

Legal Boundaries of Reproduction in Long-Term Preservation of Library Digital Resources (Post-print)

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Abstract

[Purpose/Significance] The reproduction activities in the long-term preservation process of library digital resources are regulated by copyright law, and clarifying the legal boundaries of digital reproduction by libraries is of great significance for the development of digital preservation in libraries. [Method/Process] Based on the legal texts of international copyright law and domestic copyright laws of certain countries, and adopting a comparative research methodology, this study systematically reviews and analyzes the current protection of reproduction rights and the exceptions to reproduction rights enjoyed by libraries for preservation or replacement purposes. [Results/Conclusion] The macroscopic shaping of the legal boundaries of reproduction rights exceptions in the process of library digital resource preservation by international conventions and national copyright laws focuses on three aspects: “scope of libraries”, “scope of reproducible works”, and “restrictive conditions”, and proposes recommendations for future legislation related to digital preservation in libraries in China from four perspectives.

Full Text

Research on the Legal Boundary of Copying in the Long-Term Preservation of Library Digital Resources

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Abstract:

[Purpose/Significance] The reproduction of digital resources in libraries during long-term preservation processes is regulated by copyright law, and clarifying the legal boundaries of digital reproduction is crucial for the development of library digital preservation. [Method/Process] Based on international copyright

law and domestic copyright law texts from several countries, this study employs comparative research methods to systematically analyze current reproduction rights protection and the exceptions granted to libraries for preservation or replacement purposes. [Result/Conclusion] International conventions and national copyright laws concentrate the macro-level shaping of legal boundaries for reproduction exceptions in library digital preservation on three aspects: “scope of libraries,” “scope of reproducible works,” and “restrictions.” The paper concludes by offering four recommendations for future legislation on library digital preservation in China.

Keywords: library; long-term preservation of digital resources; exception to reproduction rights

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Reproduction exceptions for libraries constitute an important legal mechanism for maintaining copyright balance, primarily addressing the copying of copyrighted works for purposes such as preservation or replacement, interlibrary loan, private use, improving management and service levels, and research or study [1]. Among these, the legal boundary of copying in library digital resource long-term preservation is mainly manifested in the reproduction exceptions applicable to libraries for preservation or replacement purposes. Currently, the preservation and maintenance of digital resources has become an integral component of library services. However, compared with traditional literature resources, digital resources are more vulnerable, making reproduction for preservation or replacement purposes more common. Since preservation or replacement typically involves creating copies before works are lost or damaged, such copying behavior in the digital environment has a more direct impact on the commercial interests of copyright holders. Therefore, reproduction exceptions for library preservation or replacement reflect the tension between library needs and copyright holder interests in the digital age, representing a significant factor influencing library digital preservation activities.

Research on library digital reproduction copyright issues has attracted considerable attention, focusing primarily on copyright risks in library digital reproduction [2], obstacles to the legality of digital reproduction posed by library digital resource procurement models in China [3], and the construction of reproduction exception systems applicable to library digital resource long-term preservation [4]. From a legislative perspective, according to the 2017 WIPO Study on Copyright Limitations and Exceptions for Libraries and Archives, among WIPO’s 191 member states, 161 have at least one provision in their copyright laws specifically applicable to libraries or archives, with 102 involving preservation copying and 98 involving replacement copying [5]. This paper analyzes the reproduction exceptions applicable to libraries for making copies for preservation or replacement purposes based on the characteristics of copying behavior in library digital preservation processes, aiming to clarify the legal boundaries of copying in library digital resource long-term preservation.

Commissioned by WIPO, Kenneth Crews has published four research reports on copyright limitations and exceptions for libraries and archives since 2008 (in 2008, 2014, 2015, and 2017). Domestic scholars such as Huang Guobin have systematically reviewed library reproduction exceptions, providing foundational references for this study.

