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The Adoption of Technology in Copyright Law to Strengthen Copyright Protection

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ABSTRACT

The development of copyright in digital media today has created two opposing sides. On the one hand, technological developments increase efforts to publish and disseminate information and knowledge to the general public. On the other hand, technological developments have encouraged the rampant actions that cause losses and tend to violate the law to continue to increase with a developing pattern. This study aims to examine and analyze the adoption of technology in the provisions of copyright law in order to strengthen copyright protection in Indonesia. The research method used was normative juridical using a legislative and conceptual approach. The results of the study indicate that in terms of philosophical, sociological, technical, and legal urgency, the adoption of technology is needed to prevent and prosecute copyright infringement in digital media in the provisions of Law Number 28 of 2014 concerning Copyright. The implications of adopting information technology in the provisions of copyright law include a multi-layered protection system, the availability of digital evidence recognized by law, synergy between technical and legal protection, and the guarantee that the regulation of information technology is implemented properly.

Keywords: copyright; digital medium; technology.

INTRODUCTION

Copyright is a part of intellectual property rights that encompasses the fields of science, art, and literature. Copyright is the exclusive right of the creator that arises automatically based on the declarative principle after a work is manifested in a tangible form, without diminishing the limitations in accordance with the provisions of the prevailing laws and regulations. This exclusive right means a right that is intended for the creator, such that if another party wishes to utilize the right, they must obtain permission from the creator. This exclusive right consists of moral rights and economic rights. These exclusive rights make a significant contribution to the protection of works by the creator and provide both moral and economic benefits to the creator. However, in its practical implementation in the field, many irresponsible parties take advantage of these exclusive rights, for example by committing piracy of copyrighted works on the internet.[1]

The development of technology and science over time has undergone significant change. The impact of the development of technology and science has had a major effect on human life. Human activities today are inseparable from the use of technology, so that technology provides various conveniences for humans, including in the development of science through technology. The internet is one of the many technological developments that offers ease in accessing any desired information.

Internet technology has become an alternative medium for the publication of copyrighted works. The internet serves as a platform and medium for information sources related to works of art, literature, and science. In practice, internet users sometimes misuse its use. Such misuse leads to

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[1] OK Saidin, *Aspek Hukum Hak Kekayaan Intelektual*, PT Rajagrafindo Persada, Jakarta: 2015, p. 46.

legal violations, particularly copyright violations. These copyright violations have caused serious concerns. Therefore, efforts must be made to optimize copyright protection on the internet.[2]

The presence of internet technology has brought a double-edged sword in the legal field, especially in the field of copyright.[3] First, the presence of internet technology has succeeded in enhancing the efforts of publication and dissemination of a vast amount of information and knowledge throughout the world. Information and knowledge can be enjoyed by all people on this earth. Second, the presence of internet technology has encouraged the proliferation of actions that cause harm and tend to violate the law in increasingly developing patterns.[4] This issue in Indonesia therefore necessitates legal protection of copyright over digital works, so that in the future, at the very least, copyright infringement can be minimized.

Efforts to minimize copyright infringement are carried out through various approaches on the internet. One of them is through the adoption of technology, in this case copyright information management and technological control measures, into copyright legislation, both nationally and internationally. These two measures are concrete tools and provide solutions for the protection of copyright on the internet. In principle, copyright protection in Indonesia, particularly in digital media such as the internet, has been regulated through copyright information and technological control measures in Law Number 28 of 2014 on Copyright.

The strategy for copyright protection in the digital realm involves technological arrangements in the form of safeguards within copyright provisions.[5] The function of technology is as a means of copyright protection. This technology includes technical elements embedded in digital formats stored in a medium where information goods are contained, in order to restrict access to those information goods.[6] This technology has developed in two aspects, namely in security systems to prevent unauthorized copying, and not only for security but also for user identification, trade, sales, and other monitoring actions.[7]

This technology is an effort to realize a system that adopts technology to protect copyrighted works and can be used to identify users as well as conduct monitoring. The safeguard technology developed from the technological perspective is Digital Rights Management (DRMs).[8] The function of DRMs is not only as a tool for the prevention of digital copyright infringement but also as a tool or technology for the enforcement of copyright infringement on digital works.[9] DRMs can guarantee the exclusive rights contained within Copyright for the creator. DRMs also limit users in accessing and

