

Research on Optimization Strategies for Copyright Protection in Cross border Network Communication

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Abstract

To address the inadequacy of copyright protection mechanisms in cross-border online dissemination, this study analyzes key obstacles within the existing legal framework, technological oversight, law enforcement collaboration, and rights protection by stakeholders, thereby constructing a multidimensional optimization pathway. The research concludes that systemic resilience in copyright protection should be rebuilt by refining legal provisions, advancing technological identification capabilities, strengthening enforcement coordination mechanisms, and enhancing stakeholder capacity.

Keywords

Cross-border dissemination; Copyright protection; Legal adaptation; Technological oversight.

1. Introduction

The rapid expansion of cross-border online dissemination has disrupted the territorial boundaries of traditional copyright protection, giving rise to complex and evolving patterns of rights transfer and infringement. Against the backdrop of accelerated global digital content circulation and fragmented platform governance mechanisms, the existing copyright protection system faces multiple challenges—including technological circumvention, jurisdictional conflicts, and stakeholder vulnerability—demanding systemic reconstruction across regulatory coordination, technological governance, and rights safeguarding.

2. Current Situation of Copyright Protection in Cross-border Online Communication

China has established a foundational framework for protecting copyright in cross-border online transmission. Domestic legislation has defined the basic scope of online transmission rights, while accession to core international copyright treaties has achieved preliminary alignment of protection standards. Concurrently, administrative and judicial bodies have developed preliminary coordination: the former focuses on routine oversight of cross-border transmission channels, while the latter refines rules for determining rights boundaries through landmark rulings. Furthermore, rights holders have begun proactively implementing foundational protective measures, such as clarifying ownership through copyright registration or leveraging industry associations to establish cross-border rights communication platforms [1]. However, with the rise of new dissemination formats like cross-border live streaming and short videos, the existing protection framework is increasingly revealing the need for refined adaptation. Particularly in specific areas like rights transfer and licensing, more operational coordination

mechanisms remain underdeveloped, providing concrete directions for further refining the protection system.

3. Difficulties Faced By China in Copyright Protection for Cross-border Online Communication

3.1. Inadequate Adaptability of the Legal System

Existing domestic legislation provides vague definitions for copyright details in new transmission scenarios like cross-border live streaming and short videos. While it establishes the basic scope of online transmission rights, it lacks clear articulation on specific issues such as the boundaries of derivative works and the legal nature of temporary caching activities [2]. These very details are precisely the most contentious aspects in cross-border transmission, making it difficult for both rights holders and transmission platforms to accurately assess the legality of actions. The domestic implementation of international copyright treaties is also incomplete. Procedural provisions concerning cross-border digital content licensing are only mentioned in principle within relevant laws, without accompanying implementation rules clarifying operational procedures. In judicial practice, courts apply treaty provisions inconsistently—sometimes prioritizing domestic law, other times directly invoking treaties—further amplifying legal uncertainty. More critically, mechanisms for resolving conflicts in cross-border copyright disputes are absent. Existing legal frameworks offer no clear guidance on jurisdictional boundaries across different legal jurisdictions or differing standards for determining rights ownership.

3.2. Lagging Technological Regulatory Measures

The content recognition technology relied upon by existing regulatory systems remains rooted in traditional models. Its accuracy significantly declines when identifying multilingual, cross-border disseminated content, particularly when processing short video clips of incomplete works. Feature extraction algorithms struggle to capture core copyright identifiers, allowing substantial infringing content to evade initial screening. However, new content formats continuously emerge in cross-border transmission. The rapid proliferation of AI-generated content has rendered existing recognition models reactive. These models lack accumulated feature databases for generated content and cannot update recognition rules in real time, making it difficult to distinguish between legitimate borrowing and infringing replication. Cross-border data transmission commonly employs encryption technologies, preventing regulatory tools from effectively parsing transmitted content. This hinders both tracking the complete flow of infringing data and locating its source [3]. Additionally, inconsistent technical standards across platforms and incompatible data interfaces prevent regulatory systems from achieving cross-platform data linkage, creating oversight blind spots. When massive volumes of cross-border content are transmitted simultaneously, existing systems' processing capacity proves inadequate. Response delays result in infringing content being flagged only after dissemination is complete, significantly diminishing regulatory effectiveness.

