

Research on Digital Collection of Traditional National Costumes, Extraction of Cultural Symbols and Labeling Norms

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The background features a light blue gradient at the top, transitioning into a series of overlapping, wavy bands of various shades of blue. A thin, dark blue rectangular border is positioned around the text, with a small gap at the top-left corner.

The value and significance of protecting cultural diversity

Significance of research

At the international level the UN 2030 Agenda for Sustainable Development for the first time recognizes the important role of culture as a development enabler, the diversity and cultural diversity of nature , and that all cultures and civilizations can promote sustainable development, which is an important driving force for sustainable development , the United Nations also expects to build a world that respects racial, ethnic and cultural diversity and equal opportunities to maximize human potential and promote common prosperity.

The connotation of cultural diversity

Cultural diversity is not only reflected in the various ways in which human cultural heritage is expressed, promoted and passed down through rich and colorful cultural expressions, but also in the creation, production, dissemination, sale and consumption of art through various methods and techniques. Ways.



The significance and value of cultural diversity

- (1) Cultural diversity is an important manifestation of the preservation of its existence in the regional cultural forms of countries around the world.
- (2) It is conducive to promoting the construction of a socialist harmonious society.
- (3) The protection and development of cultural diversity is conducive to the formation of national cohesion.

The need for cultural diversity protection

(1) Protecting cultural diversity helps to maintain social stability, strengthen the centripetal force and cohesiveness of the country and the nation, achieves world integration, and promotes the prosperity and progress of human civilization.

(2) The protection of cultural diversity includes:

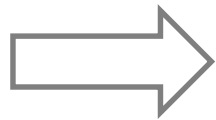
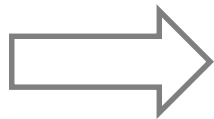
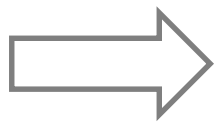
① **Digitalization of cultural carriers**

② **The use and inheritance of cultural symbols**

① The need for digital preservation of cultural carriers

There are a lot of cultural symbols and elements in the costumes. In the current wave of globalization in the world, social development is rapid and cultural changes are accelerating, especially ethnic minority costume culture, which is suffering from tremendous impact and threat. Digital technology can provide more sustainable solutions, tools and information for the protection of national costume culture.





② The need of the inheritance of cultural connotation

In the field of apparel, digital art provides contemporary designers with richer traditional cultural design materials and inspiration, which can make traditional culture more embodied and inherited in contemporary popular culture. Especially young designers, who are more familiar with and good at using digital tools to carry out design work, make the inheritance of clothing culture sustainable and practical.





Antlers: Advocating strength



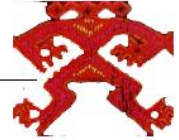
**Butterfly mother :
More children, more
blessings**



Lotus: God worship



Snake: Awe in nature



**People: have a
large family**



Sheep: holy



The value of digital technology

1. Digital technology is good for digitization

(1) Conducive to digital acquisition process specifications

The methods and types of digital collection of traditional national costumes include, but are not limited to, two-dimensional images, three-dimensional scanning, micro scanning, dynamic video and other digital technologies.

1. Digital technology is good for digitization

(2) Conducive to speeding up digital acquisition

Compared to traditional acquisition techniques, the development of digital technology has accelerated digital acquisition.



采集设备

2. Digital technology is good for design

(1) Establish a cultural resource library to facilitate the use of materials

Using digital technology to extract the cultural symbols unique to each set of clothing, and establish a cultural resource library, so that designers can fully use these cultural symbols.

2. Digital technology is good for design

(2) Digital technology can interpret the characteristics of cultural symbols and facilitate the mining and analysis of costume culture.

