

The Framework of Chinese Intangible Cultural Heritages Metadata Standards

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Abstract—the paper analyzes the requirement of digital protection practices of Chinese intangible cultural heritages. The research bases on the comparative study about metadata standards and semantic analysis to put forward the framework and metadata standards of Chinese intangible cultural heritages. The paper also proposes the model and range of application by the metadata standards.

Keywords- 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. It clearly defines the digital information content of quality, representation, data set, spatial reference, management style and other characteristics. It has been widely used in digital library, scientific research institution, government affairs office and some social institution in various fields. The metadata standards have become a research hotspot of intangible cultural heritages protection and digital archival science research in the world.

Hence, 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 IMPORTANCE 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 principles and methods of art catalog are not completely suit for system management and social application in the nowadays world. The international libraries, archives and museums usually tend to adopt metadata technology to describe their collections by computer system. The metadata standards of above organizations are according to digital collections information, which include attribute, elements, types and etc. The standards solve the problems about traditional library cataloging rules are hard to describe and define the collections of intangible cultural heritages. On the other hand, they also successful improve the cross-platform application for digital intangible cultural heritages protection.

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

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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 (Fig. 1).

III. THE DESIGN OF CHINESE INTANGIBLE CULTURAL HERITAGES 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. The Metadata Standards of intangible cultural heritages should be compatible with the international standard in China. It usually base on the demands of usability, generality and normativity for carrying on protection work of Chinese intangible cultural heritages.

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 IN THE WORLD

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

	DTD1	NA	Available	NA
Superiority		Easy to establish the database		Easy to establish archival fond
Weakness		No Chinese version	Mainly used in text material	No network format

TABLE II. A COMPARATIVE ANALYSIS BETWEEN THE MAINSTREAM METADATA STANDARDS SYSTEM IN THE WORLD

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 center
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 behavior. 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 behaviors, 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

¹ 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 markup language (XML).

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 THE METADATA STANDARDS OF CHINESE INTANGIBLE CULTURAL HERITAGES

The metadata standard can promote the properties and concepts for intangible cultural heritages, and establish an effective and accurate protection system for the public and society. At present, there is only one kind of general concepts in domestic ordinary metadata standards in China. The metadata standards have been used in Chinese libraries and museums. Some elements, such as name, category, subject and areas, are in these metadata standards. But just in general, the metadata standards are lack of specialized concepts of connotation and relationship for Chinese intangible cultural heritages.

So, 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
Type	Aggregation Level	DC_AggregationLevel
	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	DC_Type_Custom

	elements	
Format	Record Type	DC_RecordType
	Extnet	DC_Format_Extnet
	Created Environment	DC_Format_CreatedEnvironment
	Applied Environment	DC_Format_AppliedEnvironment
	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.

REFERENCES

- [1] Long, X.-Q, "Connotation and Characters of Intangible Cultural Heritages and Its Protection", Journal of Hubei Institute for Nationalities (Philosophy and Social Sciences), 2006, pp47-52 (references)
- [2] XIAO Long, "The general specification of national library metadata", Beijin: Beijing library press, 2011, pp.17 (references)
- [3] M. Baca, "The Introduction of Metadata". Los Angeles: Getty Center, 2008, pp.71-72 (references)
- [4] Electronic Publication: The national digital library project (National library of China) <http://www.nlc.gov.cn/newstgc/gjsztsggc/bzgf/> (references)
- [5] LI Bo, "The description and analysis of intangible cultural heritages information model", Journal of Sichuan institute of technology (Philosophy and Social Sciences), 2011, pp.120.
- [6] Electronic Publication: A discuss of cultural heritages protection (YANG Hao-zhong) http://www.snwh.gov.cn/feiwuzhi/lwzz/yxlz/200903/t20090327_69068.htm (references)
- [7] Electronic Publication: The outlines of Culture, science and technology innovation project (Xinhua Net) http://news.xinhuanet.com/society/2012-05/17/c_111978516.htm (references)
- [8] ZHAO Liang, "Metadata standard application frameworks and code", Shanghai: Shanghai science and technology literature press, 2005, pp. 45-46 (references)
- [9] Electronic Publication: operational guidelines for the implementation of the world heritages convention (UNESCO) <http://whc.unesco.org/en/guidelines> (English)
- [10] Electronic Publication: declaration template of Chinese national level intangible cultural heritages representative list- Ashimar (Chinese National Academy of Arts) <http://www.ihchina.cn/inc/doc/asm.doc>
- [11] Electronic Publication: ISO 15836-2003 (International Organization for Standardization) <http://www.niso.org/international/SC4/n515.pdf>
- [12] Electronic Publication: Dublin Core Collection Description Application Profile (Dublin Core Collection Description Working Group) <http://www.ukoln.ac.uk/metadata/dcmi/collection-application-profile/>
- [13] Electronic Publication: An Analytical Model of Collections and their Catalogues (Heaney, Michael) <http://www.ukoln.ac.uk/metadata/rslp/model/>
- [14] Electronic Publication: DCMI abstract model (Powell, Andy, Mikael Nilsson, Ambjörn Naeve, Pete Johnston) <http://dublincore.org/documents/abstract-model>