1. Origin: Copyright Law Protection of Reproduction Rights

Before the emergence of digital technology, reproduction of copyrighted works was already widespread. As a primary component of property rights, reproduction rights have been protected by copyright laws across different periods. Since the United Kingdom's 1956 Copyright Act first established a specific copyright exception for libraries, library copyright exceptions have remained an important component of global copyright law [6]. Although modern copyright systems provide space for the fair use of copyrighted works by libraries, current library digital reproduction practices have exceeded the scope of existing laws, such as large-scale digitization of collection works and automatic harvesting of Internet resources. Therefore, understanding how legal texts interpret the concept of reproduction is the starting point for clarifying the copyright boundaries of library digital reproduction.

1.1 International Copyright Law Interpretation of Reproduction Rights

Reproduction rights are the first right stipulated in domestic copyright laws under the modern copyright system. The United Kingdom's Statute of Anne in 1710 already explicitly protected reproduction rights, but it was not until the 1967 Stockholm Conference that reproduction rights were incorporated as a minimum right into the Berne Convention. Article 9(1) of the Berne Convention (1979) [7] grants authors the right of reproduction, describing it as "the exclusive right to authorize the reproduction of their works, in any manner or form." Generally, "reproduction" refers to the material fixation of a work, resulting in a copy or duplicate of the work. The phrase "in any manner or form" demonstrates technological neutrality and does not exclude reproduction through digital technology. Based on the principle of minimum protection, the Berne Convention does not provide specific interpretations regarding the material form of reproduction or the proportion of reproduction that affects reproduction rights, leaving these issues to be resolved by domestic laws.

The 1961 Rome Convention [8] provides protection for performers and phonograms, involving provisions on "fixation" and "reproduction." The Rome Convention does not define "fixation," which is generally understood as recording performances' sounds or images through audio or audiovisual media, while "reproduction" is explicitly defined as "the making of a copy or copies of a fixation." The relationship between "fixation" and "reproduction" can be understood as:

the former refers to fixing sounds or performances on specific media to achieve fixation of unfixed works, while the latter refers to reproducing works between fixed objects, with both receiving equal protection. Although the Rome Convention did not reflect interpretations of digital reproduction due to its enactment date, its basic principles remain currently applicable, such as directly fixing performances into digital works through digital recording and digital reproduction of tangible copies, with relevant behaviors still falling within the scope of the Rome Convention.

The 1994 Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) [9] aims to promote technological innovation and technology transfer and dissemination, following the basic principles of the Berne Convention and Rome Convention regarding intellectual property protection. Although TRIPS does not provide new interpretations of “reproduction,” its Article 10 incorporates “computer programs and compilations of data” into copyright protection scope. Both source code and object code of computer programs are protected as literary works, and compilations of data are protected as intellectual creations as long as they constitute intellectual creation in terms of selection or arrangement of contents. This protection does not extend to the data itself nor prejudice any copyright subsisting in the data itself. The expansion of copyright protection objects means the expansion of the applicable scope of reproduction rights, with relevant provisions becoming the basic principles of current database copyright protection legislation.

After the adoption of TRIPS in 1994, governments increasingly recognized the impact of digital technology on copyright and related rights and accelerated the “digital agenda” process. WIPO adopted the method of concluding a “Protocol” to the Berne Convention, signing multilateral agreements under the framework of Article 20 of the Berne Convention to improve agreement conclusion efficiency. In 1996, the WIPO Copyright Treaty (WCT) [10] and the WIPO Performances and Phonograms Treaty (WPPT) [11] were successively signed. The reproduction rights provisions in these two treaties established the basic legal standards for current digital reproduction behavior. WCT invoked the Berne Convention’s interpretation of reproduction rights in Article 9 (WCT Article 1(4)). Since WCT cannot be interpreted as providing lower protection than the Berne Convention, incidental, technical, or temporary reproduction for storage purposes is understood to be included within the scope of reproduction rights stipulated by WCT, a position adopted by domestic laws such as that of the United Kingdom. WPPT did not follow this clause, therefore stipulating reproduction rights in Articles 7 and 11, whose main feature is granting performers and phonogram producers exclusive rights to reproduce their works directly or indirectly, including reproduction in modified forms.