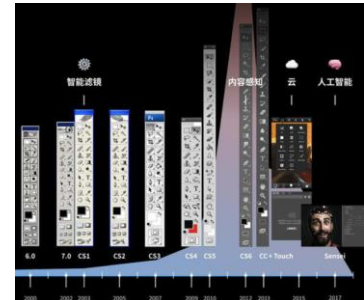


2. Digital technology is good for design

(3) Digital technology can provide systems and tools for intelligent design, accelerating the intelligent design process.

Digitization is the future of design, and artificial intelligence will be very good at making some adjustments to image contrast, correcting cluttered lines, and changing the style of images.

Therefore, future design should be combined with technology to design for human diversity, social inclusion and equality.



C. Digital technology is conducive to sharing and dissemination

Digital technology solves the precise definition and standard use of metadata, ensuring data sharing, interconnection and interoperability.

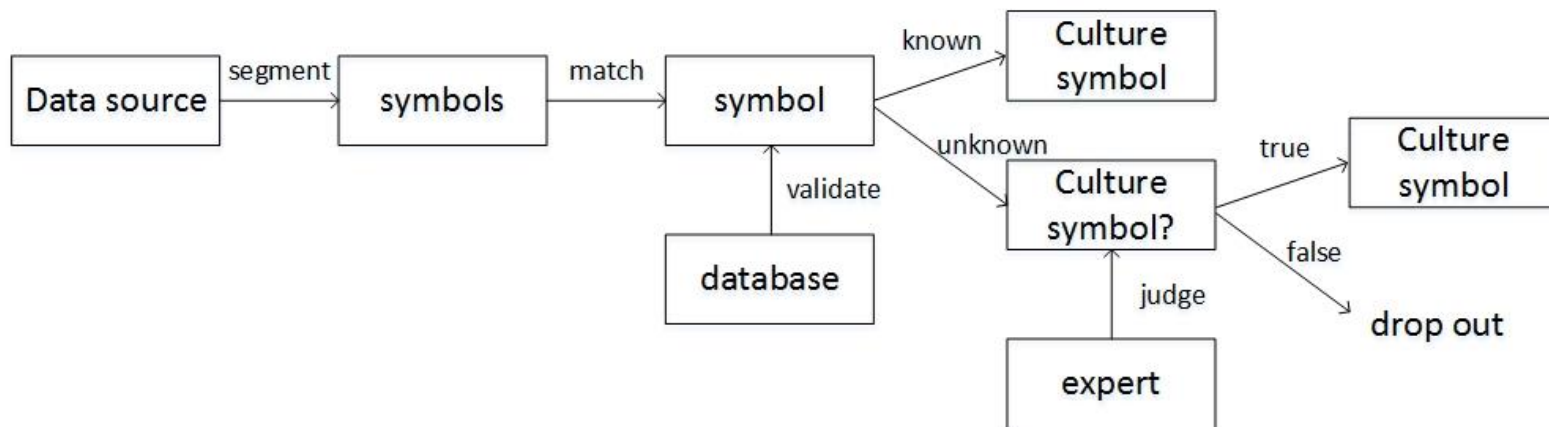
In the data storage link, the lack or ambiguity of metadata definition will result in different storage methods and structures, which will result in the impossibility of data sharing, interconnection and interoperability.

However, the standard specification using digital technology can define the metadata specification for the storage of digital specimens of traditional national costumes and establish a data sharing benchmark.



The solutions and recommendations for traditional clothing digitalization

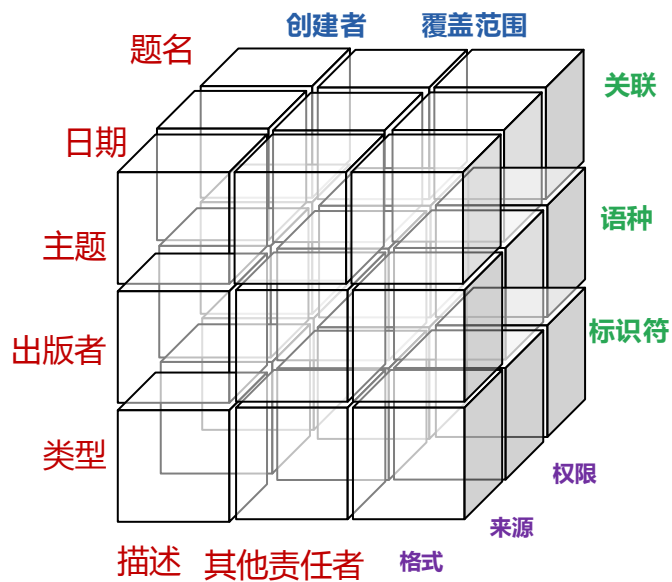
Cultural symbol extraction, labeling and quality benchmark



