

# *Research on the Path of Property Rights Protection for Literary and Artistic Works Empowered by Blockchain Technology*

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**Abstract:** Literary and artistic works are the crystallization of thousands of years of cultural genes and historical inheritance, and contain deep and diversified values. Driven by Internet technology, the copyright generation of literary and artistic works has increased dramatically, and the speed of dissemination and the scope of public contact have reached an unprecedented level. However, this has also brought a series of problems such as difficulties in establishing property rights and defending rights and revenues. Blockchain technology, with its decentralization, traceability, non-tampering high efficiency, and low cost, has injected new vitality into the registration and confirmation of intellectual property rights of literary and artistic works, the proof of rights, and the realization of copyright value. This paper focuses on the realistic dilemma of property right protection of literary and artistic works in China, focuses on analyzing the application strategy of blockchain technology in the protection of property rights of literary and artistic works, and discusses the path to promote the solution of infringement problems, protect the legitimate rights and interests of the right holders, and help the healthy development of related economic and cultural industries.

## 1. Introduction

In 2023, the State Intellectual Property Office issued the “2023 Outline for the Construction of a Strong Intellectual Property Country and the Implementation and Promotion Plan of the Fourteenth Five-Year Plan”, which put forward clear requirements for strengthening the protection of intellectual property rights, in which it is pointed out that “exploring the rules for the protection of intellectual property rights in the fields of big data, artificial intelligence, blockchain, as well as traditional culture and traditional knowledge; further promoting the pilot work on the innovative application of ‘blockchain + copyright’; continuing to carry out the pilot work on the protection and promotion of folk art copyright”. One of the clear requirements for strengthening the protection of

intellectual property is to “explore the rules for the protection of intellectual property in the fields of big data, artificial intelligence, blockchain, traditional culture and traditional knowledge; further promote the pilot work of innovative application of ‘blockchain+copyright’; and continue to carry out the pilot work of protection and promotion of the copyrights of folk arts and culture.

With the rapid development of the Internet, the environment for the creation and dissemination of literary and artistic works has undergone radical changes, while disputes over property rights infringement have also emerged (Figure 1). However, the current system of property rights and rights protection still faces many challenges, such as high registration fees, long processing times, and cumbersome registration procedures [1]. With the increasing diversity of literary and artistic works, how to strengthen the protection of intellectual property rights with the help of emerging technologies has become the focus of attention in the industry. Blockchain technology, with its characteristics of decentralization, data tampering, and full traceability, provides a new solution for the registration, transaction, and judicial protection of literary and artistic works. It not only simplifies the process and improves efficiency, but also effectively ensures the authenticity and integrity of the data, bringing new opportunities for solving the real problems currently faced in the field of intellectual property.

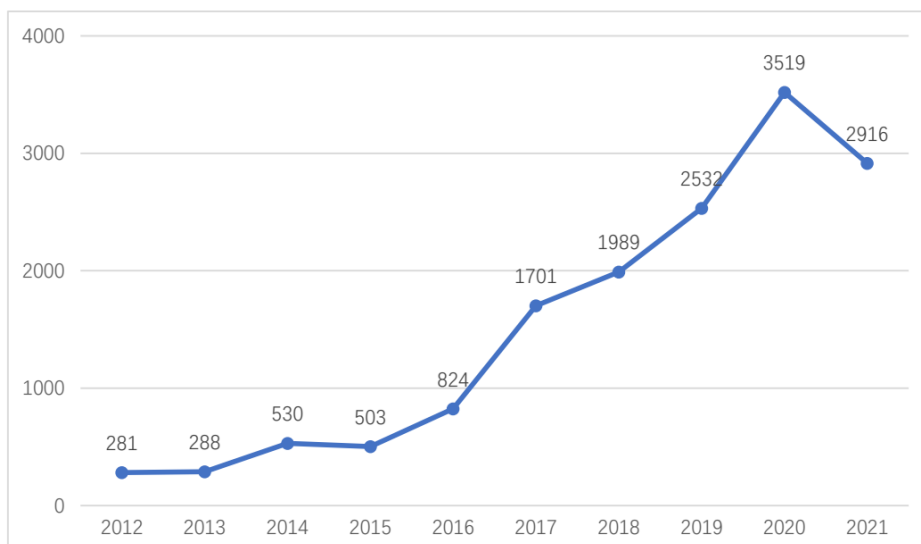


Figure 1: Trend of Annual Changes in the Conclusion of Copyright Dispute Cases in China (2012-2021)

