

Copyright Law in the Age of Streaming: Protecting Content in a Borderless Digital Marketplace

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Abstract

This article explores the evolving challenges and opportunities surrounding copyright law in the age of streaming and digital content. The rise of streaming platforms has dramatically altered how content is created, distributed, and consumed, leading to a range of legal and enforcement issues that traditional copyright frameworks are struggling to address. The article delves into key concerns such as jurisdictional challenges, global licensing complexities, piracy, and unauthorized distribution, highlighting the difficulties faced by content creators in protecting their intellectual property in a borderless digital marketplace. It also examines the responsibilities of streaming platforms in balancing content accessibility with copyright protection and discusses the growing role of consumers in the ecosystem, especially regarding the balance between fair use and the protection of creators' rights. Furthermore, the article investigates emerging technological solutions, such as artificial intelligence and blockchain, and their potential to enhance copyright enforcement and streamline tracking of content ownership. The discussion concludes with an exploration of proposed reforms in copyright law aimed at addressing the challenges of digital distribution and creating a more equitable system for creators, platforms, and consumers. The article ultimately argues for a reimagining of copyright law that is adaptable to the digital age and can provide fair protection for all stakeholders involved in the content creation and consumption process.

Keywords: Copyright law, streaming platforms, digital content, intellectual property, AI, blockchain.

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1. Introduction

In recent years, the global entertainment landscape has undergone a profound transformation, largely driven by the rise of streaming platforms. These platforms have become the dominant mode of consuming audiovisual content, offering vast libraries of movies, music, TV shows, and other forms of media accessible at the click of a button. This surge in popularity has been fueled by factors such as the increasing availability of high-speed internet, the proliferation of smart devices, and the convenience that on-demand content provides to users worldwide. In turn, this has dramatically reshaped how content is distributed, consumed, and monetized. The streaming model has bypassed traditional distribution channels, such as theaters, cable networks, and physical media, offering global access to a wide range of content that transcends geographical boundaries. However, while this democratization of access to media has benefits for consumers, it has simultaneously presented significant

challenges for content creators and rights holders, particularly in the realm of copyright protection (Cooper & Klosek, 2023; Mahendra, 2023; Roberts, 2017).

The borderless nature of the digital marketplace has led to a host of complications in enforcing copyright laws. Traditional copyright systems, which were designed for physical media and localized markets, struggle to keep pace with the rapid and often chaotic nature of digital content distribution across multiple jurisdictions. One of the most significant issues is that content on streaming platforms is often accessible across various countries, each with its own copyright laws and enforcement mechanisms. This creates a legal grey area in which content can be exploited without clear accountability for rights holders. Moreover, the ease with which digital content can be copied, shared, and streamed online exacerbates concerns over unauthorized distribution and piracy. As streaming services operate across borders, they often face a fragmented legal environment that complicates the enforcement of copyright and intellectual property rights. In many cases, content uploaded to a platform can be distributed to millions of users within seconds, with little to no legal recourse available to the content creators, especially if the content is being accessed or shared in jurisdictions with less stringent copyright protections (Becker & Edson, 2018; Brieske & Peukert, 2022; Yuliati, 2023).

Another major challenge arises from the issue of international copyright enforcement. In traditional media, rights holders could rely on national laws to protect their work within specific territories. However, in the context of streaming platforms, content is often simultaneously accessible in multiple countries, each with its own legal framework. This creates a significant challenge for rights holders, who may find it difficult to navigate the myriad of different legal requirements and enforcement mechanisms across various jurisdictions. Additionally, many streaming platforms rely on complex licensing agreements with content producers to distribute their material globally, further complicating the legal landscape. These agreements often need to be tailored to specific regional markets, raising the issue of how content can be protected when distributed on a platform that operates internationally. The lack of a unified global standard for copyright protection in the digital space has created a situation in which rights holders may struggle to fully enforce their intellectual property rights, especially when it comes to cross-border violations (Ariyaratna, 2022).

This review article aims to explore the complex intersection of copyright law and the digital streaming age. The primary objective is to provide a comprehensive examination of the legal frameworks surrounding copyright protection in the context of streaming platforms. In doing so, this article will address the various legal challenges that have emerged as a result of the rapid growth of digital content distribution. These challenges include jurisdictional issues, the enforcement of intellectual property rights, and the difficulty of navigating complex international copyright laws. Additionally, this article will analyze current legal approaches, such as the implementation of the EU's Copyright Directive and the legal frameworks adopted in other major jurisdictions, to assess their effectiveness in addressing the evolving needs of content protection in the streaming age. By examining the legal landscape from both a global and local perspective, this review seeks to provide insights into the future of copyright law in an increasingly digital and interconnected world, where the traditional boundaries of national copyright protection are becoming increasingly difficult to uphold (Cooper & Klosek, 2023; Roy, 2022).

