Research Progress and Trend of Information Technology Methods for the Protection of Historical and Cultural Cities

Quan Qiu
Science and Technology College, Gannan Normal University, Ganzhou, Jiangxi, 341000, China

Keywords: Cultural Protection, Information Technology, Informatization.

Abstract: Facing the development of information technology, the use of traditional technology protection means can not meet the realistic demand of the current historical and cultural city protection and inheritance, need to historical and cultural city protection combining static protection and combining digital protection, therefore, to establish a digital information, comprehensive digital virtual protection inheritance and development and utilization framework, build a new model of intangible cultural heritage protection and inheritance, is of great significance. Modern information technology plays a unique and irreplaceable role in the protection of folk culture. This paper mainly discusses the realization of cultural protection from big data technology, a means of information technology, from the perspective of better protecting famous historical and cultural cities, understanding the protection methods of contemporary historical and cultural cities, and exploring the application of modern information technology in cultural protection.

1 INTRODUCTION

With the continuous progress and improvement of social civilization, human beings pay more and more attention to cultural protection. They are the common wealth of the whole human beings, the historical witness of human living environment and civilization progress, reflecting the rich connotation of human cultural diversity, and also an important carrier of inheriting human civilization. The development of information technology provides a new way for the protection of famous historical and cultural cities (Jin, 2016). And the protection of cultural relics and historic sites with the latest science and technology has not only attracted the attention of special heritage protection agencies, but also become an important subject of scientific research. The combination of modern information technology and the protection of famous historical and cultural cities is a new idea, and has a practical technical basis and operability (Zhou, 2017). The development degree of digital cultural heritage has become one of the important symbols to evaluate a country's information technology. Therefore, the current developed countries in the world all lead by national policies and start the digital construction of cultural heritage with public funds.

2 NEW REQUIREMENTS OF CULTURAL PROTECTION UNDER INFORMATION CONSTRUCTION

The key point of information construction is to integrate with the outside world, reshape the structure to connect everything outside and give full play to the optimization and integration role of the Internet in the allocation of social resources (Dang, 2021). From this point of view, cultural protection under the background of information construction needs these new requirements to carry out a series of planning.

2.1 Changes in The Concept of Cultural Preservation

The development of modern information technology makes human civilization gradually spread into a new era, the network has become one of the main sources for everyone to obtain information because of its integration with the Internet, making the use of network advantages to create city national culture, strengthen the information of cultural protection has become inevitable Inheritance and protection of

Qiu, Q.
Research Progress and Trend of Information Technology Methods for the Protection of Historical and Cultural Cities.
DOI: 10.5220/0011736900003607
In *Proceedings of the 1st International Conference on Public Management, Digital Economy and Internet Technology (ICPDI 2022)*, pages 358-362
ISBN: 978-989-758-620-0

multimedia technique makes the relationship between the communicator and audience, national culture inheritance and protect the timely sharing of has also become a possibility in the cultural heritage protection in the process of implanted interactivity timeliness experiential open thinking, can do big limit to both sides of the emotional experience and information interaction using big data cloud platform. The Garment Hall of Mongolia Exhibition Hall uses AR augmented reality VR virtual reality holographic projection and other technologies to build a visual. Database of Mongolian culture with a large number of traditional Mongolian cultural materials such as Mongolian costumes, cultural relics, historical sites and songs and dances. In addition, immersive virtual system is adopted in the project (Pu, 2017). In the enclosed space surrounded by screens, flying fish and animals in the pattern can be touched by visitors. This way of presentation can make visitors feel immersive and have a strong sense of interaction (Zhou, 2017).

2.2 Changes in The Way of Cultural Protection and Inheritance

Due to the deep changes in the carrier-oriented spatio-temporal information of information transmission and interaction mode, we should make full use of the interactive experiential sharing instantaneity characteristic of information technology in the transmission of national culture, through the digital image of culture and audio and video (such as the production of cultural digital readers It mainly includes: one is to carry out the informationization and digital transformation of the traditional national culture object, which is parallel with the inheritance and protection of the physical form; Second, actively develop and efficiently integrate digital resources of national culture, such as developing cartoon games of national culture, shooting films and TV series of national culture, etc., to form online and offline interaction and communication of national culture; The third is to develop interactive ethnic culture experience software, such as ethnic dress fitting system ethnic culture digital expo museum online ethnic culture (Zhang, 2013). Expo museum, so that traditional ethnic culture in a wider range of dissemination, protection, development and utilization.