Traditional national costume digital processing flow chart

Digital acquisition

In order to meet the digital needs of national costumes, the costume culture semantic element (CCSE) is constructed to define the metadata of national costumes.



Digital acquisition quality benchmark

Data collection methods: 2D image acquisition, 3D point cloud acquisition, collection under microscope

Quality benchmark: environmental layout, light source construction, precision, etc.



Acquisition equipment

Pre-processing and collection
environment layout





Digital collection process





[Digital collection login](#)

Symbol extraction



Image target detection based on deep learning

Interactive symbol extraction



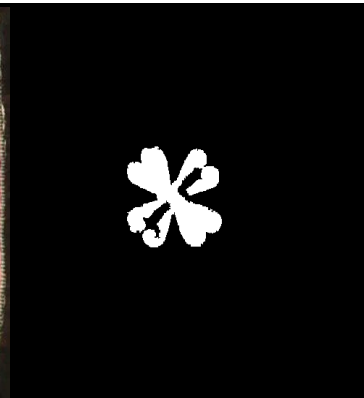
Input



Segmentation result



Input



Segmentation result

基于测地线的图割交互分割 (Geodesic graph cut)

Interactive symbol extraction



Input



Segmentation result



Input



Segmentation result



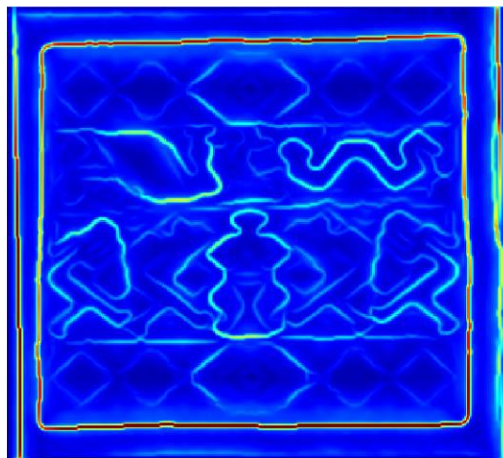
Application demonstration

Interactive segmentation based on active contour

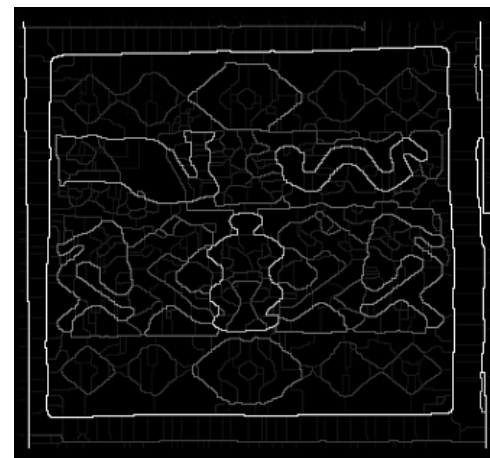
Automatic extraction of cultural symbols



Original
image



Super outline image



Hierarchical contour
map (UCM>0.5)

Schematic diagram of the process of extracting super outline and hierarchical contour map of national costume patterns

