

Selection and Construction of Copyright Filtering Obligations

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ABSTRACT

With the continuous evolution of the Internet, we raise the question: in the era of Web3.0, the application of algorithmic recommendation technology makes personalized recommendation more common, but also raises the problem of copyright infringement, whether the popularity of algorithmic recommendation technology really needs the introduction of copyright filtering obligations in China? This paper explores this issue through literature analysis and theoretical analysis, and further examines the diversity of international attitudes towards the setting of copyright filtering obligations with comparative method analysis. It is found that although some scholars advocate the idea of introducing copyright filtering obligations, there is a divergence of views on this issue internationally. The U.S. focuses on the importance of freedom of expression and innovation, and advocates the maintenance of the "safe harbor" rule; the EU actively promotes copyright filtering obligations for ISPs through the Copyright Directive in the Digital Single Market, and the current promotion of buffering has also been shown. The push for algorithmic goodness has been a key factor in the introduction and construction of copyright filtering obligations in China. The success of this system is seen throughout the entire process of algorithmic recommendation, thus protecting intellectual property rights while ensuring the experience and creative freedom of Internet platform users. To achieve this goal, it is recommended that reasonable filtering standards be adopted, and that the accuracy and efficiency of the filtering system be ensured by regularly updating the centralized work comparison database and strengthening technical investment. In addition, a manual review mechanism should be introduced as a supplement to the algorithm to improve the system's fault tolerance and reduce the risk of erroneous filtering. In summary, China should focus on the ethical application of algorithms when constructing a copyright filtering system, in order to promote the synergistic development of the Internet industry and the copyright industry, and to create a digital environment that is conducive to both knowledge innovation and the protection of copyright rights and interests.

KEYWORDS

Algorithmic Recommendations; Copyright Filtering Obligations; Safe Harbor Rules.

1. FORMULATION OF THE PROBLEM

The arrival of the Web 3.0 era marks a brand new stage of the Internet, in which algorithmic recommendation technology has become the leading force of change. In this era, algorithmic recommendation technology is no longer just a tool, but has become an indispensable part of the Internet ecosystem, influencing all aspects of users' information acquisition, social interaction and digital experience. First of all, the popularity of algorithmic recommendation technology has led to an unprecedented level of personalized services. By analyzing a user's historical behavior, preferences, and social relationships, algorithms are able to accurately predict a user's interests and provide them with customized content and services. This personalized recommendation not only improves the user

experience, but also promotes the accurate delivery of content, injecting new momentum into the development of the digital economy.

However, the widespread popularity of algorithmic recommendation technology has exacerbated the frequent occurrence of intellectual property infringement while enhancing user experience. Through deep learning of user interests and behaviors, algorithms recommend personalized content, yet this personalization has spawned intellectual property infringement to some extent. Large-scale personalized recommendations make it easier for popular content to spread, original works may be marginalized, and the high speed of information dissemination also increases the speed of proliferation of infringing content. In addition, the rise of "User Generated Content (UGC)" and "Artificial Intelligence Generated Content (AIGC)" has made it more difficult for platforms to control whether the uploaded material infringes on other people's copyrights, and the "Safe Harbor Rule" that was formed at the initial stage is difficult to adapt to the current Internet environment. The "safe harbor rule" formed at the beginning is difficult to adapt to the development of the current Internet industry, and[1] has laid more hidden dangers for the problem of intellectual property infringement. As a result, the promotion of algorithmic recommendation technology has exacerbated the challenge of intellectual property infringement, requiring platforms that use personalized recommendations to adopt more demanding copyright filtering obligations. A notice issued by the National Copyright Administration in 2015 required online disk services and online literature platforms to adopt similar filtering technologies to increase the platforms' duty of care. Subsequently, some large platforms have begun to actively explore the establishment of their own copyright filtering systems, and Baidu Wikipedia's introduction of the "DNA anti-piracy document identification system" is one of them[2].

The cooperation between the Internet industry and the copyright industry has a long history. With the development and growth of the Internet industry, the connection between the copyright industry and the Internet industry has become increasingly close, from the passive output of information by the initial Internet platform to the active creation and active output of Internet users today. In the early stage of the Internet, platforms mainly played the passive role of information transmitters, and content was mainly provided by platforms, while users were more often the receivers of information. However, with the rise of social media, blogs, video sharing and other platforms, users have gradually become creators and sharers of content.