Ultimately, the purpose of this review is not only to highlight the existing challenges but also to propose potential solutions that can help to strengthen copyright protection in the digital era. With the continued rise of streaming platforms and the increasing consumption of digital media, it is essential that the legal frameworks surrounding copyright evolve to meet the needs of content creators, rights holders, and consumers alike. The review will provide a detailed analysis of the current state of copyright law as it pertains to streaming, offering recommendations for both policymakers and industry stakeholders to ensure that copyright protection is maintained in a fair, effective, and sustainable manner.

2. The Evolution of Copyright Law in the Digital Age

The evolution of copyright law has been shaped by a continuous need to adapt to emerging technologies and changing methods of content distribution. Traditionally, copyright law was rooted in a physical paradigm, where protection was granted to authors and creators of tangible works like books, music records, and films. Established in the early modern period, copyright laws were designed to incentivize creativity and ensure that creators had exclusive rights over their works. These rights allowed authors to control reproduction, distribution, and public performance of their works, often with a specified duration of

protection. As technological advancements introduced new forms of media, such as motion pictures and audio recordings, copyright laws evolved to encompass these emerging formats. The introduction of digital technologies, however, marked a dramatic shift in the landscape of content creation, distribution, and consumption, necessitating a complete rethinking of how copyright should function in this new environment (Cooper & Klosek, 2023; Mahendra, 2023; Roberts, 2017).

The onset of the digital age fundamentally transformed the way content is created and shared. In the early days of the internet, content was primarily distributed in physical formats, and digital formats were mostly confined to software and text-based content. With the advent of broadband internet, file-sharing platforms, and peer-to-peer networks, a new era of digital content distribution emerged. The widespread adoption of digital formats such as MP3s for music and digital video files for films further accelerated the shift towards an online, digital marketplace. However, the rapid digitization of content brought with it a host of issues related to copyright infringement, particularly as users gained unprecedented ability to replicate and distribute copyrighted works easily and at minimal cost. This led to a growing need for legal frameworks to address not just the creation and distribution of physical content but also the storage, sharing, and streaming of digital content across global platforms (Anugrah, 2023).

The rise of streaming services has since been one of the most significant developments in the digital content landscape. Platforms such as Netflix, YouTube, and Spotify have fundamentally changed how consumers access and interact with media. Unlike traditional distribution models, which required consumers to purchase or rent physical copies or access content via cable or broadcast, streaming allows users to access vast libraries of content instantaneously and from virtually anywhere with an internet connection. This shift to on-demand streaming has altered the economic dynamics of content distribution, creating new revenue models centered on subscriptions, ads, and licensing agreements. However, the borderless nature of the internet has also complicated copyright enforcement. Streaming platforms operate on a global scale, and content can be streamed by users in different countries, each with its own legal frameworks governing copyright protection. This presents a challenge for rights holders, as the protections afforded to their works may vary significantly depending on the jurisdiction in which the content is accessed or infringed upon (Becker & Edson, 2018; Brieske & Peukert, 2022; Yuliati, 2023).

As streaming platforms became the dominant mode of content distribution, copyright law began to undergo significant transformations in an effort to address the unique challenges posed by digital technologies. One of the major shifts in this evolution was the increased role of intermediary platforms in the distribution of content. Unlike traditional media companies that directly controlled content distribution, streaming platforms act as intermediaries, hosting content uploaded by third parties and facilitating access to users. This intermediary role has raised legal questions regarding the liability of platforms for infringing content uploaded by users. In response to these concerns, various legal frameworks have been introduced to balance the interests of rights holders with the operational realities of digital platforms. In the European Union, for example, the introduction of the Copyright Directive (CDSM Directive) sought to establish clearer rules for platform responsibility, especially with regard to user-uploaded content. Article 17 of the Directive, which holds platforms accountable for failing to prevent the unauthorized upload of copyrighted works, is one of the key legal responses to the challenges posed by the rise of streaming (Becker & Edson, 2018; Brieske & Peukert, 2022; Yuliati, 2023).

In the United States, copyright law has also evolved to address the realities of streaming and digital distribution. The Digital Millennium Copyright Act (DMCA), passed in 1998, introduced the "safe harbor" provision, which limits the liability of online platforms for infringing content uploaded by users, as long as the platform acts as a neutral intermediary and complies with a notice-and-takedown system. This provision has been a crucial element in the legal landscape for streaming platforms, as it allows them to avoid liability for infringing content unless they are specifically notified of such infringement. However, the growing reliance on streaming as a primary mode of content distribution has led to calls for reforming the DMCA to better address modern challenges, such as the scale of content uploaded and streamed across platforms (Cooper & Klosek, 2023; Roy, 2022).