1.2 Domestic Copyright Law Interpretation of Reproduction Rights

Based on the basic principles established by international copyright treaties, most countries explicitly stipulate the concept of reproduction in their domes-

tic copyright laws. For clarity, this paper presents in tabular form a 梳理 of reproduction concept interpretations in copyright laws of several countries. See Table 1 .

The 梳理 reveals that current domestic laws' interpretations of "reproduction (reproduction right)" mainly demonstrate the following characteristics: In terms of interpretation methods, some countries cover interpretations of reproduction for all copyrighted works through a single concept, such as the EU and China, while others provide different interpretations for reproduction based on work types, such as the United Kingdom and Japan. Regarding digital reproduction expressions, some countries do not directly stipulate digital reproduction but implicitly include it through general expressions, such as the United States and Germany, while others directly add relevant provisions on digital reproduction, such as the United Kingdom and China. In understanding the scope of reproduction, the EU and United Kingdom introduce the concept of temporary reproduction, reflecting a higher level of digital reproduction protection. The United Kingdom' s copyright law includes "reproduction for other purposes" within reproduction rights, weakening the application of the "transformative use" principle for copyrighted works within the UK legal system. Additionally, the United States Copyright Act' s emphasis on fixation in tangible media and the German Copyright Act' s emphasis on work transfer between devices are significant references for defining library digital reproduction behavior.

2. Current Situation: Exceptions Granted by Copyright Law and Copying in Library Digital Resource Long-Term Preservation

2.1 Reproduction Exceptions Applicable to Libraries for Making Copies for Preservation or Replacement

Based on the fundamental spirit of modern copyright systems to maintain rights balance, both international law and domestic laws contain provisions on reproduction exceptions applicable to libraries for making copies for preservation or replacement purposes. These agreements and legislation either establish basic principles or set specific provisions, collectively forming the current legal standards for library digital reproduction.

2.1.1 International Copyright Law Provisions International conventions have established fundamental principles regarding copyright limitations and exceptions, laying the foundation for domestic legislation on reproduction exceptions for libraries to make copies for preservation or replacement. Relevant provisions mainly include: Article 9(2) of the Berne Convention (1979) [7] establishes the international obligation for domestic copyright laws to set up fair use systems and proposes the "three-step test" as the basic principle for permitting reproduction under certain special circumstances. According to this convention, member states' laws may permit reproduction of works protected

under the convention under certain special circumstances, provided that such reproduction does not conflict with the normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author. TRIPS (1994) [9] Article 13 incorporates the “three-step test” from Article 9(2) of the Berne Convention (1979) and allows exceptions to any rights of owners through mandatory declarations. WCT (1996) [10] Article 10 stipulates limitations and exceptions to copyright protection, inheriting the basic principles of the Berne Convention and reaffirming the “three-step test” as the standard for measuring limitations or exceptions to rights provisions. WPPT (1996) [11] Article 11 adopts the same principles while extending the scope of limitations and exceptions to phonograms. Additionally, the Universal Copyright Convention (1971) initiated by UNESCO also includes provisions on copyright exceptions in Article 4 [19], reflecting the basic principles of the Berne Convention (1979) on copyright limitations and exceptions.

The “three-step test” stipulated by the Berne Convention and subsequently developed by TRIPS (1994) and WCT is regarded as the international standard for delineating copyright limitations and exceptions. WCT extended the three-step test to the digital environment, and its Article 10 declaration states that the treaty allows contracting parties to establish new exceptions and limitations suitable for the digital network environment [20]. This declaration provides the basic basis for domestic legislation on reproduction exceptions for library digital preservation.

2.1.2 Domestic Copyright Law Provisions Given the significant changes in the digital environment in which libraries operate and the revisions to copyright laws in response to digital copyright protection over the past decade, this paper analyzes revisions to domestic legislation on reproduction exceptions for libraries to make copies for preservation needs after 2012. Using copyright law texts available on the WIPO official website (see www.wipo.int/wipolex/en/), the analysis selects texts based on four criteria: copyright law or amendment texts; English language; revision time; and international influence of the enacting country. For clarity, this paper presents in tabular form a 梳理 of relevant domestic law provisions. See Table 2 .

