



# The Problems of Intellectual Property in Digital Protection of Cultural Heritage—Taking Dunhuang Culture as an Example

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**Abstract.** As digital products continue to rise in popularity, protecting intellectual property rights for these products has become a pressing issue. This is especially true for cultural products, like those related to Dunhuang, which are being disseminated in increasingly diverse ways. This paper will delve into the intellectual property issues involved in the digital dissemination of Dunhuang, analyzing specific cases. Firstly, the “Digital Dunhuang” and “Dunhuang Silk Scarf” offer a potential solution to the conflict between “private rights” and “human rights” when it comes to historical and cultural resources. Secondly, the “database” of NRMs (New Religious Movements) in China, as a basic form of digital protection and dissemination, involves numerous legal discussions surrounding intellectual property rights and NRMs on the Internet. Finally, the “IDP” international project, through its web search and collaboration with art museums and research institutes in various countries, highlights the importance of protecting property rights for web pages, a digital medium that integrates different art forms, as well as the necessity of international cooperation and legislation on intellectual property rights to facilitate the exchange of art among multiple parties.

**Keywords:** Dunhuang culture · intellectual property rights · digital products

All six authors contributed to the article and were the first authors.

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R. B. B. M. Hussain et al. (Eds.): ICHSSR 2023, ASSEHR 765, pp. 790–798, 2023.

[https://doi.org/10.2991/978-2-38476-092-3\\_96](https://doi.org/10.2991/978-2-38476-092-3_96)

## 1 Introduction

Intellectual property rights refer to the legal rights granted to creators for their original intellectual work. In China, the protection of intellectual property rights has become a crucial issue in the digital age. The legal system and judicial practices have been reviewed, and it has been found that the protection of intellectual property rights is a critical issue in the digitization process. The Chinese legislation has divided the protection of property rights into two categories: “list” and “inheritance”.

China is a country with a rich history and culture that has significant cultural resources. With the development of China’s cultural power, cultural industries and products that derive from historical and cultural resources have rapidly increased. However, the issue of intellectual property rights has become a growing concern in the digital protection and opening of cultural resources. The Dunhuang culture is an essential part of China’s traditional culture, and as a result, many digital products based on this culture have become popular. In this paper, we will examine three specific Dunhuang digitized products and analyze their intellectual property provisions and any hidden loopholes. Finally, we will provide recommendations and targeted solutions to address these issues.

This paper discusses Dunhuang culture as a digital interactive vehicle, presented in three forms: digital Dunhuang in database form, physical Dunhuang silk scarves, and web-based and interactive IDPs. The digital Dunhuang is primarily a database that contains various cultural materials. The Dunhuang Silk Scarf project plays a significant role in product promotion and production, highlighting the need to strengthen laws and regulations governing digital intellectual property. Furthermore, IDP, through its website, has collaborated with various international academic institutions for global dissemination and development. These forms demonstrate the significant contribution of the digital industry to cultural dissemination and highlight the need for intellectual digital property protection. Digital carriers play a crucial role in heritage protection, and the relevant laws must be further improved and strengthened to address this.

## 2 “Digital Dunhuang” and “Dunhuang Poetry” - “Public” and “Private” of Derivative Property Rights of Historical and Cultural Resources

### 2.1 Binary Attributes of Property Rights in Digital Products

Focusing on the jurisprudence of intellectual property, there is a pair of classic propositions in the academic circles, that is, the binary nature of “private rights” and “human rights” of intellectual property rights. The former emphasizes intellectual property as a form of power for intangible property, and gives the “owner” a new type of property power in the field of private rights, deriving trademark rights, name rights, copyrights, patent rights, trade secret rights and other forms of rights. The latter further talks about the public’s right to share in the benefits of intellectual creative activities on the basis of the creator’s ownership of intellectual achievements, which constitutes the overall structure of modern intellectual property law [1]. Under this framework, a balanced interest relationship between “private rights” and “human rights” should be maintained, that is,

between the owner of power and other power subjects, there is a difference between the original right and other rights around intellectual property rights. The owner has the right to fully dispose of intangible property, and others in society also have the right to legally and reasonably dispose of their intellectual property rights. Even in the public interest, the former should be subject to necessary restrictions.

