# Research on Digital Empowerment of Xinfan Palm Weaving Technique

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**Abstract:** Intangible cultural heritage is an important component and treasure of excellent traditional Chinese culture, containing the values, ideological wisdom, and practical experience of the Chinese nation. Xinfan palm weaving is one of the traditional Chinese folk handicrafts and has been included in the national intangible cultural heritage list. But at present, Xinfan palm weaving also faces some problems and difficulties in the process of inheritance and protection, such as complex production, no standard quality system, small-scale, weak brand and other development bottlenecks. This article starts with a comprehensive empowering service model of "cultivating talents, supporting intelligence, incubation, promotion, and communication", and through blockchain and digital empowerment of intangible cultural heritage inheritance, it helps to continue the development of Xinfan palm weaving.
***Keywords*:** Xinfan, palm weaving, digital, blockchain

## 1. Introduction

Blockchain is a distributed network data management technology, using cryptography technology and distributed consensus protocol to ensure the security of network transmission and access, to achieve multi-party maintenance and cross-verification of data, with the characteristics of consistency across the network, not easy to tamper, transparent and traceable. With the rapid development of the Internet, all kinds of data and information in the network world become more and more complex and huge, which puts forward higher requirements for security and credibility. In this environment, blockchain technology came into being, which is a decentralized, secure and efficient data storage and transmission technology.

As the evolution of a new generation of information and communication technologies, blockchain is becoming a new type of infrastructure to solve the problem of mutual trust between participants in the industrial chain, playing an increasingly important role in the development of the global digital economy. Blockchain technology is not only widely used in the field of digital currency, but also widely used in social governance, finance, logistics and other fields.

## 2. Research background

There are abundant intangible cultural heritage resources in China, with nearly 870000 items according to incomplete statistics. Among them, there are 42 world intangible cultural heritage lists, ranking first in the world. By the end of 2021, there is a total of 3610 national level representative intangible cultural heritage projects in China, with 3068 national level representative inheritors of intangible cultural heritage, making significant achievements in the protection of intangible cultural heritage. China's national intangible cultural heritage representative projects have obvious regional distribution characteristics, relatively concentrated in the East China region, followed by the Central South, North China, and Southwest regions, accounting for 28.0%, 19.6%, 18.4%, and 17.0%, respectively. The Northeast region only accounts for 4.8% of the representative projects. The distribution of representative inheritors and projects of national intangible cultural heritage is generally consistent, with their distribution relatively concentrated in East China, accounting for 30.3%. The proportions of North China, Central South, Southwest, Northwest, and Northeast regions are 20.0%, 18.3%, 15.7%, 12.1%, and 3.6%, respectively. The abundant intangible cultural heritage is accompanied by the emergence of museums, cultural centers, and other places. In recent years, the number of museums in China has been increasing year by year, reaching 5788 in 2020, an increase of 253 compared to the previous year[1]. At the same time, museums, cultural exhibition halls, and other units combine intangible cultural heritage with modern technology, using digital media to carry cultural heritage, and using multimedia shows such as 3D animation and holographic panoramic technology to display and disseminate intangible cultural heritage in a three-dimensional manner in terms of graphics, form, sound, and text[2].

In order to adapt to the rapid development pace of intangible cultural heritage and promote the modernization and industrial transformation of intangible cultural heritage projects, the country announced two batches of national level intangible cultural heritage productive protection demonstration bases in 2012 and 2014, totaling 100. These bases promote industrial development by transforming intangible cultural heritage resources into productivity and products, not only

protecting intangible cultural heritage in production, but also actively coordinating the relationship between intangible cultural heritage protection and economic society.

