

The Framework and Standards of Chinese Intangible Cultural Heritage Metadata^{*}

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Abstract - The paper analyzes the requirement of digital protection practices of Chinese intangible cultural heritages. It compares the mainstream metadata standards system and the demands of Chinese intangible cultural heritage protection. It put forward metadata standards of Chinese intangible cultural heritages for convenient to protect and retrieval. The paper also proposes the model and range of application by the metadata standards.

Index Terms - China; intangible cultural heritages; metadata standards

I. Introduction

According to the protection of the intangible cultural heritage convention by UNESCO, the intangible cultural heritages are wisdom of human civilization by oral traditions, performing arts, folk activities, manual skills and etc. They constitute the cultural space in the form of national culture all over the world. In recent years, traditional cultural ecology has been suffered varying degrees of damage with the rapid economic development. Many intangible cultural heritages are disappearing in China [1].

China is a large country. There are many types of intangible cultural heritages, which have many categories and system characteristics in this oriental county. So, the protection of Chinese intangible cultural heritages must proceed by the top-level design of government, which bases on the origin statistic and factor analysis about available resources. The current protections of intangible cultural heritages mainly lean to digital preservation and visual reconstruction technology in China. The research of digital conservation integrates text, images, audio and video, which base on the computer and database technology. But the semantic metadata research is rarely involved in digital intangible cultural heritages protection research in China.

Metadata standards are describing the data of the data. They mainly express data attributes and relationships. They also can create and store all information, such as position and history, of digital resources information for inquiring the file record [2].

The metadata technology is an important new tool to combine the digital information of intangible cultural heritages. The scientific, perfect and practical intangible heritages metadata system will base on the reliable technology and mature method. The metadata standard of Chinese intangible cultural heritages should integrate the international

mainstream metadata standards, and establish a metadata standards system. The set of system should include data standards, data contents and Chinese intangible cultural heritages application system of heterogeneous digital information. They can promote Chinese intangible cultural heritages protection, such as information storage, digital mining, file retrieval and multi-media distribution in many field.

II. The Framework of Chinese Intangible Cultural Heritages Metadata

For digital library information management, almost every library, archives and museums all collect some art collections or cultural objects, which are difficult to be fully described in the standard library cataloging rules and vocabularies. The international libraries, archives and museums usually tend to adopt metadata technology to describe their collections by computer system. The metadata standards solve the problems about traditional library cataloging rules are hard to describe and define the collections of intangible cultural heritages.

Many sets of metadata standards have been widely used in many culture departments all over the world. They include traditional graphic standard such as CCO, LCSH, AAT etc., and also includes the digital information standard, such as CDWA/VRA Core metadata and DC metadata etc. [3]. In 2005, the national library of China had established a set of Metadata Standards, which include the general rule of metadata (D004), special metadata specification-the ancient literature and special specification (D006), special metadata specification-electronic books (D005), special metadata specification-web and multimedia resources (D007), the principle of metadata (D012) for national library [4]. They are used to manage all kinds of digital resources, which include text, images, audio, video and other forms information. Nowadays, the metadata standards have become efficient and important tools to scientific protect and mine the digital information of cultural resources. Based on the characteristics of Chinese intangible cultural heritages projects, researchers had also built a framework of metadata standards [5].

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III. The Design Ideas of Chinese Intangible Cultural Heritage Metadata

A. Taking the Experience of International Standards

With the development of the digital description technologies, there have been some Metadata Standards and models for all kinds of literature information resources. By the analysis of the mainstream metadata standards, we can know the characteristics and requirements of Chinese intangible cultural heritages (Table I and Table II). Though above comparing, the metadata standards of Chinese intangible cultural heritages should establish on the DC metadata standards and absorb advantages of other metadata standards.

