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The Digital Preservation of Intangible Cultural Heritage in China: A Survey

Abstract: The digital preservation of intangible cultural heritage has become a major emphasis and challenge in China. This study investigated the state of the field by examining the activities of the local Intangible Cultural Heritage Protection Centers at Nanyang, Kaifeng, Xianning, Chibi, Sanming and Jingdezhen, using semi-structured interviews to document the status of digital preservation of intangible cultural heritage in China. This study found that the digital preservation system of Chinese cultural heritage has a clear structure and pluralistic components. The centers are rich in digital resources, but disordered in their storage, and are supported by policies, but weak in the area of management. It is necessary to further clarify these institutions' rights and responsibilities, formulate storage standards, build shared platforms, and strengthen digital preservation management.

Keywords: Intangible cultural heritage; Digital preservation; Field survey; Semi-structured interviewing; China.

1 Introduction

Cultural heritage has been hailed as the identity card of various nationalities. The preservation and inheritance of intangible cultural heritage (ICH), which constitutes the soul of national culture, has attracted much attention and presented many challenges over the last century. ICH has been defined through various traditional cultural expressions such as folk activities, performing arts, traditional knowledge and skills, and related instruments, objects, handicrafts, etc., that are closely related to the lives of the people of all ethnic groups and cultural spaces. Paying attention to the protection and inheritance of ICH is a basic embodiment of cultural self-confidence (Fang 70).

In China, the awareness of the protection of cultural heritage is deeply rooted in practical work. The construction of ICH information has become the focus of current work. The census, identification, recording, and documentation of this heritage in China have promoted the generation of ICH information; through such work a large amount of ICH information has been accumulated and has thus become an important means of inheritance of ICH, but presents simultaneous opportunities and challenges for those who will inherit the responsibility to care for ICH (Huang 2). The multi-source, heterogeneous forms of ICH and other information problems have hindered the sharing of ICH information to use, communicate, and transmit heritage to later generations (Ni and Zhang 53).

With the development of the "World Memory" project, the promulgation of a series of policies such as the "Convention for the Safeguarding of the Intangible Cultural Heritage," and the establishment of various other institutions, the research on the digital preservation of ICH has also flourished. Digital preservation of ICH stores digital information for a long time and ensures its long-term accessibility (Boté, Fernandez-Feijoo, and Ruiz 419). It is the core activity for promoting of ICH resources, and it includes the regulation of the creation such resources, as well as the formulation and revision of policies relating to ICH management.

The importance of digital preservation for ICH led the investigators to consider how to document the level of digital preservation activity in Chinese cultural institutions. Through a field investigation comprised of semi-structured interviews with individuals employed at selected representative institutions in China, the investigators recorded and analyzed the current status of digital preservation of ICH at the basic level in China. The study focused specifically on the issues around policy formulation and practical promotion of ICH digital preservation in these institutions, which have responsibilities to protect and care for ICH so that it may be accessible to future generations.

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2 Literature Review

2.1 Background

The concept of ICH has undergone a long process of evolution. Before the concept emerged, it had been a cultural phenomenon since ancient times and was often described as national folk culture or folk customs. In 2003, the term was specifically defined by UNESCO in its Convention for the Safeguarding of the Intangible Cultural Heritage. ICH means the practices, representations, expressions, knowledge, skills — as well as the instruments, objects, artifacts and cultural spaces associated therewith — that communities, groups and, in some cases, individuals recognize as part of their cultural heritage.

2.1.1 Convention for the Safeguarding of the ICH

According to the UNESCO Convention, ICH includes five aspects: (1) oral traditions and expressions, including language as a vehicle; (2) performing arts; (3) social practices, rituals, and festive events; (4) knowledge and practices concerning nature and the universe; (5) traditional craftsmanship. Since then, the concept of ICH has formally taken shape as an internationally recognized term.

