

Research on the Construction and Dissemination of the Digital Image of Tianjin Intangible Cultural Heritage from the Perspective of Cultural and Tourism Integration

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Abstract: The tourism industry is an important driving force for regional economic development, while local culture, as a reflection of historical accumulation and humanistic spirit, is the core element in shaping a distinctive tourism economy. The 20th National Congress of the Communist Party of China clearly proposed to “promote the deep integration of culture and tourism,” which has become the political support and policy guidance for the development of local tourism industries. Tianjin has rich intangible cultural heritage resources, and utilizing digital image construction for dissemination can better promote the inheritance and innovation of culture. This paper starts from the development and challenges of Tianjin’s intangible cultural heritage, explores the current application status of contemporary digital technology in intangible cultural heritage, and further discusses how Tianjin can fully utilize digital image construction under the cultural-tourism perspective to promote the integrated development of intangible cultural heritage and the tourism industry, achieving the dissemination and brand building of intangible cultural heritage.

Keywords: cultural-tourism integration; Tianjin intangible cultural heritage; digital image construction

1. Introduction

In the 1990s, the wave of information technology began to sweep the world, bringing a new opportunity for digital transformation in the field of cultural preservation. It started with the digital cultural preservation project “American Memory” initiated by the U.S. Library of Congress, aiming to preserve and disseminate American historical culture through the digitization of ancient books and images. This pioneering practice has provided a model and reference for the global digital preservation of intangible cultural heritage. With the rapid development of information technology, digital applications in the protection and inheritance of intangible cultural heritage have continued to advance and deepen. At present, China’s intangible cultural heritage shows signs of decline under the impact of modern pluralistic cultures. In view of the severe situation of traditional cultural inheritance, the country has vigorously advocated the protection of intangible cultural heritage in recent years, and further promoted the integration of local tourism industry development with intangible cultural heritage inheritance, embedding intangible cultural heritage into production and life. The “Opinions on Implementing the Project of Inheriting and Developing Excellent Chinese Traditional Culture” clearly proposes to “vigorously develop cultural tourism and fully utilize the advantages of historical and cultural resources,” promoting the living inheritance of intangible cultural heritage through industrialization. The modern integration of culture and tourism cannot be separated from the support of digital technology. Empowering intangible cultural heritage in cultural tourism through digital technology not only enhances its attractiveness but also promotes the healthy development of local characteristic tourism economy.

2. Development and Challenges of Tianjin Intangible Cultural Heritage

Culture is the spiritual lifeblood upon which a nation depends for survival, and the fundamental force behind the continuous and enduring development of its civilization. The Chinese nation has a long history, forming a uniquely distinctive humanistic pattern through long-term evolution, carrying the collective memory and wisdom of the people. As one of China’s four direct-controlled municipalities, Tianjin has a history of more than 600 years. Located in the strategic area around Beijing, it is an important economic and cultural center in northern China. Throughout its long historical development, Tianjin has formed a unique regional culture and nurtured a rich and diverse intangible cultural heritage. Tianjin’s culture originates from the canal transportation culture of the geographic environment where the Haihe River converges. During the Yuan Dynasty, it was called Haijin Town, and the establishment of the Tianhou Palace created a center for worship and commerce. By the Ming and Qing Dynasties, with the development of canal transportation, commercial culture and urban folk arts emerged, gradually forming a vast and diverse range of traditional art forms. Various folk arts, handicrafts, and folk activities took root and flourished here. These include Yangliuqing woodblock prints, clay sculptures, crosstalk, Jinmen legal

drum performances, puppet shows, and multiple other art forms such as painting, drama, and quyi (folk art performance). These art forms uniquely embody the local Tianjin characteristics and charm, showing features of the integration of tradition and modernity as time passes.

Tianjin's intangible cultural heritage shapes the city's image from multiple dimensions and serves as Tianjin's urban calling card, attracting visitors from all directions. However, the inheritance of Tianjin's intangible cultural heritage still faces severe challenges. First, the inheritors are aging. Although the younger generation has some awareness and understanding of intangible cultural heritage, their enthusiasm for participation is insufficient. Taking Hebei Bangzi opera as an example, with the older generation of artists retiring from the stage, the new generation of actors is lacking, and factors such as a long training cycle, arduous process, and narrow employment prospects have caused a significant gap in new talent, posing a serious risk of discontinuity. Second, with the acceleration of modernization, traditional handicrafts and performing arts have gradually become detached from market demand, creating a large gap between intangible cultural heritage and modern life. Young people tend to prefer popular culture, and some traditional folk arts with outdated forms and single content can hardly meet contemporary aesthetic needs. Meanwhile, insufficient funding and imperfect support policies have further aggravated the difficulties of Tianjin's intangible cultural heritage. Although Tianjin issued the "Regulations on the Protection of Intangible Cultural Heritage in Tianjin" in 2019, there have been phenomena of overemphasizing application but neglecting management during implementation, failing to effectively carry out the protection work of intangible cultural heritage, which has brought great difficulties to the protection efforts.