TABLE I A Comparative Analysis between the Mainstream Metadata Standards System

Element		ISAD (G)	EAD	ISSAR
Background	Editions released time	The 1st in 1994; the 2nd in 2000	the 1st in 1998; the 2nd in 2002	the 1st in 1996; the 2nd in 2004
	Main enabler	International Council on Archives	The library of the university of California, Berkeley	International Council on Archives
Demand conditions	Main applicable object	Information of audio file	Description files and manuscript resources	Background of file information
	Aim	Describe the electronic text and content	Electronic full-text coding	Provides background information
	Main application areas	The European countries	The California heritages projects	The immigration department of European
Elements	Structure	7 parts	3 levels	4 parts
	elements	6	2	4
	DTD*	NA	Available	NA
Superiority		Easy to establish the database		Easy to establish archival fonds
Weakness		No Chinese version	Mainly used in text material	No network format

* The DTD is a kind of standard in metadata, which is a part of ISAD(G). The DTD can define and transmit digital information by computer general standard language (SGML) and extensible mark up language (XML).

TABLE II A Comparative Analysis between the Mainstream Metadata Standards System

Element		EAC	TEI	DC
Background	Editions released time	the 1st in 2001	the 1st in 1995; the 2nd in 2002	the 1st in 1999
	Main enabler	University of Toronto; Yale University	International Project: ACL/ALLC/ACH	America online computer library centre
Demand conditions	Main applicable object	File background information	Module transfer and conversion module in file information	Digital files resources in network
	Aim	Provides background information	Electronic form of text coding standard	The application of electronic documents interaction
	Main application areas	The north America	The global	The global
Elements	Structure	2 parts	2 parts	3 levels
	elements	2	4	15
	DTD	Available	Available	Available
Superiority		Easy to establish archival fond	File could mix text and audio.	Unified using XML language
Weakness		No network format	Network support is poor	Details are poor

B. Ensuring the Character of Original True

The original true of intangible cultural heritages is a kind of real condition, which includes external environment, value subject and nature process without human intervention [6]. The invisible character of original true determines the intangible cultural heritages are close to people, society and behaviour. It also decides the characteristics and value of it. The intangible cultural heritages have evolved and been changed with the social evolution of development. The artificial reforms should hurt the original true of intangible cultural heritages by people behaviours, which are bad for the normal life processes of intangible cultural heritages.

For these reasons, the Chinese intangible cultural heritages protection work needs establish a complete set of metadata standards, which base on the character of original true. The Chinese intangible cultural heritages metadata standards can effective determine and analysis the cultural value, endangered degree and interdependent characteristics. These elements are the basis of digital technology applying to the macro protection for Chinese intangible cultural heritages.

C. Promoting the Combination of Technology and Cultural

By 2020, the combination of technology and cultural will become a system for society and science research from “The outlines of Culture, science and technology innovation project” by Chinese government. The government plans to

establish an innovative and intergraded model to promote cultural protections and industrial adjustments in China [7]. The research of intangible cultural heritages developments and protections are suit for Chinese government's main theme.

The metadata standards of intangible cultural heritages merge together traditional culture and modern technology as an applied solutions. They can help researchers to extend protection knowledge and deepen people's understanding of intangible cultural heritages. And they are also the important project sources and monitoring standards of intangible cultural heritages productive protection. The metadata standards are also the catalysts for digital intangible cultural heritages protection in China. On the one hand, the cultural heritages protection technology can protect and continue the precious intangible cultural heritages for using this technology. On the other hand, people can shape the forms for the modern social culture by the technology support and cultural promotion.

IV. The Establishment for Metadata Standards of Chinese Intangible Cultural Heritage

The concepts of common entity can be selected and approached from general metadata standards. It makes the elements definition are generality and standardization for Chinese intangible cultural heritages protection [8]. Through above comparison and semantic analysis, we can get involved in attributes and concept of Chinese intangible cultural heritages.

From the operational guidelines for the implementation of the world heritages convention, the UNESCO official document has many identification standards to intangible cultural heritages. The important document is a useful operation tool to screen and login the human intangible representative list for many countries. In this document, there are 7 concepts in the G part. The concepts contain condition, reasons, supervision, description, management and influence factors [9].

The ministry of culture official declares the Chinese national level intangible cultural heritages representative list. The government also publicizes the format of declaration document, which is an important format instructor for protection work in China. From it, we can collect 9 element concepts, such as nation, history, pedigree, characteristics, values, equipment, basic content, endangered status and protective measures, to describe the Chinese intangible cultural heritages [10].