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[2] Budi Agus Riswandi, *Hak Cipta di Internet Aspek Hukum dan Permasalahannya di Indonesia*, FH UII Press, Yogyakarta: 2016, p. 33.
[3] Budi Agus Riswandi, "Hukum dan Teknologi: Model Kolaborasi Hukum dan Teknologi Dalam Kerangka Perlindungan Hak Cipta di Internet", *Jurnal Hukum Ius Quia Iustum,* Vol. 23, No. 3, 2016, p. 345-267.
[4] *Ibid.*
[5] Ari Juliano Gema, "Masalah Penggunaan Ciptaan Sebagai Data Masukan Dalam Pengembangan Artificial Intellegence di Indonesia", *Technologi and Economics Law*, Vol. 1 No. 1, November 2022, 1-17
[6] Jose Miguel Azpurua Alfonzo, 'An Assessment of Technological Protection Measures: The DVD Industry', in The Technological Impact on Contracts in The Digital World, 2006, p. 4.
[7] Budi Agus Riswandi, *Op.Cit.*, p.159.
[8] Irawati," Digital Right Managements (Teknologi Pengaman) Dalam Perlindungan Terhadap Hak Cipta di Era Digital", *Diponegoro Private Law Review,* Vol. 4 No. 1, June 2019, 382-389
[9] Yuko Noguchi, J.S.D., "Several New Topics of Digital Copyrights", Attorney at Law, *Intellectual Property Section*, Mori Hamada and Matsumuto, Chapter II, p. 1.

using works. These limitations are intended to prevent unauthorized reproduction and copying of works. DRMs also play a role in enabling the identification of copyrighted works.

Observing the increasing number of copyright infringement cases on the internet has given rise to a serious legal issue, especially in Indonesia. Thus, the urgency of adopting technology as an effort to optimize the protection of digital copyrighted works is highly necessary. Technology as a means of technical protection of digital copyrighted works can at least minimize the occurrence of digital copyright infringement cases in Indonesia. Based on the above background, the problems to be discussed are, first, what is the urgency of adopting technology in the provisions of Law Number 28 of 2014 on Copyright? Second, what are the implications of adopting technology in the provisions of Law Number 28 of 2014 on Copyright?

METHOD

This research is normative legal research and focuses on examining and analyzing several literatures related to the necessity of adopting technology in Law Number 28 of 2014 on Copyright for the purpose of strengthening copyright protection in Indonesia. The author employs a statutory approach, which involves analyzing various applicable laws and regulations as well as relevant provisions related to the legal issues being studied,[10] and a conceptual approach, which describes concepts in their constructive form and relates them to an object or phenomenon, not by directly referencing the object or phenomenon, but rather as interpretations and definitions created within the imagination.[11] The data collection technique used in this research is document study, namely by reviewing and tracing various applicable laws and regulations, as well as literature review through the study of journal references, legal research, and other relevant literature related to the research topic under study. The data are then processed qualitatively.

DISCUSSION

The Urgency of Technology Adoption in the Provisions of Law Number 28 of 2014 on Copyright

1. Philosophical Urgency

The philosophical foundation reflects the formation of regulations by taking into account the worldview, awareness, and legal ideals rooted in Indonesia's national philosophy. Science and technology are blessings from Almighty God bestowed upon humanity to foster development and bring benefits for the public good. Development toward a better, more modern direction must be promoted and preserved through the recognition, advancement, and protection of such rights as forms of intellectual property.

The values that grow and develop within society must originate from the constitution of the Indonesian nation, specifically from *Pancasila*. "*Pancasila* is the source of all sources of state law," as

[10] Peter Mahmud Marzuki, Penelitian Hukum Edisi Revisi, Pranadamedia Group, Jakarta: 2016, p. 136.
[11] Soetandyo Wignjosoebroto, *Hukum, Konsep, dan Metode*, Setara Press, Malang: 2013, p. 17.

stated in Article 2 of Law Number 15 of 2019 on the Amendment to Law Number 12 of 2011 on the Formulation of Laws and Regulations. Article 3 paragraph (2) further affirms, "The 1945 Constitution of the Republic of Indonesia is the fundamental law in the legal system."