3. Application of Digital Technology in the Construction of Intangible Cultural Heritage

The application of digital technology is one of the most important technological revolutions in modern times. It has greatly changed the way information is transmitted and provided a new path for the protection of intangible cultural heritage. In recent years, emerging digital technologies have played an increasingly important role in the inheritance and protection of intangible cultural heritage. Technologies such as virtual reality (VR) and extended reality (XR) can reconstruct intangible cultural heritage scenes that have disappeared or are difficult to access, such as restoring the complete process of traditional festival activities or recreating the production sites of endangered crafts. At the same time, through 3D stereoscopic display functions, they can anatomize intangible cultural heritage crafts in three dimensions, providing a more immersive learning experience and understanding for inheritance, thereby enhancing the attention of younger audiences. Compared with traditional cultural preservation methods, digital technology has significant advantages. Digital technology can realize the virtualization storage and dissemination of information through techniques such as information scanning, image capture, and holographic projection, compensating for the defects of physical preservation. Digital technology can also achieve instant dissemination over a broader range via the Internet, breaking the barriers of time and space in cultural transmission. Moreover, digital dissemination of intangible cultural heritage has interactivity, enabling the communication of intangible cultural heritage to shift from one-way information transmission to two-way interactive exchange, promoting deeper understanding. Participants can not only learn intangible cultural heritage knowledge but also offer their own ideas and suggestions, actively engaging in the inheritance process.

In recent years, the Tianjin government has increased investment in intangible cultural heritage protection and has made significant progress in digital cultural preservation. In March 2022, Tianjin completed the digital collection of historical and cultural heritage of the Tianjin section of the Grand Canal and the compilation of archives for related cultural relic protection units, totaling 790 volumes of archives, achieving digital preservation of the canal's intangible cultural heritage. At the same time, a digital museum was established, utilizing virtual reality (VR) and augmented reality (AR) technologies to provide online previews through various media and carriers, broadening the forms of intangible cultural heritage display and ways for audience participation. In addition, some uniquely characteristic Tianjin intangible cultural heritage have also been empowered and developed digitally. The protection unit of the Jinggu hand-painted Gongjian New Year painting skill project actively explores creative transformation of traditional culture, innovating with digital technology to turn New Year paintings into artworks and crafts. In 2024, the digital protection project for Yangliuqing woodblock New Year painting collections carried out 3D/2D digital collection, processing, restoration, storage, management, and digital utilization for the ancient woodblock and paper New Year paintings in the Yangliuqing Woodblock New Year Painting Museum collection. This project also cooperates with Tianjin Unicom to explore the deep integration of cultural industry practices with digital technologies such as 5G, cloud computing, and artificial intelligence.

4. Practice of Integrated Development of Tianjin Intangible Cultural Heritage and Tourism from the Perspective of Cultural and Tourism Integration

Cultural and tourism integration is a new development strategy in the new era that combines, promotes, and coordinates the cultural industry and tourism industry. Its purpose is to achieve economic transformation and upgrading as well as cultural inheritance and innovation through the organic integration of cultural elements and tourism carriers. This model not only endows tourism industry services with cultural experiences but also provides new opportunities for the growth and prosperity of culture. Tianjin's intangible cultural heritage is diverse, covering more than ten categories including folk literature, traditional music, traditional drama, quyi (folk art performance), and folk customs, with 47 national-level projects and 329 municipal-level projects laying a foundation for the integrated development of culture and tourism in Tianjin. In recent years, the Tianjin government has increased investment in the protection and promotion of intangible cultural heritage. By applying digital technology in combination with the regional tourism industry, it has driven the coordinated development of Tianjin's cultural and tourism economy.