3 INFORMATION AGE FOR THE PROTECTION OF HISTORICAL AND CULTURAL CITIES SHOULD HAVE THE ABILITY

3.1 Data Acquisition Ability

To have good data acquisition ability, first need to strengthen the construction of field environment data, including the construction of fixed monitoring network and the development of all kinds of mobile equipment, for the cultural heritage protection of terrain, fixed equipment and other elements of related data, followed by the use of the protection unit of unit data acquisition, through human management to provide certain basis of cultural

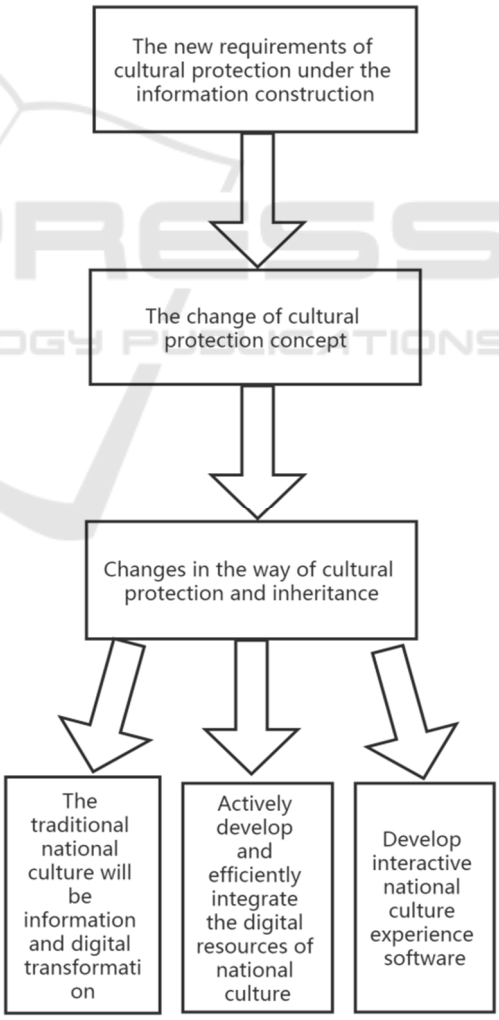

Figure 1: New requirements for cultural protection under information construction.

heritage protection. Finally, by collecting relevant cultural heritage protection data, collecting data according to the types, characteristics and other elements, to build a cultural protection database.

The basic performance indicators of the data collection card include the sampling rate, resolution, interval, and resolution. In order to ensure the accuracy of data sampling, the following algorithm is generally used: fs= (7~10) fmaxN, and N in the equation is the number of channels in the multi-channel data acquisition system.

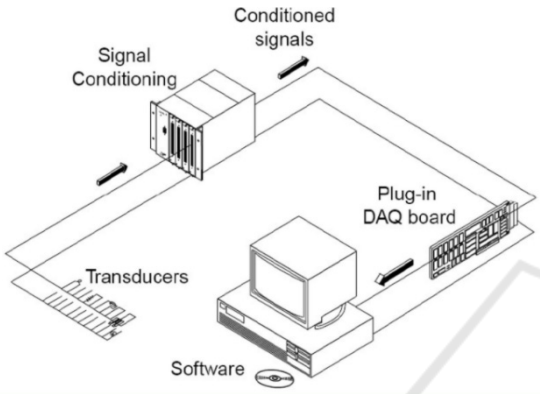

Figure 2: Basic structure of the data acquisition system.

3.2 Data Transmission Capability

Big data mobile is the biggest cost in the cultural heritage protection work, and the data storage capacity of the existing cultural heritage protection system can no longer meet the growth demand of data volume, which makes the big data transmission in the cultural heritage protection face huge challenges (Chen, 2019). Therefore, when conducting the cultural heritage protection system, a large capacity of data storage warehouse is needed. Meanwhile, the cultural protection system should also have a strong data transmission ability, which can make the smooth and efficient transmission and flow of big data.

3.3 Data-Handling Capacity

The improvement of information technology transmission and storage acquisition capacity can solve a small number of basic problems, but the intelligent identification, automatic analysis and processing of valuable information from massive big data are of good use for the protection of cultural heritage. Extract from massive data of valuable data, accurate big data can ensure the smooth progress of cultural heritage, for processing big data, need to analyze the basic data collected at ordinary times, but also need for better analysis of big data and processing, so that we can better grasp the situation of the whole cultural heritage protection.

4 COUNTERMEASURES FOR CULTURAL PROTECTION AND INHERITANCE UNDER BIG DATA

4.1 Develop the Development Path of Differentiated Culture

First of all to have a high degree of cultural national confidence, in their relevant cultural exhibition hall shows the relevant cultural knowledge and inheritance, enhance the construction of national culture backbone and courage, it as a quasi public goods to construction and development, deeply promote the relevant cultural inheritance, protection, dissemination and demonstration of the main body of the center unit.

4.2 The Sustainable Development Path of Suo Culture Protection

First of all, we should fully adapt to the reform of information technology, and deeply promote the sorting and extraction of ethnic cultural resources in the development of cultural construction and protection, so as to meet the integration of cultural protection, inheritance, utilization and modern information technology, so as to form a wider and more in-depth platform for the communication of ethnic culture. Secondly, it is necessary to have a certain understanding of the relevant national policies, guide the government to promote cultural inheritance while conducting cultural protection, and promote the process of cultural protection to the greatest extent.

