Hindawi
Mobile Information Systems
Volume 2022, Article ID 7056883, 11 pages
https://doi.org/10.1155/2022/7056883

Research Article

The Wireless Communication of the Embedded Microprocessor Contributes to the Industrialization of Intangible Cultural Heritage Products

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Received 1 June 2022; Revised 28 July 2022; Accepted 6 August 2022; Published 14 September 2022

Academic Editor: Imran Shafique Ansari

Intangible cultural heritage is very important for the development of a nation. There are clear instructions for the history and inheritance of a country. Tao represents the inheritance of a country in time, and the sustainable development of the protection and inheritance of intangible cultural heritage and derivative cultural products is of great significance. From the past to the present, people's research on intangible cultural heritage has gradually transitioned to industrialization. This article aims to study the influence of wireless communication using embedded microprocessors on the industrialization of intangible cultural heritage products and aims to help the industrial development of intangible cultural heritage products through in-depth understanding of wireless communication. This article puts forward the relevant knowledge of the MIMO system, by introducing the operating process of the wireless communication of the embedded microprocessor, the necessity of the industrialization of intangible cultural heritage products, and the relevant knowledge of how to commercialize it; finally, the industrialization development model of intangible cultural heritage under the support of new technology is drawn. In the experiment, this paper discusses the application of wireless communication technology of embedded microprocessor in the design of intangible heritage products and, based on this, discusses the road of industrialization of intangible heritage products assisted by wireless communication. Finally, the experimental results of this paper show that compared with traditional intangible cultural heritage products, the popularization rate of intangible cultural heritage products produced by wireless communication technology of embedded microprocessor has increased by 15–20%.

1. Introduction

Today, when the role of culture is becoming increasingly prominent, the protection, promotion, and inheritance of intangible cultural heritage is particularly important. The development of science and technology has provided an important direction for intangible cultural heritage protection, and the application of digital technology has accelerated the pace of intangible cultural heritage protection. Intangible cultural heritage is an important way for many people in the world to solve the identity crisis. At present, there is a trend of cultural globalization in the world, and there are also diversified demands. As an important aspect of cultural competition under the background of economic globalization, the cultural and creative industry focuses on the inheritance of traditional cultural knowledge and the integration of modern design concepts. New creative concepts provide a new carrier for the development of traditional culture. Attention to intangible cultural heritage is the general trend. The wireless communication of the embedded microprocessor is to use the related technology of the miniature processor to improve the wireless communication and then introduce this technology into the intangible cultural heritage industry. Combining the two can

promote intangible cultural heritage to be recognized by more and more people.

Under the premise of the rapid development of current technology, the related knowledge of intangible cultural heritage has also attracted the attention of most people, there is a growing focus on objects and places associated with intangible cultural heritage and traditional cultural expressions. Intangible cultural heritage is an important symbol of a nation's historical and cultural achievements, as well as an important part of traditional culture. Intangible cultural heritage is an important symbol of a nation's historical and cultural achievements, and traditional culture is the heritage of a country's history and contains the heritage of a country. How to inherit the intangible cultural heritage is a content that is worth studying. Under the related technology of wireless communication of embedded microprocessor, it will become more convenient for people to explore and protect intangible heritage.

With the development of wireless communication with embedded microprocessors and the emphasis on intangible cultural heritage, Csergo noticed that more and more food-related heritage elements are listed in the intangible cultural heritage list. However, as the field of derivative products in intangible cultural heritage, it is affected by different geography and standardization, and the main geoeconomic issues will be developed around different understanding. In addition to protecting the identification labels of certain cultural products, other forms of protection measures can also be taken to benefit the intangible food heritage and products, commodities, services, industries, and the cultural spaces they are embedded in the national list [1]. In addition, Fafoutis et al. found that wireless communication with embedded microprocessors is widely used in various cultural industries. But at the same time, there is still insufficient understanding of the related use of wireless communication, especially in terms of privacy and sensitivity when collecting data. Then, through related research, it is found that the changes of the wireless channel captured by the signal strength of different frames are closely related. Furthermore, this correlation is actually verified through multiple scenarios in the real environment. Tests are carried out in magnetic fields, metals, open spaces, and buildings to verify the relationship between signal strength and signal ballistics. The above research is of great significance for us to understand the wireless communication of embedded microprocessors [2]. In addition, Chevalier et al. researched on intangible cultural heritage. In addition to introducing the related concepts and characteristics of related intangible cultural heritage, it also deeply explored the development of culture in the digital age. Facing the impact between different cultures and the advancement of science and technology, how to protect and inherit the intangible heritage culture is very important. At the same time, for the development of the nation itself, it is imperative to take certain measures in relation to the industrialization of intangible cultural heritage-derived cultural products [3]. In addition to related research on intangible cultural heritage, Locke et al. conducted in-depth research on related technologies such as wireless communication. A concluding discussion on the operating model and process method is made. The related research is of great significance to the analysis of intangible cultural heritage products, and to a certain extent, it has promoted related research on the industrialization of intangible cultural heritage products [4]. In the relevant knowledge of wireless communication, Mohamed found that as the modulation order of M-PAM modulation increases, the energy efficiency of pulse amplitude modulation discrete multitone modulation decreases. The enhanced version is proposed as a solution for energy efficiency reduction, which is achieved by allowing multiple information streams to be superimposed on the receiver side and continuously demodulated. In order to maintain a distortion-free unipolar system, multiple time-domain streams need to be aligned. However, aligning anti-symmetry in time-domain streams is complicated and can lead to efficiency losses [5]. In addition to the above research, Dhillon found that with the help of ubiquitous wireless connections, declining communication costs, and the emergence of cloud platforms, the deployment of IoT devices and services is accelerating. Among them, it is a very good idea to introduce wireless communication-related technologies into the cultural products of intangible cultural heritage. In his research, he conducted related research on wide-area wireless networks, especially the theoretical principles of wireless communication, and conducted efficient communication research on related content [6]. At the same time, Kolodziej et al. conducted related wireless communication research and proposed a new tapped delay line RF canceller architecture with multiple non-uniform preweighted taps. This new structure can increase the frequency of communication in practice and has great significance in promoting the flow of information. By eliminating the direct antenna coupling and the multipath effect that constitutes a typical interference channel to improve the system isolation, it is finally found that the efficiency of wireless communication related technologies can be improved [7]. Regarding the related knowledge of intangible cultural heritage products, Zhao conducted related research on the industrialization of intangible cultural heritage and found that with the rapid technological advancement, intangible cultural heritage culture is gradually being recognized by more people. The introduction of wireless communication into non-derivative cultural products has played a great role in promoting the recognition of the product by more people. At the same time, a certain amount of research on the related content of wireless communication equipment has been carried out, and an in-depth discussion has been carried out on the combination of the two, which can provide theoretical knowledge for the industrialization of intangible cultural heritage products [8].