At the practical level, Tianjin has developed multiple projects that utilize digital technology to integrate culture and tourism. In 2018, the Tianjin Museum partnered with Baidu to launch the "AI Museum Project," using internet digital technology to provide services that enhance the visitor experience, such as artifact photo recognition and intelligent voice-guided tours. Visitors encountering difficulties during their visit can scan codes via the Baidu app for identification and receive corresponding explanations. Tianjin Ancient Culture Street, known as Jinmen Guli, also preserves a large number of Tianjin intangible cultural heritage projects and is a culturally valuable Tianjin-flavored cultural scenic area. The site uses VR panoramic technology to construct a full-angle spatial representation of the entire area online. Additionally, it has developed digital tour guides embodying Tianjin cultural images, who explain the culture of different areas of Jinmen Guli. Visitors can explore Tianjin Ancient Culture Street online without leaving home or tour the real site while listening to AI guide explanations, deeply experiencing the connotations of intangible cultural heritage. Beyond cultural and tourism departments' digital transformations of intangible cultural heritage, some inheritors actively explore the use of current digital technology to revitalize traditional folk arts. Zhao Yan, the inheritor of the Jinggu hand-painted "Gongjian" New Year painting, expands the usage scenarios of New Year paintings, which have faded from everyday life, by combining them digitally with ceramics, sculptures, office supplies, business gifts, and home decorations. This digital empowerment allows intangible heritage New Year paintings to re-enter people's lives as cultural and creative products. Additionally, the "Gongjian" New Year painting has created IP images such as Jinli and the Chinese zodiac, producing animated works to make them more accessible to children, thereby deepening the cultural influence of the "Gongjian" New Year painting intangible art. The Yangliuqing Woodblock Print inheriting organization, Yangliuqing Painting Society, has even joined the intangible cultural heritage metaverse, releasing digital painting collectibles for online sale, achieving sell-out success immediately upon launch. This promotes the integration of the digital metaverse with cultural tourism products and offers new ideas for the digital inheritance of intangible art. Moreover, Tianjin's performing arts and folk festivals have also been showcased in the cultural-tourism integration development. The traditional opera "Romance of the Western Chamber" has entered century-old gardens, blending situational drama into the experience. Large-scale nighttime 3D light shows transform the ancient city clock tower into a magical "light and shadow poem."

Tianjin's development combining intangible cultural heritage and tourism economy has greatly enhanced visitors' urban experience, serving as excellent promotion for Tianjin's intangible cultural heritage and city brand image. Although both intangible cultural heritage and cultural-tourism departments continuously adopt digital technology to enhance the modern elements of intangible cultural heritage, many shortcomings remain in usage. While digital media expansion has broadened dissemination channels, the fragmentation, superficiality, and entertainment-oriented tendencies have affected deeper understanding and exploration of intangible cultural heritage. Additionally, although technologies such as virtual reality and integrated media dissemination are used in digital applications, the methods are relatively single, with many projects suffering from homogeneity and insufficient comprehensive integration and depth of digital technology empowerment in cultural-tourism integration.

5. Dissemination and Brand Building Paths of Tianjin Intangible Cultural Heritage from the Perspective of Cultural and Tourism Integration

Tianjin intangible cultural heritage possesses profound traditional foundations and contains rich Tianjin humanistic elements. In exploring the integration of intangible cultural heritage and Tianjin's tourism industry, a dual perspective emphasizing intangible cultural heritage inheritance and urban characteristic construction should be followed. Therefore, in

formulating dissemination strategies, the focus must be on living inheritance, establishing a system for in-depth development and innovation of cultural connotations. In this process, core cultural IPs with regional characteristics should be extracted, refined into recognizable cultural symbols, and then form the brand effect of Tianjin intangible cultural heritage, building broad influence for Tianjin culture and tourism.

5.1 Optimization and Innovation of Dissemination Paths

Tianjin intangible cultural heritage originated from the canal transportation and urban folk culture of the old society, which formed unique regional identifiers and humanistic features during a specific historical period. In today's rapidly developing society, the cultural context has undergone profound changes. For Tianjin intangible cultural heritage to break through the limitations of traditional development models and revive vitality, it must rely on the empowerment of modern cultural technologies. From the dissemination perspective, Tianjin intangible cultural heritage needs to build a systematic communication system in the modern media environment. Besides relying on traditional media, it is more important to make good use of the communication power of new media. Through the coordinated operation of WeChat official accounts, Weibo, and Douyin platforms, a complementary flow and content closed-loop dissemination can be formed. The "Internet Platform Promoting Intangible Cultural Heritage Integration into Modern Life" special report shows that from May 1, 2024, to April 30, 2025, more than 200 million new intangible cultural heritage-related videos were added on internet platforms, a year-on-year increase of 31%. Fourteen million netizens shared intangible cultural heritage experiences on Douyin, with related short videos reaching 749.9 billion views. This indicates that intangible cultural heritage is widely popular and continuously spreading on internet platforms. As long as content is well crafted, platform advantages are seized, and audience creation and sharing are encouraged, the cyclical dissemination of Tianjin intangible cultural heritage can be realized, thereby creating a catalytic effect. As an important institution for disseminating Tianjin intangible cultural heritage, the Tianjin Museum should seize the favorable form of internet digital media communication, establish and improve its own intangible cultural heritage dissemination matrix, so that Tianjin intangible cultural heritage can first become popular on digital media, thereby generating lasting cultural appeal.

