

Reflections on the Convergence of Broadcast Television Technology and Cultural Tourism Projects (Postprint)

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Abstract

[Objective] By promoting the integrated development of broadcasting and television technology with cultural tourism projects, this initiative aims to accelerate the cultivation of cultural tourism pillar industries that yield both economic and social benefits, comprehensively facilitate the construction of a modern economic system, and inject new momentum and expand new horizons for achieving high-quality economic development.

[Methods] Focusing on strategies such as technology empowerment, platform support, content innovation, and cultural guidance, this approach addresses multiple dimensions including technological innovation, content creation, service upgrading, and industrial cooperation to realize the transformation and upgrading of the broadcasting and television industry, enhance the high-quality development of cultural tourism projects, and promote the integrated development of broadcasting and television technology with cultural tourism projects.

[Results] The integration of broadcasting and television technology with cultural tourism projects represents not merely a superficial combination, but rather achieves synergistic effects between both domains through innovation and optimization, thereby generating greater value.

Conclusion Deeply advancing the integrated development of broadcasting and television technology with cultural tourism projects constitutes a pivotal fulcrum for implementing the national cultural digitalization strategy, bearing significant strategic importance and practical value. This integration catalyzes the transformation of the broadcasting and television industry toward intelligence and all-media convergence, while simultaneously reconstructing the cultural tourism industry value chain and fostering the formation of new-quality productive forces in digital cultural tourism with international competitiveness,

thereby providing innovative carriers and transformative support for constructing a modern economic system.

Full Text

Preamble

Exploring the Convergence of Broadcasting Technology and Cultural Tourism Projects

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Abstract

[Objective] This study aims to accelerate the cultivation of cultural tourism as a pillar industry delivering both economic and social benefits by promoting the integrated development of broadcasting technology and cultural tourism projects. Such integration provides new momentum and expanded horizons for achieving high-quality economic development and building a modern economic system.

[Methods] Focusing on strategies of technology empowerment, platform support, content innovation, and cultural leadership, this paper examines multi-dimensional approaches including technological innovation, content creation, service upgrading, and industrial collaboration to realize the transformation and upgrading of the broadcasting industry, enhance the high-quality development of cultural tourism projects, and advance the convergence of broadcasting technology with cultural tourism initiatives.

[Results] The integration of broadcasting technology and cultural tourism projects represents far more than a superficial combination. Through innovation and optimization, this convergence generates synergistic effects that create substantially greater value than either domain could achieve independently.

Conclusion Deepening the integrated development of broadcasting technology and cultural tourism projects constitutes a critical fulcrum for implementing the national cultural digitization strategy, carrying significant strategic importance and practical value. This fusion not only catalyzes the transformation of the broadcasting industry toward intelligence and all-media convergence but also reconstructs the value chain of the cultural tourism industry, fostering internationally competitive new-quality productive forces in digital cultural tourism. Such development provides innovative vehicles and transformative support for building a modern economic system.

Keywords: Broadcasting + Cultural Tourism; Technology Empowerment; Platform Support; Content Innovation; Integrated Development

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Main Body

Over the past two years, the tourism industry has achieved comprehensive recovery, demonstrating vigorous vitality and dynamism. At the third “Minister’s Corridor” session of the 14th National People’s Congress, Minister of Culture and Tourism Sun Yeli stated that cultural and tourism consumption holds tremendous potential for expanding domestic consumption. The Minister cited compelling data: in 2024, enterprises above designated size in cultural and related industries achieved operating revenue of 14 trillion yuan, representing year-on-year growth of approximately 6%; domestic tourism reached 5.6 billion person-trips, up nearly 15% year-on-year, with domestic tourism expenditure totaling 5.7 trillion yuan, an increase of over 17%; inbound tourism reached approximately 132 million person-trips, generating nearly \$100 billion in revenue [1]. This vibrant consumption is reflected not only in statistical data but also in the profound organic integration and coordinated development of these two industries.

The “Decision of the Central Committee of the Communist Party of China on Further Deepening Reform Comprehensively to Advance Chinese Modernization” proposed key tasks including “improving the institutional mechanisms for the in-depth integrated development of culture and tourism.” This mandate reflects emerging demands for innovative industrial upgrading, digital intelligence-driven transformation, technology empowerment, and new consumption pattern cultivation within the cultural tourism sector. Broadcasting technology has consistently played a vital role in cultural tourism development, and the media convergence initiatives currently transforming the broadcasting industry actively promote cultural tourism growth. National broadcasting institutions have progressed through three stages of media convergence: initial superposition of traditional industries with emerging technologies, gradual integrated development, and now deep fusion with remarkable results. This convergence transcends superficial combination, achieving synergistic effects through innovation and optimization to create greater value. Promoting the organic integration of broadcasting technology and cultural tourism projects has become an important practical pathway for advancing in-depth media convergence.