Despite these legal advancements, significant gaps remain in the protection of copyrighted content in the digital age. For example, while copyright law has become more attuned to the challenges posed by digital technologies, enforcement remains a persistent issue. The global nature of the internet means that content can be streamed, shared, and downloaded across borders with relative ease, often outpacing the legal frameworks in place to address infringement. In many cases, content creators and rights holders may struggle to track and combat unauthorized distribution, especially when it involves platforms based in

jurisdictions with weaker enforcement mechanisms. This has led to ongoing discussions about the need for more robust international cooperation and more comprehensive legal mechanisms to protect copyrighted works in the global digital marketplace (Ariyaratna, 2022).

As streaming platforms continue to dominate the digital media landscape, it is clear that copyright law will need to continue evolving. The challenges presented by digital content distribution are complex and multifaceted, requiring a balanced approach that protects the rights of creators while allowing for innovation and access. Ongoing legal reforms, both at the national and international levels, will be essential in ensuring that copyright law remains effective and relevant in the streaming age.

3. Challenges in Copyright Enforcement in a Borderless Market

As streaming services have become ubiquitous, the enforcement of copyright law has become increasingly complex, particularly in a global, borderless marketplace. The very nature of digital distribution complicates the enforcement of national copyright laws. Historically, copyright laws were tied to specific jurisdictions, and enforcement was relatively straightforward when content was distributed within physical borders. However, digital content can be accessed, shared, and streamed from anywhere in the world, which means that content is no longer confined to the national boundaries for which copyright laws were originally designed. The internet allows users to stream, download, or upload content instantly across borders, often circumventing national legal systems entirely. This creates significant jurisdictional issues in determining which country's laws apply when a copyright infringement occurs, and who has the authority to enforce those laws (Cooper & Klosek, 2023; Mahendra, 2023; Roberts, 2017).

Jurisdictional challenges are particularly problematic when the location of the infringing party and the content creator are in different countries, each with its own legal framework for copyright enforcement. For example, if content is illegally streamed or downloaded in one country, while the original content is protected under copyright in another, determining the applicable legal regime becomes difficult. This fragmentation of legal authority complicates the process of pursuing infringement cases and results in a situation where rights holders often face significant barriers in seeking redress. Moreover, different countries have varying levels of commitment to intellectual property enforcement, with some jurisdictions offering more robust protections for copyright holders than others. In regions where enforcement is lax or where copyright protection is not as stringent, creators often find their works being freely exploited with little legal recourse (Cooper & Klosek, 2023; Roy, 2022).

Even in regions with strong copyright laws, the rapid global dissemination of content often undermines national enforcement mechanisms. In many cases, content uploaded to platforms based in one jurisdiction can quickly become accessible to users across the world, leading to challenges in taking legal action. This situation is further complicated by the fact that online platforms themselves, such as social media sites, streaming services, and video-sharing platforms, may not be located in the same jurisdiction as the copyright holders. As a result, the responsibility for enforcing copyright often falls on these platforms, but their ability to do so is limited by the diverse legal landscapes across which they operate. Additionally, many platforms claim immunity under various legal frameworks, such as the Digital Millennium Copyright Act (DMCA) in the United States, which can protect them from being held liable for user-uploaded content (Becker & Edson, 2018; Brieske & Peukert, 2022; Yuliati, 2023). This has led to calls for a more coordinated international approach to copyright enforcement in the digital age, but such efforts have faced significant hurdles due to the differing legal traditions and priorities of countries involved.

In response to these challenges, the complexities of global licensing agreements have also become a major point of contention. Licensing content for streaming is not a simple matter of acquiring rights for global distribution. Instead, content must be licensed separately for each jurisdiction in which it is to be made available, and the terms of these agreements can vary significantly across countries. For example, a movie that is available for streaming in the United States may not be available in another country because the rights to distribute that film in that region have been sold to a different entity. This creates an intricate web of licensing agreements, each with its own set of terms, conditions, and expiration dates. The need for individual licensing negotiations for different territories can lead to inconsistent availability of content, as well as a fragmented consumer experience where audiences in different countries have access to different libraries of content. For content owners, managing these agreements is a complex task that requires navigating multiple legal systems, understanding varying market dynamics, and ensuring compliance with local copyright laws (Ariyaratna, 2022).

The rise of piracy and unauthorized distribution has further exacerbated the challenges of copyright enforcement in the streaming world. Digital piracy has flourished in the era of streaming, with pirated versions of films, TV shows, and music often made available online through illegal channels. These pirated versions are frequently distributed via peer-to-peer networks, file-sharing sites, and even illegal streaming websites. The problem of piracy is compounded by the fact that these illegal services often operate in jurisdictions with weak or no intellectual property enforcement, making it difficult for copyright holders to take action. While some platforms, such as streaming services, actively remove pirated content once detected, the sheer scale of piracy online means that many instances of illegal distribution go unnoticed or unchecked (Anugrah, 2023). In some cases, pirate sites also use sophisticated means to evade detection, such as changing domain names or using encryption to obscure their activities. For rights holders, this creates a constant and often overwhelming battle to protect their content.