Pancasila serves as a guide in national legal politics across various fields. The first principle, "Belief in One Almighty God," is the foundation of religion-based legal politics. The second, "Just and civilized humanity," is the foundation for legal politics that uphold and protect human rights in a non-discriminatory manner. The third, "The unity of Indonesia," forms the basis of legal politics for unifying all elements of the nation. The fourth, "Democracy guided by the inner wisdom in the unanimity arising out of deliberations among representatives," serves as the foundation of democratic legal politics where power resides in the hands of the people. The fifth, "Social justice for all of the people of Indonesia," underpins legal politics in a fair and equitable society.

The values contained in *Pancasila* are characteristic of a legal state that recognizes individual rights and freedoms as human rights while also placing the public interest above personal interest. Article 28H paragraph (4) of the 1945 Constitution asserts, "Everyone has the right to own personal property, and such ownership rights shall not be arbitrarily taken over by anyone." Thus, the law must function as a creator of order, which is a prerequisite for providing protection to the Indonesian people in achieving order, utility, and justice.[12] When connected to the issue of adopting technology in copyright law as an effort to strengthen copyright protection in Indonesia, this aligns with Article 1 paragraph (3) of the 1945 Constitution, which states, "Indonesia is a state based on law." The core concept of a legal state includes justice and the creation of public welfare as its goal and ideal. This is in line with the three basic values of law: certainty, utility, and justice.

The above philosophy is relevant to what intellectual property expert Arpad Bogsch stated: "Human genius is the source of all works, of art and inventions. These works are the guarantee of a life worthy of men. It is the duty of the state to ensure with diligence the protection of the arts and inventions." This foundational thought underscores the obligation of the state to fully guarantee the protection of all forms of creative works, which are the product of intellectual effort in science, art, and literature.[13]

The preamble of Law Number 28 of 2014 affirms that the rapid development of science, technology, art, and literature necessitates enhanced protection and legal certainty for creators, copyright holders, and related rights owners. Such protection and certainty are interpretations of the values inherent in Pancasila. Ensuring the legal certainty and protection of creators over digital works is imperative to protect both moral and economic rights.

The basic concept of copyright protection lies in natural law, which holds that copyright arises naturally, and its recognition and protection occur once the work is expressed in tangible form.[14] According to John Locke, every person naturally has a right over themselves and the products of their

[12] Bernard Nainggolan, "Landasan Filosofis dan Substansi Pembaruan Dalam Undang-Undang Nomor 28 Tahun 2014 Tentang Hak Cipta", *Jurnal Paradigma Hukum*, Vol. 1, No. 1, 2016, 53-77.
[13] *Ibid.*
[14] Eddy Damian, *Hukum Hak Cipta*, Alumni, Bandung: 2009, p. 28.

labor. Any creation arising from effort and sacrifice must be duly rewarded.[15] This view is known as the labor theory by John Locke.

Copyright must be protected and respected, as articulated by copyright law expert S.M. Stewart, who emphasized several core principles:[16]

a) Justice (the principle of nature justice)
   The author is the creator or producer of a work as an expression of their personality and should have the right to decide whether the work is published while preventing harm or damage to it. The creator deserves compensation for their creative effort.
b) Economics (the economic argument)
   In today's modern world, investment is essential for creating works. All creative processes—including publication and distribution—incur significant costs. Such investments will not be made without the expectation of return or profit. Therefore, the notion that creators should not be compensated for their contributions is flawed.
c) Culture (the cultural argument)
   Creators of original works are national assets. Their creations contribute to the public interest and to the development of national culture.
d) Social (the social argument)
   The widespread dissemination of creative works fosters inter-group relationships and strengthens social cohesion. If the creator's ideas can be widely disseminated in a short time, they contribute to social progress.

Indonesia adheres to the civil law system, and its philosophy of protection prioritizes the creator's moral rights, consistent with the principles of copyright protection outlined in the Berne Convention. Moral rights are perpetual and cannot be revoked. Although economic rights may be transferred to others, the creator remains the central figure entitled to full control over any use of the work that might be detrimental to their interests.[17]

2. Urgensi Sosiologis

Community life holds not only philosophical meaning but also sociological significance. Society fundamentally adheres to a set of rules that serve as a guide for social conduct. Human interactions, both among individuals and between individuals and society, are governed by a series of values and norms, which eventually become institutionalized into customary traditions. However, the regulatory frameworks within society are not always able to keep pace with the rapid development of science and technology. Consequently, legal reform is necessary to respond to these evolving dynamics.

