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## Research on Copyright Issues in the Long-Term Preservation of Digital Resources by University Libraries: Postprint

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### Abstract

[Purpose/Significance] This study investigates the copyright issues in the long-term preservation of digital resources in university libraries, analyzing the subjects, objects, and acts of digital preservation construction from a legal perspective, clarifying copyright risks and proposing coping strategies. [Method/Process] A comprehensive analysis of research literature, legislation, and judicial cases is conducted; the subjects, objects, and acts of long-term digital resource preservation in university libraries are deconstructed through legal analysis. [Results/Conclusion] Long-term preservation of digital resources in university libraries faces significant copyright risks in aspects such as digital reproduction, technology application, new resource construction, and hyperlink services; these copyright issues can be addressed through strategies including legal approaches, contractual authorization, and institutional innovation.

### Full Text

### Preamble

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### Research on Copyright Issues in the Long-term Preservation of Digital Resources in University Libraries

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### Abstract

[Purpose/Significance] This study examines copyright issues in the long-term preservation of digital resources in university libraries, analyzing the subject, object, and behavior of digital preservation construction from a legal perspective

to clarify copyright risks and propose countermeasures. [Method/Process] The paper comprehensively analyzes research literature, legislation, and judicial cases, and deconstructs the subject, object, and behavior of university library digital resource preservation through legal analysis. [Result/Conclusion] University library long-term preservation of digital resources faces significant copyright risks in digital copying, technology application, new resource construction, and hyperlink services; these issues can be addressed through legal channels, contractual authorization, and institutional innovation.

**Keywords:** university libraries; digital resources; long-term preservation; copyright

**Classification Number:** G251

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Digital resources have become the primary form of knowledge and information dissemination and utilization. International organizations and national governments consider long-term preservation of digital resources a strategic priority. Whether digitizing traditional media or collecting and storing born-digital resources, this work requires substantial material and human resources. Since the early 21st century, Western countries and UNESCO have begun formulating digital preservation policies and implementing related projects [1], after which domestic scholars also commenced research on digital resource preservation, achieving certain results in the preservation of web resources, electronic publications, personal digital resources, open access resources, and institutional digital resources. Research has gradually shifted from general studies to more specific examinations of different resource types, with increasing attention to practical issues such as technology, policy, metadata standards, and intellectual property interest distribution disputes [3]. The emergence and improvement of new technologies, while optimizing or altering original technical pathways, disrupt the established interest balance under legal frameworks, triggering contradictions among stakeholders regarding rights allocation and interest division. Resolving these contradictions requires analyzing relevant behavioral patterns to achieve rebalancing of rights and interests under new technological pathways. Unlike traditional resources, digital resources exhibit new characteristics in collection, preservation, dissemination, and utilization, yet copyright risks persist. Considering copyright risks during technology development and service design is one measure to mitigate them. Therefore, discussing copyright issues in digital resource preservation is urgent and necessary.

## 2. Related Research and Case Review

The purpose of long-term preservation is long-term accessibility, encompassing both technical and rights-based accessibility [4], with copyright ownership and the scope of fair use being the focal points. International research on copyright issues in digital preservation has focused on fair use of digital resources, digital legal deposit systems, and copyright disputes and responses. For example, stud-

ies have examined how the fair use doctrine in U.S. copyright law supports yet limits digital preservation [5]; the impact of legal deposit systems in Australia, the Netherlands, the UK, and the US on digital protection [6]; the judicial criteria for protecting databases and other factual works established in the U.S. Feist case [7]; the determination of software provider liability in infringement in *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster* [8]; and the copyright disputes and judgments arising from Google's digital library project [9]. Domestic scholars such as Chen Min, Zhang Xiaolin, Wan Ling, Zhao Junling, Wang Shaohui, Zhang Wei, Huang Guobin, Nie Yunxia, Wu Gao, and Zang Guoquan have addressed copyright issues in digital preservation, covering topics including rights during preservation [10-11], preservation rights transactions [12], web information resource preservation [13], copyright licensing and computer software copyright issues [14], the impact of copyright limitations and exceptions on digital preservation [15-16], private digital resource preservation [17], digital resource licensing agreements [18], and the legality of web archiving [19].