3.3. Inefficient Cross-Border Law Enforcement

When conducting cross-border investigations, law enforcement agencies must escalate requests through multiple hierarchical levels to the highest competent authority before engaging with the requested country via diplomatic channels. This multi-tiered approval process significantly prolongs response cycles. However, cross-border infringing content spreads extremely rapidly. By the time approvals are finalized, evidence may have been tampered with or deleted, resulting in missed opportunities for evidence collection. At the same time, judicial authorities apply inconsistent standards when reviewing evidence from abroad. Due to differences in evidence-gathering rules across countries, even evidence obtained

through cooperation is often rejected due to procedural defects. Cross-border transmission of electronic evidence is further complicated by data security regulations, adding to authentication difficulties. Furthermore, cross-border platforms lack clear collaborative obligations, often delaying or refusing data provision under the pretext of complying with local laws, leaving enforcement actions at a disadvantage. Compounding this complexity, differing jurisdictional boundaries across legal jurisdictions lead to buck-passing among enforcement agencies when infringements span multiple countries. The absence of cross-departmental data-sharing mechanisms further hinders timely exchange of investigative information, creating a vicious cycle of diminished enforcement efficiency.

3.4. Weak Protection Capabilities of Rights Holders

Most individual rights holders possess vague understanding of the specific procedures and rules for cross-border copyright protection. They are unclear about how to complete rights registration in target countries and unaware of complaint channels following infringement incidents, often finding themselves at a disadvantage when discovering rights violations. While small and medium-sized enterprises (SMEs) possess basic awareness of protection, they lack specialized legal teams. They struggle to accurately identify details in cross-border dissemination—such as the boundaries of “fair use” or the integrity of authorization chains—and find it difficult to anticipate differences in legal application across jurisdictions. Additionally, both individuals and SMEs face financial constraints. The costs associated with cross-border rights enforcement—including evidence preservation, overseas representation, and procedural participation—far exceed their capacity, leading most to abandon enforcement efforts [4]. Simultaneously, their channels for obtaining cross-border infringement information are limited, often relying solely on platforms' proactive notifications. They struggle to monitor infringing content in real time on overseas websites and social media platforms. Industry associations also offer limited service support for cross-border protection, with guidance typically confined to basic legal education rather than targeted practical assistance. This further weakens rights holders' capacity for protection.

4. Optimization Strategies for Copyright Protection in Cross-border Online Communication

4.1. Refining the Cross-Border Copyright Legal Adaptation System

Legislative bodies should address emerging scenarios such as cross-border live-streamed sales and secondary creation of short videos by clarifying copyright ownership and licensing boundaries. Specific circumstances requiring permission from original rights holders for secondary creation should be defined, along with legal standards for recognizing temporary caching activities, thereby avoiding disputes caused by ambiguous language. Judicial authorities should collaborate with intellectual property regulators to issue implementing rules for domestic application of international copyright treaties. This would clarify operational procedures for provisions in the Berne Convention and WIPO Copyright Treaty concerning digital content licensing and limitations on rights, standardizing court interpretations of treaty provisions. Relevant departments should establish a cross-border copyright legal conflict coordination mechanism and collaborate with major trading partners to develop unified jurisdictional allocation guidelines. Adopting the core principle of “residence of rights holder + primary dissemination location of infringing content” will reduce jurisdictional disputes. Building on this foundation, efforts should also advance the formulation of evidence recognition rules for cross-border copyright disputes, clarifying simplified notarization and authentication procedures for foreign electronic evidence to lower the burden of proof for rights holders.