[15] William Fisher, *Theoris of Intellectual Property*. Quoted on Stephen Munzer, ed., *New Essays in the Legal and Political Theory of Property* (Cambridge University Press, 2001), p. 168-199.
[16] Elfian Fauzy, "Rekonseptualisasi Perlindungan Hukum Atas Hak Cipta Terhdap Artificial Intellegence di Indonesia", (Tesis, Universitas Islam Indonesia), 2023.

[17] Budi Santoso, *Dekonstruksi Hak Cipta Indonesia*, Pustaka Megister, Semarang: 2012, p. 110.

Intellectual property rights, particularly copyright, are governed by statutory regulations that provide individuals the legal basis to assert and enforce their entitlements. The norms and patterns governing social interaction are inherently rooted in social structures, social processes, and cultural changes, which serve to determine whether a legal regulation within society is functional and effective. In this context, the sociological foundation highlights the dynamic and evolving nature of society itself.

The development of copyright protection in the digital era has introduced increasingly complex challenges. Therefore, the integration of technology within national legislation becomes imperative to safeguard digital creations. Law No. 28 of 2014 on Copyright serves as the principal legal framework for protecting copyrighted works, including digital content, and has incorporated provisions for digital copyright protection through technological protection measures.

Technological protection measures refer to any technology, device, or component designed to prevent or limit actions that are unauthorized by the author, copyright holder, or related rights owner, and/or prohibited under statutory provisions. However, the definition above does not fully capture the depth or specificity of the technology needed to adequately protect digital copyright. As such, there is a pressing need for more specific and effective technologies that can at least minimize copyright infringement in digital contexts.

The term "technology-based and/or high-tech production and/or data storage facilities" refers to optical discs, servers, computing (cloud), secret codes, passwords, barcodes, serial numbers, decryption and encryption technologies used to protect creations. In general, Indonesia's Copyright Law has regulated technologies that function to protect creations. However, considering current technological developments, several companies in developed countries have adopted other technologies to safeguard their creations. These technologies have advantages in data storage as well as facilitating centralized data management, allowing users to manage and store data effectively and efficiently.

Blockchain technology is one such technology that can be used to protect digital copyrighted works. Blockchain is a type of database containing transaction records that are distributed, validated, and managed by a global computer network.[18] Blockchain offers convenience and solutions for the recognition, protection, and management of digital works.[19] The strong rationale for the legal adoption of blockchain technology lies in its elimination of dependence on centralized actors and the creation of universal truth among untrusted parties. The following are examples of companies using blockchain technology to protect copyright:

Blockchain technology is one such innovation that may be utilized to protect digital intellectual property. Blockchain is a type of distributed database that records, validates, and manages transaction data across a global network of computers.[20] This technology offers a potential solution

[18] Simanta Shekhar Sarmah, "Understanding Blockchain Technology", *Journal of Computer Science and Engineering*, Vol.8, No.2, 2018, p. 23-42.
[19] Budi Agus Riswandi, *Teknologi Blockchain, Hak Cipta, dan Islam*, quoted from the Inaugural Speech of the Professor at the Faculty of Law, Universitas Islam Indonesia, held on 30 May 2022.
[20] Simanta Shekhar Sarmah, "Understanding Blockchain Technology", *Journal of Computer Science and Engineering*, Vol.8, No.2, 2018, p. 23-42.

for recognition, protection, and management of digital works by eliminating dependence on centralized authorities and creating a shared truth among untrusted parties.[21] Several companies have adopted blockchain to protect copyright, including:

a) Blockai

Blockai is a blockchain-based service company for writers and artists using timestamps to track the development of their latest works. Each user has a profile that can control access to certain information and manage their certificates. Once a work is completed and uploaded, the user can track copyright infringements that are automatically identified. Users or owners also receive information about unauthorized access that may lead to potential piracy. [22]

b) Mediachain Lab

Mediachain Lab, based in Brooklyn, is a stock photo service company that utilizes blockchain technology to connect media content with its creators. Users can search keywords to identify similar content with details on place, origin, and topic. The photos are automatically credited with the author's name. Authors can also reach a wider audience while still retaining control of their data using this blockchain system.