The innovations of this article are as follows. (1) Based on the theoretical support of embedded microprocessing wireless communication, the content analysis of the industrialization of intangible cultural heritage products is carried out at the same time. Combining the two in the article, the content of the technical and theoretical dialectical argumentation makes the content of the article more rigorous. (2) Through the theoretical analysis of intangible

cultural heritage, using this as an entry point, the introduction of wireless communication and other related technologies has analyzed the industrialization of intangible cultural heritage products. Through this method, the influence under the traditional communication conditions is improved, and how to innovate intangible cultural heritage in the communication, so, to obtain a better communication effect has become a new problem at present.

2. The Industrialization of Intangible Cultural Heritage Products Based on Embedded Microprocessor Wireless Communication

2.1. Wireless Communication of Embedded Microprocessor

2.1.1. Wireless Communication Technology. Wireless communication is a communication method in which electromagnetic wave signals can propagate in free space for information exchange. Wireless communication technology is in a stage of rapid development and expansion, and the quality of communication and the transmission rate of data are becoming more and more rigid demands of the public. Cooperative diversity technology emerged at the historic moment. In the wireless communication system, users help to send their own information by sharing the antennas of their partners, and through sharing, a system very similar to MIMO is formed [9]. The system can overcome the limitations of MIMO technology and can obtain a certain system performance gain, thereby improving the effective transmission performance and reliable communication performance of the wireless communication system. MIMO technology is not suitable for environments such as dense urban areas and indoor coverage. Due to reflection, on the one hand, the receiving end will receive signals from too many paths, resulting in poor phase superposition; on the other hand, a large number of multipath signals will lead to DOA. Information estimation is difficult. MIMO technology is a technology that uses multiple antennas at both the transmitting end and the receiving end to obtain spatial diversity gain (also known as antenna diversity). In a MIMO system, there are multiple pairs of transmitting antennas and receiving antennas, and multiple different information transmission channels are formed between them. The model of the system is shown in Figure 1.

Now suppose that in a MIMO system, the transmitting antenna has Pm roots and the receiving antenna has Km roots. The channel coefficient is represented by T, here we assume that all channel coefficients are independent of each other, and it obeys a complex Gaussian random variable with a variance of 1 and a mean of 0. Therefore, the MIMO transceiver can be simulated as

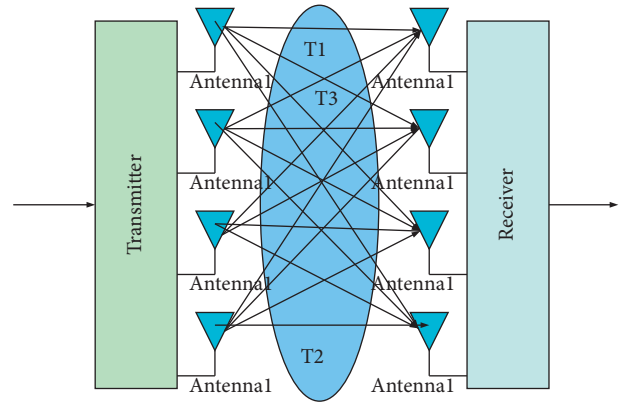

Figure 1: MIMO system model with 4 transmitters and 4 receivers.