This shift has not only driven the evolution of the Internet industry, but has also profoundly altered the landscape of the copyright industry. The active creation of Internet users has led to the emergence of a large amount of original literature, music, video and other content, and the copyright protection of such content has become particularly important. Platforms not only need to pay attention to the legality of content, but also provide effective copyright protection mechanisms to encourage creators' enthusiasm for creation. At the same time, the active output of Internet users has also led to the rise of new business models, such as content creators gaining revenue through advertising, subscription and payment. This makes the business relationship between the copyright industry and the Internet industry more complex and close. The various modes of digital content distribution also make copyright management no longer limited to traditional media, but require more flexible and efficient digital copyright management tools.

Overall, the booming development of the Internet industry has promoted user participation and creative activity, blurring the boundaries between Internet users and content creators, and the proliferation of copyright infringement, making it difficult for the "safe harbor rule" to adapt to the new digital environment, with certain platforms "trying to take the old ticket of 'notice-to-delete' and no longer being able to board the passenger ship to the safe harbor". Some platforms are "trying to take the old ticket of 'notice-to-delete' and can no longer board the passenger ship to the safe harbor". [3]There is also a need to make the Internet industry and the copyright industry work more closely together by imposing copyright filtering obligations on platforms, so as to meet users' demand for diversified and original content.

2. DIVERSITY IN THE CREATION OF COPYRIGHT FILTERING OBLIGATIONS

In the context of the extensive application of algorithmic recommendation, the construction of the copyright protection mechanism should fully consider the impact of intelligent algorithmic technology on the technological capability and business model of network service platforms, and examine and learn from the theory and practice of the modernization of the liability system of network service platforms in Europe and the United States, and on this basis, exploratory search for the direction of the development of the duty of care of the copyright of China's network service platforms and a new paradigm of the network copyright governance mechanism.

(i) Horizontal view: Diversity of attitudes towards the obligation to create copyright filters in the extraterritorial sphere

1) EU: The "national law" model

Since the adoption of the U.S.-led Digital Millennium Copyright Act (DMCA) in 1998, the "safe harbor rule" has been followed by various countries. From the beginning of the 21st century when the Internet industry emerged to the present, the bills adopted by various countries have also taken this as a blueprint for legislation, and all the way to give a green light to the Internet industry's related responsible subjects, with a view to Encourage the rapid development and growth of the Internet industry. However, the duty of "notification and deletion" of intellectual property infringement by network service providers is only a low level of duty of care. Now that the Internet industry encompasses all aspects of life, and copyright holders have lost more of their rights than ever before, the balance between the interests of IP rights holders and the responsibilities of ISPs in the intellectual property legal system has quietly become unbalanced. The EU considers that the platform economy model has led to an uneven distribution of benefits to creators, i.e. there is a "Value Gap" or "Transfer of value"[4] , which means that the platforms have failed to adequately protect rights while reaping the benefits. This means that platforms are not able to adequately protect the rights and interests of rights holders while reaping the benefits, resulting in an imbalance of rights and interests. Article 17 of the Directive on Copyright Reform in the Digital Single Market adopted by the European Union proposes to impose "upload filtering" obligations on network service providers to solve the problem of "value gap" between multiple rights holders in the development of the Internet industry.

The Directive was introduced with the aim of reducing the online distribution of infringing content by reinforcing the responsibilities of platforms, in particular with regard to content uploading and sharing. Article 17 clearly stipulates that online service platforms are subject to the obligation of "upload filtering", i.e., platforms are required to make their best efforts to obtain authorization; make their best efforts to ensure that the works or other content of the right holders are not made available to them; and, upon receipt of notification of infringement from the right holders, promptly remove or disconnect the links and make their best efforts to prevent unauthorized content from being uploaded in the future. [5]Take measures beforehand to filter and stop the distribution of infringing content through technical means. Behind this initiative is a reflection on the inadequacy of copyright protection in the digital environment, and the hope that by strengthening the platform's active filtering measures, the rights and interests of rights holders can be more effectively protected. The proposal of "uploading and filtering obligation" is an expansion of the platform's duty of care, from the traditional "notification-deletion" mode to a more proactive and prior direction. The reform means that platforms must not only act upon notification from right holders, but also take measures to prevent the uploading and distribution of infringing content through technological means beforehand. The EU believes that such reforms will help to reduce the risk of online distribution of infringing content, and thus mitigate the worsening of the "value gap" problem.