4.2. Strengthening Technological Regulatory Innovation

Regulatory bodies should collaborate with university laboratories to optimize fragmented content recognition technologies. For commonly edited segments in cross-border dissemination, develop combined comparison algorithms using “key frame sequences + audio spectrum” to address misjudgments caused by single-feature recognition. Technology developers must deploy edge computing modules at cross-border network nodes, shifting partial recognition tasks to content transmission sources to reduce centralized processing delays [5]. Industry regulators should promote a unified copyright verification API interface, requiring cross-border platforms to integrate this interface for real-time authorization checks, thereby avoiding redundant recognition systems across platforms. However, technological iteration alone is insufficient. Relevant departments must collaborate with platforms to establish compliant decryption rules for encrypted content, clarifying decryption procedures and permission boundaries during infringement investigations. Technical teams can integrate cross-border dissemination data with infringement case characteristics to train intelligent early-warning models. By analyzing metrics such as content propagation paths and forwarding frequencies, these models can proactively identify potential infringements and issue alerts, forming a full-chain technical oversight support system encompassing “front-end identification, mid-end verification, and back-end early warning.”

4.3. Strengthen Cross-Border Law Enforcement and Regulatory Collaboration Mechanisms

Law enforcement agencies should establish tiered approval mechanisms, creating fast-track channels for high-incidence scenarios like cross-border short video infringement and live-stream piracy. Grassroots enforcement units can directly liaise with provincial authorities after verifying preliminary evidence, bypassing hierarchical reporting to the highest level to reduce response times. Concurrently, regulatory bodies should collaborate with major trading partners to establish mutual recognition platforms for electronic evidence, defining standardized formats and verification procedures for overseas evidence collection to prevent invalidation due to jurisdictional differences. For encrypted infringing data, bilateral data retrieval agreements may be signed, restricting decryption access solely for law enforcement purposes. Furthermore, industry regulators should issue detailed rules clarifying the collaborative responsibilities of cross-border platforms. These platforms must retain records of infringing content dissemination for at least 90 days and submit requested data within 72 hours of receiving assistance requests. Failure to comply within the deadline will result in fines equivalent to 1% of their annual revenue. To resolve jurisdictional disputes, enforcement agencies may adopt a joint jurisdiction principle based on “the location of first upload + primary dissemination location.” Investigations would be jointly led by authorities from both jurisdictions, supported by a cross-border enforcement information sharing WeChat group for real-time case progress updates, preventing buck-passing due to information delays.

4.4. Enhancing Rights Holders' Awareness and Capabilities

Industry associations may collaborate with cross-border copyright agencies to conduct quarterly practical training sessions, each focusing on a specific scenario—such as copyright registration for cross-border short videos in Southeast Asia or infringement complaint procedures on social platforms in Europe and the Americas. Sessions should include live demonstrations of material uploads and form completion, supplemented by step-by-step manuals annotated with case studies. Government intellectual property departments should spearhead the establishment of public service consultation platforms, engaging specialized international legal teams to provide free one-on-one guidance. This should prioritize addressing practical issues like determining fair use boundaries and verifying the integrity of

authorization chains. Financial institutions can introduce small-sum cross-border rights protection insurance with tiered premiums based on case types, covering foundational costs like evidence notarization and initial consultations with overseas law firms. Additionally, industry associations should establish infringement alert groups connected to cross-border platform data ports, delivering real-time warnings on infringing accounts and dissemination scope. They can also compile case studies of typical enforcement actions across countries, distilling reusable response techniques to help rights holders avoid procedural pitfalls.

5. Conclusion

The landscape of cross-border online dissemination continues to evolve, revealing systemic shortcomings in the current copyright protection framework regarding legal adaptation, technological oversight, enforcement coordination, and rights holders' capabilities. While targeted optimization pathways have been proposed, implementation remains constrained by challenges in international legal harmonization and platform governance diversity. Future efforts should deepen multilateral cooperation mechanisms, advance cross-border rule integration, and promote the synergistic evolution of technology and institutions to build a more inclusive and sustainable copyright protection ecosystem.

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