As one of the participants in the Convention for the Safeguarding of the Intangible Cultural Heritage, China has also been actively promoting its protection. In 2005, the General Office of the State Council of China promulgated its "Suggestions on Strengthening the Protection of Intangible Cultural Heritage in China" and established the importance of ICH in the Appendix, "Interim Measures for the Declaration and Assessment of Representatives of National Intangible Cultural Heritage." In 2011, the "Law of the People's Republic of China on Intangible Cultural Heritage" was officially proclaimed by the National People's Congress of the People's Republic of China, and the term "intangible cultural heritage" was legally defined. ICH refers to the various traditional cultural expressions that have been passed down from generation to generation and regarded as an integral part of their cultural heritage, as well as the objects and places related to traditional cultural expressions.

With the enhancement of public awareness of the need for the protection of ICH, its management has received increasing attention. Institutions with responsibilities to care for ICH are constantly strengthening the construction and informatization of related resources. In 2005, the "Interim Measures for the Application and Approval of Representatives of National Intangible Cultural Heritage" declared that texts, audio, video, digital multimedia, and other means should be used to make real, comprehensive, and systematic records of protected ICH items. In 2012, the Intangible Cultural Heritage Digital Protection Project was officially included in the "Cultural Reform and Development Plan of the Ministry of Culture during the Twelfth Five-Year Plan," which aimed to use various means of recording such as pictures, texts, audio, and video to collect resources and establish an authoritative display platform. In addition, the Memory of China project carried out by the National Library and the Memory of Chinese Cities project, which introduced urban and rural cultural resources, included intangible heritage resources (Tian and Tang 7; Jia and Xu 23). Digitization has become one of the mainstream means of protection, resulting in the rapid accumulation of digital resources, with the resultant growing concerns about how to store these materials.

At present, these resources are stored in two ways: archive-based storage methods and digital storage methods. The archive-based storage generally fixes the heritage using a particular carrier by means of photographing, audio recording, video recording, etc., thus creating physical files for sorting, storage, and utilization. Archive-based storage provides important support for the preservation of the ICH resources in China (Chen and Gao 59). However, archive-based storage is still a local storage method, which prevents resources from being easily shared.

2.1.2 Previous Studies on Digital Preservation of ICH

Digital preservation is an important issue in this information era. National policies, reference models, storage standards, and practical projects of digital preservation have been extensively studied and applied. Since the beginning of the twenty-first century, the United States, the United Kingdom, Canada, New Zealand, and other countries have carried out several digital preservation projects (see, for example, the INSPIRE project). In recent years, storage standards for digital preservation have matured, resulting in standards and recommendations such as the Digital Preservation Storage Criteria of the Open Science Framework (OSF) (Schaefer et al.). However, unlike other types of digital heritage, the digital preservation of ICH should not only focus on recording and displaying materials of heritage activities, but also on the ICH itself (de Lusenet 164). The factors involved in digital preservation are variable and changeable. Therefore, this study does not extensively discuss digital preservation in a universal

sense; rather, it focuses on the unique characteristics of ICH in terms of its digital preservation.

The research on strategies for digital preservation of ICH involves topics such as carriers, standards, processes, factors, and utilization. Rusalić pointed out that the first thing to consider when preserving heritage information was the physical carrier on which the digitized heritage resides, followed by issues relating to database construction, copyright of the digital version in the network environment, and language barriers to international dissemination of heritage. Robbins used the Nauru, a Native American community, as an example to propose a three-stage strategy for digital preservation: developing new technologies for the creation of indigenous traditions; displaying indigenous traditions through emerging technologies, media, and modern expression models; and, applying indigenous traditions to develop new technologies. Zhai, Liu, and Xu compared the overall distribution, regional distribution, and theme distribution of the three types of world-class ICH items. They used the strengths, weaknesses, opportunities, and threats (SWOT) approach to analyze the strategy of digital preservation in China and proposed a long-term preservation strategy for digital resources oriented to rescue protection.