$$R = \sqrt{\frac{v}{P_t}}XQ + P. \tag{1}$$

Among them, the transmitted signal is represented by $X = [x_1, x_2, ..., x_t]$; the received signal is represented by $Y = [y_1, y_2, ..., y_t]$, and the noise signal is represented by $P = [p_1, p_2, ..., p_t]$, and it obeys a complex Gaussian random variable with a variance of 1 and a mean value of 0 [10]. Assuming that the channels are independent of each other, the average channel capacity of the system can be expressed as

$$A = E_k\{\log_2 \det\left(I_r + \frac{v}{P_t}H^t\right)\Re\}. \tag{2}$$

What is expressed in the formula is the expected value of the entire system channel. When the expected value of the channel coefficient is 1, which is a single-input single-output system, the average channel capacity of the system is

$$C = E\left[\log_2\left(1 + \frac{|h^2|P}{M_0}\right)\right]. \tag{3}$$

But when the expected value is not 1, that is, a single-input multiple-output system, there are

$$\det\left(I_t + \rho P^t P\right) = \det\left(I_t + \rho P P^t\right) = 1 + \rho\sum_{i=1}^{t}|h_i|^2, \tag{4}$$

where $P = [p_1, p_2, ..., p_t]$. Then, the average channel capacity of the system is

$$C = E\{\log_2\left(1 + \rho\sum_{i=1}^{t}|h_i|^2\right)\Re\}. \tag{5}$$

When the expected value and the capacity of the channel are not 1, it is a system with multiple inputs and multiple outputs; then, there are

$$H^t H = \sum_{i=1}^{t}|h_i||h_i| \quad \cdots \quad \sum_{i=1}^{t}|h_i| \quad \sum_{i=1}^{t}|h_i| \quad \sum_{i=1}^{t}|h_i| \quad \cdots \quad \sum_{i=1}^{t}|h_i| \quad \cdots \quad \cdots \quad \cdots \quad \cdots \quad \sum_{i=1}^{t}|h_i| \quad \sum_{i=1}^{t}|h_i| \quad \cdots \quad \sum_{i=1}^{t}|h_i|^2. \tag{6}$$

Therefore, when the value of H is relatively large, the average channel capacity of the system [11, 12] can be approximately expressed as

$$C \longrightarrow \log_2 \left(I_t + \rho I_{it}\right) = Kt \log_2 (1 + \rho). \quad (7)$$

In the same way, when the value of log is relatively large, the average channel capacity of the system can be obtained as

$$C \longrightarrow \log_2 \left(I_t + \rho I_{it}\right) = Ht \log_2 (1 + \rho). \quad (8)$$

It can be obtained from the above expression that the capacity of the MIMO system is proportional to the lesser end of the transmitting antenna and the receiving antenna.

The factors affecting wireless communication technology also include source, transmitting device, channel, noise, receiving device, sink, and so on. The main factor that ultimately leads to the degradation of the related transmission quality of wireless communication technology is the average channel capacity. Diversity technology can effectively overcome multipath fading. It establishes independent receivers based on the values of different signal samples from different transmitters and then combines the signal samples to a certain extent, which can finally help to obtain better transmission performance. As an emerging wireless communication technology, cooperative diversity technology has many advantages such as increasing communication capacity, reducing battery energy consumption, increasing transmission rate, reducing delay, improving system performance, and increasing transmission range [13].

2.1.2. Wireless Communication Using Embedded Microprocessor. The serial port communication module is used to connect to the user's device terminal to obtain the collected data. Linux's operations on the serial port are accessed through device files. In order to access the serial port, it only needs to open the corresponding device file. The specific flow between different serial ports is shown in Figure 2.

Figure 2 shows the flow of the wireless serial port module. When the embedded operating system starts to run, calculations can be made based on different information, thereby helping to improve the efficiency of different communication information. Also, to a certain extent, it can improve the working efficiency of embedded microprocessors [14]. In order to improve the portability of application software, certain right and wrong control can be carried out when inputting relevant data, and the accuracy of some basic functions can be improved. It is also possible to properly consider the operation efficiency and optimize operations such as retrieval, and it is better to modularize the program when designing the software.

The core idea of the diversity signal combining technology is to combine all the received information at the destination end to recover the source signal as much as possible. In addition, the selected combination method is different, and the performance gain obtained is also different, so it is very important to choose which signal combination technology at the destination end. The following mainly introduces several commonly used signal

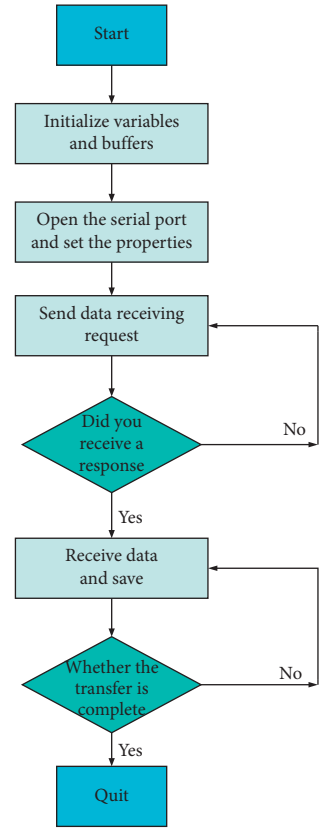

Figure 2: The flow of the serial communication module.