University libraries, as producers and consumers of digital academic resources, are major undertakers of digital preservation but face numerous challenges in practice. On one hand, current copyright legislation offers limited protection for libraries in digital preservation, preventing them from effectively circumventing copyright risks through limitations and exceptions. On the other hand, resource providers maintain advantageous positions in procurement negotiations through technical measures and standard contracts. Current copyright dispute cases show that university library digitization of copyrighted works [20], free use by online libraries [21], web resource linking [22], and web information aggregation have become high-incidence areas for copyright disputes, constraining digital resource construction and long-term preservation. While existing research has focused on resource composition, risk types, and discussions on library fair use, few studies have conducted detailed legal analysis of library preservation behaviors. This research takes university library digital resource preservation as its object, deconstructing the subject, object, and behavioral patterns of such preservation to analyze behaviors prone to copyright infringement and propose solutions, providing reference for addressing practical copyright disputes.

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### 3. University Library Digital Resource Preservation Behavior

#### 3.1 Behavioral Subject: Digital Resource Preservers and Users

Digital resource preservation can be categorized by duration as long-term, medium-term, or short-term, all aimed at ensuring user access, retrieval, reading, and comprehension. Long-term preservation refers to indefinite-term management and preservation of digital resources. The direct subject of preservation behavior is the digital resource preserver, typically also the service provider (hereinafter “resource preserver”), while the indirect subject is the user. Resource utilization is built upon preservation, with the two having logical continuity. Although preservers may also be users—for instance, some university library services are built upon their own or other institutions’ digital resources—the two roles are clearly distinguishable. Preservers’ actions typically manifest as digitizing owned traditional resources and collecting born-digital resources, such as digitizing paper documents, purchasing databases, and downloading and navigating web resources. These resources are usually presented as local databases and network links on specific platforms. Users’ utilization behaviors involve selecting and using resources provided by preservers, such as searching, downloading, copying, and using digital resources. Notably, while users’ utilization behaviors are independent, their subjective intentions and behavioral consequences are considered extensions of preservers’ actions—illegal use of digital resources by users can lead to legal disputes for preservers. Therefore, digital resource preservation and service provision constitute the most important behaviors generating infringement disputes, and this study focuses on direct subjects and their implementation behaviors.

#### 3.2 Behavioral Object: Digital Resources

The behavioral object of digital resource preservation includes all digital resources selected by university libraries for long-term preservation. By format type, these can be divided into text, images, video, audio, multimedia, and programs; by service method, into local server resources, remotely linked resources, and locally mirrored remote server resources; and by source, into self-built and web-based digital resources. Self-built resources mainly include special databases, dissertations, digital research information resources, digital teaching resources, digital catalogs and abstracts, and other self-built resources. Web-based resources can be subdivided into free web resources and purchased web resources. The diversity of digital resources makes preservation and utilization complex, with different objects having varying copyrightability, constituting different works or non-works, and having different rights holders. Third-party use of digital resources involves not only attributed authors and publishers but may also involve image creators and multimedia producers [23]. Furthermore, the source of digital resources determines their legal status and copyright ownership [24]; for example, rights differ between self-built and purchased databases. This study categorizes university library digital preservation objects as follows:

### 3.2.1 Local Server Resources

University libraries obtain digital resources through purchase or self-building and store them on local servers. These mainly include commercially valuable databases and digital resources generated in institutional research and teaching activities. Commercial databases require negotiation with providers for archiving and permanent use rights to resolve copyright issues, while self-built resources require case-by-case handling based on copyrightability. For unpublished dissertations and faculty-developed MOOC resources, libraries must obtain author authorization based on whether the works meet copyright requirements.

### 3.2.2 Non-locally Stored Digital Resources

Resources such as those built by CALIS and other higher education literature guarantee systems, and centrally archived public digital resources established through cooperation or consortium, are typically archived by central libraries, with member libraries accessing them through mirroring or remote access. Copyright issues are similar to local server resources.