The convergence of broadcasting technology and cultural tourism projects refers to integrating broadcasting technological capabilities, content creation capacity, and distribution channels with the cultural tourism industry. This integration empowers industrial upgrading, enhances immersive experience quality, strengthens brand communication influence and market competitiveness, and drives digital transformation and upgrading of cultural tourism. Such fusion

not only enriches the manifestations of cultural tourism projects but also expands application scenarios for broadcasting technology, achieving two-way empowerment between culture and technology. However, despite demonstrating significant innovative potential, the integration of broadcasting technology and cultural tourism faces multi-dimensional practical challenges in implementation, specifically in four areas: technological innovation, operations management, content creation, and cultural value.

1. Technology Empowerment: Facilitating Convergence

The cultural tourism industry landscape is being reshaped by new-quality productive forces led by digital technologies. The application of 5G networks, 4K/8K ultra-high definition, VR, and AR technologies has brought revolutionary changes to broadcasting. Leveraging 5G's high bandwidth and low latency characteristics, 4K/8K ultra-high definition, VR, and AR content transmission and playback have become more seamless, enabling users to enjoy higher-quality audio-visual experiences. China Central Television achieved technological breakthroughs in large-scale live broadcasts through deep integration of 5G networks and 4K/8K ultra-high definition technology. Ultra-low latency real-time transmission combined with 极致清晰的画质呈现 (extremely clear image quality) not only creates more immersive viewing experiences but also accelerates technological iteration and market cultivation of the ultra-high definition video industry through benchmark demonstration applications.

Hunan Satellite TV's variety show "Dance Storm" utilized AR technology to add virtual special effects to stage performances, creating stunning visual effects that attracted large young audiences and exemplified the integration of technology and art. The Palace Museum has transformed traditional cultural resources into online experiences through digital technology, launching the "Digital Cultural Relics Repository" based on VR construction. Through high-precision 3D modeling and interactive design, visitors can browse high-definition cultural relic images and 3D models online, enabling 360-degree panoramic exploration of the Forbidden City and creating a new paradigm for "technological activation" of cultural heritage. Visitors can also use AR technology during on-site visits to scan cultural relics with their mobile phones to obtain detailed information and interactive content. Through digital technology innovation, the Palace Museum has not only attracted numerous young visitors but also enhanced its cultural communication power and influence. Zhangjiajie Scenic Area launched a "metaverse" tourism project that combines real landscapes with virtual worlds, using digital twin technology to digitize Zhangjiajie's natural scenery and create a virtual scenic area. Tourists can enter the virtual landscape through VR devices to participate in interactive activities such as virtual mountain climbing and photography, while NFT technology enables the launch of virtual souvenirs and digital artworks, attracting large numbers of young tourists and technology enthusiasts and increasing the scenic area's visibility and revenue. CCTV's original cultural variety show "National Treasure" reconstructs cultural relic nar-

ratives through disruptive expression, employing holographic imaging and augmented reality technology to break temporal and spatial boundaries, enabling millennia-old artifacts to “come alive” on stage. Through innovative integration of immersive stage plays and technological aesthetics, historical stories gain contemporary appeal, creating a new paradigm of “technological aesthetics” for cultural communication. Combined with cultural tourism resources, the program has driven visitor growth to museums and scenic areas after broadcast, successfully attracting young audiences and promoting cultural relic protection and tourism integration.

Technology innovation empowerment in broadcasting technology and cultural tourism convergence not only enhances user experience but also drives industry digital transformation and cross-boundary collaboration. However, achieving deeper and broader technology empowerment nationwide requires breakthroughs in technological transformation, as most technical personnel in the broadcasting and cultural tourism industries remain familiar with traditional broadcasting and tourism promotion technologies, with fewer professionals mastering new technologies. This is particularly challenging in second- and third-tier cities, where retaining high-level talent proves difficult. Currently, broadcasting technology and cultural tourism technology teams have begun transformation efforts. As 5G, AI, VR/AR and other technologies further develop, the convergence of broadcasting and cultural tourism will become even tighter, creating more new business models and consumption scenarios that require continuous innovation and exploration.

