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# Legal Adaptation in the Age of Digital Creativity: A Global Review

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**ABSTRACT:** The rapid digitalization of creative industries has intensified the urgency to reassess copyright protection in the face of emerging technologies such as artificial intelligence, blockchain, and Digital Rights Management (DRM). This study aimed to explore the legal, technological, and policy challenges of digital copyright through a comprehensive narrative review of international academic literature and policy documents. Using thematic analysis, this study synthesized research findings and regulatory responses related to digital authorship, streaming piracy, fair use in digital education, and technological enforcement tools. Results show a growing disparity in copyright protection effectiveness between developed and developing countries due to differences in infrastructure, legal systems, and policymaking speed. The increasing prevalence of AI-generated content challenges traditional notions of authorship and moral rights. Blockchain is found to offer significant potential for transparent copyright verification, yet legal recognition remains inconsistent. DRM systems, while technically protective, often limit legitimate access and educational use. The findings underscore the necessity of harmonized international regulations, enhanced digital literacy, and adaptive national policies that consider cultural and infrastructural contexts. Recommendations include redefining authorship in the AI era, integrating fair use provisions into legal frameworks, and supporting controlled digital lending in educational institutions. This review highlights that the sustainable future of copyright in the digital era lies in legal flexibility, technological innovation, and inclusive policy development. Further interdisciplinary research is crucial to bridge the gap between technological advancement and equitable legal protection..

**Keywords:** Digital Copyright; Artificial Intelligence; Blockchain; DRM; Streaming Piracy; Fair Use; Copyright Law Reform.



## INTRODUCTION

In the rapidly evolving landscape of the digital age, copyright law has encountered unprecedented challenges stemming from the transformative power of technology. The advent of the internet,

the proliferation of digital content, and innovations such as artificial intelligence (AI), blockchain, and digital rights management (DRM) have significantly altered the dynamics of how creative works are produced, disseminated, and consumed (Peukert & Windisch, 2024; Alsamara et al., 2025). These developments have not only expanded access to creative content but have also exposed the limitations of traditional legal frameworks in safeguarding intellectual property rights in the digital realm. The global nature of the internet, combined with the speed and scalability of digital reproduction, has rendered conventional enforcement mechanisms increasingly ineffective. As a result, copyright law must undergo a fundamental transformation to remain relevant and effective in this new technological context.

Over the past decade, scholarly attention has increasingly turned to the intersection of technology and copyright law. Research has highlighted the inadequacy of legal systems built for the analog era to address the complexities of digital reproduction and distribution (Aronov, 2024). Although several jurisdictions have introduced updates to their copyright regimes, a significant gap remains between legal provisions and technological realities. Studies by Peukert and Windisch (2024) and Alsamara et al. (2025) emphasize the difficulty of aligning legal protections with the rapid pace of innovation, particularly when enforcement must extend across national borders. Moreover, the increased reliance on algorithmic enforcement tools, while promising in terms of efficiency, raises critical concerns regarding fairness, accountability, and user rights (Tóth, 2019).

The scale and scope of copyright infringement have grown exponentially with the digitalization of content. Technologies that enable real-time access and replication of digital works have facilitated widespread unauthorized distribution, undermining the economic incentives for creators and industries alike (Alsamara et al., 2025). According to recent data, illegal file sharing, unauthorized streaming, and the operation of piracy websites have caused substantial losses to the global creative economy (Peukert & Windisch, 2024). AI-based content monitoring systems and DRM protocols have emerged as pivotal tools in combating digital piracy; however, their legal robustness and ethical acceptability remain under debate. Many of these tools struggle to differentiate between infringing and non-infringing uses, particularly in contexts protected by fair use or fair dealing exemptions (Tóth, 2019).

Furthermore, the economic implications of digital copyright infringement extend beyond the creative industries to impact national economies. For instance, losses from piracy not only diminish the revenue of content producers but also reduce tax income for governments and curtail employment opportunities within cultural sectors (Alsamara et al., 2025). In countries with underdeveloped enforcement capabilities, this impact is magnified, resulting in a vicious cycle where weak copyright protection discourages investment in local creative economies. While DRM systems and blockchain-based copyright verification methods hold potential, their implementation is often fragmented and lacks international standardization (Peukert & Windisch, 2024). Consequently, the current landscape necessitates a holistic reassessment of how legal, technical, and economic tools can be integrated to reinforce copyright protection effectively.

