourism, Digital Intelligence, Collaborative Development Path, Practical Exploration

1. Research Status and Significance of Collaborative Development of Henan's Cultural and Tourism Industry through Digital Intelligence

1.1. Review of Research Status

With the continuous development of digital intelligence technologies, their application in the cultural and tourism industry has become increasingly widespread, further promoting resource sharing and complementary advantages among enterprises in the industrial chain [4]. In 2020, the Ministry of Culture and Tourism pointed out in the Opinions on Promoting the High-Quality Development of the Digital Cultural Industry that “it is necessary to give full play to the important role of digital intelligence technologies in the development of culture and tourism, implement the digital strategy for the cultural and tourism industry, and promote the integrated development of culture and tourism through digitalization to achieve a broader, higher, and deeper level of integration”. The 14th Five-Year Plan for Cultural and Tourism Development emphasizes “accelerating the development of smart tourism characterized by digitalization, networking, and intelligence”. The Measures on Unleashing Tourism Consumption Potential and Promoting High-Quality Development of Tourism in 2023 also states that “it is necessary to transform traditional tourism consumption venues with digital technologies and create new spaces for smart tourism and immersive experiences” [5]. In this context, digital intelligence technologies play a key role in reshaping the pattern of the cultural and tourism industry, with increasingly extensive applications, promoting resource sharing and complementary advantages among enterprises in the industrial chain.

However, despite some partial breakthroughs, the collaborative development of Henan's cultural and tourism industry through digital intelligence still faces in-depth challenges. Insufficient regional linkage leads to low efficiency of resource integration. In 2024, only three counties in the province - Dengfeng, Luanchuan, and Zhongmu - were listed among the national top 100 cultural and tourism counties, indicating weak county-level cultural and tourism competitiveness. The industrial chain collaboration is lagging behind, with small and medium-sized cultural and tourism enterprises lacking digital capabilities, and unclear paths for integrating rural cultural tourism with the digital economy, which restricts the construction of a comprehensive industrial ecosystem. There are barriers to data sharing, with data silos in some scenic spots and low efficiency of cross-departmental collaboration. These indicate that Henan's practice of digital intelligence in cultural and tourism is in the stage of “point-like breakthroughs”, and a systematic solution is urgently needed to promote regional collaborative development.

1.2. Significance of the Topic

As an important cradle of Chinese civilization, Henan is rich in cultural and tourism resources. Collaborative development through digital intelligence brings new opportunities to its cultural and tourism industry. On the one hand, digital intelligence collaboration can break geographical restrictions, innovate cultural communication methods, and enhance the influence of Henan's culture. By integrating cultural and tourism resources to form an industrial agglomeration effect, the overall competitiveness of Henan's cultural and tourism industry can be improved. On the other hand, against the background of the country's vigorous promotion of the integration of the digital economy and the cultural and tourism industry, digital

intelligence collaboration is a strategic choice for the transformation and upgrading of Henan's cultural and tourism industry. Through the application of digital intelligence technologies and innovation in collaborative cooperation models, the industrial structure can be optimized, new formats such as digital cultural and tourism product development and smart scenic spot construction can be cultivated, and sustainable development can be achieved. In addition, by accurately grasping tourist needs through big data analysis and providing personalized and precise services, tourist satisfaction and loyalty can be improved, and service quality can be enhanced.

2. Main Ideas and Framework Design for Collaborative Development of Henan's Cultural and Tourism Industry through Digital Intelligence

2.1. Main Ideas

This research focuses on four dimensions: top-level design, technology-driven development, industrial integration, and user experience, and constructs a full-chain framework of “theoretical analysis - practical strategies - path design - policy support” to promote the in-depth integration of cultural tourism and digital technologies. In practice, relying on specific cases and combining cultural and tourism big data, blockchain, and AI interaction scenario design, it promotes the dynamic inheritance and innovative dissemination of cultural heritage and refines theoretical models. Through policy coordination and standard system construction, it strengthens the linkage among the government, enterprises, and society, providing a systematic solution for the digital intelligence transformation of Henan's cultural and tourism industry. It aims to achieve efficient and sustainable development, promote the benign interaction between cultural inheritance and economic development, and enhance the market value and influence of Henan's cultural and tourism brand.

2.2. Framework Design

Part 1: Summary of Research Background and Core Value

Through theoretical research and problem analysis, summarize the research background and core value of the collaborative development of Henan's cultural and tourism industry through digital intelligence, and propose the importance of the research topic for the upgrading of Henan's cultural and tourism industry.

Part 2: Theoretical Overview and Core Demand Mining

Provide a theoretical overview of the historical context, resource characteristics, and current bottlenecks in the digital intelligence transformation of Henan's cultural and tourism industry, clarify the definition, characteristics, and realization paths of digital intelligence in the cultural and tourism industry, and identify core demands to lay a theoretical and practical foundation for subsequent research.