2. Platform Support: Strengthening Convergence Capabilities

On May 22, 2022, the General Office of the CPC Central Committee and the State Council issued the “Opinions on Promoting the Implementation of the National Cultural Digitization Strategy” (hereinafter referred to as the “Opinions”). The document proposes: first, to coordinate and utilize achievements from existing or ongoing digitalization projects and databases in the cultural sector to form a Chinese cultural database; second, to consolidate cultural digitization infrastructure by relying on existing cable television network facilities, broadcasting 5G networks, and interconnection platforms to form a national cultural dedicated network; third, to encourage diverse entities to jointly build cultural data service platforms based on the national cultural dedicated network; and fourth, to encourage and support various cultural institutions to access the national cultural dedicated network and utilize cultural data service platforms to explore effective pathways for digital transformation and upgrading [2].

The “Opinions” reveal the close relationship between broadcasting technology and cultural data service platforms, which mutually reinforce each other in technology integration, data application, and content dissemination to jointly achieve value chain reconstruction in cultural tourism driven by technology. As important infrastructure in the digital era, cultural data service platforms can effectively consolidate the convergence of broadcasting technology and cultural

tourism, promote digitalized and intelligent management and application of cultural resources, and facilitate deep integration between cultural and tourism industries. In content production, broadcasting institutions possess abundant resources including film and television works, historical archives, and news materials that can serve as important data sources for cultural data service platforms. In content acquisition, broadcasting technology acquisition equipment such as high-definition cameras, drones, and virtual studios can capture high-quality cultural content including documentary films on cultural relics, intangible cultural heritage demonstrations, and local cultural promotional videos for inclusion in cultural data service platforms after digitization. In content dissemination and promotion, broadcasting technology distribution channels including satellite, cable networks, internet, live streaming, and short videos can rapidly disseminate content from cultural data service platforms to broader audiences. In technical support, AI tools from broadcasting technology such as speech recognition, image recognition, and intelligent editing provide intelligent analysis capabilities for cultural data service platforms; emerging holographic imaging and digital twin technologies concretize abstract cultural forms, providing content support capabilities; and streaming media transmission, audio-video encoding, and real-time live broadcasting provide efficient data transmission and processing capabilities.

As of early 2024, broadcasting network companies in 11 provinces have successfully established provincial-level centers for the national cultural big data system, enabling cultural institutions to access the national cultural dedicated network. As a pioneer, Sichuan Broadcasting Network Company's provincial center has covered 314 cultural, museum, and tourism institutions across the province, implementing dedicated network services [3].

Cultural data service platforms can consolidate the convergence of broadcasting technology and cultural tourism development in several ways. First, by building cultural data resource libraries that consolidate fragmented cultural resources from multiple stakeholders, leveraging big data and artificial intelligence technologies to unlock cultural data value. Second, by relying on the national broadcasting cultural dedicated network to break down connectivity barriers between different entities, providing high-quality digital products and data services to accelerate cultural tourism development. Third, by employing cutting-edge digital technologies such as holographic projection and digital twinning to reconstruct intangible cultural heritage and historical allusions through three-dimensional visualization, creating immersive cultural experience spaces that blend virtual and real elements. Through visual-auditory-tactile integration, these platforms enable embodied perception of cultural connotations, allowing tourists to gain deeper cognitive and sustained emotional resonance through interactive, participatory digital scenarios. Fourth, through joint efforts by government, enterprises, and technology providers, addressing data rights confirmation on cultural data service platforms by improving laws and regulations, establishing rights confirmation mechanisms, and applying new technologies to clarify data ownership, ensure data security and privacy, and provide important support for

business model innovation and data value mining in cultural tourism projects, thereby promoting sustainable development of the cultural tourism industry.

3. Content Innovation: Elevating Convergence Quality

Today, with the popularization of mobile internet and diversification of social values, the relationship between cultural tourism expression methods and audience groups has undergone profound changes. The traditional one-way communication model—where media disseminates and audiences passively receive—no longer satisfies modern user needs. Contemporary audiences emphasize personalization, interactivity, and spiritual experience, requiring the cultural tourism industry to adapt through content innovation, cultural depth excavation, and technological innovation to create more attractive and compelling cultural tourism products. This elevates the quality of broadcasting technology and cultural tourism integration and continuously drives co-development with other industries to meet evolving needs.

