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## Hubei Huanggang: New Media Technology Facilitates Innovative Development of Cultural-Tourism Integration (Postprint)

**Authors:** Hu Zide, Qin Wu, Xie Ling

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### Abstract

**[Objective]** Against the backdrop of media convergence development among radio, television, and newspapers in recent years, this study explores the innovative applications of new media technology in culture-tourism integration. **[Methods]** Through a case study of the Dongpo Temple Fair in Huanggang City, it reveals the driving role of new communication models in the transformation and upgrading of the culture-tourism industry. **[Results]** Through active media participation and relying on “technology empowerment - content innovation - industrial synergy,” rapid development of the regional culture-tourism industry has been promoted. **[Conclusion]** This paper aims to provide theoretical reference and practical insights for the high-quality development of regional culture-tourism.

### Full Text

## Huanggang, Hubei: New Media Technology Empowering Innovative Development of Cultural-Tourism Integration

**Authors:** Hu Zide, Qin Wu, Xie Ling (Huanggang Converged Media Center, Huanggang, Hubei 438000)

### Abstract

**[Objective]** Against the backdrop of recent media convergence development in broadcasting, television, and newspapers, this paper explores the innovative application of new media technologies in cultural-tourism integration. **[Method]** Through a case study of Huanggang’s Dongpo Temple Fair, the research reveals how new communication models drive the transformation and upgrading of the

cultural-tourism industry. **[Results]** With active media participation and reliance on a “technology empowerment—content innovation—industrial synergy” framework, the rapid development of regional cultural-tourism industries has been effectively promoted. **[Conclusion]** This paper aims to provide theoretical reference and practical guidance for high-quality development of regional cultural-tourism integration.

**Keywords:** new media; 5G applications; AI intelligence; cultural-tourism integration; Dongpo Temple Fair

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## 1. Accelerating Media Convergence and Building a Fully Functional New Platform

Integrating the “Internet Plus” concept into cultural-tourism project development represents an emerging trend and innovative exploration for the advancement of the cultural-tourism industry. This article examines Huanggang’s Dongpo Temple Fair as a case study to investigate the implementation pathways of new media in facilitating innovative cultural-tourism integration, aiming to evaluate the actual effectiveness of new media in promoting rural revitalization and cultural-tourism development.

Huanggang is located in eastern Hubei Province, at the southern foot of the Dabie Mountains and on the north bank of the middle reaches of the Yangtze River. The city boasts beautiful landscapes where natural scenery and cultural heritage complement each other. The majestic Dabie Mountains stretch for hundreds of miles within its territory, while the Yangtze River flows 189 kilometers through the city. Six rivers—including the Dao, Ju, Ba, Xi, Qi, and Huayang—run concurrently, and hundreds of lakes and reservoirs are scattered throughout the region. Huanggang has attracted numerous renowned figures throughout history, leaving behind abundant cultural relics. Poets such as Li Bai, Du Mu, and Wang Yucheng composed timeless masterpieces here, Su Dongpo achieved his literary pinnacle in this region, and Huangmei Opera originated in this very place. The Dabie Mountain revolutionary old district, centered on Huanggang, is also one of the nation’s 12 red tourism routes and constitutes the main body of Hubei’s red tourism resources.

The Huanggang Municipal Party Committee and government uphold the development philosophy that “lucid waters and lush mountains are invaluable assets,” giving full play to the advantages of the natural and cultural environment to vigorously promote the integrated development of culture and tourism.

To further strengthen the cultural-tourism industry, the municipal authorities launched the “Dongpo Temple Fair” cultural-tourism project in 2023. Through continuous development and innovation in recent years, it has gradually become a bright calling card for Huanggang’s cultural-tourism sector.

In February 2024, Huanggang Broadcasting and Television Station merged with Huanggang Daily to establish the Huanggang Converged Media Center. Following its establishment, the center accelerated the construction of its media convergence technology platform. Building upon the previous media convergence reforms of Huanggang Broadcasting and Television Station, the center utilized the latest Internet and AI intelligent technologies to construct a more efficient, intelligent, and fully functional new media platform. This platform primarily integrates broadcasting, television, and newspaper collection-editing systems, review systems, manuscript systems, signal reception, and self-media content aggregation into a unified content gathering and production platform. It also aggregates content reproduction and distribution platforms suitable for both traditional and new media dissemination. The framework is illustrated in [Figure 1: see original paper].