Cultural symbol annotation and interpretation

宫廷服饰



标注词

花0.049091

鸟0.045981

蝴蝶0.032681

标注

民族服饰



标注词

民族

苗族

纹样

动物纹0.07113

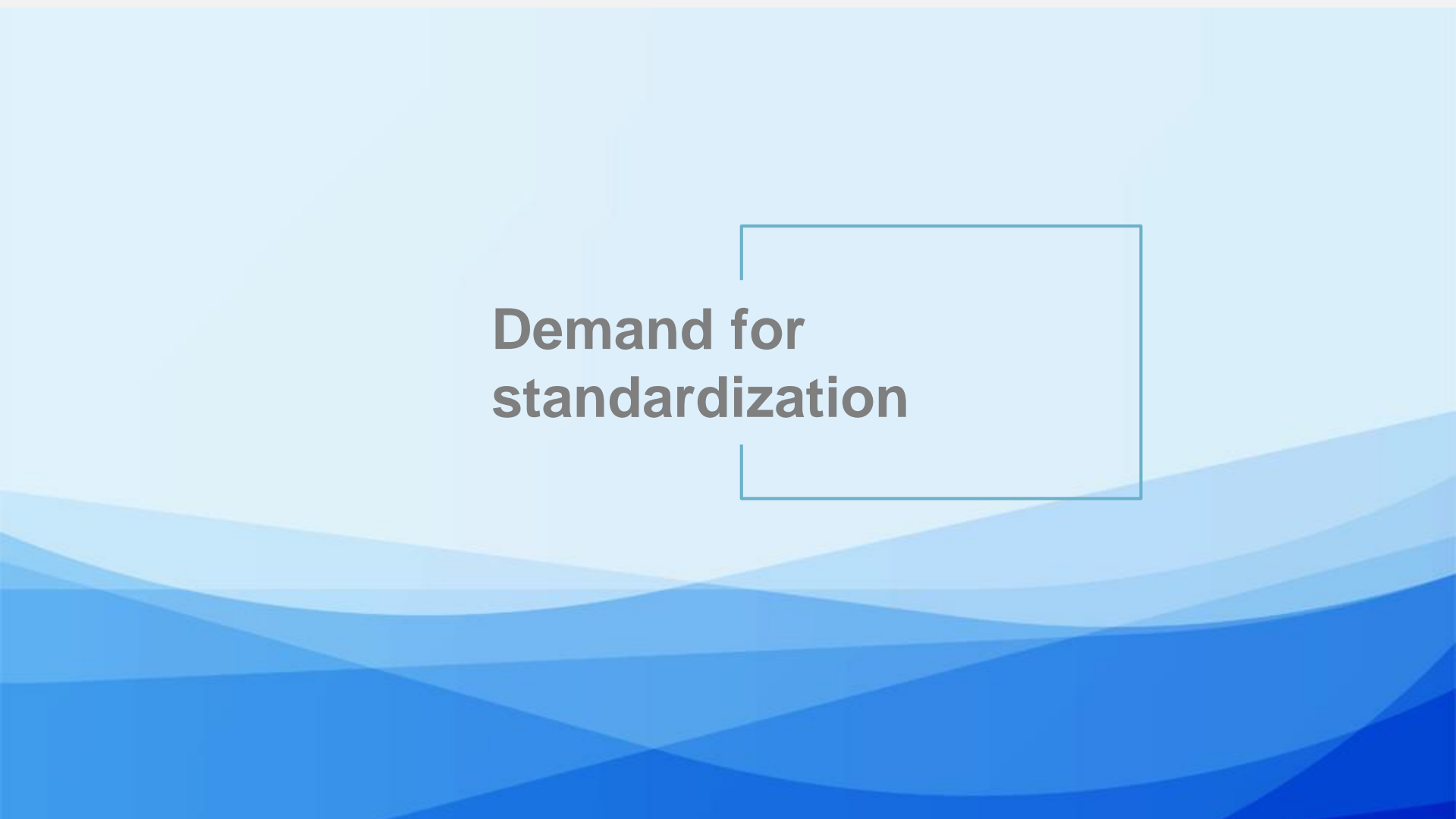
植物纹0.02604

标注

Construction of cultural gene metadata

DC		Addition	
Title	Format	Fulltext	Nation
Date	Source	Savestatus	Users
Creator	Right	Texture	Scene
Subject	Identifier	Number	Character
Publisher	Language	ClothingF unctionTy pe	Evolution
Type	Relation		
Description	Coverage		
Contributor			

Based on DC metadata, and adds domain labels to construct the semantic elements of dress culture (costume culture semantic element , CCSE) , which is used for metadata definition of national costume.