merging methods and compares the advantages and disadvantages of the three merging technologies through simulation analysis. This paper mainly introduces the three signal combining methods of SG, ECC, and MGR and compares their different points. Now suppose there are a total of Q diversity branches in the system, and the channels are all flat fading channels, and the average signal-to-noise ratio is M; then, the probability distribution is

$$P(\gamma_t) = \frac{1}{M} e^{\frac{X_n}{P}}, X_n \geq 0. \quad (9)$$

The probability that the instantaneous signal-to-noise ratio of a certain diversity branch is less than the threshold is

$$P(X_n \leq X) = dy_n. \quad (10)$$

The probability that the instantaneous signal-to-noise ratio of all Q diversity branches is less than the threshold is

$$P_Q(X) = \left(1 - e^{(y/P)}\right)^Q. \quad (11)$$

The probability that the instantaneous signal-to-noise [15] ratio of at least one of the Q diversity branches is greater than the threshold is

$$P(\gamma_t \geq \gamma) = 1 - \left(1 - e^{(y/P)}\right)^Q. \quad (12)$$

Therefore, in a system with Q diversity branches, the diversity gain obtained by selective combining can be expressed as

$$T_{sg} = \sum_{1}^{Q} \frac{1}{m}. \tag{13}$$

Assuming that the average signal-to-noise ratio of the Q diversity branches is K, then the average signal-to-noise ratio is

$$\text{Mean}\left(\gamma_{sg}\right) = P\sum_{1}^{Q} \frac{1}{m}. \tag{14}$$

The output modes for different wireless communications are different, so different combining modes are also different, and so the diversity gain [16] obtained by the system is also different. As a result, the performance of different communication channels will be different. A comparison of the combined output of different levels of wireless communication is shown in Figure 3.

It can be seen from Figure 3 that when different branches increase, the signal-to-noise ratio for different outputs is constantly increasing. However, when the selected gain is small, the gain of equal combining will be larger, and the maximum ratio combining method has the largest gain, and the maximum ratio combining model can restore the source signal only by using the maximum likelihood detection at the output. Therefore, under normal circumstances, the signal combining process at the receiving end generally adopts the maximum ratio combining (MRC) method [17].

Taking into account the differences in the signals of the relay points between different wireless communications, it is first necessary to define the symbols transmitted by different transmitting antennas. When the communication signal node receives the signal from the source node, it can be expressed as

$$S_{m,x} = \sqrt{M_0} T_{m,x} x + n_{m,x}. \tag{15}$$

The signal received by the destination node from the source node can be expressed by the following formula:

$$S_{m,d} = \sqrt{M_0} \mathrm{T}_{m,d} x + n_{m,d}. \tag{16}$$

The signal received by the destination node from the relay node can be expressed by the following formula:

$$S_{r,d} = \sqrt{\widehat{M}_0} T_{r,d} x + n_{r,d}. \tag{17}$$

Among them, S is the received signal, x is the transmitted signal, M is the transmitted power signal, T is the channel parameter, and n is the noise signal [18, 19].

Since the signal completes the communication within two transmission cycles, now assuming that the time interval is fixed at T, the signal received in the first transmission cycle is

$$R_0 = R(t) = h_0 s_0 + h_1 s_1 + m_0. \tag{18}$$

Then, there will be a signal output at the receiving end, namely,

$$\widetilde{R}_0 = h_0^* s_0 + h_1 s_1^*. \tag{19}$$

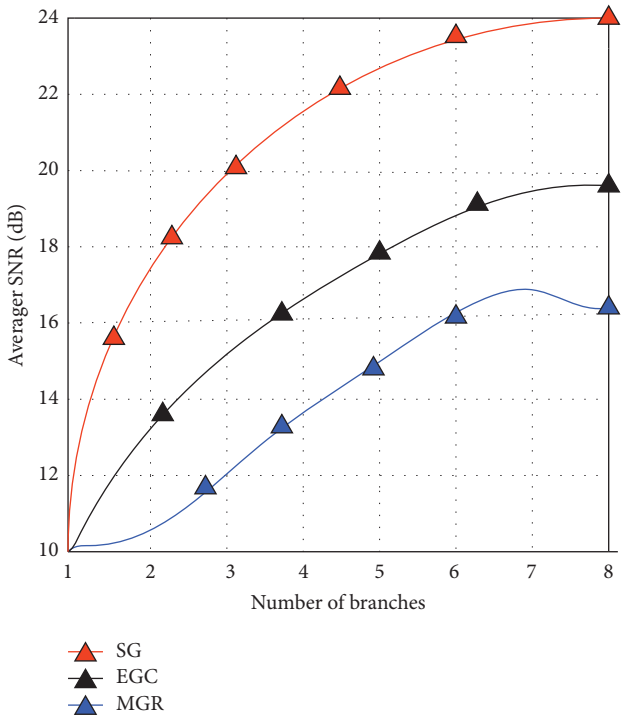

Figure 3: Performance comparison of three different merging methods.

Since the signals transmitted by different channels are orthogonal to each other, then

$$h_0 s_1^* - h_1^* s_0 = 0. \tag{20}$$

Through the simulation analysis of the model in multi-relay, it is concluded that by adding relay nodes, the bit error rate of the wireless communication system can be effectively reduced. By adding relay nodes, the distance of channel transmission is reduced, the transmission power is reduced, and the accuracy of the signal reaching the next node is increased, which will lead to a reduction in the bit error rate. Based on this, we propose a communication system model that cooperates with multiple relays, analyze its performance superiority through simulation, and conclude that the system proposed in this paper can obtain the same performance gain as the MIMO system and is easy to implement. By introducing the mutual transmission of relay nodes, we not only save the transmission power but also reduce the signal error rate more effectively, thereby improving the reliability and effectiveness of the wireless transmission system.

