Journal of Innovation and Development
ISSN: 2958-4752 | Vol. 3, No. 3, 2023

A Brief Analysis of the Path of Intangible Cultural Heritage Inheritance and Innovative Development under Digital Technology

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Abstract: Based on the impact of the digital media era on intangible cultural heritage, this paper analyzes the importance of intangible cultural heritage resources and the current status of digital protection of intangible cultural heritage at home and abroad, and based on the trend of multi-field penetration of digital technology, from the perspective of "Internet thinking" and "user thinking", It expounds the big data technology, block chain technology and artificial intelligence technology and discusses the path and way of Intangible cultural heritage Inheritance and innovation development, so as to provide a reference for intangible cultural heritage resources to better adapt to The Times and disseminate new charm.

Keywords: Artificial Intelligence; Big Data Computing; Blockchain Technology; Intangible Cultural Heritage Resources; Inheritance and Innovation.

1. Origin of Digitalization of Intangible Cultural Heritage

1.1. Intangible Cultural Heritage Resources are Precious but the Inheritance Mode is Fragile

Intangible cultural heritage of human is the core skills, experience, the spirit of the living condition culture, it is the accumulation of wisdom, predecessors' life is inheriting the traditional creation system, is the carrier of thick history and culture, and in the form of human production and life are closely related to exist and continue development is unsustainable and precious cultural resources, it is the foundation and source of the diversity of national culture. However, as the global economic integration, the influence of western consumption idea and way of life of the deepening, coupled with the changing of science and technology, contracted and lively, abstract capable infiltration of modern aesthetic idea, and the rapid development of industrial production, formed the present product updates fast, fast pace of life, the media technology penetration of the moment, Past supplies role in everyday life of the intangible product, seems to have lost its competitiveness, coupled with its inheritance way without system records, It is difficult to understand from mouth to heart, learning time is long, slow economic performance and other characteristics, and workers in the general aging and education is low, inheriting the team appeared fault, and fade away at different speeds. For intangible cultural heritage of precious and rich with such fragile inheritance modes, it is urgent to take effective measures and ways to carry out rescue protection and exploration of inheritance and innovation.

1.2. The Penetration Trend of Digital Media Technology in Many Fields

Although most of the current digital resources of intangible cultural heritage use advanced technologies such as two-dimensional and three-dimensional scanning, digital photography, three-dimensional modeling and two-dimensional image processing to achieve high-precision acquisition and preservation of the graphic structure and texture information of cultural relics. The integration of 3D model, virtual tour, image processing, artificial intelligence and other technologies, realized the virtual restoration of the missing and damaged parts in the digital images of endangered heritage, and uses this as the massive information warehouse of all kinds of current digital museums. However, the long history of intangible cultural heritage, heavy cultural deposits, complicated technological processes, rich modeling styles, diverse language forms and characteristics of ethnic regions seem to have a certain gap with the current digital media industry short video, Douyin, Internet celebrities and other short, flat and fast communication channels. Especially in the digital media industry in recent years show vitality, plus the "fans", "flow" and the correlation between multiple market dividend growth, we have to consider whether Intangible cultural heritage can through the digital media industry "Internet thinking" and "user thinking" of way, relying on digital media technology constantly iterative update, Deciphering the "genetic code" of intangible cultural heritage in the media era, which rapidly ADAPTS to The Times, spreads, penetrates and revitalizes its vitality, and explores the path of digital inheritance and innovative development of intangible cultural heritage.

2. The Status Quo of the Digital Development of Intangible Cultural Heritage

2.1. International Intangible Cultural Heritage Digital Protection

Many countries around the world have introduced many policies and carried out project practices for the protection of intangible cultural heritage. As early as 1992, UNESCO promoted the "Memory of the World" project aimed at

transforming cultural heritage into digital cultural forms. On the basis of the adoption of the Universal Declaration on Cultural Diversity in 2001, and the adoption of the Convention on the Protection of Intangible Cultural Heritage in 2003, UNESCO appealed to all countries in the world to rescue and protect Intangible cultural heritage. In 2004, the project of Digital Protection of Silk Road Cultural Heritage was launched to promote the concept of digital protection of intangible cultural heritage. In addition, Japan, our neighboring country, issued the Notice on Preservation of Ancient Artifacts and Old Objects in the early Meiji Period and the Kosha-ji Preservation Law in 1915. In order to protect traditional crafts as intangible cultural property, Japan enacted the Cultural Property Protection Law in 1950. And relying on the Library of Congress to carry out digital protection of non-heritage and form a resource database. With the help of the second industrial Revolution and the enactment of the Traditional Handicraft Industry Revitalization Act in 1974, Japan's traditional handicraft industry was better integrated into the modern society through the revitalization of the traditional handicraft industry closely related to daily life, and promoted the revival and innovative development of Japanese traditional handicraft. In recent years, Kyoto University has been actively developing digital technology and related equipment to study and explore large-scale cultural heritage projects around the world. In terms of the practice of intangible cultural heritage digitization research projects, the representative ones are France's "Galica" cultural digital project in 2010, the American virtual library's "American Memory" project, the digital Michelangelo project and the Mummy project, etc., all of which have made remarkable efforts in the digital protection of intangible cultural heritage.