Part 3: Analysis of Innovative Excellent Practice Cases

Based on the characteristics of Henan's cultural and tourism resources, analyze Henan's innovative excellent practice cases in cultural and tourism from the perspectives of “technology-driven + industrial integration + user experience”. At the technology-driven level, integrate resources to build a digital platform for cultural and tourism resources, focusing on the development of intelligent navigation systems. At the industrial integration level, explore new models to promote the two-way

empowerment of traditional cultural resources and the modern digital economy. Pay attention to user experience feedback, and enhance tourists' depth of cultural perception and sense of participation through the optimization of the comprehensive smart service chain and interaction scenario design. Analyze the advanced nature of innovative practices to demonstrate the possibility of further optimization and dissemination.

Part 4: Innovative Path Design

Integrate and analyze the previous phased results, and design innovative paths for Henan's cultural and tourism digital intelligence works through data analysis, field research, and expert interviews. Conduct program analysis and design from the perspectives of top-level design, technology-driven development, industrial integration, and user experience, including policy coordination, system construction, blockchain technology application, and multi-mode cooperation. Special attention is paid to the user experience dimension, creating immersive and emotional interaction scenario design schemes, optimizing the regional smart service chain, and forming practical results.

Part 5: Evaluation and Optimization of Practical Results

Evaluate and optimize the practical results, and put forward policy suggestions and promote development through research and interviews. Gather and integrate people from different backgrounds through various information interaction methods, and finally realize a virtuous cycle of cultural inheritance and economic development.

3. Value of Collaborative Development of Henan's Cultural and Tourism Industry through Digital Intelligence

3.1. Degree of Innovation

The digital intelligence innovation of Henan's cultural and tourism industry is a breakthrough in the reconstruction of cultural expression paradigms through technology and a breakthrough in the collaborative governance of the entire industrial chain. On the one hand, through cutting-edge technologies such as AIGC, metaverse, and blockchain, a comprehensive cultural and tourism ecosystem has been built. For example, the "One-App Tour Henan" platform integrates resources from 661 scenic spots and more than 30,000 hotels in the province. It uses AI algorithms to generate personalized travel plans and realizes a closed loop of "pre-trip drainage - in-trip service - post-trip conversion" through short video marketing. It has become the first provincial-level comprehensive digital intelligence cultural and tourism service platform in China. This practice not only subverts the traditional cultural and tourism service chain but also reconstructs the industrial chain driven by data elements, verifying the ability of digital intelligence technologies to reshape the logic of cultural and tourism consumption. The core value of digital intelligence lies in realizing the collaborative empowerment of cultural, economic, and social benefits. At the economic level, innovative means such as the issuance of consumption vouchers and metaverse derivative transactions directly drive cultural and tourism consumption. [6] At the cultural level, digital technologies have reconstructed the underlying logic of cultural communication. Taking Only Henan·Drama Fantasy City as an example, it connects 21 theaters into an immersive drama space through an integrated audio-visual digital control system, allowing tourists to experience interaction as "time travelers" and forming a progressive communication model of "cultural activation -

emotional resonance - value transmission". This enables cultural symbols to break through geographical restrictions and form global influence. At the social level, digital intelligence promotes the balanced allocation of urban and rural resources and the upgrading of inclusive services. For example, under the "Digital Commerce for Rural Revitalization" strategy, rural intangible cultural heritage workshops have achieved annual sales of over 3 million yuan through e-commerce platforms [7]. The Laojun Mountain Scenic Area in Luanchuan has improved the efficiency of emergency response by 70% relying on the smart management system and launched health tourism products to accurately meet the needs of the elderly, making the cultural and tourism industry an important engine for rural revitalization.

3.2. Application Value

The transformation of Henan's cultural and tourism industry through digital intelligence is essentially a cultural democratization movement. In the past, the right to interpret culture was mostly in the hands of experts, and rural intangible cultural heritage and local folk customs were often marginalized due to the lack of display platforms [8]. Nowadays, 5G + AR technology allows the ceramic craftsmanship of Gongyi Kiln to enter the lives of urban youth through mobile phone lenses, and live streaming has made the folk songs of the Dabie Mountains echo from the mountains to short video platforms. This "technological equality" has broken the gap between urban and rural cultural resources and reshaped the mechanism for generating cultural identity. When Zhecheng clay sculpture artists receive orders from Beijing, Shanghai, and Guangzhou through live streaming e-commerce, traditional crafts regain vitality in real market interactions. A deeper value is that digital intelligence is rewriting the economic equation of the cultural and tourism industry. In the past, the "ticket economy" - dominated model compressed cultural value into a simple conversion of the number of visitors and consumption amount [9]. However, new forms such as metaverse derivatives and digital collections have opened up a new path of "cultural capitalization". For example, Only Henan·Drama Fantasy City converts performance clips into NFT digital tickets, allowing audiences to revisit specific scenes in virtual space after leaving the park. This "continuity of experience" enables cultural consumption to break through time and space constraints. More importantly, when tourists purchase virtual Yu opera facial makeup to decorate their digital identities in the "Meta-Yu Universe", the consumption behavior itself becomes a node of cultural communication. Everyone is a creator and disseminator of cultural value. This transformation from "traffic monetization" to "value co-creation" is the most fundamental driving force for the cultural and tourism industry brought by digital intelligence [10].