c) Asribe

Ascribe is a Berlin-based company stating that authors can register digital works on the blockchain for free and make the usage rights publicly available. The data cannot be lost or modified. In verifying the validity of data, the potential emergence of fake data within a decentralized network is a significant challenge. Blockchain addresses this issue using economic incentives (bitcoin) to encourage adherence to rules.

d) Ujo Music

Ujo Music, based in London, provides internet infrastructure for musicians. Musicians can independently publish their works without Ujo Music acting as a publisher and can manage their own marketing. However, this can potentially lead to piracy, thus disadvantaging the musicians. Ujo Music uses the cryptocurrency Ether for payments, allowing the tracking of payment transactions to be clearly identified.

3. Technical Urgency

Technological advancements have had a significant impact on every sector of human life. Technology has shifted human life from a conventional model toward a modern one that relies heavily on technological tools. One of the most prominent advancements is the development of

[21] *Ibid.*
[22] Asia IP, "Copyright Society of China Launches Copyright Blockchain Protection", quoted from Copyright Society of China launches copyright blockchain protection | Asia IP, accessed on 5 February 2024

internet technology. The internet has become an indispensable part of supporting human activities.[23] It facilitates access to information and allows individuals to use that information for various purposes. The types of information available and utilized often pertain to fields such as art, literature, and science.

The field of copyright has become actively involved in this technological evolution. Internet users can download, copy, modify, mutilate, distribute, and even adapt content, all of which directly intersect with copyright concerns. This situation presents a duality: on one hand, internet users benefit from ease of access and use of information; on the other hand, their actions may give rise to behaviors that have the potential to violate legal norms.[24]

Technologies such as digital rights management (DRM), technical protection measures (TPMs), rights management information (RMI), and technological protection systems offer technical safeguards for copyright protection in addressing digital copyright infringements. These technologies are expected to minimize digital copyright violations, enabling both creators and users to share information without infringing upon one another's rights. This leads to a balanced framework among the parties involved in utilizing accessible information.

Clarkes Clark, as quoted by Victoria Banti Markouti, stated that "the answer to the machine is the machine." This statement suggests that technology can be used as a defensive tool against intellectual property violations perpetrated via technological means.[25] Furthermore, Hugenholtz reinforced Clarkes Clark's view, asserting that "the technological development has led to the use of technological measures by the copyright owners in order to prohibit the infringement of their rights or restrict the illegal actions. Indeed, technological protection measures have been characterised as 'powerful new weapons in the copyright arsenal."[26]

Thus, it can be concluded that technology provides a technical means for the protection of digital copyrights in the context of internet-based information. However, when viewed in isolation, technical protection alone is suboptimal, as it tends to function only at the level of prevention. If technical protection is integrated with legal copyright provisions, the resulting protection can extend to the level of enforcement.

The collaboration between technical protection and copyright regulations for the protection of digital copyrights, particularly in terms of both prevention and enforcement, becomes increasingly crucial in the future. The WIPO Internet Treaties are multilateral agreements that govern copyright in the digital domain. These treaties also form the basis for both technical protection and copyright

[23] Ahmad M. Ramli, dkk, "Perlindungan Kekayaan Intelektual Dalam Pemanfaatan Teknologi Informasi Pada Saat Pandemi Covid 19", *Jurnal Penelitian Hukum De Jure*, Vol. 21 No. 1 March 2021, 45-58
[24] M. Hawin dan Budi Agus Riswandi, *Isu-Isu Penting Hak Kekayaan Intelektual*, Gadjah Mada University Press, Yogyakarta: 2020, p. 128
[25] Victoria Banti-Markouti, "The Interface between Technological Protection Measures and the Exemptions to Copyright under Article 6 Paragraph 4 of the Infosoc Directive and Section 1201 of the Digital Millennium Copyright Act, with Particular Respect to the Implementation of Article 6 Paragraph 4 in the National Laws of Greece, UK, and Norway", *Issues in Informing Science and Information Technology*, Vol. 4, 2007, p. 570-592.
[26] *Ibid.*

provisions.[27] The WIPO Internet Treaties are closely linked to technical protection, as the clauses within the treaties regulate collaboration between copyright laws and technological safeguards.

