

Research on the Collaborative Mechanisms and Optimization Paths for the Digital Protection and Dissemination of Intangible Cultural Heritage in Qinghai Province

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Abstract: Digital preservation and dissemination of intangible cultural heritage are key issues in cultural heritage inheritance and innovation in the new era, and new opportunities for the systematic use and innovative revitalization of Qinghai's various ethnic cultural resources have been created. In light of the above, a cooperative mechanism for the digital protection and dissemination of intangible cultural heritage in Qinghai Province has been established through multi-stakeholder cooperation, bidirectional flow of digital resources, mutual reinforcement between digital technology and the cultural industry, and integrated cross-media channel coordination across all regions. Going forward, the four directions of our work will be coordinated cooperation among all parties, the construction of a digital gene bank for plateau-level intangible cultural heritage, the building of an immersive dissemination ecosystem for "digital intangible cultural heritage and cultural tourism", and the implementation of regional synergy initiatives under the "Hehuang Leadership, Pastoral Area Revitalisation" program, providing a reference model for the creative transformation and innovative development of intangible cultural heritage in ethnic areas.

Keywords: Qinghai Province; intangible cultural heritage; digital protection and dissemination; cooperative mechanisms; implementation path

1. Introduction

Intangible Cultural Heritage is an important part of China's excellent traditional culture and a living repository of national history and culture. In 2022, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the "Opinions on Promoting the Implementation of the National Cultural Digitalisation Strategy", and explicitly requested to "advance cultural digitalisation to a new level" [1]. With the advent of the digital age, artificial intelligence, a representative product of digital technology, has been applied in various sectors to generate new energy and vitality for the digital preservation of intangible cultural heritage [2]. Therefore, it is necessary to clarify the inherent connection between the digital protection and dissemination of Qinghai's intangible cultural heritage, establish a collaborative model that involves all parties, and explore optimal ways for coordinated development to provide practical support for the dynamic inheritance of this heritage and offer a reference case for the digital development of intangible cultural heritage in ethnic areas.

2. Analysis of the Collaborative Mechanism between Digital Protection and Dissemination

Digital preservation and dissemination are both necessary for the healthy development of intangible cultural heritage, and they are in a dialectical unity of “preservation” and “dissemination”. Digital preservation serves as the source of cultural materials in Qinghai Province, while digital dissemination helps realize the cultural value of these materials; together, they enable resource interoperability, collaborative engagement among all parties involved, mutual industrial support, and a shared distribution platform for the development of intangible cultural heritage in Qinghai Province.

2.1. Mechanism for Division of Labor and Collaboration among Multiple Stakeholders

The organisation of this mechanism will be the basis for cooperation. A diversified division of responsibilities has been set up to cover government coordination, technological support from universities, participation by heritage bearers, market-driven commercialisation and public participation at the grassroots level. At the provincial level, the provincial government will issue rules, policies and so on. Qinghai Province has issued the “Qinghai Provincial Intangible Cultural Heritage Regulations” and built more than ten institutional systems, including the Cultural Heritage Protection and Utilisation Plan for 2025–2035, establishing an all-encompassing policy system of laws, policies and standards [3]. Universities across the province are taking the lead in technological research and digital documentation to conduct groundbreaking studies on the intelligent extraction and generation of Rebgong art elements, as well as digital preservation and sharing technologies for Tibetan architectural paintings [4]. At the level of heritage bearers, practitioners provide necessary technical support for relevant departments in digital preservation. Qinghai Zhumuyalu Digital Technology Company is the corporate entity responsible for technology commercialisation and market operation. The Qinghai Embroidery Association is an industry organisation that has built a Digital Headquarters. This multi-party structure will have certain responsibilities and work together to create a cooperative model for the digital preservation and sharing of intangible cultural heritage.

2.2. Cooperative Mechanism for the Bidirectional Flow of Digital Resources

The two directions of the flow for digital resources in the preservation-dissemination system are the basic modes. High-precision digital assets created in the course of preservation work, such as image data, 3D models, audio-visual recordings and archival documents, serve as the fundamental materials for dissemination. Collect user feedback and market demand data at the distribution stage, then adjust the priority and direction of resource collection for the preservation stage accordingly. The original data of the Tibetan architectural painting project has built a comprehensive knowledge base for this artistic tradition, and the developed cultural resource elements cover most of the essential aspects of these artworks. The above resources have been made available to the public via an independent preservation and dissemination platform, and the number of users has been rising steadily. User behaviour data, such as which pages are viewed and for how long, is also periodically transmitted back to the project team. It can promptly adjust the update plan for the knowledge base and raise the priority of deep digitalisation for high-relevance, high-dissemination content. It establishes a virtuous circle of conservation, communication feedback and optimised conservation to meet the communication demands of digital resources sustainably and integrate closely with various promotion activities.