Piracy is not just a concern for large Hollywood studios or major music labels; independent creators and smaller production companies are also affected. For these smaller entities, the loss of revenue due to piracy can be devastating, and they may not have the resources to pursue legal action against infringers. The problem is particularly pronounced in developing countries, where internet access is often more widespread but where copyright enforcement mechanisms are less robust. As a result, content creators find their works freely available on illegal platforms with little chance of compensation or recognition. Efforts to combat piracy often require international cooperation between governments, tech companies, and rights organizations. However, even with such collaboration, the sheer scale of piracy in the digital age presents a daunting challenge (Cooper & Klosek, 2023; Roy, 2022).

To address these challenges, various technological solutions have been introduced, although they are not without their own limitations. Digital Rights Management (DRM) technologies, for example, have been widely used by streaming platforms and content owners to restrict unauthorized access and distribution of digital content. DRM systems can prevent users from copying, modifying, or distributing digital media, thus allowing content owners to maintain control over how their works are used. However, DRM systems are not foolproof and can be circumvented by skilled users. In some cases, DRM can even interfere with legitimate use, such as when users are prevented from making personal copies of content for fair use purposes. Additionally, the effectiveness of DRM is often limited by the willingness of users to bypass protections, with pirated versions of content often appearing shortly after the official release (Cooper & Klosek, 2023; Mahendra, 2023; Roberts, 2017).

Watermarking is another technology that has been used to track and trace content as it moves through the digital landscape. Digital watermarks can be embedded into videos, music, and images to serve as an identifier of the copyright owner, even if the content is illegally distributed. These marks allow copyright holders to trace the origin of pirated content and identify infringing parties. While watermarking can be an effective tool for tracking content, it is not always successful in preventing unauthorized distribution. In some cases, watermarks can be stripped from content during the piracy process, rendering this technology ineffective (Farrand, 2015; Mower et al., 2016; Rendas, 2022). Furthermore, watermarking may also raise privacy concerns, particularly if the technology is used to track users' online behavior or to monitor unauthorized sharing.

Despite these technological tools, the enforcement of copyright in the age of streaming remains an ongoing challenge. The borderless nature of the internet, combined with the rapid pace of technological change, continues to outpace legal and regulatory efforts to protect intellectual property. As the market for digital content becomes increasingly globalized, content creators, platforms, and governments must work together to find solutions that balance the interests of all stakeholders while addressing the growing problem of unauthorized distribution. The success of these efforts will depend not only on the effectiveness of legal frameworks but also on the development of new technologies and collaborative international strategies to combat piracy and ensure fair compensation for creators.

4. Current Legal Frameworks and International Agreements

As the digital landscape continues to evolve, the international framework for copyright protection faces considerable challenges in keeping up with the dynamic nature of streaming platforms. One of the most significant international agreements in the realm of copyright protection is the Berne Convention for the Protection of Literary and Artistic Works, first established in 1886. This convention provides the foundational framework for copyright protection across its member states, ensuring that works created in one country are protected in all other member states without the need for formal registration. The convention has served as a cornerstone in establishing universal standards for the protection of copyright, helping to address the issue of

unauthorized reproduction and distribution of creative works on a global scale (Gelora & Parmitasari, 2022; Iyare & Walker, 2014).

Despite its broad reach, the Berne Convention has limitations, particularly in the digital age and in the context of streaming. While it establishes a general framework for protection, it does not provide specific guidelines for how copyright should be enforced in the era of digital content distribution, nor does it account for the technological nuances that platforms such as streaming services introduce. The convention does not address the complexities of jurisdictional issues, nor does it offer clear guidance on how to handle the vast and rapid dissemination of content that digital platforms facilitate. In particular, the Berne Convention's provisions do not effectively address the issue of cross-border infringement of digital content, a major concern for creators and copyright holders in today's globalized marketplace. Consequently, many of the legal battles surrounding copyright enforcement in streaming are not directly resolved through the Berne Convention but instead require more specific treaties or national laws to be invoked (Farrand, 2015; Mower et al., 2016; Rendas, 2022).

In response to the evolving digital environment, the World Intellectual Property Organization (WIPO) has become a key player in addressing global copyright issues. As a specialized agency of the United Nations, WIPO has worked to harmonize international copyright standards and develop new mechanisms for addressing digital and internet-based copyright infringements. One of WIPO's major contributions has been the WIPO Copyright Treaty (WCT), which was adopted in 1996 as an effort to bring international copyright law in line with the realities of digital technology. The WCT extends copyright protection to digital forms of content, ensuring that works are protected not only in physical formats but also in digital ones, including those distributed over the internet (Cooper & Klosek, 2023; Roy, 2022). This treaty has been instrumental in establishing legal frameworks for the protection of works on streaming platforms, and its provisions have been incorporated into national laws to varying extents.