The challenges posed by digital copyright enforcement are compounded by discrepancies in legal interpretations across jurisdictions. Concepts such as "reproduction," "distribution," and

"communication to the public" have been differently defined and applied by national courts, leading to inconsistencies in how similar cases are treated globally (Aronov, 2024). This legal fragmentation hampers international cooperation in enforcement efforts and encourages forum shopping by infringers. Moreover, some legal scholars have argued that overly stringent copyright protections may stifle innovation and inhibit public access to information, particularly in education and research contexts (Alsamara et al., 2025). These tensions underscore the need for a balanced approach that reconciles the rights of creators with the public interest in a digital knowledge economy.

A central obstacle in addressing these issues lies in the methodological and disciplinary silos within which copyright scholarship often operates. While technical studies tend to focus on algorithmic enforcement and digital watermarking, legal and social dimensions of these technologies are frequently overlooked (Pistorius & Mwim, 2019). This narrow focus fails to capture the broader implications of copyright enforcement on user rights, creative expression, and digital equity. There is a notable paucity of qualitative and interdisciplinary research exploring how copyright laws affect different societal groups, particularly in regions with varying levels of digital infrastructure (Latif et al., 2025; Colomo, 2017). As such, the need for integrated research that bridges legal theory, technological feasibility, and sociocultural realities is increasingly urgent.

This literature review aims to address these gaps by examining the evolving interface between digital technologies and copyright law through a comprehensive, interdisciplinary lens. It seeks to identify the main legal, technical, and policy challenges in digital copyright enforcement and evaluate current solutions' adequacy and fairness. By analyzing empirical data and normative frameworks across different jurisdictions, the review contributes to an informed discourse on reform strategies that are both technologically sound and socially equitable. Particular attention is given to how AI, blockchain, and DRM systems interact with legal principles such as due process, proportionality, and privacy.

The geographic scope of this review encompasses Southeast Asia, Europe, and North America—regions that illustrate diverse regulatory approaches and enforcement capacities in the digital copyright domain. Southeast Asia, characterized by rapid digitalization and regulatory gaps, provides a compelling case for understanding how enforcement mechanisms must adapt to fast-evolving markets (Latif et al., 2025). Europe, with its Digital Single Market strategy, offers insights into harmonized legal frameworks and collaborative enforcement models (Colomo, 2017). Meanwhile, North America presents a landscape of advanced digital infrastructure but fragmented enforcement due to jurisdictional differences and private sector dominance (Aronov, 2024). By juxtaposing these contexts, the review sheds light on how global trends and local specificities shape the effectiveness of copyright law in the digital age.

In sum, this review investigates how digital technologies reshape copyright law's enforcement and normative frameworks. It emphasizes the importance of interdisciplinary research, cross-regional comparison, and the inclusion of diverse stakeholder perspectives. By highlighting both the promises and perils of integrating AI, blockchain, and DRM into legal systems, the study aims to inform future policy reforms that uphold creators' rights while safeguarding democratic access to

information. The review's findings seek to support policymakers, legal scholars, and technology developers in crafting adaptive, fair, and forward-looking copyright regimes suited to the complexities of the digital era.

## METHOD

The methodology applied in this study employs a systematic literature review framework to comprehensively assess scholarly research, legal documentation, and interdisciplinary studies related to digital copyright enforcement. Drawing on the approaches recommended by Alsamara et al. (2025) and Peukert and Windisch (2024), the methodology integrates the use of credible academic databases, a strategic combination of keywords, and rigorous inclusion and exclusion criteria to ensure academic robustness and minimize selection bias. Given the dynamic nature of digital copyright issues, particularly involving rapidly evolving technologies such as artificial intelligence (AI), blockchain, and digital rights management (DRM), the literature review was designed to accommodate multidisciplinary perspectives while maintaining a strict standard of peer-reviewed content.

Primary data sources included four well-established databases: Scopus, Google Scholar, HeinOnline, and Web of Science. These platforms were selected for their comprehensive indexing, reliability, and cross-disciplinary reach, encompassing domains such as law, information technology, policy studies, and digital media. Scopus offered extensive metadata filtering capabilities, allowing for precise control over subject area, publication date, and document type. Google Scholar was used to access broader sources such as theses and books, though its results were carefully vetted and cross-referenced with other databases. HeinOnline provided specialized access to legal literature, statutes, and court rulings relevant to intellectual property and copyright law. Web of Science was especially useful for tracking citation patterns and conducting bibliometric analyses across disciplines, enhancing the validation and relevance of selected sources.