From the aforementioned approaches to enhancing broadcasting technology and cultural tourism integration, content products emerge as both key elements in shaping cultural tourism brands and important engines driving industrial innovation and upgrading. Therefore, in developing cultural tourism content products, first, emphasis should be placed on deep content cultivation based on local characteristic cultural resources to avoid homogenized competition and build differentiated content systems. Second, brand building should be prioritized through high-quality content to create distinctive cultural tourism IPs, enhance regional cultural recognition and influence, and form unique brand identifiers. In operating cultural tourism content products, first, user operation should be emphasized by designing immersive interactive content for core customer groups such as Generation Z and achieving precise dissemination through platforms like Douyin and Xiaohongshu. Second, ecological coordination should be prioritized by linking diverse stakeholders including government, enterprises, and technology institutions to promote deep integration of “content + industry” and form resource integration advantages. Through content cultivation, brand building, user operation, and ecological coordination, high-quality and influential cultural tourism content products can be created to elevate the quality of broadcasting technology and cultural tourism integration.

Deepening the integration of film/television with cultural tourism is crucial, as film and television plays a vital role in empowering cultural tourism. By showcasing local scenery and cultural customs, film and television works enhance the appeal and dissemination power of cultural content, effectively stimulating potential tourism demand and cultivating new growth points for regional cultural tourism economies. For instance, “Blossoms Shanghai” captures the charm of old Shanghai, while “To the Wonder” presents the magnificent landscapes and rich ethnic customs of Altay, Xinjiang. These works allow audiences to appreciate distant beauty and experience different cultures, thereby inspiring desires for personal experience. Combining broadcasting content creation with local

characteristic cultural tourism IPs represents a highly promising development model that not only endows scenic areas with unique cultural value but also enables effective promotion, achieving functions of super promotion, authoritative evaluation, public opinion supervision, and targeted marketing.

Furthermore, promoting cultural tourism IPs and content creation to build an “audio-visual + cultural tourism” industrial ecosystem serves as a strategic fulcrum for improving quality and efficiency in the cultural tourism industry. Through audio-visual formats such as micro-videos and live streaming, cultural tourism content can enhance its dissemination power and appeal while strengthening resource integration to cultivate new-era cultural tourism IPs that demonstrate Chinese cultural charm, possess modern communication effectiveness, and feature immersive experiences. “Zibo Barbecue” used food as a carrier to showcase local culture and civic enthusiasm, creating emotional resonance through short video platforms like Douyin and Kuaishou. Zibo achieved breakthrough urban brand recognition through phenomenal online popularity, transforming cultural tourism traffic into new drivers of economic development. “Harbin” used the Ice and Snow Festival as a carrier, combining local characteristic culture to create unique audio-visual experiences through live streaming and short videos showcasing Harbin’s ice and snow culture and urban landscape, establishing a new urban cultural tourism IP that attracted numerous tourists. Kaifeng’s “Matchmaker Wang” used traditional culture as a carrier combined with modern communication methods to attract young users’ attention, enhancing Kaifeng’s cultural tourism image through short videos and live streaming of traditional matchmaking activities and attracting more tourists to experience local culture. These successful cases demonstrate that cultural tourism industry competition has entered an era where content is king, and high-quality content has become a key element of differentiated competition. Audio-visual products, with their strong appeal and high dissemination capacity, have become the preferred vehicle for showcasing urban cultural charm. Through in-depth promotion of “audio-visual + cultural tourism” integrated development, regional cultural recognition can be rapidly established with precise communication, while deep cultural excavation and creative expression can comprehensively enhance value-added services for cultural tourism products, forming a new development pattern for the cultural tourism industry. The “audio-visual + cultural tourism” model, through quality content creation and technology empowerment, is becoming a new engine for cultural tourism industry development.

4. Cultural Leadership: Achieving Win-Win Convergence

Currently, cultural tourism development has shifted from resource-driven to culture-driven models, while tourist demands have upgraded from superficial sightseeing to deep experiential engagement. Modern tourists no longer satisfy themselves with cursory tours but seek profound cultural experiences and spiritual enjoyment. Cultural tourism projects can integrate historical allusions and cultural connotations into tourism experiences through cultural ambassadors,

historical artifacts, and celebrity stories. This approach not only enhances uniqueness and communication value but also enables tourists to acquire knowledge through deep experiential models, understanding not only what they see but also its origins. This fully embodies the principle of education through entertainment, transforming cultural tourism into a novel learning domain with unique cultural communication characteristics.