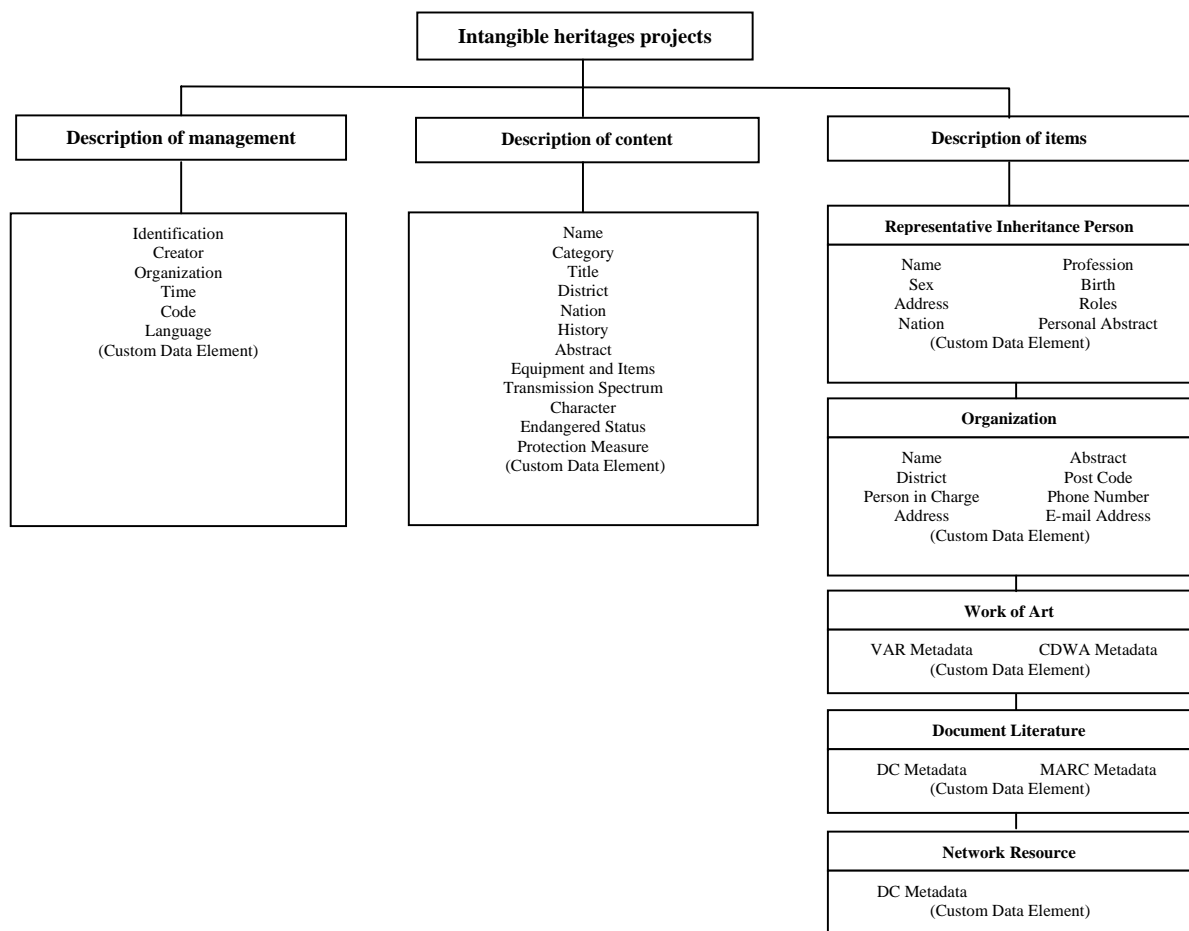


Figure 1. The Framework of Chinese Intangible Heritages Metadata [5]