Various emerging technologies made the technical research of digital preservation of ICH become hotspots. Tecchia et al. discussed the application of virtual reality technology in the digital preservation of traditional handicrafts. Khan and de Byl explored the application of augmented learning to the preservation of ICH. Pietrobruno used Cuba as an example to illustrate the use of Web 2.0 tools such as YouTube to implement an unofficial digital preservation method for heritage dynamic images. Liu pointed out that spatial information technology can use two-dimensional and three-dimensional maps as the carrier to reproduce the real historical geographic information about this heritage. Therefore, it is possible to realize the temporal and spatial continuity recording of ICH through this intuitive method.

2.2 Rationale for This Study

Prior digital preservation research provides a comprehensive framework for understanding the various aspects of the field. The ICH protection system is complex. The current status of digital preservation of ICH at the basic level is a crucial reference for the top-level design of ICH protection. Therefore, this study designed a survey on the current status of digital preservation in grassroots institutions in order to reflect upon the practical work of digital

preservation in China. This study mainly answered the following questions:

1) Under the top-bottom hierarchical protection system of ICH in China, what is the current status of digital preservation of ICH in the grassroots ICH protection institutions? More specifically:
   a) What institutions are the main participants in the digital preservation of ICH at the basic level in China? What roles do they play? What kind of cooperative framework has formed?
   b) How do basic-level participating entities in China classify and store ICH resources created through digital preservation processes?
   c) How basic-level participating entities manage the work of digital preservation of ICH? How does it work in terms of policies, talents, and finance?
2) What problems does the survey uncover relating to the digital preservation of ICH at the basic level in China? How might institutions integrate advanced ICH management concepts to enhance their operations?

3 Methodology

Chinese ICH resources are abundant, but the differences in historical and cultural development across different regions have resulted in an unbalanced distribution of ICH resources. China has vast territories and a long history. The origin, development, and migration of culture have gone through a tortuous process. The central and coastal areas (southeast) of China have always been essential areas for cultural and political development. During China's long history, abundant cultural resources have been accumulated in these regions, including countless ICH items. In contrast, western China is sparsely populated, and its cultural resources are scattered, which is not conducive to the effective implementation of the survey.

In order to ensure the success of this survey, this study selected six cities with rich resources.

The respondents were selected according to two criteria:

1) Respondents for this survey needed to manage a significant number of ICH resources in order to generate sufficient data to answer the study's research questions. The six selected cities are representatives of cultural gatherings in central, eastern and southern China.
2) The six selected areas received a preliminary survey plan through initial contact with the investigators. Institutions invited to participate in the survey needed to be willing to make a firm commitment to

providing sufficient data and completing the study. The survey respondents who agreed to participate in the study are listed in Table 1.

The investigators used semi-structured interviews to conduct the field study of local Intangible Cultural Heritage Protection Centers, with the goal of understanding the status of digital preservation practices at a basic level in China. The semi-structured interviews covered three topics: the participating entities, the digital resources, and the preservation management of ICH in the local relevant organizations. The interview outline is provided in Appendix 1.

4 Results

4.1 Participating Entities

In this survey, the possible participation entities in the digital preservation of ICH in China are summarized as follows:
A. Local people's government at all levels
B. Cultural management departments at all levels
C. ICH protection centers at all levels
D. Inheritors of ICH items
E. Commercial institutions
F. Research institutions
G. Cultural institutions
H. Universities
I. Associations
J. Public cultural communication institutions
K. The public
L. Other entities not listed above which have responsibilities for protecting certain ICH resources

The results of the survey on the participating entities in the digital preservation of ICH in China are shown in Table 2; each participating entity is classified and represented by the labels as listed above.

According to the survey results, the digital preservation of ICH is generally centered on the local ICH protection centers, with local governments, cultural management departments, and the inheritors of ICH as the most important stakeholders. Other social organizations, research institutions, and communication agencies are also involved in ICH management activities.

4.2 Digital Storage

The results of the survey of digital storage used in the digital preservation of ICH in China are shown in Table 3. In the table, the Ten-categories/Four-level Catalog Classification system refers to the protection of ICH catalogs in China. The four levels of catalog includes the national ICH

Table 1: Respondents of the survey of digital preservation of ICH in China.

