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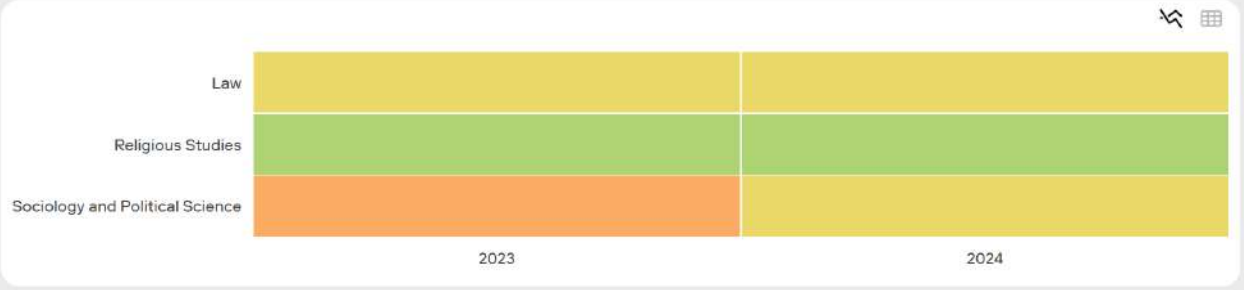

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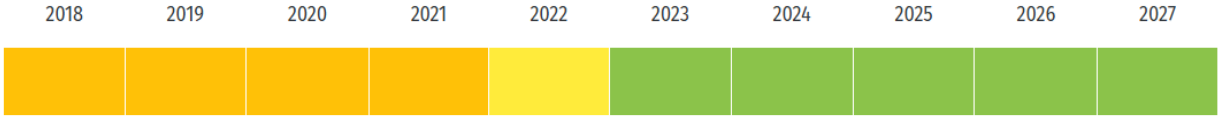
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Country	Germany
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Title and Abstract

Title: Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies

Abstract: The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and Non-Fungible Tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

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Legal Protection of Intellectual Property in the Digital Era

Bernard Nainggolan

Universitas Kristen Indonesia, Jakarta, Indonesia

Abstract

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. This research explores the impact of digitalization on people's lifestyles in creating and enjoying work, as well as highlighting the issue of Intellectual Property Rights (IPR) violations in Indonesia. Normative juridical research methods are used to analyze IPR regulations and public awareness. The research results show that public awareness of the importance of IPR is still low, causing many violations to occur without realizing it. IPR protection not only benefits the owner of the work, but also has a broad positive impact on society, including encouraging innovation and increasing economic competitiveness.

Keywords: Intellectual Property Rights, Legal Protection, Innovation, Digital Works.

Introduction

Digitalization has changed society's paradigm of work, giving rise to two main trends. Many individuals are starting to create works in digital media, such as music, visual arts, writing, and others (Leonardi & Treem, 2020). Digital tools provide accessibility and flexibility that allows them to express their creativity more easily. Apart from that, there are those who

prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also has implications for copyright. Copyright provides legal protection to creators to control the use and distribution of their work (Simatupang, 2021).

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This can be morally and economically detrimental to the creator or copyright holder. Therefore, while digital technology makes it easier to share and access information, it is important for the younger generation to be given a clear understanding of digital ethics and the legal consequences of actions on digital platforms.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered more efficient and practical because they do not require special storage space like physical products (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the importance of copyright (Irawan, 2017; Ivana & Nugroho, 2022). These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work.

Method

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. This research relies on secondary data sources, including laws, statutory regulations, as well as various relevant legal materials and literature. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives

to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work.

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). Moreover, unauthorized changes or modifications may alter the original meaning or context of the work.

The rapid development of information technology has given rise to various forms of increasingly complex copyright infringement. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but

also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) still frequently occur in Indonesia, whether intentional or not, because the level of public understanding of IPR is still minimal (Manurung 2022). This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work (Indriani, 2018). However, in Indonesia, public awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. It is important to understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products

or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning Copyright (Rahayu et al., 2019). This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement (Lalamentik, 2018). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation.

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia (Purba, 2018). The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations.

Conclusion

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of

the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, public awareness needs to be increased through effective education about IPR, so that it can build a better appreciation of the value of creativity, promote respect for copyright, and encourage the creation of a competitive and cultural environment in Indonesia.