**Demand for
standardization**

Diversification of domestic digital acquisition (local standards)



In 2015, Xinjiang formulated 109 ethnic costume standards, including headwear, costume, shoes and accessories.



In 2016, the Inner Mongolia Autonomous Region formulated the "Mongolian tribal costumes" local standard, which included the characteristics and traditional styles of 28 Mongolian tribal costumes in the Mongolian region.



In 2014, the local standards of Miao costumes and Tujia costumes were officially listed in the "2014 Hunan Local Standards Revision Project Plan" through expert review.

Diversification of foreign digital acquisition



Problems in the diversification of digital standards

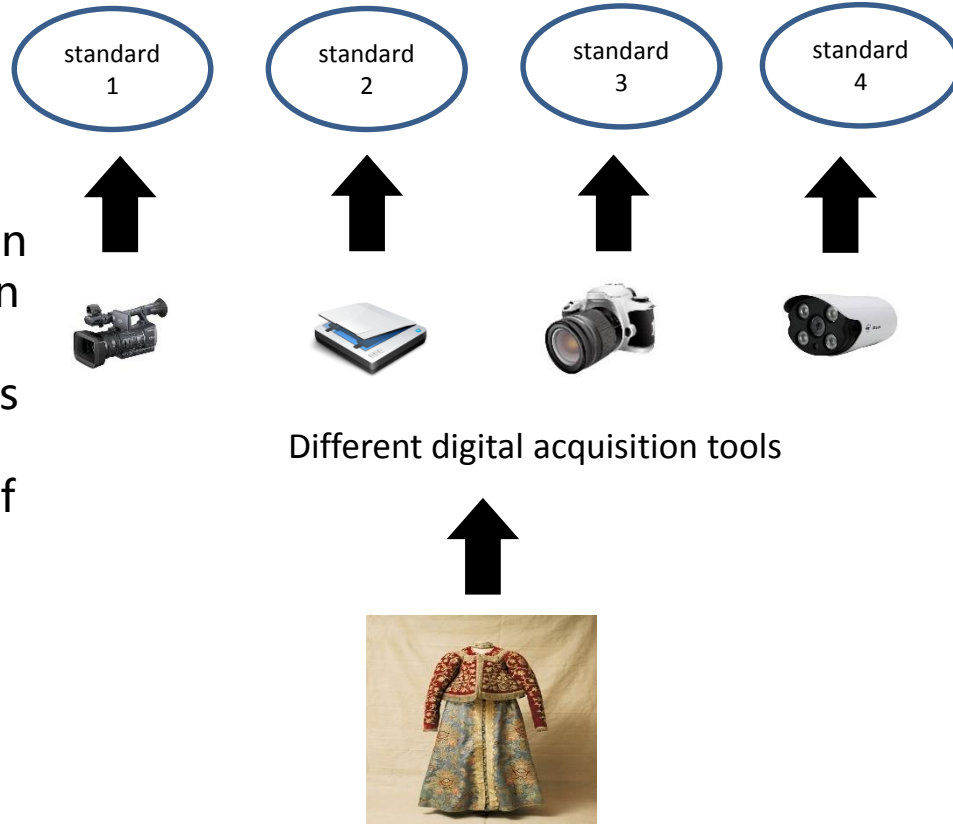
Costume with local and ethnic characteristics is spread all over the world. However, due to the differences in regional development levels, there are large differences in the means and methods of digitalization of clothing in different countries and institutions, which will bring many problems.