In cultural tourism projects, leveraging culture's leading role to achieve a new dual-integration model of traditional culture and tourism/residence can create a virtuous cultural communication and service ecosystem. When traditional culture meets tourism and residence, it is like an old tree sprouting new branches, radiating vibrant vitality. This not only injects cultural soul into the tourism industry but also provides new life for traditional culture. The new dual-integration model of traditional culture and tourism/residence offers various approaches: tourists visiting a place no longer merely take photos for social media but can personally craft clay figurines, learn local opera, or participate in traditional cuisine preparation. Such experiences transform cold scenic spots into warm cultural classrooms, changing tourists from observers to participants and bringing culture from books to tangible, perceptible life. For instance, creating live-action dramas from historical celebrity stories or transforming traditional festivals into immersive experiences—these activated cultural IPs attract tourists while spreading through broadcasting and online channels to reach broader audiences.

As the new dual-integration model of traditional culture and tourism/residence emerges, an increasing number of tourists hope to enhance personal cultivation, relax physically and mentally, and gain life wisdom through deep traditional cultural experiences. Taking Confucian culture-themed tourism products as an example: as one of the three core pillars of traditional Chinese culture, Confucianism emphasizes “cultivating oneself, regulating the family, governing the state, and bringing peace to the world,” focusing on moral cultivation, ritual norms, and humanistic care. Confucian culture-themed tourism products can provide rich spiritual experiences and physical-mental healing. Through Confucian cultural experience journeys, tourists can appreciate the positive influence of Confucian thought on personal character, family harmony, and social responsibility. This can be achieved through: (1) traditional ritual workshops arranging tourist participation in traditional ceremonies such as coming-of-age rituals, Confucius memorial ceremonies, and master-apprentice rituals to learn ritual norms and connotations and experience the cultural significance of “propriety”; (2) classical text study sessions organizing tourists to study the Four Books and Five Classics with expert scholars explaining the wisdom within these classics; (3) calligraphy and guqin experiences representing important components of Confucian culture, where tourists can learn calligraphy techniques and experience guqin performance to appreciate the “elegance” and “tranquility” of Confucian culture, cultivating focus and inner peace; (4) Confucian culture lectures and interactions inviting Confucian scholars to discuss the application of Confucian thought in modern life and interact with tourists; and (5) stage

play performances presenting Confucian culture through drama to both inherit traditional cultural essence and achieve creative transformation of modern values. This format not only revitalizes dusty classics but also enables audiences to complete the sublimation from “knowing” to “embodying” Confucian culture through the emotional impact of drama.

Through immersive Confucian cultural deep tours, tourists gain spiritual nourishment while ancient wisdom receives contemporary vitality, achieving living inheritance of culture. Tourists can comprehend the true essence of Confucian self-cultivation wisdom during their journeys, achieving comprehensive physical and mental enhancement. Simultaneously, these cultural tourism products provide new opportunities for local economic development and cultural dissemination, offering broad market prospects and social value.

Cultural leadership achieves win-win convergence of broadcasting technology and cultural tourism projects. Culture is the root, the soul, and the source of development momentum. Cultural power is driving innovation in broadcasting technology and comprehensive upgrading of the cultural tourism industry. First, as an important carrier of cultural communication, broadcasting technology should leverage its audio-visual narrative advantages to create cultural tourism projects with both cultural depth and market vitality through cultural IP activation, historical scene reconstruction, and immersive experience design, making dormant culture “come alive” and static scenic spots “become dynamic.” Second, through deep cultural excavation and innovative technology application, tourists can transition from “watching the excitement” to “appreciating the essence,” achieving truly immersive experiences. In this process, culture is not mere embellishment but the backbone leading development. Using culture to tell good stories, technology to empower experiences, and services to win hearts enables tourists not only to visit and enjoy but also to take away cultural memories and the taste of nostalgia. Such integrated development rejuvenates traditional culture, injects vitality into local economies, and creates a virtuous cycle of mutual promotion between cultural communication and tourism consumption. This represents not only the necessary path for industrial upgrading but also the vivid practice of cultural confidence.

Conclusion

Focusing on strategies of technology empowerment, platform support, content innovation, and cultural leadership to deeply advance the integrated development of broadcasting technology and cultural tourism projects carries important strategic significance and practical value. This integration catalyzes the transformation of the broadcasting industry toward intelligence and all-media convergence while reconstructing the cultural tourism industry value chain and fostering internationally competitive new-quality productive forces in digital cultural tourism. Such development provides innovative vehicles and transformative support for building a modern economic system. Moving forward, we must adhere to the principle of “culture as the soul, technology as the wings, and

tourism as the body” through continuous innovation and cross-boundary collaboration to create a smart cultural tourism model with Chinese characteristics, achieving both social and economic benefits.

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

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