4.3 Over the Internet Environment to Accelerate the Progress of Cultural Protection

In view of the connection and thinking mode of information technology, we actively explore the relevant cultural management system, the goldfish does not perfect the structure of the cultural exhibition hall, and fully absorb the enterprise groups, the social public, professionals to make a

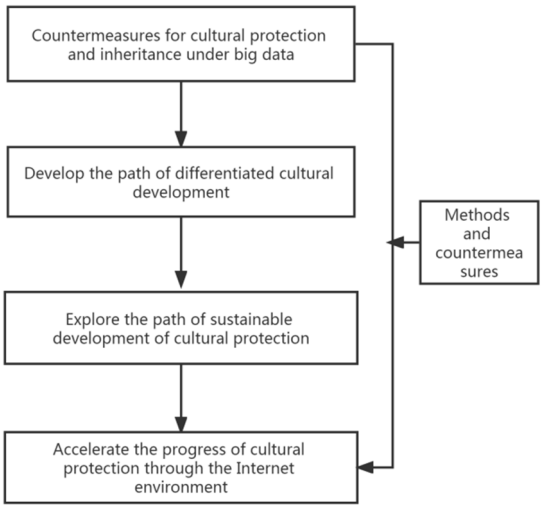

Figure 3: Countermeasures for Cultural Protection and Inheritance under the Big Data.

certain construction for the society. In addition, pay attention to the organic combination of national cultural inheritance and protection, follow the openness of the Internet + to strengthen the cooperation and cooperation of all parties, and then constantly improve its overall adaptation to your that Li, so as to truly implement it.

5 CONCLUSION

The contemporary international community, our government and all sectors of society attach great importance to the protection of national culture, and have achieved good results, but there are also many deficiencies. Modern information technology inherits and spreads folk culture through the digital storage and virtualization of cultural resources (Li, 2015). It has an irreplaceable role in the protection of folk culture. With the rapid development of the Internet, multimedia and database technologies, it provides certain conditions for the dissemination and sharing of cultural protection in famous historical cities, and the establishment of network-based cultural protection is presented in front of the public in a more vivid way. Therefore, the role mode of modern information technology in cultural protection should be strengthened, and the cultural protection mode can be recognized by the public.

REFERENCES

Anrong Dang, Yuanyuan Liang, Maini Chen, Guanqiu Wu. Research Progress and Trend of Information Technology Methods for the Protection of Famous Historical and Cultural Cities [J]. Famous China, 2021, 35(04): 33-37. DOI:10.19924/j.cnki.1674-4144.2021.04.005.

Jianghua Luo. Modern information technology supports the protection and inheritance of the Qiang cultural heritage [J]. Journal of Central South University for Nationalities (Humanities and Social Sciences Edition), 2012,32(05): 60-64. DOI:10.19898 /j.cnki.42-1704/c. 2012.05. 012.

Kai Cao. The Application of Space Information Technology in Cultural Heritage Protection Planning [J]. Changzhou Wenbo Theory Cong, 2018 (00): 74-80.

Lin Zhang, Wei Zhang, Haixia Yu. The Construction of Information Technology in the Intangible Cultural Heritage Protection [J]. Frontier Economy and Culture, 2013 (04): 158-159.

Liying Zhang, Zhi Yan. Research on the Digital Protection of Intangible Cultural Heritage —— takes the digitization of Tibetan Thangka culture as an example [J]. Information and Computer (theoretical version), 2016 (10): 161-162.

Ran Tao, Tianyu Wang, Mingxin Zhou. An Analysis on Digital Information Technology and Historical and Cultural Village Protection [J]. Heilongjiang Science, 2020,11 (14): 156-157.

Rui Pu. Study on the Cultural Inheritance and Protection of Ethnic Minorities Based on Information Behavior [D]. Yunnan University, 2017.

Sen Nie. Digital protection and inheritance of Nuo culture in Tujia area of —— [J]. Frontier, 2014(ZC): 217-219. DOI:10.14129/j.cnki.forwordposition. 2014.zc.090.

Yongguang Chen. Research on Modern Information Technology in Intangible Cultural Heritage Protection [J]. Light Industry Technology, 2019,35 (05): 75-76.

Yong Zhou. Research on the Role of Modern Information Technology in the Protection and Promotion of Folk Sports Culture [J]. Sports Culture Guide, 2017 (12): 42-46.

Yinqin Jin. Collection and Protection of Intangible Cultural Heritage Resources in Folk Art under the Modern Information Technology Environment [J]. Journal of Zhejiang Vocational College of the Arts, 2016,14(02): 139-143. DOI:10.15965/j.cnki.zjys. 2016.02.026.

Yujiao Li. Analysis on the Consciousness of Intangible Culture [J]. Journal of Hubei Correspondence University, 2015,28 (09): 37-38.

Yong Liu. Exploring the Role of Modern Information Technology in Folk Culture Protection [J]. Chinese Culture Forum, 2013 (09): 137-140.