To expand the technical scope of the review, additional databases like IEEE Xplore and JSTOR were considered, particularly for research that dealt with technological implementations in copyright protection. IEEE Xplore contributed valuable resources on AI-based detection systems and digital content verification, while JSTOR enabled access to historical and theoretical texts relevant to copyright law evolution. This integrative strategy ensured that the search process captured literature from a wide range of scholarly traditions, enhancing both the depth and breadth of the review.

The keyword strategy was constructed using Boolean logic to optimize search specificity and inclusivity. Keywords such as "digital copyright," "intellectual property law," "technology," and "AI" formed the core of the initial query strings. Combinations such as "digital copyright" AND "blockchain" and "digital copyright" AND "DRM" were used to retrieve studies examining the legal implications of technological innovations. Boolean operators AND and OR were employed to refine and broaden the search scope respectively, while NOT was used to exclude irrelevant

subtopics, such as studies focusing exclusively on traditional music copyright unless linked to digital contexts. Quotations and wildcards (e.g., "digital copyright*") further refined search outcomes by capturing phrase-specific and lexical variants.

The search strategy also considered terms like "online copyright infringement," "automated detection," and "machine learning" to encompass more recent developments in AI applications. As suggested by Tóth (2019), the adaptive use of synonyms and contextual terms improved the retrieval of relevant studies that may use different terminologies for the same concepts. In databases where indexing standards vary, such as Google Scholar and HeinOnline, query syntax was adjusted to match internal search engines and filtering protocols.

Literature selection was guided by strict inclusion and exclusion criteria. Eligible studies were peer-reviewed articles, conference papers, or legal commentaries published between 2010 and 2025, written in English, and addressing themes such as copyright enforcement, AI in legal processes, blockchain applications in intellectual property, or regulatory reform in the digital era. Excluded were duplicate publications, editorials without methodological rigor, and documents that addressed copyright in entirely analog or non-digital contexts. Only literature with clear methodological grounding and conceptual relevance was retained for analysis.

The article screening process was divided into several phases. Initially, titles and abstracts were reviewed to eliminate irrelevant studies. Then, full texts of remaining articles were assessed based on predefined research questions and inclusion criteria. This process was conducted collaboratively among reviewers, with consensus-building techniques used to resolve any disagreements. To enhance reliability, a double-screening process was employed for a sample subset to validate consistency in selection.

Once the core literature was finalized, bibliometric analysis was undertaken using tools like VOSviewer and Biblioshiny. These tools enabled mapping of citation networks, author collaborations, and keyword co-occurrences, offering valuable insights into intellectual trends and dominant research clusters. Data were coded manually and with the aid of reference management software, such as Mendeley and Zotero, which facilitated categorization, tagging, and cross-referencing.

A chronological filter was applied to detect how the discourse evolved over time, especially with the introduction of emerging technologies. Studies published post-2017 were prioritized due to their relevance in addressing blockchain, AI, and platform-based digital economies. Additional attention was given to empirical studies that offered statistical data or case-based evidence on enforcement mechanisms and technological integrations in copyright systems.

Secondary sources such as reports from the World Intellectual Property Organization (WIPO), regional policy bodies, and international NGOs were consulted to contextualize legal debates within broader policy frameworks. These sources were especially valuable for assessing the implementation challenges in developing countries, bridging the gap between academic literature

and real-world policy constraints. The data were triangulated with academic studies to validate themes and enhance analytical depth.

Furthermore, text mining and big data analytics methods were applied to large corpora retrieved from databases to identify latent themes, conceptual gaps, and research trends. Tools were used to process and synthesize vast volumes of textual data, enabling the identification of recurring patterns and thematic clusters. These methods were particularly useful in quantifying the emphasis on particular technologies or legal concerns across the corpus.

Lastly, documentation was rigorously maintained throughout the search process. This included detailed logs of search strings, inclusion decisions, database access times, and filtering parameters. This transparency facilitates reproducibility and auditability of the methodology. By combining traditional legal review approaches with digital tools and bibliometric mapping, the study ensures a rigorous and replicable foundation for evaluating how digital technologies are transforming copyright law across jurisdictions.