5.2 Construction of Intangible Cultural Heritage Product Brand Image

In the cultural dissemination ecosystem empowered by modern digital technology, enhancing the brand value of intangible cultural heritage can effectively improve dissemination efficiency. The brand building of Tianjin intangible cultural heritage must consider the dual dissemination demands of Tianjin's "cultural experience" and "tourism consumption", thus the intangible cultural heritage product brand also needs to be systematically designed based on these two demands. In the brand design process, the core values and regional characteristics of Tianjin intangible cultural heritage should be extracted to construct a brand symbol system with aesthetic qualities and emotional resonance. The main characteristics of Tianjin intangible cultural heritage are craftsmanship, Tianjin flavor, and humor, which form the basis for building a visual identity system. In the intangible cultural heritage brand building, Tianjin Museum can integrate intangible cultural heritage elements into cultural and creative designs, launch co-branded products, and sell them on online museum e-commerce platforms and offline museum stores to enhance the commercial value of intangible cultural heritage. For example, in the brand construction of "Clay Figure Zhang," IP-based design and cross-industry collaborations can concretize and popularize traditional skills through digital symbol design. Tianjin intangible cultural heritage can also be constructed as an overall image, achieving unified styles from color and fonts to digital IP images. On this basis, Tianjin intangible cultural heritage brand building also requires cross-departmental collaboration to integrate all intangible cultural heritage resources, transforming intangible skills, historical inheritance, legendary stories, and other cultural elements into digital content products that match the brand style. This achieves a virtuous cycle where intangible cultural heritage constructs brand content, which in turn nourishes intangible cultural heritage through the brand content.

5.3 Digital Strategies for Brand Promotion

The dissemination of Tianjin intangible cultural heritage brand IP is built upon the empowerment of digital technology. Correct use of digital technology and new media platforms is essential to deeply embed Tianjin's intangible cultural heritage image in people's minds. The application of technology should be deeper, reflecting innovation and breakthroughs. First, virtual reality (VR) and augmented reality (AR) elements should be added to intangible cultural heritage scenes to integrate virtual scenes and images with reality, achieving the connection between technology and tradition and enhancing the futuristic experience during visits. For example, AR interactive experiences can be set up in intangible cultural heritage venues such as the Tianjin Museum and Yangliuqing Woodblock Print Museum. Visitors can scan a code at the entrance to obtain a virtual identity image and participate in the intangible woodblock print making process with this virtual identity, completing tasks to earn digital print rewards. Second, the brand IP image of Tianjin intangible cultural heritage should be transformed. The

intangible cultural heritage AI spokesperson image can be creatively reworked in the form of animation or film to deepen the cultural connotations it represents, or IP image game products can be developed to reinterpret Tianjin intangible cultural heritage through popular culture.

6. Conclusion

The integration of culture and tourism is currently an innovative growth point for Tianjin's economic development. As a city that combines historical depth with a modern atmosphere, its unique cultural genes and diverse tourism landscapes provide exceptional conditions for the integrated development of culture and tourism. In recent years, Tianjin has used digital technology to innovate and upgrade its contemporary intangible cultural heritage, allowing intangible cultural heritage to shine anew in the city's cultural construction. Tianjin's cultural heritages such as quyi (folk art performance), craftsmanship, and folk customs have once again come into public view and become new cultural symbols of Tianjin's urban image. However, as current attempts to empower intangible cultural heritage with digital technology are not yet mature, issues such as single and standardized applications of digital technology remain. In the new era, Tianjin intangible cultural heritage needs to further build brand images and innovatively apply digital technology so that Tianjin's intangible cultural heritage can closely integrate with modern science and culture, achieve modernization transformation and living inheritance of traditional culture, and at the same time provide higher-quality cultural accumulation for the development of Tianjin's tourism industry.

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