WIPO's role in modernizing copyright law is critical as it facilitates cooperation between countries and encourages the adoption of international copyright standards that are relevant to the digital age. However, the organization's work also highlights the tension between global coordination and national sovereignty. While WIPO aims to create consistent international rules, its agreements still require national governments to implement them, and there is no guarantee that all countries will do so in the same way. This results in uneven enforcement and, in some cases, leaves gaps in protection, particularly in jurisdictions with weaker copyright enforcement mechanisms. Thus, although WIPO plays a pivotal role in advancing copyright law globally, its capacity to address the challenges posed by streaming services is limited by the political and legal contexts of individual countries (Ariyaratna, 2022).

In addition to global treaties, regional agreements and national laws have also played a significant role in shaping how copyright is enforced in the context of streaming. For instance, the United States has long been at the forefront of digital copyright law, primarily through the Digital Millennium Copyright Act (DMCA), which was passed in 1998. The DMCA was designed to address the challenges posed by the internet and digital technologies, and it includes provisions for the protection of digital content as well as the limitations of liability for online platforms. A key aspect of the DMCA is the safe harbor provision, which protects online platforms from liability for user-generated content, provided they act promptly to remove infringing content when notified. This provision has been crucial in enabling streaming services and platforms like YouTube to operate without assuming liability for every instance of copyright infringement that might occur on their platforms (Cooper & Klosek, 2023; Roy, 2022). However, the DMCA has faced criticism for allowing platforms to escape responsibility for widespread infringement, and many have argued that the law needs to be updated to address the specific challenges of modern digital content distribution, including the rise of streaming services.

In the European Union, copyright law has also evolved to address the challenges posed by streaming. One significant development was the adoption of the EU Copyright Directive in 2019, which aims to modernize copyright law across member states in the digital age. A major component of the directive is Article 17 (formerly Article 13), which places greater responsibility on online platforms to prevent copyright infringement. Under this provision, platforms must take proactive measures to ensure that user-uploaded content does not infringe copyright, which contrasts with the more reactive approach of the DMCA's safe harbor provisions. The directive has been contentious, with critics arguing that it could lead to over-censorship and stifle freedom of expression. However, supporters contend that it represents a necessary step in ensuring that

copyright holders are adequately protected in an era where user-generated content is pervasive on streaming platforms (Farrand, 2015; Mower et al., 2016; Rendas, 2022).

In practice, the implementation of such legal frameworks has led to a variety of legal cases involving streaming platforms. One notable example is the ongoing legal battle between a major video-sharing platform and content creators, where issues of copyright infringement and fair use have been central. In one prominent case, a music publisher sued a platform for hosting user-uploaded content that allegedly violated copyright laws, arguing that the platform should be held accountable for infringing material. The case revolved around the platform's responsibility for proactively preventing the upload of copyrighted music, despite the platform's reliance on the DMCA's safe harbor provisions to avoid liability (Cooper & Klosek, 2023; Roy, 2022). The outcome of this case, and others like it, has profound implications for the future of streaming platforms and their obligations toward content creators. Legal scholars and policy makers continue to debate whether the existing frameworks are sufficient or whether new models of regulation are needed to address the unique challenges posed by streaming services.

Similarly, the issue of music streaming has led to several high-profile cases, with music labels and individual artists suing streaming platforms for failing to properly license music or pay fair royalties. These lawsuits highlight the challenges that arise when content is distributed via digital platforms, often across multiple jurisdictions, and demonstrate the need for clearer global licensing frameworks that protect creators' rights in a borderless market. Despite the presence of international treaties and regional agreements, inconsistencies in the application of copyright law across different legal systems can lead to disputes over fair compensation and the rightful ownership of digital content (Anugrah, 2023).

In conclusion, while significant efforts have been made to address copyright issues in the digital age through international frameworks, regional treaties, and national laws, there are still substantial gaps in the enforcement and protection of copyright in the context of streaming. The Berne Convention, WIPO's initiatives, and regional treaties such as the EU Copyright Directive and the DMCA all represent important steps forward. However, the challenges of jurisdictional enforcement, the rapid global distribution of content, and the evolving nature of streaming platforms mean that existing legal frameworks must continue to adapt. As the digital marketplace expands, the legal landscape surrounding copyright will need to evolve in order to ensure that creators and rights holders are adequately protected in the face of increasingly complex digital challenges.

5. The Role of Content Creators, Platforms, and Consumers

The digital marketplace has introduced both opportunities and challenges for content creators, reshaping their relationship with the public and the ways in which their work is distributed and consumed. Content creators, including filmmakers, musicians, writers, and other artists, have long relied on copyright laws to protect their intellectual property. These protections are vital for ensuring that creators can monetize their works and retain control over how their content is used. However, in the streaming era, the protection of these rights has become increasingly complicated. The global nature of digital distribution means that content creators face unprecedented challenges in ensuring that their works are not unlawfully exploited or pirated across borders. One of the most significant challenges that content creators face is the ease with which digital content can be copied, shared, and distributed without their permission. Unlike physical media, which could be tracked and controlled more easily, digital content can be uploaded to the internet in a matter of seconds and spread virally across various platforms, often bypassing traditional copyright protections entirely (Anugrah, 2023).