2.2. Digital Protection of Intangible Cultural Heritage in China

Although the protection of traditional arts and crafts has been confirmed by the promulgation of "Regulations for the Protection of Traditional arts and Crafts" in 1997, the protection regulations are weak under the impact of the reform and opening-up and economic system reform. Although the Opinions on Strengthening the Protection of China's Intangible Cultural Heritage issued in 2005 put forward the protection goal of using multimedia to establish archives and databases, it still faces practical problems such as a large number of types and rapid technological update. Therefore, in 2010, the Ministry of Culture promoted the project of "Digital Protection of China's Intangible Cultural Heritage", aiming at the development and application of intangible cultural heritage resource database, and formulated the draft of digital standards and specifications for the three categories of traditional operas, techniques and fine arts in the way of pilot projects. On this basis, in order to further highlight the national intangible cultural heritage digital protection strategy, the Intangible Cultural Heritage Law of the People's Republic of China was issued in 2011. In addition, policy documents such as the Professional Standards for Digital Protection of Intangible Cultural Heritage in 2016, the Revitalization Plan for Chinese Traditional Crafts in 2017, and the Guidance on Promoting the Deep Integration of Culture and Science and Technology in 2019 have been issued in succession, which clearly demonstrates the importance China attaches to the digital protection of intangible cultural heritage. In recent years, there have emerged the "digital Dunhuang" project of Dunhuang Academy, the digital protection project of chime music and dance of Chu Culture of Zhejiang University, the "Digital Museum" project of the Emperor Qinshihuang's Mausoleum Museum, and the "Palace VR" experience museum project of the Palace Museum. As well as the exploration of the paper cutting pattern assisted creation and Design (CAD) system developed by Shandong Institute of Arts and Crafts in the restoration, dissemination, interaction and creation of intangible cultural heritage resources, providing an effective reference for the ways and means of digital protection of intangible cultural heritage.

3. The Path of Digital Inheritance and Innovation Development of Intangible Cultural Heritage

3.1. Combination of Big Data Technology and Intangible Cultural Heritage

As the lands penetration data application technology in all walks of life, "big data +" bellwether for the industry development highlights the guidance function ,"data" has become an important strategic resources of industry competition, data resource management, analysis, architecture design, as well as the development and utilization become the focus of extensive attention from all walks of life, and with the technology of continuous change, The results of data fusion and application are gradually emerging. In terms of the field of intangible cultural heritage, the rich data dimensions and analysis and processing tools of big data technology can enable intangible cultural heritage to be presented in various forms according to public attention. Big data technology can make intangible cultural heritage video, audio, picture text and other data resources more standardized according to the needs of media communication, and make the data and process more standardized. The analysis of data correlation degree of big data technology can develop new products in the new era of intangible cultural heritage and expand the application mode of online business according to user needs. For example, the big data platform of Gansu intangible cultural Heritage uses big data technology to store rich and huge audio, video, picture, text and other intangible cultural heritage data according to data classification and coding standards. Through the integration and extraction of data through big data technology, real-time retrieval and display of "Gansu Intangible cultural Heritage" portal website and "Longyuan Intangible Cultural Heritage" APP were realized. Big data technology provides accurate demand information for the development of targeted cultural and creative products through the data analysis of "intangible heritage map" interaction points.

3.2. The Combination of Blockchain Technology and Intangible Cultural Heritage

A blockchain is a database with "Sanlie validation" of data. It combines the data blocks into a chain structure according to the time sequence in the way of Popular participation and distributed accounting, and uses cryptography algorithm to collectively maintain the reliability of the database. In other words, blockchain can make all system users of participating nodes can leave traces throughout the process through the technical features of distributed ledger, asymmetric encryption, consensus mechanism and smart contract, and

verify the authenticity of the record through the non-tamper-able and traceable information, decentralized collective maintenance and openness and transparency. For the bottleneck of the right confirmation of intangible cultural heritage achievements, blockchain technology can ensure the all-round and whole process record of intangible cultural heritage techniques through digital recording, and effectively safeguard the rights and interests of non-genetic inheritor. By putting a digital stamp (time stamp and inheritor stamp) on the original works of intangible cultural heritage, it is possible to trace the original works at any time, ensuring their authenticity and uniqueness. By providing digital space display for intangible cultural heritage, it not only promotes the inheritance and dissemination of intangible cultural heritage, but also creates conditions for the online transaction of intangible cultural heritage. For example, the APP block chain storage platform of "Sioux City Storage and Certification" is aimed at the problem that intangible cultural heritage comes from the people and is easy to copy and difficult to confirm the right. It focuses on the reality of many intangible cultural heritage projects, representative inheritors and more than 3,000 related enterprises in Gusu District of Suzhou, where intangible cultural heritage resources are rich. The use of blockchain technology to form the "Suzhou Notary chain" of early design and production, mid-term sales authorization and late rights protection and notarization of intangible cultural heritage, an exploration of the whole life cycle of rights protection and sustainable development of intangible cultural heritage.