## 2. Blockchain Technology to Protect the Property Rights of Literary and Artistic Works Necessity Analysis

### 2.1 Definition of Literary and Artistic Works

Article 3 of the Copyright Law of the People's Republic of China defines “works” as those intellectual achievements in the fields of literature, art, and science that demonstrate unique creativity and are expressed in specific forms (Figure 2). In China, literary and artistic works are the embodiment of the essence of the creative cluster and national culture, as well as the bearer of the national cultural heritage, vividly demonstrating the excellent tradition of historical creation and containing the ideas, humanistic spirit, and moral norms of the Chinese nation, which can be broadly categorized into two major types of literary works and artistic works [2]. Not only has an aesthetic function, but also has a social function, can continue the national history, promote the development of national culture, carry and transfer social ideas, and values, and guide the formation

and development of social atmosphere.

The “works of literature and art” discussed in this article cover diversified forms of creation in the field of literature and art. These works are not limited to traditional book literature, online literature, and all kinds of written works; they include theater, musicals, dance choreography and music composition, movies and micro-videos, and other music and video art; they include visual artworks such as drawings, paintings, sculptures, prints, and e-posters, as well as photographs and similar video works. In addition, works of art with practical value and collection value, folk non-heritage cultural products, and other works of art, as well as design drawings and models in the field of science, are also within the scope of this paper.

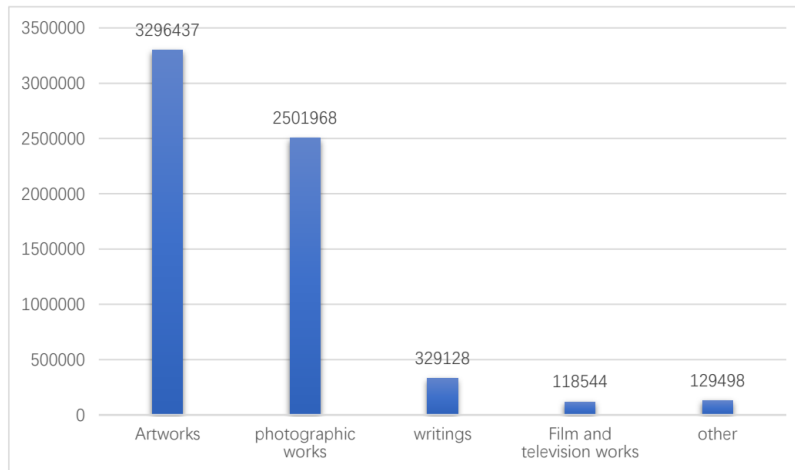


Figure 2: Statistics on the Types and Quantity of Copyright Registration Works in China in 2023

## 2.2 Difficulties Faced by the Current Copyright Protection of Literary and Artistic Works

### 2.2.1 Difficulty in confirming rights

Copyright registration of literary and artistic works faces multiple challenges, such as high costs, inefficient processes, and a lack of creators' willingness to register. As intangible property, the right of attribution, the clarification of the boundaries of rights, and the protection of legal aspects of literary and artistic works are often constrained under the traditional framework. With the ever-changing forms of modern works, the question of whether these new forms meet the standard of “originality” emphasized in copyright law remains an open one. Although the principle of “automatic protection upon completion of creation” is legally recognized, to effectively prevent ownership disputes and ensure adequate copyright protection, right holders are often required to apply for registration with a copyright registry, which serves as a strong proof of legal protection [2]. This step is crucial for clarifying rights and interests and strengthening protection. The diversification of copyright forms and the multitude of property rights subjects lead to a complex and cumbersome process for determining copyright ownership. Currently, the registration of works in China takes at least 30 days, and 60 days if problems are encountered, which is a long time cost affecting the willingness of some copyright holders to register; the cost of copyright registration is charged according to the type and length of the work, but with the rapid development of self-media, a large number of short videos, graphic creations and so on have brought about high registration costs, which discourages some authors; in addition, the diversification of the organs and procedures for copyright registration has led to inefficiency in confirming rights. With the rapid evolution of the mobile Internet, the widespread popularity of self-media platforms has greatly promoted the creation of literary and artistic works in cyberspace. However, this has also brought unprecedented