## 2.2 Duality in Dunhuang Cultural Intellectual Property

When the discussion of “human rights” and “private rights” is applied to the main object of this study, “material and immaterial witnesses of the development of human beings and their environment”, the issue is often more complicated and even unnecessarily misinterpreted. Taking copyright as an example, the current Copyright Law stipulates that the term of property rights in the copyright of natural persons is 50 years after their death, which means that most of the tangible and intangible cultural heritage held, managed and researched by museums and cultural preservation units, such as the artistic image resources and historical and cultural resources of Dunhuang murals, have exceeded the protection period, and disputes have first arisen in the confirmation of rights [2]. According to China’s existing regulations, historical and cultural resources generally belong to the social group where the resources are located, and the local government is entrusted with the performance of management functions, so the “Dunhuang Academy”, as the custodian of the grottoes and their historical and cultural resources, has the innate advantage of excavating and producing intellectual property rights. While it is constantly registering intellectual property rights, trademarks, and IP to carry out cultural industry activities, external doubts have also arisen. The main point of contention is that the Institute relies on the innate “appropriation” of historical and cultural resources to obtain different forms of knowledge, which may lead to the monopoly of historical resources and derivative IP and economic interests. As a public welfare institution established by the state, such a “monopoly” is contrary to the nature of public welfare [3].

On the one hand, such controversy stems from the confusion between historical and cultural resources and innovative derivative intellectual property rights, that is, intellectual property rights do not give cultural institutions exclusive ownership of existing historical and cultural resources, but the protection of their innovative “secondary creations”. Taking “Digital Dunhuang” as an example, the Dunhuang Academy uses digital technology to scan, transmit, store and digitally protect the grottoes, and at the same time opens the database to the public, through which the public can browse and obtain the right to use its digital resources, and the intellectual property rights granted based on the entire set of digital processes are legal and compliant. But on the other hand, such doubts exist, it is precisely the need for the “human rights” nature of intellectual property rights that historical and cultural resources as historical, scientific and artistic witnesses of human historical development should be the cultural wealth of every natural person, but as state-owned resources, they are often managed by state institutions in the process of practice, and it is difficult for the general public to contact and obtain such historical and cultural resources. On the one hand, the public needs to be able to freely access and utilize human historical and cultural resources, and on the other hand, the “human rights” nature of intellectual property rights gives the public the right to share the benefits brought by intellectual and creative activities. Needs, disputes and

jurisprudence undoubtedly tell the owners of historical and cultural resources that they should not stick to it, but should make full use of the rights obtained and interact with the market, the public and individuals to achieve a balance between “private rights” and “human rights”. This is not only a respect for public rights, reflecting the public welfare of cultural institutions, but also publicizing historical culture and property rights IP in the process of interactive dissemination, which is a win-win process of protecting intellectual property rights and promoting history and culture in the process of interaction [4].

### **2.3 Breakthrough in Intellectual Property Protection of “Digital Dunhuang” and “Dunhuang Silk Scarf”**

In this sense, the “Digital Dunhuang” material library and the “Dunhuang Poetry Scarf” mini program developed by the Dunhuang Academy have achieved breakthroughs. The “Digital Dunhuang” project was founded in 1999 and implemented by the Dunhuang Academy in cooperation with the Mellon Foundation in the United States. Through the comprehensive digital collection, processing and storage of Dunhuang Grottoes and related cultural relics. Collect various data and documentary data such as images, videos, three-dimensional and other data that have been obtained and will be obtained, and build a digital resource library of cave cultural relics that combines diversification and intelligence, and share them globally through the Internet and mobile Internet [5]. The database is divided into “resource library” and open material library, in which the material library provides free download and paid authorization of digital resources for all users. Through this library, users can obtain resources for learning and research, and creators can also obtain authorization through reasonable channels to carry out commercial matters such as websites, packaging, exhibitions, public relations, etc. In the process of using the digital Dunhuang “material library”, users will see a large number of detailed copyright notices and user agreements, including detailed notification clauses on the protection and needs of users’ personal information, including detailed agreements and clauses for limited control of users’ alignment intellectual property rights, which not only respects the other rights of the public, responds to the misunderstanding of “monopoly”, but also effectively prevents the occurrence of infringement [6].

The “Dunhuang Poetry Scarf” Mini Program is a creative Mini Program launched by the Dunhuang Academy and Tencent in 2018. Users can use the official Dunhuang Mojing elements and classic images such as the rebound pipa and the nine-colored deer to make their own customized silk scarf patterns in the page, and the designed pattern will appear with an exclusive number, and automatically collect for the digital exhibition hall of the project, declaring the official exclusive copyright. After the design is completed, users can choose to customize and purchase their own silk scarves, or they can see other users’ designs in the digital exhibition hall (not available for purchase). The project further improves the degree of freedom of cultural and creative products, breaks the process of designing—users in the past for cultural and creative industry merchants, and hands over the “right of creation” to users, although users cannot obtain the intellectual property rights of the final product, but also allows them to gain innovative participation experience, deeply appreciate the beauty of history and culture, and have the opportunity to buy back a unique “cultural and creative” silk scarf, once the program is online, it

has gained millions of visits, and the number of visitors in three months exceeds the number of passengers in the next year of the Mogao Grottoes line. Undoubtedly, these two IP derivative products fully coordinate the relationship between the “original right” of the property owner and the “other right” of the public, and transfer a part of the private domain property rights to the public, which is conducive to providing funds for cultural undertakings and establishing cultural self-confidence within the social scope, and truly realizing “making cultural relics come alive in the flow and development”.