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Round 1

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Title	:	• Change the title to be more directed towards the legal aspect, and reconstruct the law according to the scope of the journal.
Abstract	:	• Rewrite the abstract into 200 words. • Simplify the background in the abstract. • Include the objectives, methods, laws discussed, findings and implications clearly.
Keywords	:	• Use 6 more relevant keywords.
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Legal Protection of Intellectual Property in the Digital Era

Abstract

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. This research explores the impact of digitalization on people's lifestyles in creating and enjoying work, as well as highlighting the issue of Intellectual Property Rights (IPR) violations in Indonesia. Normative juridical research methods are used to analyze IPR regulations and public awareness. The research results show that public awareness of the importance of IPR is still low, causing many violations to occur without realizing it. IPR protection not only benefits the owner of the work, but also has a broad positive impact on society, including encouraging innovation and increasing economic competitiveness.

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provides legal protection to creators to control the use and distribution of their work (Simatupang, 2021).

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This can be morally and economically detrimental to the creator or copyright holder. Therefore, while digital technology makes it easier to share and access information, it is important for the younger generation to be given a clear understanding of digital ethics and the legal consequences of actions on digital platforms.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered more efficient and practical because they do not require special storage space like physical products (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the

importance of copyright (Irawan, 2017; Ivana & Nugroho, 2022). These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work.

Method

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. This research relies on secondary data sources, including laws, statutory regulations, as well as various relevant legal materials and literature. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection,

creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work.

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). Moreover, unauthorized changes or modifications may alter the original meaning or context of the work.

The rapid development of information technology has given rise to various forms of increasingly complex copyright infringement. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but

also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) still frequently occur in Indonesia, whether intentional or not, because the level of public understanding of IPR is still minimal (Manurung 2022). This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work (Indriani, 2018). However, in Indonesia, public awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. It is important to understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products

or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning Copyright (Rahayu et al., 2019). This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement (Lalamentik, 2018). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation.

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia (Purba, 2018). The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations.

Conclusion

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of

the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, public awareness needs to be increased through effective education about IPR, so that it can build a better appreciation of the value of creativity, promote respect for copyright, and encourage the creation of a competitive and cultural environment in Indonesia.

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Legal Protection of Intellectual Property in the Digital Era

Abstract

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. This research explores the impact of digitalization on people's lifestyles in creating and enjoying work, as well as highlighting the issue of Intellectual Property Rights (IPR) violations in Indonesia. Normative juridical research methods are used to analyze IPR regulations and public awareness. The research results show that public awareness of the importance of IPR is still low, causing many violations to occur without realizing it. IPR protection not only benefits the owner of the work, but also has a broad positive impact on society, including encouraging innovation and increasing economic competitiveness. The results of this research conclude that effective education about IPR needs to be improved to build better awareness, promote respect for copyright, and create a competitive and cultural environment in Indonesia.

Keywords: Intellectual Property Rights, Legal Protection, Innovation, Digital Works.

Introduction

Digitalization has changed society's paradigm of work, giving rise to two main trends. Many individuals are starting to create works in digital media, such as music, visual arts, writing, and others (Leonardi & Treem, 2020). Digital tools provide accessibility and flexibility that allows them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also has implications for copyright. Copyright provides legal protection to creators to control the use and distribution of their work (Simatupang, 2021). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. In the digital era, copyright protection has become more complex due to the ease of digital duplication and distribution. On the other hand, copyright still provides broad authority for creators, including to regulate how their work is used in the digital environment.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, especially because many people do not understand or ignore the laws and sanctions related to copyright infringement. Many works are accessed without including the identity of the creator or using the work outside its intended purpose, such as use without permission for commercial purposes. This can be morally and economically detrimental to the creator or copyright holder. Therefore, while digital technology makes it easier to share and access information, it is important for the younger generation to be given a clear understanding of digital ethics and the legal consequences of actions on digital platforms.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered

more efficient and practical because they do not require special storage space like physical products (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the importance of copyright (Irawan, 2017; Ivana & Nugroho, 2022). These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

Method

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This allows researchers to understand the legal implications and impact of the topic being researched more comprehensively. This research relies on secondary data sources, including laws, statutory regulations, as well as various relevant legal materials and literature. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work. Apart from that, legal protection for creative works also plays an important role in creating a healthy and fair business

environment for creative industry players. This will encourage economic growth in the creative sector (Sinaga, 2020).