2.3. The Mutual Reinforcement and Collaborative Mechanism between Digital Technology and the Cultural Industry

Digitalisation of intangible cultural heritage in ethnic areas generally covers the above stages systematically, including collection, preservation, management, restoration, reproduction, exhibition and dissemination via modern technology [5]. Digital solutions cooperate to promote both the preservation and dissemination of the work, and industrial revenues are used to fund conservation projects for long-term development. In terms of preservation, high-end methods such as 3D scanning, ultra-high-definition imaging, and blockchain-based evidence storage have been employed to comprehensively protect the mineral textures of Re Gong Thangkas, intricate stitching patterns of Tu ethnic embroidery, and oral narratives from the epic *Gesar*. AI-powered

restoration technology has been used to repair damaged historical pictures and old epic manuscripts, and permanent digital archives of these cultural assets have been created. For dissemination, new forms such as VR cloud exhibitions, AR-based folk culture reconstructions, live-streaming commerce and digital collectibles have been introduced to expand distribution channels and overcome geographical limitations in Qinghai. We will establish an industrial feedback mechanism to earmark a fixed proportion of operating revenues from digital cultural products, online cultural tourism services and digital collectibles for the collection of endangered intangible cultural heritage, digital training for inheritors and maintenance of the provincial database. This will reduce the pressure of single-fiscal investment and promote a virtuous cycle of coordinated development of digital resource creation, industrial-revenue expansion and quality improvement in heritage protection.

2.4. Multi-Channel Media Integration and Collaboration Mechanism

Establish integrated online-offline and cross-regional dissemination channels, set up a digital resource recycling mechanism of “one-time collection for multiple scenario reuse”, and strengthen the impact of intangible cultural heritage promotion along this route. Online, this way can be used to create “comprehensive documentation of ICH in various forms such as text, audio recordings, video footage and digital multimedia, building archives and databases” [6]. The Qinghai Unified Digital ICH Platform helps to coordinate the distribution of digital materials across cultural tourism websites, short-video platforms, digital exhibition halls, e-commerce live-streaming rooms and academic databases for multi-platform coordinated dissemination. Offline, standardised digital experience centres in Xining and Huangnan serve as hubs to collaborate with township-level New Era Civilization Practice Stations to deploy lightweight digital devices for remote pastoral area service extension, forming an integrated urban-rural dissemination network. At the cross-regional level, collaborations with universities and digital exhibition platforms in the east outside the province have created inter-provincial digital exhibitions; at the same time, joint projects among multiple inheritors have produced digital content that shows the ethnic diversity of China and tells its rich culture in an accessible digital format. The three cooperative types work together through data sharing to promote the high-efficiency reuse and value addition of digital resources in all sectors, thus building an all-encompassing, multi-dimensional system for the dissemination of digital ICH.

3. Implementation Pathways for Collaborative Optimization of Digital Protection and Dissemination of Qinghai’s Intangible Cultural Heritage

With the continuous development of digital technology, Qinghai Province has gradually issued policies and established institutional systems to promote the digital preservation and dissemination of intangible cultural heritage, and has achieved certain results in practice, such as the archiving of digital resources and online promotion. However, there are some deficiencies at present, including the construction of a collaborative mechanism among multiple parties, the establishment of a unified digital collection standard across different regions, interoperability of digital archival data, the building of integrated new media dissemination networks, the integration of online and offline intangible cultural heritage engagement scenarios, and the creation of lightweight interactive digital content; all of these require further research on comprehensive cooperative optimisation paths.

3.1. Establish a Deep Collaboration Network Involving Multiple Stakeholders

Qinghai Province has built three national-level cultural ecological protection experimental zones based on the themes of Regong Culture, Gesar Culture and Tibetan Culture, as well as seven provincial-level cultural ecological protection areas [7]. The cultural heritage resources are diverse and the ethnic characteristics are distinct. However, due to the constraints of the vast territory and the weak economic foundation of the pastoral areas, there are still problems such as independent digital work carried out by the government, the inheritors, universities, and cultural tourism enterprises, lack of linkage between protection and dissemination, waste of resources, and poor implementation effects. To promote the coordinated and long-term development of digital

protection and dissemination, it is necessary to first establish a scientific concept of multi-party coordination and equal emphasis on protection and development, properly balance the relationships among digital archiving protection, online dissemination promotion, and market-oriented cultural tourism development. By leveraging the government's official website, local media platforms, and short-video platforms, regular popular science publicity can be carried out to strengthen the people's sense of ethnic identity. Secondly, establish a provincial-level collaborative and coordinated mechanism for the digitalization of intangible cultural heritage, break the barriers among entities. Uniformly plan the entire process of digital collection, resource storage, and online dissemination of intangible cultural heritage in the province, clarify the boundaries of responsibilities and rights of each department and entity, avoid duplicate filming and duplicate database establishment; finally, improve the rules for sharing benefits among inheritors, creative enterprises, and others, clearly define the distribution ratios of income from digital patterns, live-streamed creative products, and digital collectibles, and from the institutional level, mobilize the initiative of all entities to participate in digital construction.