Respondent	Province	Location	Major ICH Resources
Nanyang	Henan	North-Central China	Pangu Mythology, Bantouqu, Xiping Folk Songs, Wan Bang, Sanxian Music, Dadiao Music, Jade Carvings, etc.
Kaifeng	Henan	North-Central China	Bian Embroidery, Pangu Dance, Qilin Dance, Fan Music, Two-strings Music, Wooden Board Paintings, Song Dynasty Official Porcelain, Paper-Cut, Pyrography, etc.
Xianning	Hubei	South-Central China	Bamboo Carving, Tea Drama, Gongs Music, Violin Play, Paizhou Folk Songs, Legend of King Li Chuang, Hu's Scald Therapy, etc.
Chibi	Hubei	South-Central China	Black Tea Making Skills, Foot Drums, Legend of the Battle of Chibi, etc.
Sanming	Fujian	South-East China	Merlin Play, Bamboo Paper Making Skills, Dragon Dance, Hakka Worship Ancestors Customs, etc.
Jingdezhen	Jiangxi	South-East China	Hand-made Porcelain Craftsmanship, Traditional Porcelain Kiln Workshops, Traditional Stage Construction Techniques, Porcelain Music, Horse Dance, Lion Dance, etc.

Table 2: Basic-level status of participating institutions in the digital preservation of ICH in China.

Survey Content	Nanyang	Kaifeng	Xianning	Chibi	Sanming	Jingdezhen
Resource Collection Entities	C, D	D	G	C	C	C
Management Entities	B	C	B, C	B	A, B	A, B
Collaboration Entities	C, G	C, G	C, G, H	C, G, L	C, G	A, C, G, J
Other Participating Entities	K	K	F	E, K	D, I	D, K

Table 3: Basic-level status of digital storage in the digital preservation of ICH in China.

Survey Content	Nanyang	Kaifeng	Xianning	Chibi	Sanming	Jingdezhen
Digital Resource Origin	Recorded by the ICH Protection Center	Recorded by the ICH Protection Center, transferred from the local units	Recorded by the ICH Protection Center, collected by the ICH Items Reporting Units	Recorded by the ICH Protection Center	Recorded by the ICH Protection Center	Recorded by the ICH Protection Center
Digital Storage Capacity	2 TB	Unclear	More than 200 GB	3–4 TB	75.7 GB	4160 GB
Classification Criteria	Ten-categories/Four-level Catalog Classification	Ten-categories/Four-level Catalog Classification	Ten-categories/Four-level Catalog Classification; Regional townships	Regional Townships; Ten-categories/Four-level Catalog Classification	Ten-categories/Four-level Catalog Classification; Regional townships	Ten-categories/Four-level Catalog Classification
Storage Carrier	Optical Discs, Hard Disks	Optical Discs, Hard Disks	Optical Discs, Hard Disks, Database	Optical Discs, Hard Disks	Hard Disks	Optical Discs, Hard Disks, Database
Storage Form	Text, Image, Audio, Video	Text, Image, Audio, Video	Text, Image, Website, Audio, Video, Multi-media	Text, Image, Audio, Video	Text, Image, Audio, Video	Text, Image, Website, Audio, Video, Multi-media
Storage Format	WPS, JPEG MP3, AVI, MPEG	TXT, WPS, PDF/A, JPEG, PNG, MP3	TXT, DOC, FDF, JPEG, PNG, MP3, AVI, MPEG	DOC, JPEG, GIF	DOC, PDF, JDP, JPG, WAV, MP3, AVI	TXT, WPS, JPEG, WAV, MP3, AVI, MOV, MPEG
Database/Management System	None	None, in planning	None	None	None, in planning	Internal ICH Digital Management System

catalog, provincial ICH catalogs, municipal ICH catalogs, and county ICH catalogs. The ten categories of resources included in an ICH catalog are folk literature, traditional music, traditional dance, traditional drama, folk art, traditional sports, recreation and acrobatics, traditional art, traditional skills, traditional medicine, and folk customs.