However, the 'upload filtering' obligation has been controversial since it was proposed by the EU in 2016, and even the day before the bill was passed, it was still being questioned by people across the

EU. The public's skepticism of the upload filtering obligation bill centers on the unclear scope of application of the bill's liability and its potential to restrict creative freedom. First of all, the strict liability provided for in the bill is too general and covers a wide range of subjects, which raises concerns about various content-sharing websites. Imagine an online platform that imposes an "upload filtering" obligation under the statute, requiring copyright filtering of all content they upload. However, the regulation does not specify which users are considered subjects for the filtering obligation. This results in a blurring of the boundaries of responsibility for the various users of the platform, including individual creators, news organizations and commercial enterprises. An ordinary user and a news organization may face the same filtering requirements, despite the very different nature and use of their content. This lack of clarity about who is liable to apply increases the difficulty for platforms to manage and users to understand the regulations, raising uncertainty and doubt about their implementation. Second, there are concerns that the upload filtering obligation may become a restriction on creators' freedom of creation, as platforms need to monitor and scan user-uploaded content, which may lead to censorship and excessive filtering and discourage original works. Imagine a short video creator produces a creative short film that incorporates multiple music clips and visual elements, demonstrating his or her unique creativity and editing skills. However, due to the implementation of the upload filtering obligation, the system may be overly sensitive and misclassify some of the music clips or images as infringing content, resulting in the entire short video being removed or restricted from sharing. The public felt that the filtering system may have limited their freedom as creators to showcase their creativity on short video platforms, making even some legitimate uses of music or elements subject to unnecessary censorship and restrictions. Ultimately, the massive protests that preceded the passage of the bill demonstrated the perception of a segment of the public that the bill was problematic, fearing that it could raise issues such as limited freedom of speech.

Overall, the "upload filtering" obligation in Article 17 of the Digital Single Market Copyright Reform Directive aims to address the issue of rights holders' interests being undermined in the digital environment by strengthening the responsibility of platforms and balancing the rights and interests of platforms and rights holders, with a view to better protecting intellectual property rights and promoting the sustainable development of the creative industries in the digital era. By strengthening the responsibility of platforms and balancing the rights and interests between platforms and right owners, it aims to better protect intellectual property rights and promote the sustainable development of creative industries in the digital era.

2) United States: "Rule of Autonomy" model

The introduction of the Digital Copyright Act (DCA) in the United States stems from the realization of the rapid development of the digital content industry, and in particular the growing concern over the protection of intellectual property rights and infringement in the Internet era. With the development of technology and the widespread dissemination of digital content, existing regulations are unable to adequately address emerging forms of infringement, making the U.S. Copyright Office feel the urgency of maintaining intellectual property rights and balancing interests.

In May 2020, the U.S. Copyright Office issued a Section 512 Report on the current digital industry, stating that the current "safe harbor rule" can no longer achieve the desired balance of interests. [6] In light of this, and in response to the challenges posed by the digital industry, in December 2020, the U.S. Senate Judiciary Committee on Intellectual Property introduced a discussion draft of the Digital Copyright Act (DCA), which focuses one of its key reforms on the use of technology to combat infringement. The proposal aims to promote the protection of creators' rights and the healthy development of the digital industry through more precise and flexible rulemaking to accommodate the rapidly growing digital content industry. To this end, the U.S. Senate Judiciary Subcommittee on Intellectual Property held two hearings, which could show the efforts made by the U.S. officials to introduce copyright filtering obligations, but the discussion results of the hearings were not satisfactory. The mainstream opinion tends to be that there is no need to introduce the copyright

filtering mechanism compulsorily for the time being, and that the effect of applying the copyright filtering mechanism in the EU should be observed first. In fact, some Internet giants in the U.S. are not completely resistant to copyright filtering obligations, e.g., YouTube, Facebook, and so on. Because they are more willing to implement the copyright filtering mechanism independently than the mandatory copyright filtering obligation under the law,[7] Firstly, because the database on which the copyright filtering system relies is incomplete, and the subject of copyright rights may be composed of multiple subjects; secondly, they believe that the technical means required for the construction of the copyright filtering system is immature, and the insufficient application of the system may result in legal liability. It can be concluded that promoting the application of copyright filtering obligations through the "autonomy rule" is more conducive to resolving the conflict between the U.S. Internet industry and the copyright industry, thanks to its own flexibility and information cost advantages, and is expected to fill the shortcomings of the empirical law of copyright in terms of adapting to the development of the industry. It better balances the interests of licensing works with the interests of dissemination,[8] enabling greater flexibility in adapting to changing industry needs alongside intellectual property protection.