# 3. Research significance

Blockchain technology is based on information technologies such as distributed ledgers, consensus mechanisms, smart contracts, and asymmetric encryption algorithms, aggregating the computing power of nodes on the chain and becoming another new driving force for socio-economic development. Innovate in ensuring the integrity and credibility of digital resources, while maintaining the authenticity and ownership of digital resources, and introduce the power and wisdom of the public into the construction of digital resources to enhance social participation. However, blockchain may have different access ranges due to different node permissions, and the access range of nodes on the chain is controlled by consensus mechanisms and smart contracts[3]. Nodes jointly maintain the blockchain and mutually restrict and supervise each other, Ensuring the security of digital resources, nodes simultaneously store data on the chain, creating a trustworthy and green information ecosystem for the sharing and protection of digital resources. The inheritance and protection of intangible cultural heritage archives are equipped with blockchain technology, bringing new driving forces to the construction and dissemination of digital resources through innovative digital technology, improving the construction level of intangible cultural heritage archives, and increasing the sharing of heritage resources, Strengthen the inheritance effect of cultural heritage[4].

# 4. Research ideas and methods

## 4.1 Research ideas on digital empowerment of Xinfan palm weaving (Figure 1)

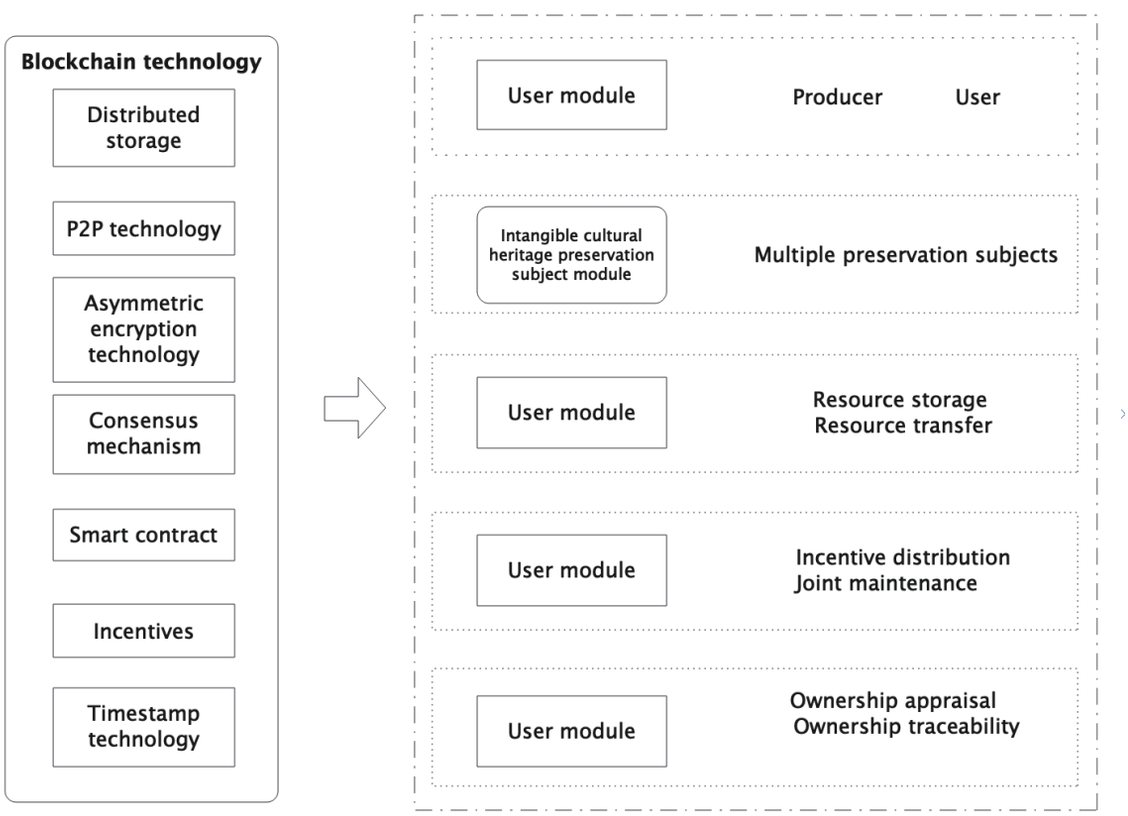


**Figure 1. Functional modules of the blockchain based Xinfan palm weaving resource sharing model in the Sichuan Chongqing region**