According to the survey results, the digital resources of ICH are generally collected directly by the Intangible Cultural Heritage Protection Centers through various recording mechanisms (e.g. digital imaging, audiovisual recording, etc.). The 10-categories/Four-level Directory Classification is a relatively common digital resource classification criteria set. The local Intangible Cultural Heritage Protection Centers also use regions to classify the ICH items, thus facilitating their description and management. Most of the digital resources of ICH are recorded and stored on optical discs or hard disks; storage technologies such as databases and cloud storage are less widely used. Common formats for text, images, audio, video, and other material are being used, but there is no uniform standard for each type of material yet. The amount of storage required has reached the terabyte (TB) level for several institutions.

4.3 Preservation Management

The results of the survey on the preservation management in the digital preservation of ICH in China are shown in Table 4.

According to the survey results, in the context of the hierarchical ICH protection system used in China, the digital preservation of the ICH of the local Intangible Cultural Heritage Protection Center is generally carried out in accordance with the guidelines of the superior units. Therefore, national policies and standards are the most powerful and fundamental guarantees. The digital preservation funds and professional training of the ICH in local institutions are still relatively weak. Fewer institutions have set up special budgets and professional training. Based on survey responses, there are still loopholes in the management and security of ICH information.

5 Discussion

5.1 Clear Structure and Pluralistic Components

The digital preservation of Chinese ICH relies on an institutional system for its protection. Provisions on

Table 4: Basic-level status of preservation management in the digital preservation of ICH in China.

Survey Content	Nanyang	Kaifeng	Xianning	Chibi	Sanming	Jingdezhen
Policy/Standards	Refers to the policy and standards of superior units	Refers to the policy and standards of superior units; formulated the "Intangible Cultural Heritage Protection Regulations of Kaifeng"	Refers to the policy and standards of superior units	Refers to the policy and standards of superior units	Refers to the policy and standards of superior units	Refers to the policy and standards of superior units
Storage Expenditure	Unclear	Unclear	The budget for the protection of ICH is 40 000 RMB, and the amount of digital preservation is unknown	The budget for the protection of ICH is 50 000 RMB, and the amount of digital preservation is unknown	Apply on demand	The Intangible Cultural Heritage Protection Center and the Radio and Television Station are jointly funded, investing more than 2 000 000 RMB since 2016
Staff Training	None	None	Training organized by superior units	Training organized by superior units	Training organized by superior units	Training organized by superior units (2 people trained in 2017)
Information Security Management	None	None	Data backup, computers are off-line	Restrict personnel contact, data backup, computers are off-line	Data backup	Security management of storage media (e.g. using strongbox for security)

the protection of ICH were made clear in "Suggestions on Strengthening the Protection of Intangible Cultural Heritage in China" published by the General Office of Chinese State Council, which established the top-down joint management administrative system and requires close cooperation between the central and local governments for protecting ICH. The administrative system also clarified that the main components of regional ICH protection are mainly composed of local government, community people (inheritors and civil organizations), academic organizations, commercial organizations, and cultural institutions. From the results of our survey, it can be shown that the digital preservation of Chinese ICH has formed both vertical and horizontal distribution of its main components. In the vertical direction, a four-level system of State-Province-City-County is formed with main components being local governments, cultural management institutions, and ICH protection centers, which together comprise the centralized preservation of ICH digital resources. In a horizontal direction, the collection, dissemination, and reuse of digital resources are made possible by the combined efforts of the relevant non-legacy project inheritors, commercial institutions, research institutions, and communication agencies.

The digital preservation of Chinese ICH has formed a complete main framework and protection system, and it involves the cooperation of multiple entities in the local implementation process. According to our survey, the synergistic modes of the multiple entities in different regions are different, and the unified perfect system of digital preservation of ICH has not yet been realized. The current system is not conducive to cross-regional resource-sharing, or to the promotion of unified protection across the country.