The nature of streaming also complicates the monetization process for creators. While platforms such as Netflix, YouTube, and Spotify offer content creators an avenue for distribution to vast global audiences, these platforms often impose financial terms that may not be favorable for the creators. Many streaming services operate under revenue-sharing models, where creators only receive a small portion of the revenue generated from advertising or subscriptions. Furthermore, the rapid expansion of free, ad-supported streaming platforms has led to a situation where content creators must compete for exposure in an increasingly crowded market. This dynamic has made it difficult for many creators, especially independent ones, to achieve financial success from their works. The ease of access to pirated content further undermines the ability of creators to receive fair compensation for their efforts, as illegal streams and downloads reduce the potential revenue from legitimate sources (Cooper & Klosek, 2023; Roy, 2022).

Streaming platforms, on the other hand, occupy a central position in the digital content ecosystem and are increasingly held accountable for the protection of copyrighted works. As intermediaries between content creators and consumers, streaming services are tasked with ensuring that copyrighted content is not being unlawfully uploaded, shared, or distributed on their platforms. To this end, many platforms have implemented automated content identification systems, such as Content ID on YouTube or the fingerprinting technology used by Spotify, which can detect and remove infringing content. These systems aim to prevent piracy by scanning uploaded content against a database of copyrighted works and blocking unauthorized uses. While these tools have proven effective in some cases, they are not foolproof. False positives can occur, where legitimate content is mistakenly flagged, and unauthorized content can still slip through the cracks, especially if it is uploaded under a different guise or after being modified (Farrand, 2015; Mower et al., 2016; Rendas, 2022). Furthermore, the vast volume of content uploaded to these platforms makes it challenging for streaming services to monitor every piece of content in real-time.

The responsibility of streaming platforms is further complicated by the balance they must strike between ensuring access to content for consumers while also protecting the rights of content creators. On one hand, streaming services need to provide a user-friendly experience that enables consumers to easily access and enjoy content. On the other hand, they must ensure that the content they offer is licensed properly and that creators are compensated for their work. The tension between accessibility and protection is especially apparent in discussions surrounding the role of platforms in hosting user-generated content. In some cases, platforms have been accused of enabling piracy by failing to adequately prevent unauthorized uploads or by not taking sufficient action when infringing content is brought to their attention. This has led to calls for stricter legal obligations for platforms to take down infringing content and for them to be held liable for the distribution of unauthorized works (Ariyaratna, 2022). However, there are also concerns that over-regulating platforms could stifle innovation or lead to the over-censorship of legitimate content, creating a difficult legal balancing act for legislators and service providers alike.

Consumers, too, play a significant role in the ecosystem surrounding streaming and copyright law. The rise of streaming services has fundamentally changed the way people consume media, and consumers' expectations have shifted as a result. With the proliferation of free or low-cost streaming options, many consumers now expect to access content quickly and easily, often without paying directly for individual works. While this model benefits consumers by offering convenience and affordability, it has created a challenging environment for content creators who rely on revenue generated by direct purchases or subscriptions. Furthermore, the digital marketplace has led to a culture of "content abundance," where consumers have access to an almost limitless selection of movies, music, and shows. This has changed the value consumers place on individual works, often leading to a situation where content is perceived as disposable or interchangeable. In such an environment, consumers may be less inclined to pay for content when they can easily find unauthorized versions online (Gelora & Parmitasari, 2022; Iyare & Walker, 2014).

At the same time, consumers also have a vested interest in ensuring that content creators are properly compensated for their work. In recent years, there has been growing awareness among consumers about the importance of fair compensation for creators, and many have started to recognize the value of supporting creators by subscribing to legitimate streaming services or purchasing content. However, the availability of pirated content continues to undermine these efforts, as consumers often choose convenience or cost savings over supporting creators. The rise of streaming services has also led to greater expectations around accessibility, with consumers demanding that content be available on a wide range of devices and platforms. As a result, streaming platforms are under pressure to ensure that content is universally accessible, which can sometimes conflict with the need to protect the intellectual property of creators (Cooper & Klosek, 2023; Roy, 2022).