The reasons for the difference in attitude between the EU and the United States towards the creation of copyright filtering obligations relate to differences in their respective legal systems, cultural traditions and industrial structures. First, the EU tends to emphasize the "upload filtering" obligations on ISPs, partly because civil law systems, with their natural law tradition, are concerned about the rights and interests of creators, and expect to improve their disadvantaged position in the industry more effectively. [9]Second, a number of factors have contributed to the relatively slow development of the Internet industry in the European Union compared to the United States. One, Europe has relatively less investment and support for Internet innovation, and the entrepreneurial culture and venture capital ecosystem is less developed compared to the United States. Two, the European market has more fragmented barriers due to linguistic, regulatory, and cultural diversity, making it more challenging for Internet companies to scale and achieve cross-border success. In light of these challenges in the European Internet industry, the EU has increased its focus on digital copyright protection, as it believes that it helps to improve the rights of creators and copyright holders by preventing the misappropriation of their works in the digital environment.

Therefore, the EU's preference for the creation of "national laws" on copyright filtering obligations can be seen as a response to the relatively lagging development of the Internet industry, and aims to promote the healthy development of the digital content industry through stronger copyright protection mechanisms.

On the contrary, the United States is more concerned with preserving the development and innovation of the Internet industry, and has therefore acquiesced to relatively loose "autonomy rules" to balance the "value gap". This framework provides a certain degree of immunity for Internet companies, emphasizes platform neutrality, and encourages innovation. The legal system and cultural traditions of the United States have led to different positions on balancing copyright protection and free innovation on the Internet.

(ii) Vertical examination: diversity of types of copyright filtering obligations

Against the backdrop of the widespread application of intelligent algorithmic technologies, in order to ensure the prosperous development of digital industries, the practice of copyright filtering can be carried out not only by reinforcing the unilateral obligations of online service provider platforms, but also by reaching a tripartite consensus with intellectual property rights holders and online users. The birth of the copyright filtering mechanism has a dual motivation, from the perspective of the online service provider platforms: the platforms are faced with a huge amount of content uploaded by users, in which there may be a large number of potential infringement behaviors, and the efficiency of relying on the traditional "notification-deletion" model is limited. Developing a copyright filtering mechanism can help platforms proactively identify and block infringing content, mitigating the risk

of legal liability and enhancing the platform's reputation. It is also a form of positive compliance that helps to maintain relationships with rights holders and gain an advantage in business competition. From the perspective of online users: For online users, copyright filtering mechanisms help improve the legality and originality of uploaded content and protect user creations from infringement. In addition, through the filtering mechanism, users can have better control over their works and prevent unauthorized piracy. From a more macro perspective, the filtering mechanism helps creators to develop a fair creative environment and incentivizes the healthy development of original ideas and creative industries. Therefore, the development of the copyright filtering mechanism serves the platform's commercial interests and compliance needs, and also pays attention to users' creative rights and interests and the benign operation of the creative environment.

In today's digital era, copyright protection has become an important issue in the Internet industry and creative fields. With the increasing amount of user-generated content and the wide dissemination of digital content, how to balance the relationship between intellectual property protection and the openness of the Internet has become a focus of discussion worldwide. In order to adapt to this context, some countries and regions have begun to focus on and implement copyright filtering mechanisms, and one of the key initiatives is the introduction of copyright filtering obligations. In this context, we will delve into different types of copyright filtering obligations, their legal features, practical applications, and impact on the Internet ecosystem. By discussing these topics, we can better understand the efforts of various parties to find a balance between copyright protection and digital innovation.

In filtering practice, ISPs can be categorized into two main types, resulting in two modes of filtering cooperation: the "transcendent duty-bearing" type and the "creative duty-bearing" type. [10]The former is carried out by ISPs covered by the DMCA, which independently set a higher duty of care beyond the statutory obligation based on the "safe harbor rule". The latter is implemented by OSPs not covered by the DMCA safe harbors, and uses voluntary agreements to create copyright filtering obligations on their own.

1) YouTube's Content ID System: YouTube's Content ID system is an advanced copyright management tool that automatically detects copyrighted content in videos uploaded by users through audio and visual recognition technology. The system provides proactive management opportunities for copyright owners, who can choose to block, monitor, or share advertising revenue. Content ID not only helps prevent copyright infringement, but also creates new revenue opportunities for copyright owners, while scaling up on the world's largest video-sharing platform to ensure that millions of hours of video are effectively regulated. However, the system has also faced some controversies, including misclassification and abuse issues, and continuous improvements are needed to balance copyright protection and user rights.