2.2. Intangible Cultural Heritage Products

2.2.1. The Necessity of Non-Legacy Relay Cultural and Creative Industry. Intangible culture itself [20] is a kind of art-related performance based on the relevant life activities of different periods and characters. However, the current life is very fast-paced, and people are beginning to realize the importance of intangible cultural heritage protection and the relevant research on the industrialization of intangible cultural

derivative products through the evaluation of economic value. For the popular cycle of a certain cultural industry, a rich industrial chain can be generated, as shown in Figure 4.

Regarding the cultural cycle of intangible cultural heritage-derived cultural products, in essence, when cultural products are produced, they are mainly cycled through creation, production, dissemination, exhibition, acceptance, delivery, consumption, and participation. It appears that there is a mutual circulation in five aspects. When cultural products are produced, they will be carried out through operation methods such as dissemination and product packaging [21, 22]. During the development of intangible cultural heritage derivatives, it can compare and observe their commercial performance, as shown in Figure 5.

As shown in Figure 5, the operating cycles of different intangible cultural heritage products are generally very similar, but there are still some differences, especially in the case of different commercial promotion, but overall it is showing this upward trend [23]. The commercial value of different cultural products needs to be considered in the industrialization. The main purpose of productization and industrialization is to make more people realize the charm of intangible cultural products derived from cultural heritage. The most fundamental thing is to realize the core of intangible cultural heritage-derived cultural products, and how to promote effective cultural products can be analyzed from different angles. This article analyzes how to promote effective cultural products from the perspectives of publicity, construction, design, and exhibition, as shown in Figure 6.

2.2.2. Industrialization of Intangible Cultural Heritage Products. In the research and development process of cultural derivatives, it should not only pay attention to the wireless communication related technologies of embedded microprocessors but also pay attention to the innovation and inheritance of intangible cultural heritage products and protect intangible cultural heritage products while ensuring promotion [24]. It is based on the product life cycle theory and can generally be divided into four stages: the start-up stage, the growth stage, the maturity stage, and the decline stage [25], as shown in Figure 7.

As shown in Figure 7, there are different periods in the industrial life cycle of cultural products. The industrial life cycle of cultural products has different periods, which are mainly divided into four periods, namely, the initial period, the growth period, the development period, and the end period. Especially when it reaches the development and growth period, the vitality of cultural products is the strongest. During this period, it is possible to dig deeper into the intangible culture inside the product, thereby enhancing the added value of the intangible cultural heritage-derived cultural products and then generating a brand new cultural and artistic atmosphere [26].

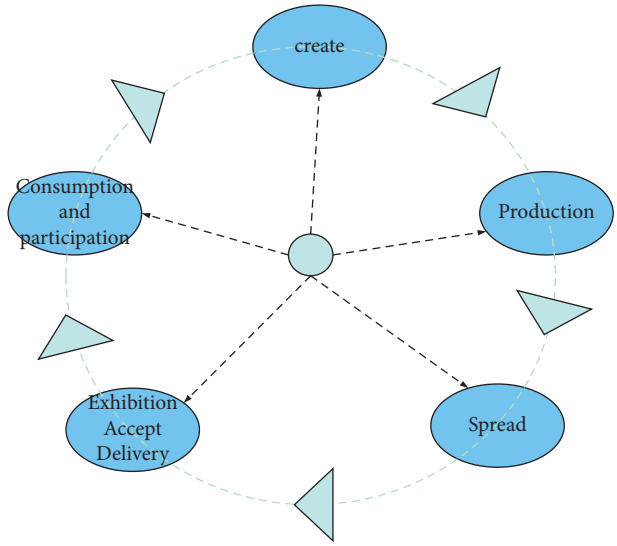

Figure 4: The cultural cycle.

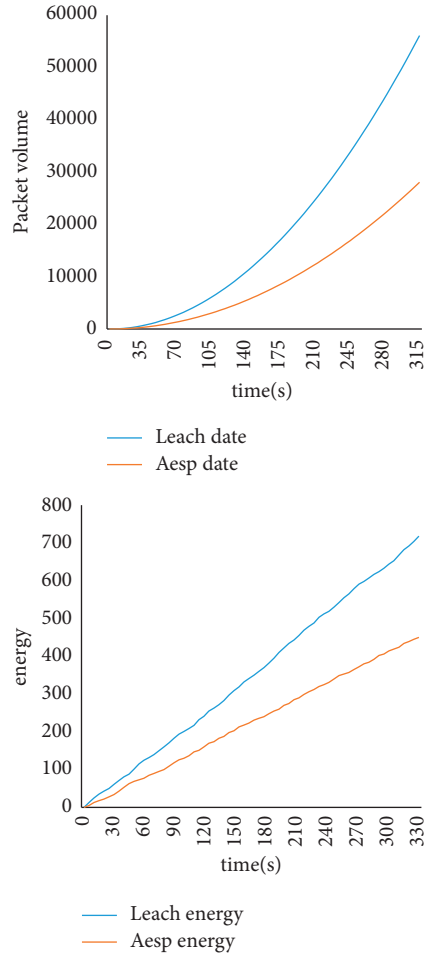

Figure 5: Operating cycle of intangible cultural heritage products.