The tension between content creators' rights, streaming platforms' responsibilities, and consumers' expectations highlights the complex nature of the digital content ecosystem. On the one hand, creators must be protected from unauthorized exploitation, with fair compensation and control over how their work is used. On the other hand, streaming platforms must strike a balance between providing broad access to content and ensuring that creators are compensated fairly. Finally, consumers, while benefiting from increased access to content, must also be aware of the implications of piracy and the importance of supporting creators in a way that sustains the future of the creative industries. Ultimately, finding a balance between these competing interests will require ongoing collaboration between creators, platforms, and consumers, along with the continued evolution of legal frameworks to address the changing nature of the digital marketplace (Anugrah, 2023).

6. Future Directions and Emerging Legal Trends

The future of copyright enforcement in the context of streaming and digital content lies in the development and integration of innovative technologies that can both assist in detecting infringement and provide new solutions for tracking ownership. Among the most promising advancements is the use of artificial intelligence (AI) and machine learning (ML) technologies to detect copyright violations more efficiently and accurately than current manual or semi-automated methods. AI-powered systems can analyze vast quantities of digital content, identifying patterns that may indicate copyright infringement. This technology can be particularly useful in identifying unauthorized streams or copies of copyrighted works uploaded to platforms within moments of their release. By continuously monitoring content across platforms, AI systems can provide real-time notifications of potential violations, enabling quicker responses from rights holders. Additionally, machine learning algorithms can improve over time, becoming more accurate at identifying the nuanced ways in which copyrighted material may be used without permission (Anugrah, 2023).

The potential of AI extends beyond just detection; it could also play a key role in automating copyright enforcement. Currently, enforcement often requires significant human oversight, which can be slow and resource-intensive. By integrating AI into the enforcement process, rights holders and streaming platforms could automatically flag and remove infringing content, streamline takedown procedures, and even manage licensing agreements in an automated manner. This could help address one of the key issues in the digital age—ensuring that copyright law is both efficient and scalable in a rapidly expanding global marketplace. Furthermore, AI technologies could be leveraged to help verify the authenticity of content, particularly for user-generated content on platforms like YouTube or social media, where distinguishing between original and infringing content can be particularly challenging (Gelora & Parmitasari, 2022; Iyare & Walker, 2014).

While AI holds great promise for improving copyright enforcement, it also introduces a series of new challenges, particularly related to the accuracy of automated systems and the potential for overreach. False positives, where legitimate content is flagged as infringing, could harm creators who are not infringing copyright but may use copyrighted elements under fair use provisions. Balancing the effectiveness of AI enforcement with the protection of users' rights and freedoms will be a key issue moving forward. Additionally, the reliance on AI for enforcement may present new concerns regarding privacy and the ability of private entities to control access to digital content on a global scale. As AI systems become more sophisticated, questions of transparency and accountability in their use will need to be carefully addressed (Farrand, 2015; Mower et al., 2016; Rendas, 2022).

Another emerging technology with significant potential in the context of copyright is blockchain. Blockchain's ability to provide transparent, decentralized, and immutable records of transactions makes it an attractive solution for tracking content ownership and usage. In theory, blockchain could be used to create a permanent and transparent ledger of copyright ownership, ensuring that the rights holder for a given piece of content is always clearly identified. By using blockchain to register and track content, creators and distributors could establish a digital fingerprint for their works that cannot be altered or tampered with, providing clear proof of ownership and usage rights. This could help resolve one of the most persistent issues in digital copyright law: the difficulty of proving ownership, especially in cases involving multiple rights holders or complex licensing arrangements (Cooper & Klosek, 2023; Roy, 2022).

Blockchain also has the potential to streamline licensing agreements, making it easier for content creators to manage and monitor the use of their works across platforms. Smart contracts, which are self-executing contracts with the terms of the agreement directly written into code, could be employed to automatically execute payments and enforce licensing terms whenever content is used. For example, when a piece of music is streamed on a platform, a smart contract could automatically trigger payment to the rights holder based on the agreed-upon royalty rate. This could significantly reduce the administrative burden for creators and provide them with more control over how their works are used and compensated. Moreover, blockchain could enable more efficient royalty distribution by eliminating intermediaries and ensuring that payments are made in real time, improving the transparency and fairness of the system for creators (Ariyathna, 2022).

However, the application of blockchain in copyright law is still in its early stages, and challenges remain. One key issue is scalability. Blockchain systems, particularly those that use proof-of-work protocols, can be resource-intensive and slow to process large amounts of data, which may limit their effectiveness in tracking content across the global scale required for digital

media. Furthermore, the widespread adoption of blockchain would require the buy-in of a large number of stakeholders, including content creators, platforms, distributors, and consumers, which may be difficult to achieve given the diverse interests involved. Legal and regulatory issues also remain, particularly regarding the enforcement of blockchain-based agreements in jurisdictions that do not yet have clear legal frameworks for blockchain technology (Farrand, 2015; Mower et al., 2016; Rendas, 2022).