### 3.2.3 Web-based Digital Resources

Including free and purchased web resources. Free resources can be further divided into linked and downloadable resources. For linked resources, libraries provide navigation directories or portals; for downloadable resources, libraries may integrate them into local collections. Copyright issues in utilizing free web resources are complex, with linking and downloading having become high-risk areas for disputes. Purchased web resources refer to those contracted for network-based provision, where libraries typically only obtain usage rights, with copying or storage restricted. Long-term preservation requires adding permanent preservation clauses in licensing agreements, increasing copyright dispute risks [16]. Additionally, under Chinese copyright law, digitizing traditional documents is considered reproduction requiring authorization, meaning library digitization is legally constrained. Notably, the copyright clearance status of source resources affects the legality of collection; for example, copyright risks in MOOC course materials can be transferred to new resources.

## 3.3 Behavioral Pattern: Digital Resource Preservation Process

Based on preservation and utilization purposes, university library digital resource preservation behaviors generally include three stages: collection, archiving, and presentation. Collection refers to digital resource construction—identifying preservation objects and scope based on collection development goals [25], including resource selection (content and source) and media selection (magnetic, optical storage and combinations) [26]. Technically, after determining which resources to preserve, libraries use copying, emulation, migration, data backup, technical preservation, universal computer virtualization (UVC), digital re-creation, data extraction, automatic storage, and digital tablets to digitize traditional documents [27][28], locally store purchased databases or provide remote mirroring, and build institutional repositories,

while using web crawlers to collect web resources and establish subject-based link directories. During this process, purchased resources are governed by contractual agreements, local resource collection in institutional repository construction can be handled through negotiation based on copyrightability, and web content providers refusing crawler collection typically set robot protocols to prohibit access. Collection is legal with website manager authorization or acquiescence, provided it is non-aggressive or non-malicious [23]. Currently, digital resource owners primarily authorize use through “licensing,” meaning university libraries only obtain usage rights, with copying or storage restricted. Preservation requires adding permanent preservation clauses in licensing agreements, increasing copyright risks [16].

Data archiving refers to organizing and integrating digital resources through updating, conversion, encapsulation, technical preservation, standardization, regenerative protection, and data detection to ensure integrity and security, and establishing storage and publication platforms. Organization follows established principles and methods, using computer-recognizable language to characterize and order digital resources’ external and content features, achieving data stream sequencing. Through knowledge element aggregation and metadata standardization, unified digital resource identification and formats are achieved. Although archiving does not directly contact other legal subjects, it changes source data characterization and ordering, with legal consequences depending on whether new copyrighted works are created.

Presentation refers to displaying digital resources to users through specific systems and platforms according to user instructions or programmed requirements, the most direct aspect of library digital resource services. Library digital resource construction aims to improve user retrieval efficiency and satisfaction, with presentation being key. Different resource types have diverse copyright statuses. Without explicit legislation on long-term preservation, presentation and user behaviors involve issues of reproduction rights, privacy, usage rights, unfair competition, and security risks. Libraries’ copyright risk levels closely relate to negotiation outcomes during collection; resources with archiving and permanent use authorization, and those clearly covered by fair use, pose minimal risk, while others face potential disputes.

Additionally, management behaviors in preserving and utilizing digital collections also pose infringement risks. On one hand, university libraries lack clear legal basis for obtaining preservation management rights, requiring caution in copying and format conversion. On the other hand, even when obtaining preservation management rights, issues arise; for example, since data formats are closely related to copyright, management metadata settings modifying source data copyright management information may infringe integrity and adaptation rights. The greater the format inconsistency between digital resources and preservation systems, the higher the infringement possibility.

## 4. Infringement Risk Behaviors in University Library Digital Resource Preservation

Based on the above analysis of preservation behaviors and related cases, we must recognize the universality of university library digital resource preservation and attendant copyright issues. Synthesizing current research and practice, this study summarizes and anticipates copyright risks, identifying the following primary risk areas.