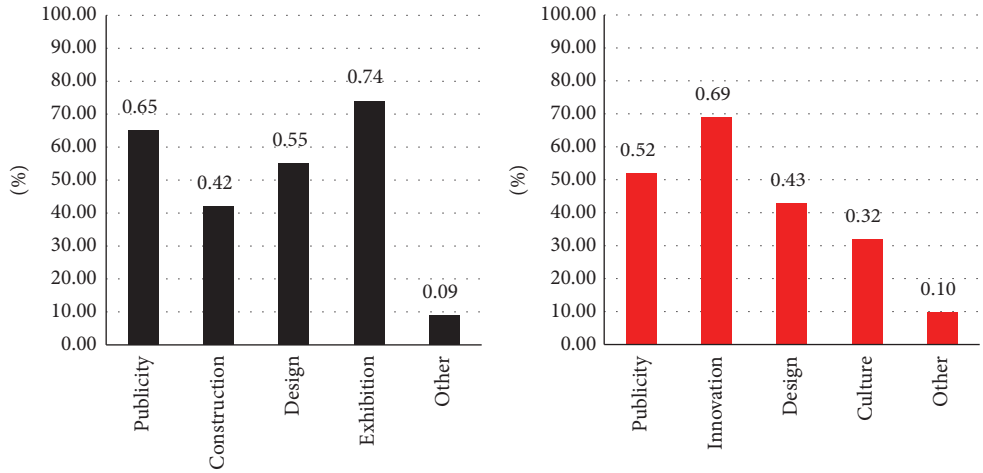

Figure 6: Ways to enhance the attractiveness of intangible cultural heritage products.

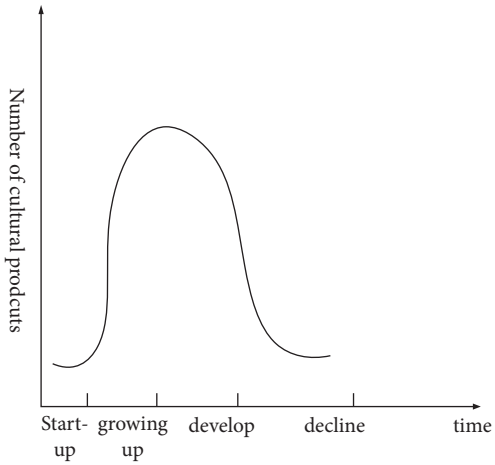

Figure 7: Life cycle curve of cultural product industry.

2.3. Industrialization of Intangible Cultural Heritage Products

2.3.1. Developing the Commercial Value of Intangible Cultural Products. Intangible cultural heritage itself is a product that combines the characteristics of the times and the culture, and its focus is on how to protect and inherit it correctly, and it comes from people's daily life [27]. The related culture of intangible cultural heritage is a kind of historical record, which reflects the related culture of the era and region. At the same time, it also has different transformation cycles, as shown in Figure 8.

"Intangible cultural heritage," as the nation's precious spiritual and cultural heritage, is a valuable asset handed down through generations. They have withstood the test of time. "Intangible cultural heritage" is the epitome of people's production and life style and cultural existence in an era. It reflects the humanistic sentiments of the time to a certain extent, and it has a certain degree of representativeness and classicism. Those kinds of "intangible heritage" listed in the intangible heritage list at all levels are selected by experts from many kinds of "intangible heritage," and they are very classic [28, 29], as shown in Figure 9.

2.3.2. The Construction Model of Cultural Industry Chain Guided by Cultural Communication. The canonization of "intangible cultural heritage" is obviously different from the canonization of other cultures. The canonization of other cultures spreads its influence on the outside world through external historical traces, and canonization through its meaning also has an important impact on national culture. The canonization of "intangible cultural heritage" has a taste of popular culture, and together with other folk cultures, it forms an organic part of life culture. It is not a "suspension" preaching classic but a "down-to-earth" energetic classic" [30]. Since "intangible cultural heritage" has a vibrant "down-to-earth" classic, it can express this non-speaking classic in a flexible way in the process of industrialization. It not only shows the historical and cultural characteristics of "intangible cultural heritage" but also effectively protects and inherits the spiritual core of "intangible cultural heritage," as shown in Figure 10.

In traditional society, the main body of intangible cultural heritage transmission is the inheritor, and intangible cultural heritage performances, cultural products, and other forms are presented and transmitted. In modern society, because of various factors, many intangible cultural heritages are gradually losing their inheritors.

In addition to cultural and political significance, improving the position of intangible cultural heritage can also enable it to find a new position in the market. Today's society can be said to have entered the era of consumption. In the environment of information explosion, the public is faced with too many things, and the traditional content and forms of intangible cultural heritage are difficult to stir in the market. At present, everything needs marketing and publicity to be able to be spread and accepted on a large scale.

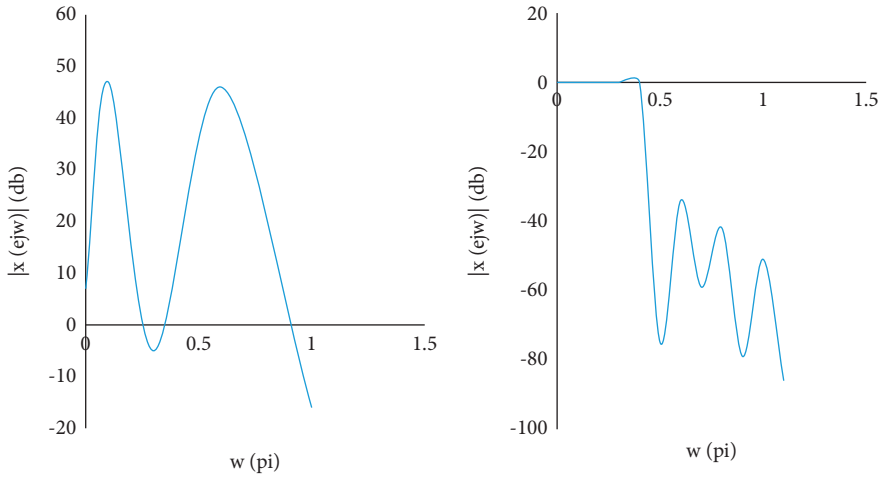

Figure 8: Operating cycles of cultural products in different periods.