Base on the above semantic analysis and summary, the metadata standards of Chinese intangible cultural heritages should combine the type definition and comparison results of the international metadata standards. They establish on the DC standard metadata names [11] and DC standard metadata library [12], and also absorb the research achievements of Heaney, Michael (2000) [13] and the Powell, Andy (2007) [14]. The result of metadata standards of Chinese intangible cultural heritages contain 14 standard metadata names, 67 elements and expanding elements, and 67 field names(Table III).

TABLE III the Set of Intangible Cultural Heritages Metadata Standards

Standard metadata name	Elements and expanding elements	Field name
Title	Title	DC Title
	Coordinate	DC Title Coordinate
	Alternative	DC Title Alternative
Creator	Creator	DC Creator
	Main inheritance people	DC Creator Own
	Other inheritance people	DC Creator Contributor
-Contributor	Contributor	DC Own
Subject	Subject	DC Subject
	Keyword	DC Subject Keyword
	PlaceName	DC Subject PlaceName
	Organization	DC Subject Organization
Data	Created Data	DC Data Created
	Retention Period	DC Data RetentionPeriod
	Secrecy Perid	DC Data SecrecyPerid
	Custom Data elements	DC Data Custom
Description	Abstract	DC Description Abstract
	Size	DC Description Size
	Nation	DC Description Nation
	Features	DC Description Features
	Value	DC Description Value
	Endangered	DC Description Endangered
	Content	DC Description Content
	Reason	DC Description Reason
	Influence elements	DC Description Influence
	Article	DC Description Article
	Annotation	DC Description Annotation
	Custom Description	DC Description Custom
Source	History	DC Source History
	Aggregation Level	DC AggregationLevel
Type	Text	DC Type Text
	Image	DC Type StillImage
	Sound	DC Type Sound
	Vedio	DC Type MovingImage
	Interactive Resource	DC Type InteractiveResource
	Data Base	DC Type DataBase
	Date Range	DC Type DateRange
	Exception Date	DC Type DateException
	Custom Type elements	DC Type Custom
Format	Record Type	DC RecordType
	Extnet	DC Format Extnet
	Created Environment	DC Format CreatedEnvironment
	Appled Environment	DC Format AppledEnvironment
	Object Relational Mapping	DC Format ORM
	Custom Format elements	DC Format Custom
Coverage	time range	DC Coverage Temporal
	spatial dimension	DC Coverage Spatial
	Officially range	DC Coverage Administration
	Inheritance lineage	DC Coverage Pedigree
	Custom Coverage elements	DC Coverage Custom
Identifier	Archival Code	DC Identifier ArchivalCode
	ItemID	DC Identifier ItemID
	Record Number	DC Identifier RecordNumber
	Annotation	DC Identifier Annotation
	Custom Identifier	DC Identifier Custom
Language	Language	DC Language
Relation	Related Archives	DC RelatedArchives
	Appendix	DC Relation Appendix
	Custom Relation elements	DC Relation Custom
Rights	Access Right	DC Right AccessRight
	Supervise	DC Right Supervise
	Accrual Method	DC Right AccrualMethod
	Accrual Periodicity	DC Right AccrualPeriodicity
	Accrual Policy	DC Right AccrualPolicy
	Audience	DC Right Audience
	Intellectual Property	DC Right IntellectualProperty
	Full Text Path	DC Right FullTextPath
	Custom Right elements	DC Right Custom

V. Conclusion

The metadata standards of Chinese intangible heritages are the future trend of intangible cultural heritages protection and development. The research results and related applications also spread from archives and libraries to other cultural industry. The metadata standards of Chinese intangible heritages unify the digital information formats and mapping relation. They provide a great convenience and efficiency for heritage protection.

The metadata standards of Chinese intangible heritages can avoid compatibility problems from different hardware, different platforms and different formats of digital information resources. This approach lets us integrate the Chinese digital intangible cultural heritages resources, including isolated data and previously incompatible legacy systems. They also improve the efficiency and effect of Chinese intangible cultural heritages protection work.

For the metadata standards of Chinese intangible cultural heritages, there are also some problems should be solved. For example, the integration of standard Chinese system and international English system is an obstacle to metadata system. The problem led to a lot of retrieval and the application was unable to complete. So, it will be a further work needs to be discussed in the future.

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