There are two types of technologies highlighted in the WIPO Internet Treaties. First, anti-circumvention technologies, which address issues such as hacking. Member countries of WIPO may adopt anti-circumvention technologies as legal measures for digital copyright protection. Second, protective technologies that ensure data security on the internet through the use of codes or other regulatory requirements established by countries to safeguard digital copyrights.[28] Therefore, the technologies contained within the WIPO Internet Treaties serve as a foundational basis for implementing digital copyright protection.

4. Juridical Urgency

The collaboration between law and technology is not merely conceptual; it has been realized at the international level and established as an international agreement among several nations. This is embodied in international copyright conventions known as the WIPO Internet Treaties, which comprise two key international treaties: the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT). The relevant provisions are found in Article 11 of the WCT, which states:

The provision on technological measures obliges the Contracting Parties to provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.

Article 18 of the WPPT states:

Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by performers or producers of phonograms in connection with the exercise of their rights under this Treaty and that restrict acts, in respect of their performances or phonograms, which are not authorized by the performers or the producers of phonograms concerned or permitted by law.

From the above two provisions, it is clear that technical protection is an integral part of international copyright regulation. This regulation aims to provide effective copyright protection on the internet. Two obligations arise from these articles:[29]

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[27] WIPO, "Wipo Internet Treaties", quoted from https://www.wipo.int/copyright/en/activities/internet_treaties.html, accessed on 5 April 2024

[28] *Ibid.*

[29] Denise Rosemary Nicholson, "Digital Rights Management and Access to Information: a developing country's perspective," *Library and Information Science Research Electronic Journal*, Vol. 19, Issue 1, 2009, p. 1-18.

a) States are obligated to provide adequate legal protection and effective remedies against the circumvention of technological measures such as conditional access systems and encryption used by copyright holders to protect their works.
b) States are also obligated to ensure the reliability and integrity of technological safeguards in the online market, particularly to prohibit deliberate alterations or deletions of electronic information accompanying protected material, which identifies the work, the rights holder, and the terms and conditions for its use.

Articles 11 and 18 form the basis for the inclusion of technological protection measures in international copyright law. Member states are required to ratify these provisions into their national copyright laws, thereby allowing each country to articulate technological protection norms according to its own legal and policy interests. Indonesia is among the member states that have ratified the WCT through Presidential Decree No. 19 of 1997 and the WPPT through Presidential Decree No. 74 of 2004.

Copyright regulation in Indonesia is currently embodied in Law Number 28 of 2014. The provisions in this law address the interests of creators or holders of copyright and related rights. Exclusive rights, comprising moral and economic rights, are outlined in detail. Moral rights are regulated in Articles 4 through 7, while economic rights are covered in Articles 8 through 19 of Law Number 28 of 2014. Furthermore, related rights are addressed in Articles 20 through 30.

Additional provisions concerning permissible use for public interest are set out in Articles 43 to 51. These articles represent an effort to protect copyright while ensuring legal certainty and maintaining balance between the interests of creators and the public. Copyright and related rights protection through technology is regulated in Articles 52 to 56. Article 52 prohibits any individual from damaging, destroying, removing, or disabling technological control measures. Article 53 requires compliance with licensing and production regulations for works or products protected by copyright or related rights that use information technology or advanced technologies.

Articles 54 and 55 stipulate that the government is authorized to supervise and take action against copyright infringement through technological means. However, enforcement is based on complaints filed by the copyright holder or related rights holder, and current technology cannot automatically detect such violations. Article 56 provides that the relevant Minister has the authority to block access to content and/or user access that infringes copyright or related rights in electronic systems, rendering such content inaccessible.