### 4.1 Library Digital Reproduction Behavior

Digital reproduction includes digitizing traditional documents and reproducing already-digitized resources, both constituting copyright reproduction under Chinese law. Reproduction is the most important economic right of copyright holders, characterized by content reproducibility, expression repetition, and non-creativity [34], all embodied in library digital reproduction. Digital reproduction is the most direct and effective means for libraries to obtain digital resources, mainly applied in self-built resource processes. Although current fair use provisions offer some legal space, improper reproduction remains a major source of disputes. University libraries must ensure non-commercial purposes and strictly limit reproduction quantity within fair use scope. China's Regulations on the Protection of Information Network Transmission Rights permit libraries to reproduce "works that are damaged or near damage, lost or stolen, or stored in obsolete formats that cannot be purchased on the market or can only be purchased at significantly higher than marked prices," setting boundaries for library behavior. Whether digitizing themselves or obtaining digital reproductions, libraries must ensure legality to avoid information network transmission right infringement risks from infringing works. Cases such as those between Chinese Online Digital Publishing Group Co., Ltd. and Jiangle County Library, and between Liu Guanjun and Ningde Jiaocheng District Library, demonstrate that libraries' own digital reproduction or acceptance of providers' reproduction products have become important causes of copyright disputes, with reproduction beyond fair use scope creating legal dilemmas.

### 4.2 Technical Behaviors in Digital Resource Preservation

Technological developments create new copyright issues in preservation. Updates to storage hardware/software and format changes make reproduction, migration, and repair routine, yet these technical behaviors may create infringement risks. Copyright issues arising from technical behaviors affect preservation sustainability and require urgent resolution beyond copyright ownership and fair use. Libraries' applicable technological measure circumvention exceptions have become important factors affecting preservation. The 2006 "British Library Intellectual Property Declaration" emphasized that resource licensing agreements and technological measures should not undermine long-established copyright limitations and exceptions [35], highlighting that legal certainty for technical behaviors in archiving and management is crucial. For example, the

widespread problem of excessive database downloading in universities has led to severe warnings or even suspension from database providers, with libraries typically using the “safe harbor principle” through copyright notices to address disputes [36]. In long-term preservation, bulk data processing involves more complex copyright issues, requiring libraries to ensure both their own behavior legality and protect their own copyrights.

### 4.3 Hyperlink-Based Digital Resource Aggregation

Hyperlink-based aggregation and push services are important for digital resource construction but pose potential infringement risks to authors’ information network transmission rights. China’s Copyright Law and Regulations on Information Network Transmission Rights define the core of such rights as “making works available to the public” and enabling the public to “obtain works.” Hyperlink technology provides addresses indicating work locations, and providing links through titles or topics typically does not infringe, but deep linking may cause disputes. Libraries providing linking services act as network service providers, potentially liable for direct or indirect infringement. The U.S. established the server principle in 2007, holding that linking service providers only directly infringe when storing works on their own servers [37], a standard China also adopts. Determining library fault in linking services involves both the “red flag standard” based on subjective fault and the “notice-and-takedown” safe harbor principle. Copyright infringement litigation cases in China in 2007 and 2009 [38] demonstrate that libraries incorporating linked resources into collections must follow legal provisions and ensure behavioral legality. Therefore, university libraries must correctly assess legal risks based on full understanding of relevant laws.

### 4.4 Copyright Risks in Utilizing New Digital Resources

The rapid development of digital teaching (including cross-border digital teaching) increases dependence on digital resources and triggers copyright issues with new resource types. In MOOC contexts, copyright services centered on clearance have become important development directions for foreign libraries [39]. Meanwhile, scientific data copyright protection has attracted attention due to data-driven research significance [40]. On September 14, 2016, the EU issued the “Proposal for a Directive on Copyright in the Digital Single Market,” providing purpose-specific exceptions for using protected works in digital and cross-border teaching, scientific research text and data mining, and digital preservation by cultural heritage institutions, aiming to promote education and research innovation, enhance EU research competitiveness, and advance cultural heritage digital preservation [41]. These provisions involve increasing legal certainty for public institutions like libraries and archives in using new digital works. As relevant Chinese legislation remains weak, university libraries lack clear behavioral norms for service innovation around digital collections, facing new copyright risks.