4. Conclusions

The collaborative development of Henan's cultural and tourism industry through digital intelligence is an inevitable trend of the times and an important way to achieve industrial transformation and upgrading and enhance competitiveness. By building a full-chain framework and promoting the in-depth integration of cultural tourism and digital technologies from multiple dimensions, the current problems in the digital intelligence development of Henan's cultural and tourism industry can be effectively solved. In the future, with the continuous progress and in-depth application of digital intelligence technologies, the collaborative development of Henan's cultural and tourism industry through digital intelligence will face more opportunities and

challenges. It is necessary to continuously strengthen policy coordination and standard system construction, enhance tripartite linkage, constantly explore innovative paths and models, promote the benign interaction between cultural inheritance and economic development, further enhance the market value and influence of Henan's cultural and tourism brand, and make Henan's rich cultural and tourism resources shine more brilliantly in the era of digital intelligence.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Funding

- [1] Qu, C.M.; Yuan, C.; Shi, X.Q. Digital Intelligence Empowerment and Collaborative Innovation: Practice and Prospect of China's Archives Utilization System Construction in 2024. *Shanxi Archives*, 2025, 05, 1-17.
- [2] Han, W.L. Integration of Culture and Technology: A New Vision for the Digital Intelligence Communication of Henan Culture. *Media*, 2025, 07, 77-80
- [3] Xu, J.H.; Chen, L.L. Theoretical Mechanism and Path of New Productivity Empowering High-Quality Development of Cultural and Tourism Integration. *Social Scientist*, 2025, 02, 68-75.
- [4] Gao, J.; Feng, B.; Huang, A.L. Digital Intelligence Empowering In-depth Integration of Culture and Tourism: Theoretical Analysis and Empirical Test. *Journal of Technical Economics & Management*, 2025, 03, 50-55.
- [5] Liu, X.Y.; Ma, H.Q. New Ecosystem of Cultural and Tourism Integration Empowered by Digital Intelligence - A Case Study of "Black Myth: Wukong" Empowering the Integration of Shanxi's Culture and Tourism. *Journal of Technical Economics & Management*, 2025, 03, 42-49
- [6] Wang, J.W.; Huang, Z.F.; Wang, Z.F.; Ming, Q.Z.; Wu, Z.C.; Li, Y.Q.; Su, M.M.; Xu Dong, Zhou, C.; Zhang, K.; Liu, L.; Wang, B.W.; Luo, X.Y. New Productivity Empowering In-depth Integration of Culture and Tourism from the Perspective of Rural Revitalization: Scientific Issues and Strategic Paths. *Resources Science*, 2024, 46(12), 2335-2354.
- [7] Li, J.L.; Dong, J.C. Theoretical Logic and Realization Path of Promoting High-Quality Development through In-depth Integration of Digital Economy and Real Economy. *Journal of Shaanxi Normal University (Philosophy and Social Sciences Edition)*, 2024, 53(04), 106-118.
- [8] Wu, J.; Chen, K.X.; Chen, H.D. Logic and Path of Digital Intelligence Empowering the Integration of Rural Agriculture, Commerce, Culture and Tourism under the Background of Digital Commerce for Rural Revitalization. *Wuhan University Journal (Philosophy and Social Sciences)*, 2023, 76(04), 116-127.

- [9] Xie, Xu.F.; Lei, W.X. Research on the High-Quality Development Prospect and Model of Chinese Digital Cultural and Tourism Industry in the “Intelligent +” Era. *Journal of Soochow University (Philosophy and Social Sciences Edition)*, 2023, 44(02), 171-179.
- [10]Feng, X.G.; Cheng, X. Cultural and Tourism Metaverse: Evolution Path and Industrial Logic. *Shanghai Journal of Economics*, 2022, 07, 70-83.



© 2025 by the author(s); licensee International Technology and Science Publications (ITS), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (<http://creativecommons.org/licenses/by/4.0/>)