As technology continues to evolve, so too does the need for reform in copyright law to address the challenges of the streaming era. The rapid pace of digital innovation has left many of the traditional legal frameworks for copyright protection outdated or inadequate in addressing the complexities of online distribution and infringement. In response, discussions surrounding copyright reform have gained traction in both national and international arenas. One area of focus has been the adaptation of existing legal frameworks to better handle the realities of streaming and digital distribution. This includes efforts to modernize the Digital Millennium Copyright Act (DMCA) in the United States, which was enacted in 1998, well before the rise of streaming platforms. While the DMCA's safe harbor provisions have been essential in protecting platforms from liability for user-uploaded content, critics argue that the law does not go far enough in holding platforms accountable for enabling copyright infringement or in addressing the evolving nature of digital content distribution (Gelora & Parmitasari, 2022; Iyare & Walker, 2014).

Similarly, the European Union has been at the forefront of revising its copyright laws to address the challenges posed by online platforms. The EU's Copyright Directive, which includes provisions related to the responsibilities of online platforms for user-uploaded content, aims to clarify the legal obligations of platforms and strengthen copyright protections. One of the most notable components of this directive is Article 17, which requires platforms to take more proactive measures in preventing copyright infringement by users. While this article has been praised for encouraging platforms to implement stricter content moderation policies, it has also raised concerns about the potential for censorship and the over-blocking of legitimate content (Farrand, 2015; Mower et al., 2016; Rendas, 2022). These legal reforms are part of a broader effort to strike a balance between protecting the rights of creators and ensuring that platforms remain accessible and supportive of free expression.

Ongoing discussions about copyright reform also focus on the need to modernize the concept of fair use. In the digital age, the line between fair use and infringement has become increasingly blurry, particularly in the context of user-generated content, remix culture, and educational use. For instance, creators who rely on fair use may face increased risks of having their content removed or demonetized on platforms due to overly aggressive enforcement mechanisms. Reform efforts in this area are exploring how to ensure that fair use protections are maintained, particularly in contexts where content is used for non-commercial, educational, or transformative purposes (Anugrah, 2023). Furthermore, there is a growing recognition that copyright law must be responsive to technological advancements and flexible enough to accommodate new forms of content creation and distribution that have emerged with the rise of streaming and digital platforms.

In conclusion, the future of copyright law in the streaming age will depend on the ability of legal frameworks to adapt to emerging technologies and new market realities. AI and blockchain offer promising solutions for improving the detection of infringement and the management of content rights, but their successful implementation will require addressing challenges related to scalability, accuracy, and privacy. At the same time, ongoing legal reforms at the national and international levels will be essential in ensuring that copyright law remains effective in protecting creators' rights while balancing the need for innovation and the fair use of content. The role of streaming platforms, creators, and consumers will continue to evolve as part of this ecosystem, and the outcome of these ongoing discussions will shape the future of digital content distribution for years to come (Cooper & Klosek, 2023; Roy, 2022).

7. Conclusion

In the era of streaming and digital content, the legal landscape surrounding copyright protection has become increasingly complex and difficult to navigate. The borderless nature of the internet has transformed how content is distributed and consumed, creating unique challenges for content creators, platforms, and regulators. Traditional copyright law, which was designed to address the needs of physical media and localized distribution, struggles to keep pace with the rapid changes in technology and the vast reach of digital platforms. Jurisdictional issues, the complexity of global licensing agreements, and the

proliferation of piracy have complicated the enforcement of copyright laws and left many creators vulnerable to unauthorized use of their works. While platforms have taken on a significant role in protecting copyrighted content, the balance between accessibility and enforcement remains delicate, and solutions are not easily implemented.

The role of emerging technologies such as AI and blockchain offers a promising direction for addressing some of these challenges. AI, in particular, has the potential to revolutionize the way copyright enforcement is carried out by automating the detection of infringements and improving the efficiency of legal responses. Similarly, blockchain technology holds promise in creating secure, transparent systems for tracking content ownership and usage, which could help ensure that creators are fairly compensated for their work in the digital space. However, these technologies must be carefully integrated into existing frameworks, as they also introduce new complexities regarding privacy, accuracy, and the potential for unintended consequences.

As legal systems and technological advancements continue to evolve, there is a pressing need for reform in copyright law. The current frameworks may no longer be sufficient to adequately address the challenges posed by streaming platforms and digital distribution. Ongoing discussions about reform, including the implementation of stronger international standards and more robust enforcement mechanisms, reflect a broader recognition that the status quo is no longer tenable. A reimagining of copyright law, one that embraces the digital age while protecting the rights of creators and consumers, is essential for ensuring that the creative industries can continue to thrive in a fair and sustainable manner.

The path forward will likely require a careful balancing act—one that takes into account the interests of content creators, platforms, and consumers. As technology advances, so too must the legal structures that support the digital economy. Only through collaboration between lawmakers, industry stakeholders, and technology innovators can we hope to address the challenges of copyright in the streaming age while fostering an environment that supports creativity, innovation, and fairness for all parties involved.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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