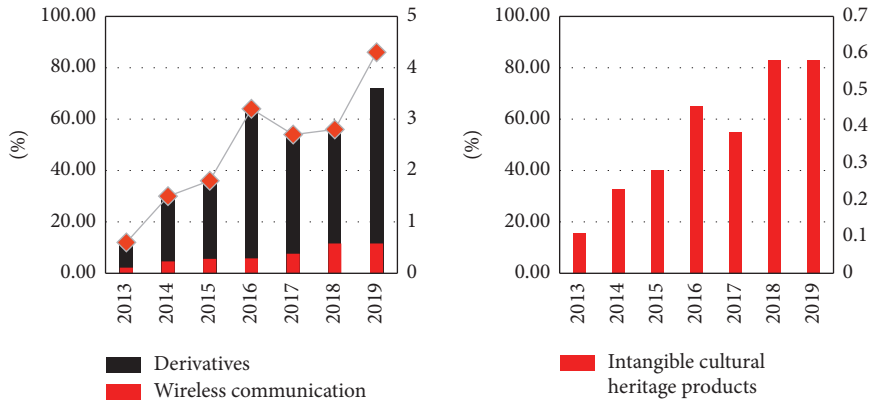

Figure 9: The development of intangible cultural heritage products.

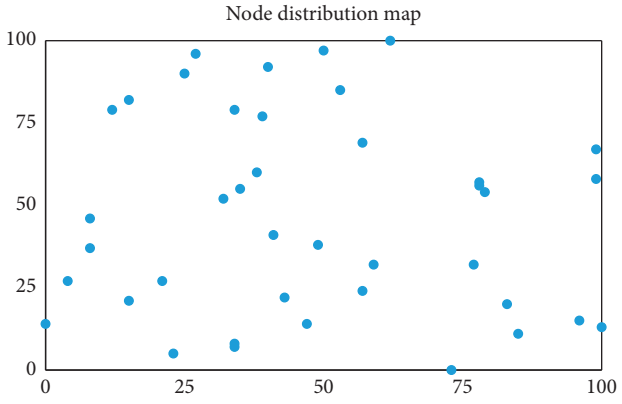

Figure 10: Distribution of cultural industry chain.

Therefore, finding a new position for intangible cultural heritage will help to promote and market it in the market.

3. Intangible Cultural Heritage Design Experiment

3.1. Intangible Cultural Heritage Products. Some intangible cultural heritage is naturally forgotten and neglected because of lack of audience. The current inheritors of some intangible cultural heritage are getting older, leading to no successors. Some inheritors of intangible cultural heritage no longer continue to engage in intangible cultural heritage due to economic factors. Most inheritors of intangible cultural heritage have a passion for the intangible cultural heritage items they own, but due to various reasons in reality, they have to abandon the inheritance and protection of intangible cultural heritage. Therefore, there is an urgent need for external forces to intervene in the inheritance and protection of intangible cultural heritage to strengthen the dominant position, as shown in Table 1.

Table 1: Cultural statistics framework.

Key areas	Expansion area
Cultural and natural heritage	Travel
Visual arts and crafts	
Book publishing	Entertainment and theme parks
Audiovisual and interactive media	
Art performances and festivals	
Design and creative services	Sports and leisure

With the continuous development of modern society and the continuous improvement of the quality of residents,

the social function and communication effect of intangible cultural heritage in traditional society has gradually been weakened, and it has become a pure form of cultural entertainment. The traditionality and singleness of the content of non-material cultural heritage are gradually separated from the aesthetic concept of modern people, and its spread is increasingly declining. If intangible cultural heritage wants to get a good dissemination effect, it should start with the most basic and essential content, make innovations, and obtain new dissemination significance in modern society. Therefore, it is essential for intangible cultural heritage to produce multistyle content. On the basis of fully inheriting and retaining the meaning of traditional culture, intangible cultural heritage should absorb fresh elements in modern society, carry out content innovation, and produce content that can meet the cultural needs of modern people. At the same time, innovate the symbol system and symbol meaning of intangible cultural heritage to make it more suitable for modern people's ideas and aesthetic orientation.

When intangible cultural heritage produces new content, it should also take into account the existing communication environment and carry out corresponding content innovations based on modern media forms. At the same time, the content of intangible cultural heritage can be appropriately developed to form a series of peripheral products, which can be disseminated through different media channels.

On the one hand, young people are addicted to the convenience of modern digital technology, and on the other hand, they are slowly interested in traditional culture. Therefore, the design of non-legacy products just caters to this idea. Through the wireless communication technology of embedded microprocessor, the communication function, display function, and interaction function are integrated into traditional non-legacy products, so that the products not only have cultural heritage but also can enter people's daily life and provide convenience for people's lives.