3.3. The Combination of Artificial Intelligence Technology and Intangible Cultural Heritage

Artificial intelligence, or AI for short, is a technology that processes the information of human thinking process into tangible machines or systems. In other words, the functions of human language processing, visual recognition, communication and interaction, and innovation and creation are endowed to the carriers (virtual people, robots, etc.) under the system technology. Like Tencent company small ice classmate, Xiaomi company small love classmate, Baidu company small degree classmate and so on, as intelligent home appliances have appeared in our side. However, our understanding of where AI technology can be applied is often the tip of the iceberg. For example, in the application of artificial intelligence in text creation, Tencent Xiaoice has learned the modern poems of 519 poets through deep neural network and other technical means, and after more than 10,000 times of training, has acquired the ability of modern poetry creation, and published the original poetry collection "Sunshine Lost the Window"; Another example is the application of artificial intelligence in sound creation. Tencent Xiaoice, through the DNN model technology of artificial intelligence songs and the "adjustment" of teachers from the Department of Sound Engineering of Shanghai Conservatory of Music, has learned the singing skills of human singers and mastered the ability to automatically complete orchestration selection, arrangement and lyrics creation according to style and rhythm. It has been able to realize the end-to-end integration of the original single including arrangement, melody and lyrics. Another example is the application of artificial intelligence in visual creation. After studying the paintings of 236 famous human painters in the past 400 years in the Central Academy of Fine Arts for 22 months, Tencent Xiaoice Painting model can independently complete 100% original painting works when inspired by texts or other creative sources. In addition, he has held a personal exhibition of "Probable World" and published a collection of artificial intelligence paintings. It can be seen that with the continuous update and iteration of technology, artificial intelligence has come into our side and into our life, which also makes digital intangible cultural heritage have more possibilities.

Intelligent collection and analysis and processing technology of artificial intelligence technology can accurately identify and analyze the resource information of intangible cultural heritage, realize a more comprehensive, three-dimensional and multidimensional display, and enrich the channels and forms of dissemination and promotion of intangible cultural heritage. Artificial intelligence technology, intelligent language and visual technology, can simulate the voice, face and smile of the inheritor, and realize the close communication and interaction of intangible cultural heritage skills across time and space; Artificial intelligence virtual reality technology can reproduce intangible heritage historical scenes, site architecture, life style, and realize immersive experience and perception; The learning, development and design ability of artificial intelligence model system can be based on the learning and analysis of existing intangible cultural heritage resources, and develop new intangible cultural heritage products that conform to the lifestyle of The Times through training, so that intangible cultural heritage can be added with digital wings to renew new vitality. Just like the practice of combining artificial intelligence music creation technology with Songyang Gaoqiang, "the living fossil of the opera circle" in Zhejiang province, and the practice of creating many songs such as "Meet Dongyang" with the technique of "Songyang Gaoqiang", the traditional music is integrated with the elements of The Times and shows new charm. In addition, artificial intelligence visual creation technology, based on the artistic characteristics of silk patterns in the Song Dynasty, uses the way of big data computing and processing to transform patterns into weaving information and generate weaving documents with appropriate, technological parameters, reasonable organizational structure and appropriate yarn color design. With the support of digital printing technology and "digital multi-weft pixel display technology -- Yantian Weaving color" technology, traditional silk patterns are integrated with modern aesthetics, and a series of new era patterns with fashionable composition and harmonious color are created. The appearance of the product "Elegant charm of Song Dynasty" in the "AI Fashion Night" of the National Silk Museum, is an innovative exploration of "traditional X modern" of Chinese silk culture.

4. Conclusion

To sum up, the heritage resources in the "user thinking" and "thinking Internet" penetration, the digital media technology at present became the decoding cultural heritage of fast development challenges a "genetic code", it can be through multi-angle present the cultural connotation of intangible products more form intangible product features, diverse channels to the contents of the output, The integration of diversified materials and resources makes cultural heritage attract more extensive attention, becoming an important channel for the cultural publicity and popularization of intangible cultural heritage, and an important way to promote the inheritance and innovative development of intangible

cultural heritage. Visible, make full use of good big data, chain blocks, and artificial intelligence and other modern science and technology, to dig the heavy history and culture, carry forward the handicraftsman stick and beginner's mind, set up a corresponding cultural brand, sets up the cultural inheritance of self-confidence, improve cultural consciousness and boost modern national intangible heritage and innovation development there is a lot of research and exploration of space, etc.

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