The technologies referenced in Law Number 28 of 2014 to prevent or restrict unauthorized actions by creators include optical discs, servers, cloud computing, secret codes, passwords, barcodes, serial numbers, decryption and encryption technologies. In the digital era, which brings a range of legal consequences, creators are at increased risk of having their rights infringed due to the irresponsible or even commercial exploitation of their works by others. This is supported by

Indonesia's inclusion on the Priority Watch List (PWL) as a country with a high level of intellectual property infringement.[30]

Given the technological provisions in Law Number 28 of 2014, and in light of the widespread incidence of copyright infringement, it is imperative that the technology used should be capable of detecting copyright violations both preventively and repressively. In the current context of digital development, technology that ensures exclusive rights plays a strategic role in protecting copyright. On one hand, technology can limit access and duplication of works to prevent unauthorized copying. On the other hand, it can also be used to identify works with the aim of tracking and preventing unlawful activities.

Implications of Technology Adoption in Law No. 28 of 2014 on Copyright

1. Layered Protection System

The provisions contained in the WIPO Copyright Treaty, as part of the WIPO Internet Treaties, highlight the role of technology in copyright protection. It is clear that the international convention seeks to provide stronger regulations for copyright protection in the digital medium. Countries that are members of WIPO have ratified the technological provisions in the WIPO Copyright Treaty into their national laws. Indonesia is one of the countries that ratified the WIPO Copyright Treaty through Presidential Decree No. 19 of 1997.

Ratifying this international convention has consequences for Indonesia, requiring the harmonization of laws to incorporate technology for digital copyright protection. This enables legal protection for copyright, particularly in the digital medium, through the incorporation of technology. Digital copyright protection thus becomes layered, supported by both technical provisions and legal provisions.

The technical provisions, in the form of digital copyright protection using technology, will protect copyright in the digital medium through preventative measures. However, a prevention-only approach is not optimal for copyright protection in the digital medium. Layered protection that integrates legal provisions strengthens the copyright protection in the digital medium, as it is supported by laws that impose sanctions for violations of technical protections on copyright in the digital medium.

Therefore, the adoption of technology into copyright provisions has led to layered protection, supported by technical measures as a preventative strategy and legal provisions regarding technology in copyright law that impose penalties for violations of technical protections of copyright in the digital medium.

[30] Directorate General of Intellectual Property, “Minimalisir Pelanggaran Kekayaan Intelektual DJKI Lakukan Langkah Preventif dan Represif”, quoted from https://dgip.go.id/artikel/detail-artikel/minimalisir-pelanggaran-kekayaan-intelektual-djki-lakukan-langkah-preventif-dan-represif?kategori=agenda-ki, accessed on 1 February 2024.

2. Availability of Legally Recognized Digital Evidence

The adoption of technology into copyright law not only results in layered protection but also carries another implication: the availability of digital records or evidence that are legally recognized. This facilitates the tracking, discovery, and prosecution of copyright violations in the digital medium, as digital records serve as valid legal evidence under Indonesian law.

Digital evidence is typically encountered in cybercrimes and crimes involving electronic devices.[31] A definition of digital evidence refers to digital objects containing reliable information to support or refute allegations in an investigation.[32] In Indonesia, the regulation of digital evidence is found in Law No. 1 of 2024 on the Second Amendment to Law No. 11 of 2008 on Electronic Information and Transactions ("**ITE Law**"). Digital evidence under ITE Law is referred to as electronic information and/or documents.

Electronic information and/or documents are any electronic information created, forwarded, transmitted, received, or stored in analog, digital, electromagnetic, optical, or similar forms that can be seen, displayed, or heard through computers or electronic systems. This includes, but is not limited to, text, sound, images, maps, designs, photos, letters, electronic data interchange (EDI), electronic mail, symbols, numbers, access codes, symbols, or perforations that carry meaning understood by individuals.

The existence of this electronic information and/or document binds and is recognized as valid evidence, ensuring legal certainty, particularly in proving legal actions that are conducted digitally. Electronic information and/or documents are an extension of valid evidence in accordance with the applicable procedural law in Indonesia. Thus, digital evidence or electronic information and/or documents are legally recognized and valid.

When linked to technology under copyright law provisions, digital evidence appears in production and/or storage devices based on technology and/or advanced technology, such as optical discs, servers, cloud computing, secret codes, passwords, barcodes, serial numbers, decryption (decryption) and encryption technologies used to protect creations. Therefore, if a copyright violation occurs, this digital record can be easily retrieved and used as valid legal evidence.