Problems in the diversification of digital standards

Question1 :

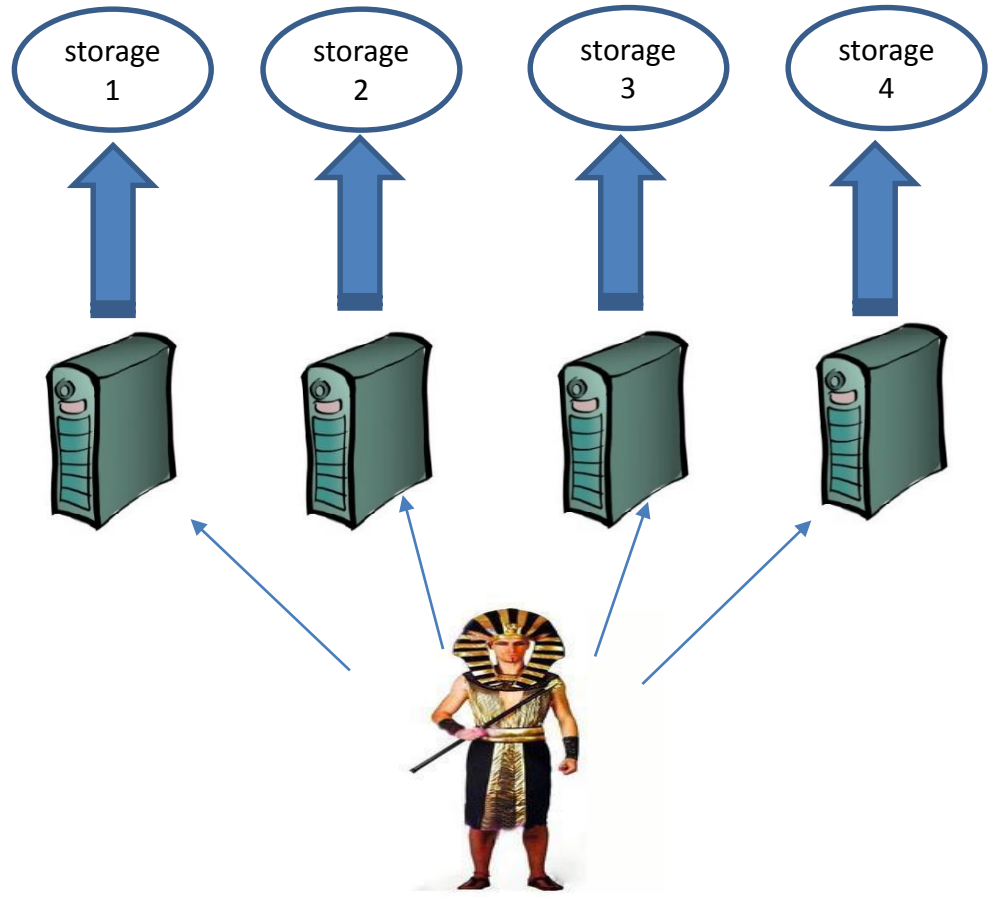
In the data collection process, the difference in acquisition parameters and quality requirements will cause a huge difference in the value of digital specimen data reuse.



Problems in the diversification of digital standards

Question2 :

In the data storage process, the lack or ambiguity of metadata definition will establish different storage methods and structures, which will result in the inability to share, interconnect, and interwork data.



Create a unified digital standard



It is recommended that global digital workers work together to create digital acquisition standards to promote diversification and sharing in the world! Realize interconnection, mutual visit and interoperability.

In future

- 1) China is a big country of cultural resources, and digitalization is the basic way to make cultural resources alive.
- 2) Strengthening the excavation and analysis of China's excellent traditional culture, so that the most basic cultural genes of the Chinese nation are compatible with contemporary culture and coordinated with modern society.

Thank you !

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