2) Facebook's Rights Manager: Facebook's Rights Manager is a specialized copyright protection tool designed to help content creators and copyright owners protect their works on the platform from infringement. The system automatically detects and matches user-uploaded content with advanced content recognition technology to prevent unauthorized use. Rights Manager allows copyright owners to set rules for their works, including monitoring, blocking or sharing advertising revenue. In this way, they can better control the distribution of their content on Facebook and ensure that their creations are properly managed. While Rights Manager plays a key role in safeguarding copyrights, there are challenges, such as misclassification and abuse issues, and the need to balance copyright protection with user rights.

3) Twitch's strategy for handling music centers around copyright protection and the rights of content creators. The platform has built up its music library through cooperation with the music industry and provides content creators with a range of legally available music. Twitch has reached agreements with a number of music publishers and copyright holders to allow creators to use this music in their live streams and video content without being dealt with for copyright infringement. Such partnerships not

only provide creators with more creative freedom, but also provide the music industry with new avenues for promotion. At the same time, Twitch has taken steps to address potential copyright issues. The platform has introduced a music processing tool to detect and process unauthorized music in users' live streams. When the system detects infringement, it may take measures such as lowering the volume or disabling the audio in some cases. This helps maintain the platform's legal usage standards and protects the rights of copyright holders.

By introducing copyright filtering mechanisms, these Internet companies aim to balance the relationship between users' freedom of creativity and copyright protection, and to reduce infringement through automation and technical means to manage the large amount of content on their platforms.

3. LOCALIZATION OF COPYRIGHT FILTERING MECHANISMS

The safe harbor rule was established for the development of the Internet industry and tends to protect the main body of the Internet platform. In the era of the booming Internet industry, the safe harbor rule came into being, providing a relatively free operating environment for Internet platforms, which has contributed to the booming development of the Internet industry. However, with the smooth integration of the Internet industry into our daily lives, the issue of intellectual property rights has become more and more prominent. The interests of rights holders, especially in the age of artificial intelligence, urgently need more serious attention and protection. Currently, national regulations face the challenge of maintaining the healthy development of the Internet industry while striking a more balanced approach to intellectual property protection. Against this backdrop, it is particularly important for China to explore how to rationally respond and find a practical way to balance the changes and adjustments to the safe harbor rules, especially in the era of emerging technologies such as artificial intelligence.

(i) Moving beyond "algorithmic neutrality" towards "algorithmic goodness"

Intelligent society is a society in which "tree algorithms are ubiquitous" and algorithms play a direct leading role in the shape of social order[11], algorithmic technology promotes the balancing of the conflict between the Internet industry and the copyright industry, and it also promotes the change and development of the responsibility rules of the network service provider platforms. Therefore, we can't pursue "algorithmic nihilism" and ignore the systemic impact that algorithmic technology may bring to the "safe haven" responsibility rules of network service providers; similarly, we can't overly believe in "algorithmic omnipotence" and exaggerate the importance of algorithms. Similarly, we should not overly believe in "algorithmic omnipotence" and exaggerate the actual role of algorithmic filtering technology in the governance of online copyright environment. [12]A large number of legal and social governance issues related to algorithms have already emerged in the field of copyright law, including algorithmic notification, algorithmic recommendation, algorithmic filtering and so on. The assertion that "code is law" and "algorithm is rule" profoundly reveals the profound impact of algorithms on people's behavior and rights and interests. It can be said that "algorithms are important organizers of production and life, as well as important constructors of social order"[13].

Algorithms are value-loaded. In the past, the analogy between "algorithm" and "chopper" was often made, emphasizing the neutrality of algorithms, i.e., algorithms themselves do not carry the attributes of good and evil, similar to the chopper, which is a neutral tool, and the user's behavior determines its impact. Businessmen are naturally profit-driven, and in today's digital era, it is not wrong for them to actively develop and apply algorithmic technology to maximize economic benefits. [14]Through the rational use of algorithms, businessmen are able to respond more flexibly to changes in the market, accurately locate their target audience, improve the competitiveness of their products and services, and ultimately maximize their profits. Therefore, while pursuing economic benefits, businessmen also promote the development of science and technology and commercial innovation, and make positive contributions to the progress of the entire social and economic system. However, nowadays,