3.2. Industrialization of Intangible Cultural Heritage Products. In the process of industrialization of "intangible cultural heritage," more and more companies and organizations have realized the importance of creativity and applied it to the process of protecting and inheriting "intangible cultural heritage" and making the "intangible cultural heritage" full of vitality, as shown in Table 2.

For "intangible cultural heritage" with great industrialization potential, it should be encouraged to take the industrialization road. Industrialized operations based on the protection and inheritance of "intangible cultural heritage" can not only promote the "intangible cultural heritage" but also alleviate the financial difficulties faced by the protection of "intangible cultural heritage." For the "intangible cultural heritage" that is not suitable for industrialized operation, we advocate static protection and provide financial support for them through the power of the government, enterprises, and all walks of life. Different types of "intangible cultural heritage" are protected in many different ways to achieve the purpose of inheriting the precious spiritual wealth of "intangible cultural heritage" from generation to generation. The specific intangible cultural products are shown in Table 3.

In the process of dissemination of intangible cultural heritage, the government should strengthen its own dominant position, give full play to its advantages, and help the inheritance and protection of intangible cultural heritage. But the government is not a panacea. The government can only intervene in the dissemination of intangible cultural heritage as an organizer and leader and support and control the dissemination of intangible cultural heritage from the macro level but cannot take care of everything and compulsorily protect and inherit the intangible cultural heritage. In the final analysis, intangible cultural heritage is created by humans and needs to be spread by humans. Therefore, the inheritor is still an indispensable part of the dissemination of intangible cultural heritage.

Nowadays, the inheritance and dissemination of intangible cultural heritage mainly depends on the power of the government. The government has invested a lot of money to protect and revitalize the intangible cultural heritage, but this is not a long-term solution. In today's market economy environment, the development of everything must consider actual economic factors. Only a very small number of intangible cultural heritage can achieve profitability, which makes its development lack the inherent driving force. Intangible cultural heritage has strong cultural significance, but it is far from enough for its inheritance and development. To realize the long-term inheritance and sustainable development of intangible cultural heritage, it is necessary to consider its economic benefits.

Intangible cultural heritage was born in a specific region and cultural atmosphere, embodies the cultural characteristics of this specific region and a specific group, and has rich cultural resources. On the basis of fully inheriting and protecting the culturality and uniqueness of intangible cultural heritage, it will give play to its resource advantages. The reasonable industrialization of intangible cultural heritage and the excavation of its economic benefits are also the proper ways of inheritance and dissemination of intangible cultural heritage in modern society. The development of peripheral products for the intangible cultural heritage, the development of folk cultural tourism based on the intangible cultural heritage, the secondary creation of the intangible cultural heritage, etc. are all means of industrialized dissemination of intangible cultural heritage. These industrialization methods can not only spread the intangible cultural heritage from a new perspective but also realize its economic benefits and provide a long-term impetus for the inheritance and development of the intangible cultural heritage.

4. Discussion

For different types of "intangible cultural heritage," specific issues should be analyzed in detail. Regarding "intangible cultural heritage," it is not opposed to the industrialization of products with greater market potential and economic development value. How to carry out appropriate industrialization requires the premise and purpose of inheriting and protecting intangible cultural heritage. Therefore, we cannot

Table 2: Factors influencing the evolution of intangible cultural heritage products and derivative products.

Factors influencing the evolution of creative industries of intangible heritage cultural derivative products	Accidental factors	Popularity
	Regional environment	Inter-industry competition and cooperation
		Trust mechanism
		Related research institutions
		Market demand
	Industry characteristics	Agency
		Flexible labor
		Creative talents
		Intellectual property
		Cultural resources
		Innovative attitude
	Government push	Industry planning
		Industrial policy
		Market management
	Innovation environment	Regional brand
		Knowledge spillover
		Creative atmosphere
		Learning ability

Table 3: Examples of intangible cultural heritage.

Intangible cultural heritage	Classification
A	Oral traditions and expressions
B	Social customs, etiquette, etc.
C	Knowledge and practice about nature and the universe
D	Traditional manual craftsmanship
E	Other things

blindly criticize and completely negate the industrialization of "intangible cultural heritage," and of course we cannot "swarm" and indiscriminately industrialize "intangible cultural heritage." There are also many painful lessons about the destruction of "intangible cultural heritage" by improper methods of industrialization. The industrialization of "intangible cultural heritage" must be selective, targeted, and tailored to local conditions, and specific issues must be analyzed in detail, and it must not blindly follow the trend or give up halfway.

5. Conclusions

There are many types of "intangible cultural heritage." Regarding the industrialization of diversified "intangible cultural heritage," we cannot assume that all kinds of "intangible cultural heritage" are suitable for industrialization and cannot indiscriminately implement the industrialized operation of all "intangible cultural heritage" in a "swarm" manner, nor can we totally deny it, thinking that all kinds of "intangible cultural heritage" are not suitable for industrialization. In summary, the industrialization of "intangible cultural heritage" is a process of continuous exploration and continuous learning. It is not accomplished overnight, nor is it out of reach. Therefore, in the process of promoting the healthy and orderly development of "intangible cultural heritage" industrialization, how to make "intangible cultural heritage" better industrialized, how to carry out reasonable and effective industrial development of different types of "intangible cultural heritage," and other issues still have a long way to go.

Data Availability

No data were used to support this study.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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