## 4.2 Literature research

This article reviews and summarizes relevant literature on intangible cultural heritage inheritance, intangible cultural heritage digitization, and blockchain theory in China. Drawing on mature methods and sound systems from previous research, the framework of this article is designed to find a suitable path for the digital development of new and traditional

palm weaving. The existing research by domestic and foreign scholars is an important theoretical basis for this study, and also provides important insights for improving research ideas and methods.

# 5. The problems in the inheritance of Xinfan palm weaving

## 5.1 No standards

Xinfan palm weaving is still mainly handmade by craftsmen, with each piece worn, hooked, folded, and buttoned, which is the unique charm of the traditional craftsmanship of handmade Xinfan palm weaving. Because Xinfan palm weaving is a traditional handicraft that cannot be completely replaced by machines, every inheritor and weaver has their own small skills and standards, and also carries personal subjective aesthetics, making it even more difficult to determine "standards".

At the same time, palm weaving belongs to purely handcrafted products, which makes quality control difficult and makes it difficult to achieve differentiated competition. The investment in manual labor is very large, and it is not possible to use machines for large-scale, high standard production like other jewelry. In addition, there are deviations in everyone's learning and use of knowledge and technology, which leads to the phenomenon of the lack of a standard system for product quality in the new and complex palm weaving industry. Digitization can solve these problems[5].

## 5.2 Small-scale

The production of the Xinfan palm weaving industry is still in its most primitive state, with each household being at most one village. There are people in each village who study, but there is no specific production process formed, just like a one-stop service form for production and sales. In terms of inheritance, priority is still given to choosing individuals such as family and friends as the objects of inheritance. However, in the rapidly changing era of the 21st century, most young people have not shown much interest and ideas in inheriting and memorizing techniques, to the extent that some basic inheriting skills are constantly passing away, and there is no good promotion of surrounding industries. As a result, many people are not familiar with this aspect. Every inheritor and manufacturer of new and traditional palm weaving exists in small groups on the market. At the same time, due to its precious material selection and comfortable and environmentally friendly use, it is also due to these reasons that its cost is high, and only a small portion of palm leaves in certain regions can be woven and sold. These can be solved through numbers[6].

## 5.3 A lack of digital empowerment

As a new type of traditional handicraft, palm weaving lacks a clear market positioning and a clear digital target audience positioning in the modern consumer market. The lack of digital products and single products have led to a serious reduction in its originally small market share. However, the two main channels of export overseas and scenic spot sales have been severely impacted by the market, resulting in a significant reduction in market share.

# 6. Digitally empowering Xinfan palm weaving

## 6.1 Empowering the inheritance of intangible cultural heritage and showcasing a new model.

Starting a new model of palm weaving inheritance with digital empowerment, constructing an integrated intangible cultural heritage inheritance platform for palm weaving teaching, promotion, and sales, aiming to create smart palm weaving and intelligent palm weaving. Empowered by technology, the team has developed a platform related to Xinfan palm woven intangible cultural heritage. Building an online platform for inheriting traditional Chinese palm weaving through high-tech means not only includes the actual situation of the number and distribution of inheritors of traditional Chinese palm weaving through big data, but also relevant production tutorials for traditional Chinese palm weaving, which can effectively solve the current situation of low knowledge level among farmers. At the same time, relying on the platform integrated products and media dual matrix, on the one hand, we can assist in the sales of palm woven products, on the other hand, we can promote intangible cultural heritage heritage heritage sites and related products, shape brand advantages, and increase product exposure.