### **3 “Dunhuang Database” - Intellectual Property Protection of Modern Database**

#### **3.1 The Scope of Intellectual Property Involved in Dunhuang Database**

Dunhuang remains, also known as Dunhuang documents, Dunhuang writ and Dunhuang manuscripts. However, the scattered preservation of documents around the world will bring inconvenience to the research work and restrict the development of Dunhuang Studies. According to Ma De, the chief expert of the “Dunhuang Remains Database” project and a researcher of the Dunhuang Research Institute, the database uses modern digital technology to digitize the Dunhuang Remains and try to gather the information of Dunhuang Remains and other resources collected in various places. In order to better provide systematic and convenient historical resources for the majority of Dunhuang scholars and promote the progress of Dunhuang research, it has important academic significance.

This database is based on all the posthumous documents, with complete posthumous documents data and abundant research literature, which is related to Dunhuang Studies and other relevant digital platforms. It is the first time to research and develop a digital retrieval platform for the full text of Dunhuang Chinese and Tibetan posthumous books in China, to realize the return of Dunhuang scripture cave relics through a digital platform, and to provide comprehensive, systematic and shared information for Dunhuang Studies researchers and Dunhuang culture lovers around the world. At present, the recorded “Dunhuang Chinese Relics Data” and “Dunhuang Tibetan Relics Data” have all the basic information and some of the recorded documents from the National Library of China, the National Library of Britain, the National Library of France, the Hermitash Museum of Russia, and the Dunhuang Relics collected in Gansu Province, including the Dunhuang Research Institute.

#### **3.2 Existing Laws and Defects of Database Property Rights Protection in China**

The academic circles mostly discuss the issues related to databases based on Article 14 of the Copyright Law, such as the Intangible Cultural Heritage of the People’s Republic of China, the Trademark Law, the Anti-unfair Competition Law, the Patent Law, the Copyright Law and other property rights.

For example, in the case of “China’s big regulations database”, Hainan Jingtian Company, the plaintiff, sued the defendant, and Shanghai Xuxi Company copied the “China’s big regulations database management and query system” made by it without

authorization, and spread it online through the operating website, which infringed the copyright. In this case, the judge of the first instance decided that the dispute was whether the “Database Management and Query System of China’s Laws and Regulations” produced by the plaintiff could be protected by copyright. After discussion, the court held that the database made by the plaintiff adopted an original arrangement and met the conditions, while the defendant copied this part of the content, so the copyright infringement was established. First of all, copyright protection requires originality, while most database functions are structured presentation of information for query and analysis, and organization and function to meet the requirements of practicality and convenience. Secondly, even if it can be applied to the structure that only protects the database, but does not protect the database content, it is called “soft protection”. Therefore, for the non-original content of the intangible cultural heritage database, copyright cannot protect the intangible cultural heritage data most of the time [8].

### **3.3 Legal Rights and Interests of the International Intangible Cultural Heritage Database and Its Reference Value**

Unesco, through its organizational channels, combined with the academic strength of all parties, gathered all countries to negotiate and negotiate, and finally formed the Convention on the Protection of Intangible Cultural Heritage to protect folk art and folk heritage from the persecution of illegal commercialization, requiring that the manifestations of traditional culture be recognized as the property of the nature of intellectual property owned by the state, and then separated from the public domain in the sense of intellectual property law.

Just before the text of the Convention on Intangible Cultural Heritage was submitted to the General Assembly of the States Parties to Unesco for voting, another important document was adopted: the Charter for the Preservation of Digital Heritage. This document fully reflects the recognition and attention of the international community to the trend of digital preservation, and also highlights the inevitable link between cultural heritage and digital protection and property rights [9].

Due to the lack of copyright protection for databases, the European Union decided to open a new way: the European Parliament and the European Commission’s Database Protection Directive 96/9/EC of March 11, 1996 provides a special right protection: for those data in the database that cannot be protected by intellectual property rights, the database right owner can obtain exclusive rights against third parties. Under the EU system, users of the database can only use part of the data allowed by the owner, and should use it in the way required by the owner.

The Directive is the first legal document in the world that officially allows the database to be protected by special rights. Whether the data in the database can be protected by copyright does not affect the legal status of the database structure itself. After the discussion of the European Union, it submitted a unified proposal for the protection of database international law to WIPO in February 1996. Since then, it has been promoting the drafting of WIPO’s database convention and still negotiating. At present, there are two types of trust management databases related to intangible cultural heritage: one is only for the protection and management of traditional knowledge, and the other is also responsible for the management and distribution of benefits. Research on the trust

management model and the establishment of relevant legal mechanisms can help the community to reasonably control its traditional cultural elements and gain the sharing of benefits [10].