Furthermore, Article 25 of the ITE Law states that electronic information and/or documents compiled into intellectual works, internet sites, and the intellectual works therein are protected as intellectual property. This clause demonstrates a close relationship between intellectual property rights, specifically copyright, and the ITE Law, as copyright also covers digital creations, which fall under the scope of ITE Law protection. Consequently, the correlation between copyright and ITE Law provides two layers of protection and enforcement under the law.

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[31] Moch Bagoes Pakarti, "Manajemen Pengelolaan Bukti Digital Untuk Meningkatkan Aksesibilitas Laboratorium Forensika Digital," (Thesis, Universitas Islam Indonesia, 2020)
[32] *Ibid.*

3. Synergy of Technical and Legal Protection

Technical and legal protection serves as dual mechanisms, both preventative and repressive. Technical protection through technology impacts users by serving as a means of protecting copyright in the digital medium. However, this alone does not provide optimal protection, as it is limited to preventative measures against copyright violations in the digital medium. When supported by legal provisions, legal certainty is provided in case of copyright violations.

These provisions strengthen the enforcement level, imposing sanctions on copyright violations in the digital medium. Thus, the synergy between technical and legal protection enhances copyright protection in the digital medium. There are several reasons why this synergy is necessary to reinforce copyright protection, including:[33]

a) Technical protection for copyright is not optimal, as technical measures can only provide protection at the prevention level. However, if technical protection is integrated with copyright provisions, the function of technical protection is expected to extend to enforcement.
b) Technical protection for copyright is inadequate because technology cannot provide complete security, technologies may be compromised and eliminated. When technical protection is integrated with copyright provisions, the security strength of technology is bolstered, as the technology is supported by legal protection.

The synergy between technical and legal provisions is an implication of the adoption of technology in copyright law. This has already incorporated technology provisions that guarantee legal certainty when copyright violations occur in the digital medium. Given the reasons mentioned above regarding the synergy between technical and legal provisions, it is expected to minimize copyright violations both preventatively and repressively.

4. Guarantee of Proper Implementation of Technology Norms

The adoption of technology is essentially a response to the increasing number of copyright violations in the digital medium. In addressing these numerous violations, the establishment of technology norms encourages the enactment of legal norms that align with societal needs, necessitating technology to protect digital creations.

The establishment of technology norms can also regulate access to certain works through technologies such as identity verification, restrictions, or even paid services. This can affect how digital works are accessed and consumed by the public while considering the interests of the creators. Thus, in practice, technology can be used as a tool to detect and address copyright violations in the digital medium, for example, through matching algorithms or copyright infringement detection systems.

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[33] M. Hawin dan Budi Agus Riswandi, *Op.Cit.,* p. 130.

The presence of technology provides legal certainty for users of the digital medium. This is because it includes aspects of usage, limitations, exceptions, and legal sanctions. Therefore, the provisions regarding the establishment of technology norms in copyright law can be effectively implemented, as digital medium users, especially creators of digital works, are protected by legal provisions that shield them from violations of their copyright.

CLOSING

Based on the analysis presented above, the adoption of technology in the provisions of Law No. 28 of 2014 on Copyright is a proper step. This is supported by the urgency in philosophical, sociological, technical, and juridical terms, which needs to be carried out to address the challenges posed by technological development as a function for preventing and enforcing copyright violations in the digital medium. Furthermore, there are several implications arising from the adoption of this technology, including a layered protection system, the availability of legally recognized digital evidence as per Law No. 1 of 2024 on the Second Amendment to Law No. 11 of 2008 on Information and Electronic Transactions, the synergy of technical and legal protection, and the guarantee of proper implementation of technology norms.

The rapid development of technology demands adaptation, particularly in the legal perspective closely linked to copyright protection. Moving forward, it is recommended that the Copyright Law maintain a balance between the interests of creators and public access for society, while adjusting to the social changes occurring in the community. Additionally, the harmonization between law and technology, which is closely related to copyright violations, should ideally transform into digital copyright protection. A copyright protection program that continuously transforms with technological developments in the digital medium is an effort to address the challenges and needs of society. Policy makers, relevant institutions, and society are expected to continuously analyze and study the development of copyright within the framework of technology. This should be done as an effort to ensure protection and legal certainty, as well as to provide legal understanding in the perspective of copyright and technology.

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