On the one hand, the vertically distributed preservation entities of ICH should be clearly defined, such as local governments, cultural management departments, and ICH protection centers at different levels. It is necessary to clarify the scope of duties, rights, and obligations among the various entities, which will not only fully cover the digital preservation of ICH, but also coordinate and make full use of talents and financial resources. The role identification and duty and right division of each subject in the Archives New Zealand and the National Library of New Zealand's "Digital Preservation Strategy" project is a case worthy of reference. On the other hand, the horizontally distributed preservation entities of ICH should strengthen their enthusiasm for participation. The public are the most direct inheritors of ICH.

5.2 Rich in Digital Resources, But Disordered in Their Storage

Chinese ICH resources are so abundant that the digital resources of some local ICH protection centers have accumulated data to reach the terabyte level. The digital preservation of ICH has become both critical and difficult. The results of our survey show that digital resources are those directly collected by the preservation institutions, which guarantees the original ecological record of ICH.

However, due to the variety of digital resources of ICH, there are no unified standard storage methods, formats or carriers. Basically, the local storage system is still the main storage method, while database systems, cloud storage or other shared storage methods haven't yet become the norm for ICH storage. A consequence of maintaining ICH only in local storage solutions is that the digital resources of ICH in various regions have formed huge and heterogeneous information islands.

To solve these problems, the following solutions are proposed. First of all, it is imperative to establish a digital resource storage standard for ICH with strong operability and practicality at the grassroots level. What to store and how to store are the two questions that need to be answered in the current digital preservation of ICH. With the accumulation of digital resources in ICH, issues such as resource selection, resource classification, and resource sharing will be critical to address. The establishment of storage standards is the fundamental guarantee for solving the problems above. In fact, there are already internationally accepted digital preservation standards, such as the Digital Preservation Storage Criteria of OSF. The reference to international standards frameworks will greatly reduce the problem of data heterogeneity and provide a basis for information sharing. Second, it is necessary to pay attention to the in-depth processing and reuse of digital resources of ICH and realize the evolution from direct "archive preservation" to "presentation preservation" and "comprehension preservation" to ensure the inheritance of ICH to the next generations.

Finally, digital resource sharing platforms for ICH should be built. At present, the digital preservation of grassroots ICH units in China is still dominated by local storage, and problems, such as continual expansion of facilities, overemphasis on collection building, and neglect of the actual use of resources, still exist. Setting up a digital resource-sharing platform could break down information islands, allowing ICH resources that come from the public to serve back to the public, which could also function as a channel to strengthen the social influence of ICH and enhance the awareness of the need for national ICH protection.

5.3 Supported by Policies, But Weak in Management

As early as 1989, under the advocacy of the "Recommendation on the Safeguarding of Traditional Culture and Folklore," China began the nationwide protection of ICH from top to bottom. The promulgation of a series of policy documents such as the "Suggestions on Strengthening the Protection of Intangible Cultural Heritage in China" and the "Intangible Cultural Heritage Law of the People's Republic of China" promote the protection and inheritance of ICH. The "Interim Measures for the Application and Approval of National Intangible Cultural Heritage Representatives," the "Handbook for the General Investigation of Ethnic and Folk Culture Protection Projects in China," and other guidance documents were important precedents of the protection of ICH laws that followed. The protection of ICH has become an important part of Chinese cultural construction. From the results of our survey, the digital preservation of local ICH has a special management department or administrative system, and some local ICH protection centers have begun to carry out management of the digital preservation of ICH with top-level design, personnel training, budgeting, and safety management.

The management of digital preservation of ICH is still weak, however; although local institutions in China have already made initial attempts to improve their management. When it comes to digital preservation of ICH, most grassroots units rely too much on superior units and have not yet formed a reasonable management structure. To develop the management of digital preservation of ICH, institutions should attach importance to the development of their staff's abilities through training, and establish a system for selecting and cultivating professionals in digital preservation at all levels of the organization.