### **1.1 Building an Omnimedia Aggregation Platform Based on All-Media Applications**

Following the merger of broadcasting, television, and newspaper operations, the converged media platform is provided with more information convergence pathways. The center has built a multi-channel, digital, intelligent, visualized, and networked content aggregation platform. This platform integrates the collection-editing systems of broadcasting, television, and newspapers to achieve convergence of audio, video, images, and text content. By adding self-media entry channels, the platform can acquire massive content resources and achieve multi-channel collection. For content management, we have introduced visualized and intelligent content classification management tools to conduct review, screening, classification, and deduplication of collected content, providing efficient retrieval support for content application.

### **1.2 Constructing an AI-Enabled Intelligent Production Platform**

For media organizations, traditional promotional creation consumes substantial time and effort. In recent years, digitalization and artificial intelligence have developed rapidly, making digital and intelligent media production inevitable. Therefore, when constructing the new converged media platform, we introduced AI intelligent writing, short video creation, and AI photo editing production tools, which have greatly enriched journalists’ creative ideas, improved production efficiency, and enhanced promotional quality.

### 1.3 Innovating Media Asset Management Platforms

As media organizations produce massive amounts of media data daily, only a small portion of this data flow, after processing and review, is distributed for use. The majority of data remains dormant in content libraries. To make data flow and fully realize its value, data must become supermarket commodities displayed on shelves for people to select. Combining advanced IT technology, communication technology, mobile Internet technology, and information copyright protection technology, we have innovated the media data asset management model to achieve cross-domain services and applications of content. To provide extended support for converged media operations, we have built an intelligent media asset system that uses artificial intelligence technology to reasonably classify massive media data, re-catalog and archive it, add rights management and network security controls, and transmit media content through interface servers to websites and APP clients after transcoding, forming a media resource pool shared by all users. This enables data to flow and generate value through exchange and purchase as browsing volume increases.

### 1.4 Promoting New Media Technology Empowerment for Cultural-Tourism Integration

With comprehensive technology platform support, the Huanggang Converged Media Center has established new media creation and dissemination teams including a network live broadcast alliance, self-media home, new media cultural creativity center, and visual creative packaging center. These teams recruit city-wide and even province-wide network live broadcast teams, photographers' associations, and self-media influencers to settle in the converged media center's editorial platform. They have planned cultural-tourism short video competitions with themes such as "I Love Huanggang" and "Beautiful Huanggang, A Place of Peace," as well as online live broadcasts for Dongpo Temple Fair opera, cultural creativity, and food series events. Simultaneously, in cooperation with tower companies, the center utilizes signal tower monitoring high-definition cameras to introduce online live broadcasts, enabling slow live streaming of Beautiful Huanggang.

Since 2023, Huanggang has promoted a public cultural brand named after local characteristics—Dongpo Temple Fair—and has successively held series of events such as "Dongpo Temple Fair · Returning Home for New Year" and "Dongpo Temple Fair · May Day Season." This brand is not merely a traditional temple fair gathering but has expanded into a comprehensive promotional platform covering culture, tourism, sports, agriculture, and health, encompassing city, county, township, and village-level cultural activity networks. Centered on the Dongpo Temple Fair, various new consumption activities themed around "delicacies, opera, flower appreciation" have officially launched, presenting citizens and tourists with a comprehensive consumption festival integrating boutique shopping, authentic cuisine tasting, and temple fair touring. Based on Dongpo culture and leveraging the resource advantages of beautiful landscapes and rich

cultural heritage, the center has summarized and refined cultural mini-dramas, cultural and creative products, and Dongpo cuisine as flagship products for the integrated development of cultural undertakings and industries. Collaborating with over 150 well-known local characteristic merchants, the center has popularized more than 230 unique products such as Dongpo tenderloin, Tuanfeng County's unique pork knuckle, and Macheng traditional liquor.