the "algorithm" is still regarded as a "chopper", one-sidedly emphasizing the instrumental nature of algorithmic technology, which only encourages network service providers to evade their responsibilities, and the concept that the algorithm itself is not value-oriented. As values change, more people are inclined to shift from an "algorithm-neutral" to an "algorithm-for-good" perspective. Under the new concept, it is recognized that algorithms, as a kind of technology, carry a certain value orientation of the platform in the process of design and application. This is different from the past thinking of purely pursuing economic maximization, and now more emphasis is placed on the fact that technology should maintain respect for social and cultural values and ecological values while pursuing economic benefits. [15] This change means that enterprises need to consider the value carrier of algorithms when designing algorithmic models, and guide the improvement of "algorithms for good" in order to realize the balance of the "value difference" of multiple subjects. Different from the traditional technology-neutral viewpoint, the new concept requires the algorithm control body to continuously optimize in the direction of reducing the risk of algorithm application and balancing the interests of related subjects throughout the algorithm life cycle.

In general, the construction of copyright filtering mechanism can not ignore the value carrier of the algorithm itself, from "algorithm neutrality" to "algorithm to the good" change is more in line with the current trend of the pursuit of social value, emphasizing that technology is not only a neutral tool, but should be in the design and application of the balanced care of multiple values. It emphasizes that technology is not only a neutral tool, but should also be designed and applied in a way that reflects a balanced care for multiple values.

(ii) The copyright filtering mechanism should run through the whole process of algorithmic recommendation

The copyright filtering mechanism throughout the whole process of algorithmic recommendation plays an important role in legal compliance and business protection. By implementing the copyright filtering mechanism in the whole process of algorithmic recommendation, infringement can be prevented at the technical level and quickly applied in the subsequent recommendation process to prevent further expansion of the damage consequences of infringement.

First of all, using the copyright filtering mechanism as a pre-procedure for algorithmic recommendation helps to effectively intercept possible infringements before the content goes live. The functioning of the copyright filtering mechanism should indeed start from the link of user uploading videos, because this is the link of the content platform that is most directly related to copyright, and it is also the place where infringement problems are most likely to appear. User uploaded videos are an important way for content platforms to enrich their content. However, the ensuing problem is that users may include infringing content in their uploaded videos, such as unauthorized music, film clips or other copyrighted material. To prevent this problem, the copyright filtering mechanism should intervene when users upload videos, and quickly detect and identify the uploaded content through technical means to determine whether there is any infringement, which helps to eliminate the entry of infringing content into the platform and prevent the infringement problem from occurring at the source. In addition, user uploaded videos are an important source of content for the platform, and safeguarding the legitimacy of uploaded content helps to maintain the commercial reputation of the platform. If there is a large amount of infringing content on the platform, it will not only cause legal liability issues, but also may lead to user loss and advertisers' distrust. Therefore, by enforcing copyright filtering at the uploading stage, it helps platforms establish a healthier and legally compliant content ecosystem.

Second, as part of the algorithmic recommendation, copyright filtering mechanisms can be applied in subsequent recommendation sessions to continuously monitor and filter content that is already online. This helps to identify infringing content that has not been identified in the pre-programming process, and timely measures can be taken to remove it or restrict its dissemination. The Court's opinion in the "First Algorithmic Recommendation Case" of *Aqiyi v. ByteDance* indicated that "although it is

difficult to identify the content of short videos through algorithmic recommendation, the platform should still bear some responsibility for determining which videos are allowed to enter the scope of the recommendation, and it should exercise a reasonable duty of care. " [16]This view emphasizes the platform's timely review and re-filtering of the content entering the algorithmic recommendation in order to improve its algorithmic recommendation system. This means that when designing and operating algorithms, platforms not only need to consider technical feasibility, but also need to incorporate some necessary control and attention mechanisms within the scope of recommendation to ensure that the recommended content complies with laws and regulations and social ethics. Once infringing content gets uploaded, it may spread rapidly on the platform and cause more damage to copyright holders. Through timely detection and filtering, the spread of infringing content can be effectively slowed down, reducing the extent of its infringement on copyright interests. Such subsequent filtering not only protects copyright interests, but also helps to maintain the legitimate image of the platform and provide users with safer and more legitimate content recommendation services. Therefore, starting from which short videos are allowed to enter the scope of algorithmic recommendation, platforms are required to focus on social responsibility while making technological innovations, and to ensure that the recommendation mechanism better meets the public interests of society through legal compliance and the development of self-regulatory mechanisms. This is also an important direction in seeking a balance between technology and society in the application of algorithms.