The 梳理 reveals that current domestic legislation on reproduction exceptions for libraries to make copies for preservation or replacement demonstrates the following characteristics: Consensus has been reached on the applicability of reproduction exceptions to digital resources (electronic resources) for preservation or replacement purposes, with domestic laws either explicitly stating or generally reflecting this, thereby creating conditions for the legality of digital reproduction based on preservation or replacement purposes in library digital resource long-term preservation processes. The scope of digital resources that libraries may reproduce is generally defined as collection resources, including published and unpublished resources, meaning libraries may conduct digital reproduction to a certain extent for resources already within their collections

for preservation or replacement needs, but reproduction of resources outside the collection does not fall within fair use. Copyright laws in countries such as Australia grant libraries legitimacy to supplement collections through interlibrary loan, expanding the scope of library digital reproduction, reflecting a common practice in copyright law exception provisions for libraries. According to Kenneth Crews' 2008 report [6], regulations in 53 countries/regions explicitly permit libraries to make copies not only for their own collections but also to add copies to other libraries' collections. Libraries enjoying reproduction exceptions must demonstrate public service characteristics, including being open to the public, non-commercial, performing cultural heritage preservation, and making works available to the public through interlibrary loan. Digital reproduction by libraries for preservation or replacement purposes has certain restrictions, including quantity limits (such as the United States' limit on copy numbers and Germany' s limit on technical change numbers), the preservation status of reproduction objects (special circumstances such as loss, damage, deterioration, or obsolescence), and procurement possibilities (feasibility of obtaining works at normal commercial prices within reasonable time). Additionally, some countries or regions' provisions also address conflicts between reproduction exceptions and contractual agreements.

2.1.3 Domestic Library Law Provisions In addition to copyright law, specialized legislation on libraries in various countries also addresses reproduction exceptions for libraries, mainly including clarifying libraries' digital preservation responsibilities and reaffirming copyright limitations and exceptions enjoyed by libraries in this process. For example, the Law Regarding the Deutsche Nationalbibliothek, effective June 29, 2006, expanded the collection scope of the German National Library to include online publications and clarified its responsibility to preserve digital cultural and scientific heritage [24]. The Public Library Law of the People' s Republic of China, effective January 1, 2018 [25], established digital resource preservation as an important component of public library responsibilities in China, with Article 10 clarifying that library work must "comply with relevant laws and administrative regulations on intellectual property protection, and protect and use literature information in accordance with the law." Such legislation impacts library digital resource preservation by: demonstrating respect for and protection of copyright holders' interests in library digital preservation processes; and reflecting libraries' basic demands to protect their own rights and readers' interests through current copyright limitation and exception systems.

2.2 Copying Behavior in Library Digital Resource Long-Term Preservation

Library digital resource long-term preservation involves continuous management and maintenance of digital resources to ensure long-term survival, authenticity, and accessibility for future users [26]. During this process, libraries generate substantial copying behavior around digital resource acquisition, preservation, and management. Except for works in the public domain, library copying of copy-

righted works (including orphan works) during digital preservation processes is regulated by copyright law. This paper categorizes copying behavior in library digital preservation based on applicable objects and technical characteristics to reveal the relationship between current digital preservation practices and relevant legal provisions.

2.2.1 Digitization of Non-Digital Works In building library digital resource systems, digitizing traditional collection materials is an important way for libraries to acquire digital resources. Specific types include scanning paper documents, converting analog audio-visual materials to digital formats, converting microform documents to digital formats, and digitizing special materials. The copying behavior in these processes conforms to copyright law interpretations of work reproduction and has relatively clear regulations. Therefore, in addition to focusing on copyright issues in paper document digitization, library digital preservation should also pay attention to copyright issues in the digitization processes of traditional audio-visual materials, microform materials, and special documents, as well as the application of fair use provisions for these works.