## **2. Innovating Media Communication Methods and Exploring New Paths for Cultural-Tourism Integration**

To better promote Huanggang's rich cultural-tourism resources, the Huanggang Converged Media Center continuously innovates media communication methods, fully utilizes AI technology to produce Dongpo-themed cultural products, introduces 5G signal transmission to achieve scenic area slow live streaming, and organizes short video competitions and Dongpo poetry events for Beautiful Huanggang, thereby contributing to the development of Huanggang's cultural-tourism sector.

### **2.1 Leveraging AI Technology to Enhance Tourism Cultural Influence**

The development of the cultural-tourism industry is closely related to the popularization of tourism culture. Promoting tourist destinations requires making the corresponding travel culture known to a wide audience to attract numerous visitors—a process that largely depends on the effectiveness of media promotion of travel culture. Compared with traditional communication tools such as television and newspapers, new media client APPs and online live broadcast platforms demonstrate faster communication efficiency and higher interactivity, thus having more significant influence in disseminating tourism culture.

In the interactive communication process of new media, short videos play an extremely crucial role. The Huanggang Converged Media Center has fully utilized AI video production technology to create AI works featuring Su Dongpo as a major IP spokesperson for Huanggang's humanities and scenery, such as the series of tourism promotion videos "AI Opens the Poetic Huanggang" and "A Place of Peace—Huanggang" AI singles. Published on new media platforms including the "Cloud Huanggang" APP, Live Huanggang Douyin account, and Huanggang Broadcasting Dongpo Cloud video channel, these works have achieved extremely high click-through rates and comment numbers, significantly enhancing people's interest in Huanggang tourism consumption. The promotional methods and strategies of new media have laid a solid foundation for the enhancement and development of tourism culture.

### **2.2 Introducing 5G Signal Transmission to Achieve Scenic Area Slow Live Streaming**

The technical principle of slow live streaming is simple: using high-definition surveillance cameras as fixed lenses, video signals are converted into live stream-

ing signals through 5G networks and pushed to live broadcast platforms for audience viewing. This live streaming method provides viewers with a more authentic and intuitive real-time experience. Applying this method to characteristic scenic areas serves to inform and remind tourists about optimal visiting times. For example, for scenic spots such as the plum blossoms at Yiai Lake in Huangzhou, the rhododendron festival at Guishan in Macheng, the Four Seasons Flower Sea in Yingshan, and Longgan Lake, past practices involved using flowering period forecasts to inform tourists of the best viewing times. Now, tourists can simply watch slow live streaming videos to determine the optimal viewing period and arrange their travel schedules accordingly.

The Huanggang Converged Media Center has partnered with tower companies to utilize their numerous signal tower monitoring cameras for slow live streaming promotion of some scenic areas, widely promoting Huanggang's tourism resources. This slow live streaming approach not only expands the influence of Huanggang's tourism resources but also enables Huanggang natives working away from home to timely revisit their hometown and alleviate homesickness.

### **3. Utilizing Network Live Streaming Technology to Create New Cultural-Tourism Activity Brands**

As an innovative achievement of Huanggang's cultural-tourism integration, the Huanggang Dongpo Temple Fair has become a beautiful calling card for the city's cultural-tourism sector. The most grand events during Huanggang's Spring Festival Dongpo Temple Fair are the dragon lantern parade and the Lantern Festival fireworks display.

The dragon lantern parade generally follows two routes (south and north), each passing through densely populated commercial districts within the city, with 4 to 6 performance nodes set up along each route. The south and north routes converge at a designated endpoint area where synchronized cultural activities featuring opera, martial arts, lion dancing, acrobatics, and other intangible cultural heritage elements are performed, alongside special agricultural product exhibitions.

To expand the influence of cultural-tourism activities, the Huanggang Converged Media Center conducted comprehensive pre-event promotion for different activities. For instance, for the dragon lantern parade at the Huanggang New Year Dongpo Temple Fair, activity previews were released in advance through the "Cloud Huanggang" App, WeChat public accounts, and short video platforms. In 2023, pre-event promotion using graphics and short videos achieved over 450,000 single-day views. Online interactive topics (such as "Dongpo Temple Fair, Returning Home for New Year") were designed to guide user content creation. More refined short videos were produced and distributed post-event, allowing audiences to experience the cultural atmosphere of returning home for the New Year.