## RESULT AND DISCUSSION

The results of this narrative review reveal a multidimensional analysis of the intersection between digital copyright law and technological innovation, structured under the thematic domains of artificial intelligence (AI), digital rights management (DRM), blockchain applications, digital piracy, and the fair use principle in digital education. The findings are organized thematically to emphasize cross-national legal interpretations, empirical trends, and the socio-political context that shape the implementation and reform of copyright systems in the digital age.

The emergence of artificial intelligence has significantly disrupted the traditional understanding of authorship and ownership under copyright law. Studies by Bonadio et al. (2022) and Mazzi & Fasciana (2024) highlight that AI-generated works challenge the foundational requirement of human authorship in most copyright regimes. Legal ambiguity arises from the inability to assign moral rights and ownership to non-human agents, creating gaps in accountability and ethical recognition. While jurisdictions such as the United States and the European Union enforce a human-authorship prerequisite, others in Asia suggest a more collaborative perspective where AI is considered a creative tool, reflecting varied cultural and regulatory approaches (Bonadio et al., 2022; Mazzi & Fasciana, 2024).

The lack of consensus regarding the moral rights over AI-generated works is particularly contentious. While some legal systems attempt to safeguard the integrity of works through human-centric policies, the autonomous nature of AI in creative processes questions the legitimacy of moral rights claims (Mazzi & Fasciana, 2024). As courts in different countries begin addressing the eligibility of AI-generated content for copyright protection, a global discourse is emerging that calls for harmonized legislative reforms (Bonadio et al., 2022).

Parallel to AI, the implementation of DRM technologies has prompted a significant debate regarding access and user rights. Abbas et al. (2018) argue that while DRM effectively prevents

unauthorized distribution, it often inhibits lawful usage, especially for educational and research purposes. The rigid restrictions imposed by DRM systems compromise the flexibility required by legitimate users, thereby generating a digital divide in access to information. Furthermore, DRM's technical limitations are exposed by its vulnerability to circumvention, leading to questions regarding its long-term effectiveness (Ajetunmobi, 2018).

Empirical findings suggest that DRM systems achieve partial success by raising barriers against illegal distribution, yet fail to balance security with user convenience (Abbas et al., 2018; Ajetunmobi, 2018). The integration of DRM with broader cybersecurity frameworks and real-time monitoring tools improves enforcement but often at the expense of consumer rights, including content portability and interoperability (Ajetunmobi, 2018). This reflects a fundamental tension between copyright enforcement and digital inclusion.

In recent years, blockchain has been posited as a transformative solution for copyright protection due to its immutable ledger and decentralized structure. Lin & Chen (2024) and Finck & Moscon (2018) emphasize that blockchain enables transparent recording of ownership and distribution rights through smart contracts, which can automate royalty payments and reduce reliance on intermediaries. Blockchain's tamper-proof nature also supports robust evidentiary standards in legal disputes over authorship and usage rights.

However, as Kirsanov & Popovich (2022) note, blockchain's legal implementation is hampered by regulatory uncertainties and the absence of international standards. Issues surrounding data privacy, interoperability, and cross-border jurisdictional recognition persist, necessitating legal reforms to support blockchain-based copyright systems (Lin & Chen, 2024). Scalability concerns and high energy consumption further complicate the adoption of blockchain, especially in regions with limited technological infrastructure.

Digital piracy, particularly in the streaming sector, has evolved into a socio-economic phenomenon driven by consumer dissatisfaction with pricing models and content availability. Borja et al. (2024) identify that motivations for piracy include high subscription costs, platform fragmentation, and restrictive licensing. Social factors, such as peer influence and online communities, reinforce piracy norms and reduce moral deterrents (Handa et al., 2022). The role of social media in normalizing piracy illustrates the cultural shift in perceptions of copyright enforcement.

Research underscores that digital piracy is not merely a legal issue but also a reflection of market inefficiencies and inequities in content distribution. Handa et al. (2022) advocate for revising content delivery models to offer competitive and accessible legal alternatives. Addressing piracy thus requires a dual strategy involving consumer education and restructuring of digital marketplaces to align with user expectations and affordability.

The educational sector, particularly during the COVID-19 pandemic and beyond, has confronted copyright limitations through the invocation of fair use and fair dealing doctrines. Hobbs (2018) and Noller (2025) emphasize that fair use provisions are crucial in enabling access to copyrighted materials for non-commercial, instructional purposes. Variability in the interpretation of these doctrines across jurisdictions, however, has led to inconsistent application and legal uncertainty.