challenges to the existing copyright enforcement system. Real-time updating of intellectual property information has become difficult, and works are at risk of being easily copied, tampered with, and misappropriated by infringers, thus increasing the potential for ambiguity in the attribution of intellectual property rights to literary and artistic works.

### 2.2.2 Difficulty in defending rights

At present, literary and artistic works are faced with the double dilemma of the low cost of infringement, but the property owner is faced with the high difficulty of evidence collection and the high cost of infringement enforcement. For the legal protection of folk literature and artworks, China has not yet introduced a specialized approach. In the absence of specialized protection, in recent years, in judicial disputes around literary and artistic works, the court can only apply the Copyright Law for trial [3]. The court first needs to correspond these folk artworks to the specific types of works stipulated in the Copyright Law, and then make a judgment based on the protection provisions of the law for different types of works. Since these works in question are usually based on the same literary and artistic elements as the base material, or are recast or adapted using the same craft method, this undoubtedly increases the difficulty of infringement determination. In addition, the infringement of literary and artistic works often occurs in the network and other platforms, evidence collection is relatively difficult, and needs to spend a lot of time and energy, thus increasing the cost and difficulty of rights defense. The main way to defend rights is to litigate through judicial means, however, the various costs in the litigation process are relatively high, including attorney's fees, litigation costs, appraisal fees, etc., which may become a burden for the defenders. In particular, the trial period of a copyright case is usually long, and the defender needs to continuously invest energy and money to bear the uncertainty and pressure for a long time, which may be unaffordable for individual authors or small arts and cultural organizations; even if the defense is successful, the final amount of damages awarded is often difficult to satisfy the defender's expectations. The amount of damages awarded in copyright infringement cases is often on the low side, making it difficult to compensate for the huge costs incurred by defenders in defending their rights, which also reduces the incentive to defend their rights.

### 2.2.3 Difficulty of income

The process of creating works by authors is not only a profound expression of inner thoughts and emotions but also carries the pursuit of economic benefits. Especially in the current context of increasingly diversified industrial models and emerging business models, the economic value of works is becoming more and more significant and has become an important aspect that creators cannot ignore. However, China's intellectual property laws are not yet perfect, and there are certain ambiguities and loopholes in the copyright protection, clarity, and right attribution of literary and artistic works [4]. The phenomenon of piracy and infringement is still widespread in China, especially in the network environment, the infringement is more difficult to regulate and combat, which directly leads to the damage of the legitimate earnings of the property owner, and also restricts the circulation and trade of the works in the market.

In addition, the imperfection of the market mechanism is also a key factor. Although China's cultural market is gradually developing, the production, dissemination, and sales chain of literary and artistic works is not perfect enough, and the lack of effective sales channels and circulation mechanisms makes it difficult to realize the market operation and economic benefits of works. For a long time, there has existed a tendency for the one-sided pursuit of commercial interests and neglect of cultural qualities in the social cognition and value judgment of China's literary and artistic works, which has led to the cold reception of some literary and artistic works in the market and made it

difficult for them to realize economic benefits. At the same time, the concept of consumption of cultural products also needs to be further cultivated and guided, so that more people realize that works of literature and art are not only commodities but also carriers of cultural heritage and spiritual pursuit.