Finally, a copyright filtering mechanism throughout the process avoids legal liabilities and business risks that may arise from infringement. Continuously applying copyright filtering throughout the recommendation process helps the platform to comply with relevant regulations and mitigate legal actions and liabilities that may result from infringement. At the same time, it can improve the platform's protection of copyright interests, attract more legitimate content, and create a more robust environment for the platform's sustainable development.

In practice, this filtering mechanism can be combined with advanced technologies such as digital fingerprinting technology and content identification algorithms to ensure efficient and accurate determination of whether the uploaded content infringes on copyright. Of course, platforms should also set up effective complaint and objection mechanisms to ensure that legitimate content is not unduly restricted and to safeguard users' rights and interests in uploading. To summarize, the effective implementation of copyright filtering mechanism should start from the source, i.e., when users upload videos, and run through the whole process of the application of algorithmic recommendation technology, and the platform should promptly review the "user-created content" entering the recommendation process, so as to achieve the goal of comprehensive protection of intellectual property rights.

4. SAFEGUARDS FOR USERS' INTERESTS

(i) The Platform establishes a mechanism for correcting errors

All systems have their limitations without exception. Indeed, at present, the most effective method with the greatest possibility of implementation is to screen works that may infringe the copyright of right holders on online platforms by means of algorithmic filtering systems, which, however, inevitably leads to the situation of wrong filtering. When constructing China's copyright filtering mechanism, the platform should emphasize the establishment of the error correction mechanism of error filtering to ensure the accuracy and fairness of the system. The design of the error correction mechanism of error filtering is related to the platform's protection of the rights and interests of users and copyright holders, and needs to comprehensively consider various aspects such as technology, law and user experience. Article 22 of the Provisions on the Management of Algorithmic Recommendations stipulates that "Algorithmic recommendation service providers shall set up boundary-effective entrances for user appeals and public complaints and reports, make clear the

handling process and feedback timeframe, and accept, handle and feedback the results in a timely manner." This is also a requirement of the Directive for its member states[17].

First, the platform can set up a user complaint and appeal channel to provide users with a convenient way to reflect the situation of being wrongly filtered. This channel should be set up with clear operational procedures, including the steps for submitting complaints, required materials and timeframes for review, so as to ensure that users are able to make requests for error correction in a timely and effective manner. In addition, platforms may consider introducing specialized personnel or teams responsible for handling user complaints to improve processing efficiency and accuracy.

Second, the platform can establish a technical review mechanism to correct the misjudgment of the algorithmic system through manual review. Technical reviewers should have specialized knowledge and be able to identify complex copyright issues and accurately correct errors generated by the system. This technical review mechanism can serve as an effective supplement to improve the accuracy and credibility of the filtering system, forming an efficient and flexible closed loop of the "system - human" process[18].

Lastly, platforms should also emphasize transparency, promptly publicize the results of error correction and processing progress to users, and ensure that the operation of the entire filtering mechanism is visible and traceable to users. Transparent processing flow and result disclosure can help enhance users' trust in the platform, and at the same time prompt the platform to optimize the filtering algorithm and improve the service level in a more prudent manner.

To summarize, when the platform constructs the error filtering and correction mechanism, it needs to comprehensively consider the rights and interests of users, technical feasibility and legal compliance, and ensure the effective operation of the platform in the field of copyright filtering through reasonable mechanism design and operation, and provide users with fair and efficient channels for error correction.

(ii) Establishment of reasonable filtering criteria

Ensuring the creative freedom of Internet users is one of the crucial considerations when establishing a copyright filtering mechanism. A reasonable and flexible approach should be adopted in setting filtering standards in order to strike a balance between copyright protection and users' freedom of creation. It was not necessary for the law to specify technical filtering standards, and the issue could be left to the courts. In specific cases, the court may interpret the ISP's duty of reasonable care to include the obligation of technological filtering; or expand the interpretation of the information network service provider's security obligation to include the obligation of copyright content filtering. [19]However, if the standard-setting of copyright filtering is thrown to judicial decision-making, how to limit the space for judicial discretion will become the next judicial challenge. Therefore, the ideal approach should be to authorize the relevant administrative authorities to propose guiding copyright filtering standards, allowing the courts to reasonably apply them in case-by-case application according to the actual situation, and avoiding over-reliance on the courts' discretion. In practice, through reasonable filtering standards, the freedom of creativity of Internet users can be maximized while safeguarding copyright and promoting the flourishing of creativity and innovation in the digital environment.