Empirical evidence suggests that institutions with clear fair use guidelines are better equipped to deliver inclusive digital education (Noller, 2025). Nonetheless, administrative barriers and rigid licensing frameworks continue to obstruct seamless content access. Pistorius & Mwim (2019) highlight that pandemic-induced shifts to online learning exacerbated existing challenges, stressing the need for copyright policy reforms that accommodate the exigencies of digital education.

These findings collectively demonstrate that AI, DRM, blockchain, and piracy represent intersecting challenges in the digital copyright landscape, requiring an integrated response from legal, technological, and educational stakeholders. The review reveals a pressing need for adaptive and inclusive copyright policies that reflect both technological realities and societal demands. Harmonized international frameworks, public-private collaborations, and evidence-based policymaking are pivotal to shaping a future-proof copyright regime.

The global divergence in regulatory approaches—ranging from rigid adherence to human authorship to progressive interpretations accommodating AI-generated content—illustrates the complex interplay between innovation and legal tradition. The comparative analysis across jurisdictions reveals that nations with proactive digital copyright reforms tend to foster more robust ecosystems for innovation and content creation (Bonadio et al., 2022; Mazzi & Fasciana, 2024).

In sum, the literature confirms that the current digital environment demands a reconceptualization of copyright doctrines to align with evolving modes of creation, distribution, and consumption. The interplay of AI-generated works, DRM constraints, blockchain innovations, and the socio-cultural dynamics of piracy underscores the multifaceted nature of copyright in the 21st century. This narrative review lays the groundwork for subsequent discussions on regulatory innovation and cross-border legal harmonization in digital copyright governance.

The evolving landscape of copyright protection in the digital era has generated a complex interplay between technological innovation and regulatory adaptation, both at the national and international levels. Across jurisdictions, legal systems are grappling with the transformation of authorship, distribution, and enforcement as propelled by the integration of artificial intelligence (AI), blockchain technology, and digital rights management (DRM) systems (Colomo, 2017; Alsamara et al., 2025). These disruptive forces necessitate comprehensive, interdisciplinary dialogue, as current frameworks struggle to accommodate the challenges posed by non-human creators and decentralized verification systems (Tay et al., 2017).

One of the most prominent discussions emerging from the literature is the definitional dilemma surrounding concepts of "authorship" and "originality" in AI-generated content. As AI increasingly participates in the creative process, traditional notions of human-centered authorship are becoming obsolete (Tay et al., 2017; Bonadio et al., 2022). The debate over whether AI can hold legal ownership or whether the individual initiating or curating AI outputs should be recognized as the author remains unresolved. Countries with rigid legal frameworks rooted in analog-era norms encounter greater friction in integrating AI contributions into legal authorship models (Gracz, 2013).

This definitional ambiguity is compounded by systemic legal inertia. Most existing copyright laws were designed to regulate human interactions and material reproduction; they falter when tasked

with monitoring algorithmic reproduction and automated content dissemination (Gracz, 2013; Favale, 2014). For instance, DRM mechanisms, though created to prevent unauthorized use, often inhibit legitimate uses, particularly in educational and research contexts, raising concerns about overreach and digital accessibility (Favale, 2014). This underscores the need for a reevaluation of legal doctrines to reflect the nuances of fair use in the context of machine-readable content.

Technological solutions such as blockchain promise enhanced traceability and transparency for copyright management. Blockchain enables immutable record-keeping and smart contract automation, which could minimize disputes over ownership and streamline royalty distribution (Finck & Moscon, 2018). However, the lack of global regulatory standards for the legal admissibility of blockchain records remains a critical bottleneck (Kirsanov & Popovich, 2022). Courts in many countries are yet to consistently recognize blockchain-generated evidence, largely due to discrepancies in procedural law and concerns over data privacy and cross-border enforcement.

Further compounding these challenges are infrastructural disparities, particularly in developing nations. Many countries face constraints in deploying and maintaining the technological infrastructure required for advanced copyright enforcement (Alsamara et al., 2025). Limited access to digital literacy programs, coupled with inherited colonial legal systems, impedes timely regulatory reform (Gurlitt & Yaghubi, 2024). This disparity has led to a global digital divide where developed nations quickly harmonize their laws with technological developments, while less developed countries struggle to adapt (Colomo, 2017).