### 2.3 The Inherent Mechanism of Blockchain Empowering the Protection of Property Rights of Literary and Artistic Works

As an innovative database technology integrating computer science and cryptography, the core elements of blockchain include peer-to-peer transmission, advanced encryption algorithms, consensus mechanisms, and distributed data storage. Its unique structure consists of a series of data blocks arranged in chronological order, and this structure endows blockchain with remarkable characteristics: decentralization, data immutability, openness, and high transparency [5]. As a core element of emerging information technology, blockchain has been widely penetrated multiple industries, covering a wide range of fields such as financial services, culture and entertainment, healthcare, intellectual property management, Internet of Things (IoT) technology, and the sharing economy. In the field of intellectual property, the role of blockchain technology in digital copyright protection has become increasingly prominent. By utilizing its unique peer-to-peer network, consensus algorithm and smart contract, and other mechanisms, blockchain builds a decentralized data transaction ledger, which enables all parties to carry out data transactions in a fair, just, and transparent environment, thus ensuring scientific confirmation of intellectual property rights, standardization of the use of rights and strict control of rights. The introduction of blockchain technology opens up a new path for the protection of property rights of literary and artistic works, effectively breaks through the limitations of the traditional property rights protection model, and realizes the mutual benefit and win-win situation of data transactions (Figure 3).

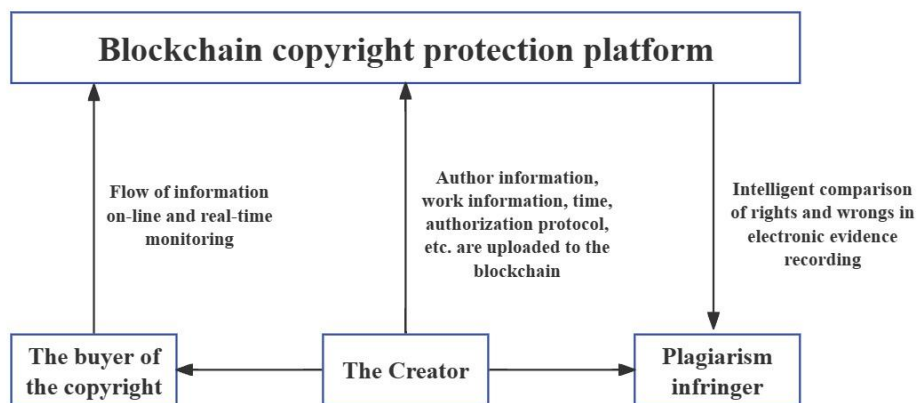


Figure 3: Blockchain copyright protection platform logical framework

## 3. Effectiveness of Blockchain Technology in Protecting Property Rights of Literary and Artistic Works

### 3.1 Application of Blockchain in the Registration and Confirmation of Property Rights of Literary and Artistic Works

Blockchain technology, with its unique non-tamperable characteristics, has brought significant benefits to the registration of literary and artistic works, not only reducing the cost but also significantly improving efficiency and security. Its decentralized nature, realized through a

distributed database, avoids the risks of single-point failure and data tampering, ensuring the safety and reliability of the information. This transparency makes all registration information publicly available and can effectively reduce information tampering and infringement. In the process of property right registration of literary and artistic works, the decentralized distributed consensus mechanism of blockchain can eliminate the intervention of intermediate agents, and authors can join the blockchain directly through any node, thus effectively improving the efficiency and convenience of copyright registration [5]. Compared with at least 30 working days required for traditional copyright registration, blockchain technology can significantly shorten this time and stimulate authors' registration enthusiasm. In addition, blockchain technology is based on the encryption algorithm of public and private keys, which ensures the comparability of the content [1]. This not only avoids the problem of inaccurate or lost information that may be caused by human error or undue intervention in traditional registration methods but also records the information on the reproduction and utilization of literary and artistic works in the process of their dissemination and use, which provides strong support for the preservation of evidence of copyright infringement. In the event of a dispute over ownership, the right holder can rely on the data stored on the blockchain platform to prove the time of creation of the work and the ownership of the copyright.