Panama's 2000 Act on the Special System of Collective Intellectual Property Rights for the Protection of Indigenous Humanistic Identity and Traditional Knowledge created a national traditional knowledge database. The Act states that once a cultural element enters the national database, it should be granted special rights to the indigenous communities in the place of origin, and can fight against the commercial use of part of its traditional knowledge and cultural goods by third parties through litigation. Create new rights, but because of the declarative nature of the database, the intangible cultural heritage data included in it has been protected.

In 2003, Switzerland also submitted a proposal to the WTO requesting the amendment of the 1970 Patent Cooperation Treaty to include the obligation of disclosure of information sources. When it comes to patent issues based on traditional knowledge, the feasibility of universalizing the obligation of disclosure. As of September 2018, there has been no decisive progress, which shows that conflict of interest is a huge problem.

## **4 IDP International Database - Intellectual Property Protection and International Cooperation for Web Products**

### **4.1 Intellectual Property Protection Under the IDP Project**

In 1994, the international Dunhuang project was officially launched. IDP's work has greatly promoted the protection of Dunhuang's material and intangible cultural heritage as well as international exchanges and sharing. In the excellent case of IDP, the intellectual property issues involved are mainly database intellectual property rights and web page intellectual property rights protection. If the definition is not clear, there will be big mistakes in the final product protection. There are many countries cooperating to edit the content of the web page and update the latest situation of cultural products.

Demo output refers to the retrieval and transmission of compiled data. The investment in demo output is mainly aimed at making the data easy for users to access, including file digitization, keyword setting, user interface and layout design [13]. The protection of database right is the database that the producer of database pays to make, so the premise that database enjoys special rights is whether to pay substantive investment. The database right mainly includes extraction, on the other hand, reuse. Repeated and systematic extraction and reuse will still be considered infringements. Every time the dynamic database is updated, it can be regarded as a new individual database. Such database will be protected by intellectual property continuously.

### **4.2 The Dilemma of Web-Side Protection—The Definition of Property Rights**

For the protection of IDP web pages, if the elements of the Dunhuang web pages displayed by IDP are divided according to whether or not they are works, Article 3 of the Copyright Law. If another person uses such works without permission, the original right holder may claim infringement directly according to the provisions of the copyright law [14]. This bill tends to protect the elements of Dunhuang art form, but it still lacks consideration for the layout and composition of the web page.

### 4.3 Recommended Measures for IDP

The digitalization of archives in Dunhuang culture is the basis and prerequisite for the construction of IDP digital archives [15]. After the digitalization, the material heritage, such as murals, can be stored in a self-built database.

Establish web-side download browsing controls to monitor file usage and downloads. In the course of maintaining IDP, IDP should strengthen the surveillance measures of network security and perfect the relevant surveillance system.

If the infringement phenomenon is found, the relevant departments should be requested to delete the illegal works and their related products in a timely manner.

At present, China's regulations on the protection of domain name intellectual property rights need further improvement. IDP needs to make efforts to maintain and protect domain name intellectual property rights.

## 5 Conclusion

How to build cultural products with Chinese characteristics, style, and grandeur? How to deal with the controversy surrounding the "monopoly" of intellectual property derived from numerous historical and cultural resources? How to make cultural heritage "come alive" and appeal to the market and the public? This is a significant concern for many cultural and museum institutions when it comes to intellectual property-derived branding. Through case studies of Digital Dunhuang and Dunhuang Poetry Scarf, we can observe a proven path that emphasizes the balance of interests between the intellectual property rights owner and the public, as well as the individual and society. In the private sphere, it is crucial to safeguard the sacred and exclusive private rights of property owners. However, it is equally important to consider the unique nature of historical and cultural resources as the shared cultural heritage of humanity and social wealth. In the public interest sphere, equal rights of all citizens must be ensured to access cultural wealth and respect their other rights to limited domination of intellectual property rights. This is necessary to foster a culture of sharing, co-creation, and construction of cultural heritage throughout society. Only in this way can the intellectual property of historical and cultural resources avoid becoming an unequal tool of monopoly and an unused empty shell. This will ensure that cultural heritage will endure in the process of spreading and evolving. To address intellectual property right issues, it is essential to develop more detailed and specific legal treaties in the future.

Improving legal regulations related to digital products is particularly important for market and industry personnel. This is not only to ensure their own legal protection but also to promote further development of the industry. Additionally, strengthening the legal binding force of related property rights can provide clarity in the digital industry's environment, which is conducive to its flourishing development for both the audience and society. Lastly, for the future development of digital, every group must fulfill its related rights and obligations to enhance the digital management system's overall effectiveness and soundness.

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