2.2.2 Copying of Digital Works Another major way libraries acquire digital resources is through obtaining born-digital resources. Compared with digitization of non-digital works, copying behavior in this process is more complex. Specific types include automatic harvesting of Internet resources, copying of commercial data resources, copying of open access resources on the Internet, and collection of institutionally-produced digital resources by academic libraries. Copyright risks in library copying behavior during these processes stem from the ambiguity of modern copyright law in defining relevant reproduction behaviors and interference from contractual agreements in copying commercial data resources. Currently, researchers have conducted extensive discussions on issues such as preservation of orphan works by libraries, digital resource trade, and library digital resource licensing policies. Due to significant differences in how domestic copyright laws of various countries interpret libraries' rights and obligations in the process of digitizing born-digital works, understanding of this issue continues to deepen.

2.2.3 Technical Copying in Digital Preservation To achieve long-term preservation of digital content, continuous migration, conversion, and distribution of digital content in preservation systems are necessary. Meanwhile, based on preservation security considerations, digital content may be preserved by different preservation institutions with inter-institutional copying. These fundamental digital preservation activities challenge traditional copyright systems. Specific types of such copying behavior mainly include: creating multiple copies of digital resources for security backup purposes, copying digital resources from original media to new media, copying digital resources from one format to new formats, and modified reproduction of digital resources according to emulation

strategies. As seen from international and domestic copyright law interpretations of reproduction, these copying behaviors are in principle included within the scope regulated by copyright law, while current legislation lacks clear explanations of specific regulation methods and scope. This legal ambiguity creates difficulties for library digital preservation activities and presents new requirements for establishing library copyright reproduction exception clauses.

3. Trend: Shaping of Legal Boundaries by Legal Provisions and Future Possibilities

Given the enormous differences among countries in social development levels, legal systems, and historical and geographical environments, under the frameworks of the Berne Convention, TRIPS, and WCT, countries also differ in legislative practice regarding reproduction exceptions for libraries to make copies for preservation or replacement purposes. Comprehensive analysis shows that current international conventions and domestic copyright laws shape the legal boundaries of library digital reproduction mainly in the following aspects:

3.1 Impact of “Library Scope” on Reproduction Exceptions in Library Digital Preservation

Domestic laws stipulate the types of libraries to which copyright exceptions apply, with varying expressions. Overall, libraries (or related institutions) undertaking public service missions are considered eligible for reproduction exceptions for making copies for preservation or replacement purposes. Most countries define libraries using concepts of “non-profit” or “public,” with specific expressions including: libraries open to the public or at least to external researchers (United States), publicly accessible libraries (France), publicly funded libraries (Denmark), non-profit libraries (Australia), libraries designated by “Cabinet Order” for public use (Japan), public libraries not serving commercial purposes directly or indirectly (Germany), and public libraries (Sweden). Copyright law definitions of library scope reflect legislators’ stance on allowing different types of libraries to benefit from the law. The establishment of reproduction exceptions for preservation purposes reflects libraries’ social roles and their leading role in protecting national cultural heritage (including digital cultural heritage). Meanwhile, relevant provisions indicate that libraries enjoying reproduction exceptions for preservation or replacement must adhere to “non-profit” and “public service” requirements, which is particularly important in the digital environment. Current inter-institutional cooperation is an important way for libraries to implement digital resource preservation, including cooperation between public service libraries (including public libraries, academic libraries, or school libraries) and non-public service institutions. Whether copying behavior in such processes enjoys reproduction exceptions for preservation or replacement requires consideration of specific contexts, with “non-profit” and “public service” serving as basic references for relevant legislation.