### **3.2 Application of Blockchain in Proof of Property Rights of Literary and Artistic Works**

The main challenge facing literary and artistic works infringement lies in the difficulty of evidence collection for rights defense, but the comparability of blockchain technology provides an effective way to solve this problem. With the help of blockchain technology, the creation time, digital copyright ownership details, and transaction records of literary works can be accurately and precisely preserved. Creators can upload the file type, attribution information, permission settings, title of the work, and personal information of the work to the blockchain, which will be formally established and updated to the whole network system in real time after passing the verification of more than half of the nodes [6]. The information of the work uploaded to the blockchain will obtain an unalterable timestamp to record the creation and uploading history of the work in detail. The creation cycle of literary works is usually long, and even if the work is not yet completed, the right holder can utilize the blockchain to record each stage of creation, ensuring that information such as the content of the data, the time of entry, the content of the modification, and the time of modification is accurately recorded throughout the entire process, to facilitate the traceability of the work. Once a work is published on the blockchain and then infringed upon or maliciously accessed, the system will automatically generate a record for all users to access. This makes infringement transparent on the blockchain, changing the situation where traditional infringement is difficult to trace.

In addition, the Provisions on Several Issues Concerning the Trial of Cases by Internet Courts, issued by China's Supreme People's Court on September 7, 2018, explicitly mentions that electronic data whose authenticity can be proved through blockchain and other technological means should be confirmed by Internet courts. The promulgation of this regulation marks the judicial recognition of blockchain deposit technology in China [7].

### **3.3 Application of Blockchain in Realizing Copyright Value of Literary and Artistic Works**

Traditional transactions of literary and artistic works usually rely on third-party platforms to ensure security, especially for digital works. This model was indeed effective in the early stage of the development of the digital industry, as the third-party platform acted as a “middleman” to realize the centralized management of copyright transactions and protect the interests of both parties in the transaction. However, with the increase of digital products, third-party platforms have



acquired more and more copyright data, which has led to increasingly serious information asymmetry among the trading parties. The problem of non-transparent and unbalanced distribution of interests in the transaction chain of literary and artistic works has become more and more prominent, with most of the royalty profits being taken up by digital platform service providers and sellers, and copyright authors failing to receive due remuneration. This extremely unreasonable distribution of benefits restricts the promotion and dissemination of literary and artistic works and affects the creative enthusiasm of copyright holders and the normal operation of the trading market.

Blockchain technology can effectively alleviate or even eliminate these problems. With the use of smart contract technology, the transaction process of copyright licensing and transfer of literary and artistic works will be significantly optimized, which can effectively solve the problems of high cost, long cycle, and non-transparent transaction flow in the traditional way. Smart contracts, as a kind of distributed computer protocol deployed on the blockchain network, can automatically verify and execute the terms of the contract according to the preset rules, thus realizing the rapid receipt, safe storage, and efficient flow of royalties and other digital assets [8]. The records of copyright authorization transactions of literary works can also be completely stored on the blockchain to achieve clear and traceable copyright ownership. This technology not only improves the efficiency of copyright transactions and reduces the costs of transactions, negotiations, and enforcement, but also makes the distribution of copyright profits more precise. Through blockchain technology, copyright owners can set their prices, publish their works, and realize direct peer-to-peer transactions between the two parties, thus better distributing profits promoting collaboration, and minimizing intermediary links in the copyright transactions of literary and artistic works.

#### 4. Conclusion

Five thousand years of civilization history have provided a wealth of valuable resources and stock assets for the development of our current cultural industry. In the context of the era of national cultural renaissance, the birth of a new generation of transformative core technology blockchain brings great development opportunities to the market of cultural and artistic works in the new historical period. The future will usher in the era of globalization and the digital economy, and blockchain technology will become the key to empowering the protection of property rights of literary and artistic works. While enjoying the property rights registration and confirmation, proof of rights, and the realization of copyright value brought about by blockchain technology, we cannot ignore the various technological and legal risks arising in the meantime. Therefore, the combination of property rights of literary works and blockchain technology will be a gradual and long-term process.

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