## 6.2 Integrating multiple intangible cultural heritage resources and establishing a digital resource library.

Integrate resources from multiple fields such as university guidance experts, corporate intangible cultural heritage inheritance masters, government cultural and tourism bureaus, intangible cultural heritage protection departments, marketing experts and entrepreneurs in society, and foundations, collaborate to promote the development of palm weaving inheritance, and establish a digital resource library. On the one hand, professional experts in intangible cultural heritage inheritance can

provide professional guidance to farmers in intangible cultural heritage areas, helping them with palm weaving production, product sales, and promotion. On the other hand, they can guide workshop members in the relevant knowledge of intangible cultural heritage inheritance, improve the overall work strength of the workshop, and effectively assist in intangible cultural heritage inheritance. Members learn and master the weaving skills related to Xinfan palm weaving, and organize members who have already learned and mastered Xinfan palm weaving culture and skills to carry out Xinfan palm weaving culture classes and Xinfan palm weaving technology training classes in various primary and secondary schools, universities, communities, etc., leading more children to master Xinfan palm weaving technology skills, enhance the hematopoietic power of intangible cultural heritage inheritance, and achieve generational transmission.

### 6.3 Integrating innovative and creative design, realizing stronger product strength and increasing digital intangible cultural heritage products.

Integrating trendy modern design elements and unique innovative creative techniques into the design and production of palm woven products based on traditional handicrafts, in line with the current popular concept of forest style living and green environmental protection. Professional, regional, and distinctive design of external packaging and logos to give products unique artistic charm and brand characteristics, shape their brand influence, and increase product exposure.

### 6.4 Creating a new model of "blockchain+palm weaving".

Digitize the inheritance technology of palm woven intangible cultural heritage through the palm woven resource service layer, resource storage layer, resource service layer, and combined with blockchain technology. This design model can not only protect the inheritance of intangible cultural heritage, but also meet potential market demands and create huge economic value (Figure 2).

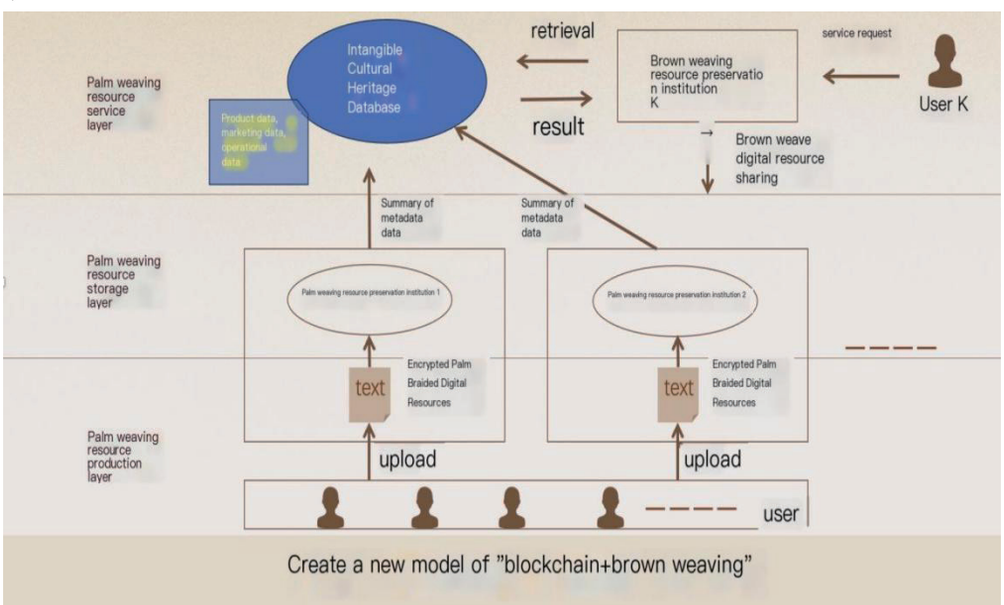


**Figure 2. New mode of blockchain + palm weaving**

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