3.2 Impact of “Scope of Reproducible Works” on Reproduction Exceptions in Library Digital Preservation

The scope of reproducible works also significantly impacts the reproduction exceptions libraries may enjoy for preservation or replacement purposes. From current legislative perspectives, most domestic laws define it as works already included in library collections. In terms of specific classification of work scope, publication status and carrier form are the main classification bases: the former is exemplified by the United States Copyright Act’ s separate expressions for reproduction exceptions for published and unpublished works, while the latter is reflected in the Rome Convention’ s special protection for performances and phonograms. The scope of reproducible works reflects legislators’ considerations regarding the appropriateness of libraries using certain types of works. In the digital environment, such scope restrictions significantly impact the realization of library digital preservation objectives. Based on relevant legal provisions, libraries need to adjust their digital preservation scope accordingly to ensure the legality of digital reproduction for preservation needs. Therefore, libraries seeking broader digital reproduction exceptions can argue from the necessity of reproduction exceptions for digital works. Current research mainly discusses this from the vulnerability of digital resources, while other aspects of reasonable interpretation require further discussion.

3.3 Impact of “Restrictions” on Reproduction Exceptions in Library Digital Preservation

In addition to library scope and reproducible works scope, current copyright laws in various countries set restrictions on reproduction exceptions libraries enjoy for preservation or replacement purposes, mainly including the condition of original works and procurement possibilities. Regarding original work conditions, copyright laws in the United States and Japan express this as works that are damaged, deteriorated, lost, stolen, or in obsolete formats, while Canada’ s provisions are more detailed, adding requirements that works must be rare or unpublished. Other restrictions include language requirements (Latvia) [6]. Countries’ varying expressions regarding the condition of reproducible works require library professionals to possess corresponding international perspectives on copyright knowledge. Regarding procurement possibilities, copyright laws in many countries emphasize that libraries must fulfill market search obligations before reproduction, ensuring that works cannot be obtained through normal market channels. For example, Australian copyright law requires libraries to conduct reasonable market investigations and make written declarations that works cannot be obtained at normal commercial prices within reasonable time. In digital preservation contexts, these restrictions increase risks for libraries to preserve relevant works in a timely manner, reflecting the limitations of current regulations. In response, European and American countries have conducted research and proposed solutions, with Europe suggesting that stakeholders (libraries, publishers, and other institutions) address this issue through coopera-

tive agreements [27], while the United States proposes revising regulations to allow flexible reproduction of works to expand preservation opportunities [28].

3.4 Impact of “Library Mission” on Reproduction Exceptions in Library Digital Preservation

The preservation of human cultural heritage is an important component of libraries’ public service functions, and national legislation should provide basic guarantees for realizing this function in the digital environment. Digital cultural heritage preservation is a complex project. Given the insufficient support of current copyright systems for libraries’ digital cultural heritage preservation, some foreign countries and regions have undertaken corresponding legislative reforms. The EU’ s April 2019 Directive on Copyright in the Digital Single Market is considered the first major international outcome following the United States’ Digital Millennium Copyright Act (DMCA) to address the impact of Internet development on content industries and copyright protection. The directive grants broader space for cultural heritage preservation exceptions for libraries, explicitly stating that it constitutes a copyright exception for cultural heritage institutions, including libraries, to reproduce any works or other content in their permanent collections in any format or medium, and that contract terms conflicting with this exception are unenforceable. This is highly beneficial for reducing libraries’ digital reproduction copyright risks and preventing digital resource providers from circumventing fair use obligations through contractual agreements. According to EU provisions, member states are obligated to transpose the directive’ s content into domestic legislation within two years, making relevant legislation worth continuous attention.

In fact, before the EU directive’ s promulgation, the United States had already proposed at WIPO’ s 26th session in December 2013 [29] that copyright exceptions and limitations in the digital environment should ensure that libraries can perform their public service missions in the digital environment. The principle is that exceptions and limitations can and should enable libraries to make reproductions of published and unpublished materials (including highly time-sensitive materials) for preservation and replacement purposes where appropriate. Such reproduction for preservation needs applies to multiple media and formats, including conversion from obsolete storage formats to different formats. This expression reflects, to some extent, a response to technical reproduction in library digital preservation processes. European and American legislative practices indicate that expanding reproduction exceptions for libraries to make copies for preservation or replacement purposes based on digital era human cultural heritage preservation needs is becoming a realistic choice.