3.2. Establish a Comprehensive Technical Framework That Integrates Protection and Dissemination throughout the Entire Process Chain

A large number of niche handicraft techniques have remained hidden in the pastoral areas for a long time, with limited public awareness, insufficient funds for digitisation, and poor network facilities. Many outstanding intangible cultural heritage skills face the risk of missing digital records and loss of cultural value, so a standardised, all-encompassing digital system needs to be established to create technical paths for basic documentation and online dissemination. For county-level nomadic intangible cultural heritage items with small inheritor communities and scarce archival materials, a special team of cultural scholars, veteran inheritors and digital technicians should be formed to systematically document the entire craft process and folk ritual using professional methods, while also recording cultural annotations such as oral histories from inheritors, symbolic meanings of patterns and production techniques, ensuring the complete preservation of core craftsmanship parameters [8]. Formulate unified provincial standards for digital collection and archiving, build a three-tier interconnected digital resource library at the provincial, municipal and county levels, and eliminate regional archive fragmentation and data silos. At the same time, 5G base stations in remote pastoral areas will be established to improve the quality of high-definition outdoor video upload and live-streaming.

3.3. Improve the Working Mechanism for Transforming Protection Outcomes into Disseminated Products

Based on the foundation of digital archive resources, we will create multi-level digital products for all-weather communication and make full use of the preserved cultural materials. First, we promote the lightweight conversion of basic archives by systematically organising traditional craft processes and folk cultural imagery into short videos and educational materials for regular dissemination on government publicity platforms and social media, meeting the public's demand for light and fragmented consumption. Second, we create immersive resource transformations by extracting core elements such as Thangka patterns, Tu ethnic customs and historical narratives of the Tea Horse Road to build AR interactive experiences at tourist spots, online cultural heritage games and VR digital exhibitions, thus developing immersive digital tourism products that drive two-way interaction between online and offline cultural tourism scenarios [9]. Finally, we will extract the characteristic cultural symbols to create digital collectibles and cultural products based on ethnic patterns, thereby promoting the commercialisation of distinctive cultural IPs. A dual-operation model of inheritors' online live-streaming and offline workshops will be established to create a sustainable cycle of online participation, offline experience and cultural consumption.

3.4. Improving Institutional Safeguards and Long-Term Mechanisms

Given the weak economic foundation and uneven digital development between the north and south of Qinghai, all-round support should be provided in three areas—funding, talent and regional cooperation—to promote the long-term development of integrated digital preservation and dissemination efforts. First, a

dedicated fund should be established through a special fund for digital revitalisation in pastoral areas to integrate cultural tourism and fiscal resources for priority support of regions with lagging digital development, including subsidies for digital collection equipment and 5G-based cultural tourism infrastructure. Secondly, build a multi-level local digital talent pipeline that includes senior heritage inheritors, mid-career technical experts and young reserve professionals. Regularly organise programs to promote education of intangible cultural heritage (ICH) in schools and communities, enable young people to learn traditional skills, and have provincial universities introduce specialised courses in ICH digitisation and cultural-tourism integration, foster industry-academia collaboration, and nurture talents with dual literacy in cultural heritage and digital technology [10]. Third, all the ICH resources in the Hehuang Cultural Belt and the Sanjiangyuan Ecological Tourism Belt should be integrated to build thematic tourism routes, establish a cross-regional ticketing system and unified branding strategy, enhance resource sharing, and close the regional digital development gap. Balancing digital innovation and authentic cultural inheritance will promote the sustained synergy of ICH digital preservation and global dissemination in Qinghai.

4. Conclusions

Qinghai's multi-ethnic intangible cultural heritage is an important resource for the inheritance of China's excellent traditional culture, and it carries the life philosophy of all ethnic groups in the Tibetan Plateau with rich regional cultural creativity. With the rapid development of the digital age, protection and inheritance of intangible cultural heritage in Qinghai have been given new chances to overcome spatial limitations and spread widely, but at the same time, new problems have arisen. It is essential to continue leveraging the digital transformation wave by improving integrated support mechanisms, breaking down barriers across the entire development chain, and continuously exploring digital approaches tailored to the plateau's unique characteristics. Efforts must be made to prevent transmission gaps and loss of cultural essence during the digital transition, thereby ensuring the dynamic inheritance and innovative development of Qinghai's intangible cultural heritage. This will enable these millennia-old cultural treasures to reach beyond Qinghai through digital technologies, extending their impact nationwide and globally, and contributing Qinghai's strength to the preservation and innovation of China's outstanding traditional culture.

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