Second, local government and cultural management institutions should do a better job with the budgetary work of digital preservation of ICH and rationally allocate material and financial resources. In addition to relying on the budget, it should also fully mobilize social enthusiasm, especially the commercial institutions, and develop the digital industry of ICH. Finally, related institutions should pay attention to information security, information backup, and maintenance, and appropriately increase network supervision to ensure the sustainable development of information security and long-term preservation while making full use of its digital resources.

In addition, digital preservation awards can be established; some countries have set excellent examples, such as the British Digital Preservation Award, the American National Digital Stewardship Alliance Innovation Award, and the National Archives Awards for Digital Excellence established by the Australian National Archives, to encourage the digital preservation of ICH in China.

6 Conclusions and Implications

The investigators for this study took Nanyang, Kaifeng, Xianning, Chibi, Sanming, and Jingdezhen as representatives for the different regions of China and conducted semi-structured interviews with staff members of these local ICH protection centers to investigate the basic-level status of digital preservation of ICH in China. Through this survey, this study looked into the current status of digital preservation of ICH at the basic level in China under the hierarchical protection system, identified practical problems, put forward bottom-up optimization suggestions, and promoted the inheritance of ICH.

After sorting and analyzing the results of this survey, this study finally came to the following three conclusions. First, the digital preservation of ICH in China has formed a vertical and horizontal distribution of the participating entities, but there is no uniform multi-participant coordination system between different regions. Second, the accumulation of ICH digital resources in local institutions in China has reached the TB level. Generally, the original digital resources collected directly by the preservation institutions are mainly in multimedia format, but the storage standards are heterogeneous, and it is thus difficult to achieve information sharing. Finally, the local ICH digital preservation has a special management department or administrative system. Some local ICH protection centers have started the management of ICH digital preservation from top-level design, personnel training, financial budget, security management, and other aspects, but overall the implementation of management for ICH is still relatively weak.

This study also has some limitations, and some future work remains to be completed. First, the survey on the status of digital preservation of local ICH is not comprehensive enough due to the limitations of personnel, time, funds and other factors. The efforts of the six cities with rich ICH resources selected in this survey are not replicated throughout the country, especially in Western China. There are profound and unique cultural traditions in Western China, and the digital preservation of ICH in these areas may be different from the respondents in this study. In future versions of this study, the investigators will further expand the scope of the survey, especially in areas not covered by this study, and continue to supplement and revise the survey results.

Second, this study preliminarily determined the status of digital preservation of ICH in China, but the interview method used in this study has its own limitations, and the content of the survey needs to be supplemented further. In future research, various methods should to be applied comprehensively, such as participating in the local preservation work to obtain more authentic and detailed first-hand survey data.

Finally, future work should draw lessons from advanced international digital preservation concepts and technologies, combined with the current situation of China's practice, to promote the political and strategy development of digital preservation of ICH in China, and also provide experience for other countries at the same time.

Appendix 1

Semi-structured Interview on the Digital Preservation of Intangible Cultural Heritage (ICH)

Part One: Entities
1. What are the main entities for the collection and storage of ICH resources?
2. What are the main entities of ICH resources management?
3. Does your organization have a cooperative mechanism for the digital preservation of ICH?

Part Two: Digital Resources
1. What is the origin of digital resources for ICH?
2. What is the quantity of ICH resources?
3. How do you classify digital resources of ICH?
4. What are the storage forms of digital resources for ICH? What storage formats are these forms used?

5. Is the database or information management system used in the digital storage process of ICH?

Part Three: Preservation Management
1. Is there any policy or standards for digital preservation of ICH?
2. Is there training for professionals for the digital storage of ICH?
3. What is the funding for the digital storage of ICH?
4. What technologies are used to ensure the safety of digital resources of ICH?
5. Is there a security management strategy, for example, is there a corresponding measure to ensure information security, physical security, etc.?

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