At the technical level, the Spring Festival temple fair activities featured large-

scale online live streaming, simultaneously broadcast on CCTV's new media platform, achieving high viewership. For example, the 2023 live broadcast exceeded 18 million views, while the 2025 viewership surpassed 19 million. Particularly challenging was the mobile shooting, signal stability, and real-time transmission required for the dragon lantern parade moving through streets, necessitating more complex live streaming coordination. To fully present the multi-route parade effect, Huanggang Broadcasting and Television Station used multiple broadcast vehicles and camera positions in the 2023 live broadcast, employing 5G backpacks and other equipment. In 2024 and 2025, to better present the on-site experience, we learned from past experiences and added new technologies such as wireless image transmission, aerial high-definition cameras, and 5G tracking shots.

### 3.1.1 Matching Activity Flow with Technical Requirements

Based on the parade route length, fixed live streaming camera positions were set up at performance nodes. For example, Huanggang's dragon lantern parade is divided into south and north routes, with four performance nodes established along each route. Advance planning is required for signal transmission links, tracking equipment stability, broadcast vehicle parking positions, drone flight areas, and signal coverage ranges.

Multi-camera deployment: The 2023 parade live broadcast employed 18 camera positions. Each node had one fixed camera as a safety position, transmitted via wired network through encoders. Additionally, two tracking positions used mobile phones with gimbals for close-up shots, while one drone used 5G mobile image transmission. Due to battery life and high-voltage power lines along the route, the 2023 parade live broadcast lacked sufficient aerial grand scenes, diminishing the majestic presence of the dragon dance. The 2024 parade was larger in scale. Learning from this lesson, we purchased 5G signal transmission mobile encoders (5G backpacks) and coordinated with relevant departments to use high-altitude surveillance cameras along the route, transmitting aerial signals through wired encoders. The entire activity featured more stable signal transmission and more spectacular visuals, receiving widespread audience acclaim.

### 3.1.3 Signal Transmission

To ensure signal transmission stability, we primarily used wired network transmission supplemented by wireless image transmission. For multi-camera directing, we used television broadcast vehicles and converged media broadcast vehicles for real-time directing and signal return transmission, ensuring synchronized multi-route live broadcast images.

### 3.1.4 Team Collaboration

The technical team, directing team, and new media team have clearly defined divisions of labor. For example, in 2023, over 50 journalists were dispatched for multi-dimensional reporting.

### 3.1.5 Pre-event Promotion and Interactive Design

Pre-event promotion was released through WeChat public accounts and short video platforms, with interactive topics designed to guide user participation. For example, the 2023 pre-event promotion using graphics and short videos achieved over 450,000 single-day views. Online interactive topics (such as “Dongpo Temple Fair Returning Home for New Year”) were designed to guide user content creation.

## 3.2 Key Live Streaming Execution Technologies

To ensure signal stability in mobile scenarios, we used wireless image transmission equipment (such as microwave and 5G backpacks) to solve the stability issues of mobile shooting for parade teams. Huanggang achieved signal coverage in 2023 through a combination of broadcast vehicles and portable equipment. For signal transmission stability, in addition to 5G wireless transmission equipment as backup channels, we enabled dual-path signal return transmission during the 2024 CCTV live broadcast to address potential network congestion: one path used a 5G backpack with mobile networks, while the other used high-altitude surveillance cameras along the route, then transmitted through wired networks via encoders.

To ensure multi-dimensional content presentation, aerial perspectives used drones and high-altitude surveillance cameras to capture panoramic views showing the parade scale (for example, the longest dragon lantern in 2023 reached 100 sections, with the parade stretching nearly 1 kilometer). For close-up shots, mobile positions using phones and mirrorless cameras with 5G backpacks captured dragon dance details (such as close-ups of the dragon head and intangible cultural heritage inheritors’ movements). To showcase the activity’s historical and cultural inheritance, subtitles/voiceovers introduced Huanggang’s intangible cultural heritage, such as the history of Dingjia Qi dragon and the performance forms of the lotus-picking boat dance. To ensure real-time interaction and traffic conversion, we embedded bullet screen interactions and real-time voting functions during pre-event, implementation, and post-event phases. For example, in 2024, we set up an online voting for “Best Dragon Lantern Team.” To promote Huanggang’s landmark products, live streaming with product promotion was simultaneously conducted at the event site, with 31 anchor seats set up in 2023.