4. Summary and Outlook

As global informatization continues to deepen, digitization has become the new normal for information and knowledge. Digital information resources, as strategic resources for national scientific and technological innovation and cultural

competition, have elevated long-term preservation to a national strategic level. Currently, long-term preservation of non-textual digital content resources has become a new growth point in research and practice in this field, with multi-party participation and international cooperation becoming the norm, while libraries continue to play a leading role. Clarifying the legal boundaries of library digital preservation and seeking more reasonable fair use space for copyrighted works based on digital preservation practice progress is crucial for this work. Based on 梳理 of current legal boundaries of library digital reproduction domestically and internationally, future legislation on library digital preservation in China should focus on the following aspects:

4.1 Strengthening Legislative Integrity and Systematicity from a Comprehensive Perspective

Library digital resource long-term preservation has distinct technical characteristics, reflected both in the continuous changes in digital resource types and reproduction methods driven by technological innovation, and in the supporting role of technology in digital preservation and management. Meanwhile, with the development of the digital economy, commercial behavior's impact on library digital resource long-term preservation is continuously intensifying, prominently reflected in library digital resource procurement models and the constraints of commercial contracts on library digital reproduction behavior. Therefore, the legality of library digital reproduction behavior needs analysis within a comprehensive context of law, technology, and economic activities, requiring comprehensive consideration of the impact of technological and economic factors on copyright issues. This demands that relevant legislation emphasize the unity of integrity and systematicity, properly addressing copyright issues arising from technological and economic factors.

4.2 Promoting Continuous Development of Relevant Legislation Based on the Basic Spirit of International Conventions

As cross-industry and cross-regional cooperation in library digital preservation continues to deepen, China's copyright legislation should consider the objective reality of library digital preservation practice development. Based on compliance with relevant international conventions, China should strengthen research and legislative exchange and cooperation on relevant issues to create a favorable legal environment for library digital preservation activities. Currently, the shaping of legal boundaries for library digital reproduction in national legislation mainly manifests in three aspects: the types of libraries eligible for reproduction exceptions, the scope of reproducible works, and restrictions on reproduction exceptions libraries enjoy for preservation or replacement purposes. Domestically, research and legislative practice on relevant issues should be strengthened to clarify the scope of library reproduction exceptions through relevant legal provisions while affirming the legitimacy of libraries enjoying reproduction exceptions within statutory scope.

4.3 Strengthening Research and Practice on Legislation for Safeguarding Libraries' Benefits from Reproduction Exceptions

For a long time, digital resource providers have mainly used two methods to circumvent their fair use obligations, constituting practical obstacles to libraries' actual benefits from copyright limitations and exceptions: first, using commercial contracts to exclude copyright exceptions; second, using technological advantages and copyright protection of technological measures to set technical restrictions for libraries. Therefore, based on the basic principle of balancing copyright protection interests, China' s copyright legislation should strengthen exploration of safeguard mechanisms for libraries to benefit from reproduction exceptions to protect the realization of libraries' legitimate rights and interests, including adding provisions preventing digital resource providers from circumventing fair use obligations through contractual agreements and establishing copyright technological measure protection systems that better reflect balanced interests.

4.4 Clarifying the Value of Library Digital Preservation in Digital Cultural Heritage Transmission and Providing Legal Protection

Library digital preservation activities need to follow current laws, and legal support and protection are the most concentrated embodiment of digital preservation activity value. It is evident that current European and American legislation grants broader space for cultural heritage preservation exceptions for libraries precisely based on considerations of the important value of digital resource long-term preservation for current digital cultural transmission and international competition. Therefore, China' s relevant legislation needs to comprehensively examine the significance of library digital preservation and reflect this in legal revision processes. The library community needs to participate in and influence relevant legislative processes through multiple channels to gain broader recognition of the importance of this work.

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