First of all, a reasonable filtering criterion should have clear guidelines for legitimate use. Taking into account the legitimate use in some specific contexts, such as quoting, commenting, criticizing, etc., the filtering criteria should be able to accurately identify such legitimate use and avoid incorrectly filtering the content of legitimate use. This helps to protect the right of users to create and express themselves in accordance with the law.

Secondly, the filtering criteria should focus on the diversity of platforms and the plurality of content. While protecting copyright, the diversity of user creation should be fully respected to avoid overly

stringent standards leading to the filtering of some innovative and original content, so as to safeguard users' freedom of creation on online platforms.

In addition, the setting of filtering standards needs to take full account of technical constraints and costs, so as to avoid overly theoretical standards that are difficult to implement effectively in practice. The use of flexible technical means, combined with advanced technologies such as machine learning, can better adapt to different types of content and forms of creation and improve the accuracy of filtering.

Finally, in order to safeguard the creative freedom of Internet users, the process of setting filtering standards should be transparent and open. Users and stakeholders should be able to understand the principles and rationale for filtering standards and have the right to monitor and make suggestions. This will help establish a fair and equitable filtering mechanism and ensure that the rights and interests of creators are properly safeguarded.

(iii) Establishment of a copyright database

The construction of a copyright database can provide important support for the improvement of the copyright filtering mechanism. A copyright database is a centralized database containing a large amount of information on copyrighted works, including the basic information of the works, the information of the copyright owner and the copyright status of the works. The following are some suggestions for improving the copyright filtering mechanism by constructing a copyright database:

First of all, the copyright database should be organized by the national copyright administration. The national copyright administration has authority and is responsible for the management and supervision of copyright affairs, so it is one of the most suitable institutions to organize a copyright database. Through national organization, the authority and comprehensiveness of the database can be ensured, and incomplete or inaccurate information can be avoided.

Secondly, the establishment of a copyright database can simplify the process of obtaining information on copyrighted works by network service providers. In China, according to the Copyright Law of the People's Republic of China, copyright arises automatically upon the completion of a work without the need for registration. However, due to the large number of copyright holders and the high mobility of copyright, it is difficult for ISPs to know the copyright status of works. Through the copyright database, ISPs can obtain the required copyright information through a simple query operation, which improves efficiency and reduces costs.

In addition, a flexible database opt-out mechanism is recommended. The copyright status of works may change due to factors such as the validity period of copyright and transfer of rights. In order to maintain the timeliness and accuracy of the database information, an exit mechanism for copyrighted works should be established to promptly clear the information of works that are no longer eligible for copyright protection. This can be done by registering the year of publication and related information of a work through the system, which automatically clears the relevant information once the work exceeds the term of copyright protection.

It is no coincidence that the construction of a copyright database is an important part of improving the copyright filtering mechanism. Through the organization of the national copyright administration, the authority of the database is ensured; the process of obtaining copyright information by ISPs is simplified; and a flexible withdrawal mechanism is adopted to maintain the accuracy and timeliness of the database information. Such a database will provide a reliable data base for the copyright filtering system, prompting ISPs to better fulfill their copyright filtering obligations and safeguard the rights and interests of copyright holders.

5. CONCLUSION

In the current digital era, the interaction between the Internet industry and the copyright industry has become increasingly close, however, the problem of copyright protection has also become more and more prominent. In order to promote the benign cooperation between the Internet industry and the copyright industry, it is necessary for China to actively promote the work of algorithmic goodness and construct a perfect copyright filtering system. This initiative not only helps protect intellectual property rights and promote creators' enthusiasm for creation, but also facilitates the long-term development of the Internet industry. By reasonably setting filtering standards, establishing a centralized work comparison database, and introducing a manual review mechanism, we can better balance the relationship between copyright protection and users' freedom of creation, and reduce the probability of erroneous filtering. This not only helps improve the efficiency and accuracy of the copyright filtering system, but also provides a more flexible and adaptable solution for Internet platforms. In the future development, we expect that through this perfect system, we can promote the synergistic development of China's Internet industry and copyright industry, and realize the win-win situation of knowledge innovation and copyright protection in the digital era.

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