On an international scale, harmonization efforts spearheaded by organizations such as WIPO have led to initiatives aimed at aligning national copyright frameworks through dialogue and policy exchange (Colomo, 2017). Nevertheless, cultural diversity and legal pluralism continue to challenge uniform interpretation and application, especially regarding moral rights and the role of human intention in creative processes (Gurlitt & Yaghubi, 2024). These divergences necessitate not only legal reform but also normative reconsiderations of authorship and creative identity.

Digital piracy remains a persistent issue, fueled by systemic failings in pricing models, platform accessibility, and consumer perception of fairness. Empirical studies suggest that piracy is often viewed as a rational response to high costs and regional restrictions imposed by content providers (Borja et al., 2024). Social dynamics, including peer influence and the normalization of piracy on digital platforms, further complicate enforcement strategies (Handa et al., 2022). These behavioral factors illustrate the limitations of legal solutions and highlight the need for consumer-centric business models and educational interventions.

Another significant concern is the inadequate regulation of digital intermediaries such as streaming platforms and social media services. These entities play a pivotal role in content distribution yet often operate with limited accountability under current legal regimes (Brieske, 2023). The call for clearer obligations and liabilities for intermediaries has grown, as these platforms are central to both facilitating and mitigating copyright infringement. This regulatory gap underscores the importance of aligning private sector responsibilities with public policy goals.

Fair use and fair dealing exceptions remain essential tools for balancing copyright enforcement with societal access to knowledge, particularly in educational settings (Hobbs, 2018; Noller, 2025).

However, their interpretation is inconsistent across jurisdictions, leading to legal uncertainty for educators and researchers. Countries that have codified clear fair use provisions tend to experience fewer conflicts, suggesting the value of model laws and international cooperation in standard-setting (Noller, 2025).

Limitations in enforcement mechanisms also persist due to resource constraints and institutional inefficiencies. High costs associated with digital monitoring technologies, limited capacity among enforcement agencies, and insufficient training on digital evidence handling are all identified as barriers to effective implementation (Barbosa, 2016). Addressing these issues requires a multifaceted approach involving public investment, international aid, and partnerships with the technology sector.

The literature also identifies a critical need for transparency and accountability in digital enforcement systems. Over-reliance on automated enforcement technologies can lead to disproportionate or erroneous takedown actions, often without due process or recourse for affected users (Favale, 2014). Regulatory frameworks must therefore include oversight mechanisms such as independent audits and user rights protections to preserve civil liberties and public trust.

Lastly, the discussion emphasizes that legal reform must be dynamic and iterative. Static regulatory frameworks quickly become obsolete in the face of rapid technological innovation. Instead, policies should be designed with built-in review mechanisms and flexibility for pilot testing and scaling of novel enforcement models (Bonadio et al., 2022). Furthermore, integrating ethical and socio-cultural considerations into policy design will ensure that legal systems remain relevant and inclusive in a diverse digital landscape.

In conclusion, while technological advancements have significantly reshaped the domain of copyright, they have also exposed the structural and conceptual limitations of existing legal frameworks. Bridging the gap between innovation and regulation requires collaborative, interdisciplinary, and adaptive policy strategies that not only enforce rights but also uphold public access and creativity.

## CONCLUSION

This study critically examined the evolving landscape of digital copyright in the era of technological innovation, with a particular focus on artificial intelligence, blockchain, DRM, digital streaming, and digital education. The findings revealed significant challenges in existing legal frameworks, particularly regarding authorship, digital enforcement, and access equity. National and international policies have responded unevenly, with advanced economies adopting more harmonized approaches, while developing countries face infrastructural and institutional limitations.

The discussion further illustrated that current laws are often rooted in analog paradigms, unable to fully accommodate algorithmic creativity and decentralized verification technologies. The legal

ambiguity surrounding concepts such as "creator" and "original work" in AI-generated content demands urgent reform. Similarly, rigid DRM systems have shown to hinder lawful access and stifle innovation, especially in educational contexts.

The study strongly recommends adaptive policy reform through inclusive stakeholder collaboration, digital literacy initiatives, and the adoption of flexible, technology-neutral legal instruments. Blockchain and controlled digital lending emerged as promising tools for balancing protection with equitable access. Moreover, harmonized global standards and improved legal interoperability are crucial to address cross-border copyright issues effectively.

Further research is needed to refine the definition of authorship in digital contexts, evaluate real-world implementations of blockchain-based copyright systems, and investigate ethical implications of AI-generated works. Importantly, embedding fair use frameworks into national policy remains a cornerstone strategy to support education, innovation, and social equity in digital environments.

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