### 3.3 Post-event Distribution and Effect Enhancement

To expand activity influence, we adopted a multi-platform matrix communication strategy, primarily promoting official platforms (such as the “Cloud Huanggang” client) while simultaneously distributing to CCTV News, Douyin, WeChat Video Channel, and other channels. In 2023, a single live broadcast exceeded 18 million views across the entire network. Post-event, short video clips were edited and pushed in time segments (such as parade highlights and intangible cultural heritage technique specials) to sustain activity popularity. Through data monitoring and optimization, we monitored viewership, interaction rates, and geographic distribution in real-time. For example, in 2023, we enhanced local audience reach through continuous TV subtitle rolling and all-media interaction, dynamically adjusting live streaming strategies. By continuously increasing promotional intensity and depth, we enhanced cultural-tourism promotion effectiveness, achieving a 40% year-over-year tourist growth in 2023 and doubling the intangible cultural heritage performance topic reading volume in 2024.

## 4. Aggregating Media Matrices to Build a New Cultural-Tourism Promotion Aircraft Carrier

Currently, cultural-tourism activity promotion cannot rely on single media channels for effective publicity; it requires multi-dimensional, high-density, all-media in-depth promotion. Aggregating traditional media matrices and converging self-media for joint dissemination represents an effective exploration conducted by the Huanggang Converged Media Center under the leadership of the Municipal Party Committee’s Propaganda Department.

The Huanggang Converged Media Center has established a city-wide network live broadcast alliance and self-media home to enhance propaganda guidance and communication influence. These two group organizations, under the center’s guidance, have conducted a series of collective promotional activities centered on the center’s propaganda work. For example, the city-wide fireworks display starting from the 2023 Lantern Festival is one of the most representative activities.

This activity involved unified planning of fireworks displays from all counties and districts in the city. In terms of technical preparation, we required all counties and districts to strictly follow the determined live broadcast schedule, transmitting on-site signals to the converged media center’s studio via broadcast vehicles. The studio coordinated commentary and video transmission from all counties and districts, with county and city studios opening inter-signal transmission to connect directing systems. In addition to completing their own live broadcast activities, they needed to accept unified signal scheduling from the municipal converged media center, forming a tree-shaped live broadcast system.

The entire activity was coordinated and scheduled by the municipal converged

media center, with unified distribution across all live broadcast platforms through a single collection, allowing audiences to experience the atmosphere of different county and city live broadcast sites and different cultural commentaries within one program, providing a visual feast for all citizens and viewers.

Achieving deep integration of cultural IP and media technology, and forming communication synergy by aggregating social media forces, we are building a Huanggang cultural-tourism promotion aircraft carrier to support the growth and development of Huanggang's cultural-tourism sector.

In the deep integration process of culture and tourism, new media has abandoned the centralized and one-way communication model of traditional media, instead adopting Internet thinking to rapidly expand its influence through high-speed transmission, fragmented information broadcasting, content aggregation, and user interaction. It also demonstrates the unique charm of news media from a “fast, concise, and easily understandable” perspective. New media plays an important service role in promoting cultural-tourism integration, relying on advanced technologies such as big data, artificial intelligence, and virtual reality to build its foundational service capabilities in the industry. With the continuous progress of information technology and the increasing number of Internet users, new media is increasingly integrated into the wave of cultural-tourism industrialization—a transformation worthy of further attention and research.

**Author Biographies:** Hu Zide (1967–), male, from Huanggang City, Hubei Province, senior engineer, research direction: broadcasting and television engineering. Qin Wu (1980–), male, from Huanggang City, Hubei Province, engineer, research direction: broadcasting and television engineering. Xie Ling (1973–), female, from Huanggang City, Hubei Province, engineer, research direction: broadcasting and television engineering.

*Note: Figure translations are in progress. See original paper for figures.*

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