## 5. Copyright Risk Avoidance Strategies for University Library Digital Resource Preservation

Given the importance of digital collections in university library construction, long-term preservation should be integral to collection planning. Libraries should enhance copyright protection awareness, understand relevant laws, improve behavioral legality, avoid infringement risks, and ensure sustainable digital collection development.

### 5.1 Conduct Digital Preservation According to Law and Assert Library Rights

University library digital preservation must follow legal systems, conducting collection, archiving, storage management, and development within legal frameworks. Based on domestic and international analysis, libraries can: (1) Actively digitize public domain works through project-driven or institutional cooperation. Under Chinese Copyright Law, works enter the public domain 50 years after the author's death, losing property rights protection, allowing libraries to digitize such works according to collection plans. (2) Fully exploit open access resources. Internet public information not subject to copyright, academically authorized public network resources (e.g., OA journals), and non-original works not protected by copyright can be included in preservation plans, noting that open access does not negate authors' copyright, particularly moral rights protecting work integrity and accurate citation. (3) Expand digital collections through digital legal deposit systems. As a national policy for preserving cultural heritage, China's "Electronic Publications Management Regulations" (2008) require publishers to submit samples to national libraries, providing an important legal pathway for preservation [42].

### 5.2 Employ Multiple Authorization Methods to Avoid Infringement Through Contractual Authorization

For copyrighted digital works, libraries can obtain authorization through multiple methods. First, when purchasing databases, libraries should negotiate for archiving and permanent use rights, and for already-purchased resources, negotiate preservation solutions with providers, using local storage, mirroring, and consortium archiving to improve disaster recovery. Second, reasonably utilize collective copyright management systems to batch-resolve authorization issues in digitization, leveraging collective management organizations as bridges to facilitate direct communication with copyright holders, forming written authorization documents and establishing copyright archives. Third, when using works under statutory licenses, adhere to non-commercial principles, fulfill duty-of-care obligations, respect authors' moral rights, and provide reasonable compensation.

### 5.3 Enhance Systematic and Scientific Copyright Management Through Institutional Development

Facing copyright issues in preservation, university libraries need institutional innovation to adapt to changes. First, establish copyright clearance mechanisms to address inherent copyright issues during collection, such as cooperating with authors to negotiate solutions or using collective management systems to batch-resolve digitization copyright issues. Second, strengthen copyright risk assessment, comprehensively reviewing digital collection development from a copyright protection perspective, conducting risk assessments, addressing identified problems, and forming stable response mechanisms. Third, establish systematic management approaches to anticipate copyright issues in new system construction and technology application, requiring libraries to master both domestic and international copyright protection status and legislative/judicial trends, and understand technological developments to grasp the legal attributes of technical behaviors.

The core issue in university library digital resource preservation is copyright ownership, which is also key to national digital library and preservation construction. Solving this requires comprehensive use of legal, commercial, and institutional approaches, clarifying problem types and scope for targeted research. As essential digital resource users and producers in the network environment, university libraries must enhance preservation awareness and conduct substantive work to avoid marginalization in digital preservation. This study, starting from domestic and international research, analyzes university library digital preservation behaviors, identifies copyright risks, and proposes countermeasures, providing beneficial exploration for related research and practice.

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### **Research on the Copyright of Long-term Preservation of Digital Resources in University Libraries**

**Zhu Rulong**

**Abstract:** [Purpose/significance] This paper studies the copyright issues in the process of long-term preservation of digital resources in university libraries, analyzes the subject, object and behavior of long-term preservation of digital resources from a legal perspective, clarifies copyright risks and proposes countermeasures. [Method/process] This paper comprehensively analyzes research literature and legislative and judicial cases; deconstructs the subject, object and behavior of long-term preservation of digital resources in university libraries through legal analysis. [Result/conclusion] The long-term preservation of digital resources in university libraries has great copyright risks in digital copying, technology application, new resource construction and hyperlink services; it can deal with copyright issues through legal channels, contract authorization and institutional innovation.

**Keywords:** university libraries; digital resources; long-term preservation; copyright

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