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. Understanding these risks is important for society to be able to use digital products wisely and ethically. Copyright protection is becoming increasingly important in this digital era, and law enforcement efforts and awareness of the importance of respecting copyright are very necessary. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

The rapid development of information technology has given rise to various forms of increasingly complex copyright infringement. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) still frequently occur in Indonesia, whether intentional or not, because the level of public understanding of IPR is still minimal (Manurung 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can occur due to a lack of awareness of the creative and economic rights of creators. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work (Indriani, 2018). However, in Indonesia, public

awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. It is important to understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning Copyright (Rahayu et al., 2019). This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement (Lalamentik, 2018). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation.

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia (Purba, 2018). The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations. Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

Conclusion

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, public awareness needs to be increased through effective education about IPR, so that it can build a better appreciation of the value of creativity, promote respect for copyright, and encourage the creation of a competitive and cultural environment in Indonesia.

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Kepada: bnainggolan.uki@gmail.com

Dear Author,

We have received the review reports for your manuscript, **"Legal Protection of Intellectual Property in the Digital Era"**. The reviewers have indicated that minor revisions are needed to move forward with the publication process.

Revision Instructions:

1. Address Revisions: Please review the specific comments and suggestions provided by the reviewers and make the necessary adjustments to your manuscript.
2. Highlight Changes: Clearly highlight all changes made in the manuscript to facilitate the review process.
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#40811 Review

SUMMARY **REVIEW** EDITING

Submission

Authors	Bernard Nainggolan, Agus Joko Pramono, Stefan Koos
Title	Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies
Section	Articles
Editor	Karim Abdullah

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Legal Protection of Intellectual Property in the Digital Era

Abstract

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. This research explores the impact of digitalization on people's lifestyles in creating and enjoying work, as well as highlighting the issue of Intellectual Property Rights (IPR) violations in Indonesia. Normative juridical research methods are used to analyze IPR regulations and public awareness. The research results show that public awareness of the importance of IPR is still low, causing many violations to occur without realizing it. IPR protection not only benefits the owner of the work, but also has a broad positive impact on society, including encouraging innovation and increasing economic competitiveness. The results of this research conclude that effective education about IPR needs to be improved to build better awareness, promote respect for copyright, and create a competitive and cultural environment in Indonesia.

Keywords: Intellectual Property Rights, Legal Protection, Innovation, Digital Works.

Introduction

Digitalization has changed society's paradigm of work, giving rise to two main trends. Many individuals are starting to create works in digital media, such as music, visual arts, writing, and others (Leonardi & Treem, 2020). Digital tools provide accessibility and flexibility that allows them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also has implications for copyright. Copyright provides legal protection to creators to control the use and distribution of their work (Simatupang, 2021). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. In the digital era, copyright protection has become more complex due to the ease of digital duplication and distribution. On the other hand, copyright still provides broad authority for creators, including to regulate how their work is used in the digital environment.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, especially because many people do not understand or ignore the laws and sanctions related to copyright infringement. Many works are accessed without including the identity of the creator or using the work outside its intended purpose, such as use without permission for commercial purposes. This can be morally and economically detrimental to the creator or copyright holder. Therefore, while digital technology makes it easier to share and access information, it is important for the younger generation to be given a clear understanding of digital ethics and the legal consequences of actions on digital platforms.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered more efficient and practical because they do not require special storage space like physical products (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This

Commented [M1]: Change the title according to the scope of the journal

Commented [M2]: Rearrange the abstract into 200 words.

Enter the research objectives, research methods, laws discussed, findings and implications clearly

Commented [M3]: Citation are written in footnote form, not body notes

makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the importance of copyright (Irawan, 2017; Ivana & Nugroho, 2022). These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

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Cite previous articles from reputable journals that raise the same issue

Method

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This allows researchers to understand the legal implications and impact of the topic being researched more comprehensively. This research relies on secondary data sources, including laws, statutory regulations, as well as various relevant legal materials and literature. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

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Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work. Apart from that, legal protection for creative works also plays an important role in creating a healthy and fair business environment for creative industry players. This will encourage economic growth in the creative sector (Sinaga, 2020).

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. Understanding these risks is important for society to be able to use digital products wisely and ethically. Copyright protection is becoming increasingly important in this digital era, and law enforcement efforts and awareness of the importance of respecting copyright are very necessary. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

The rapid development of information technology has given rise to various forms of increasingly complex copyright infringement. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) still frequently occur in Indonesia, whether intentional or not, because the level of public understanding of IPR is still minimal (Manurung 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can occur due to a lack of awareness of the creative and economic rights of creators. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work (Indriani, 2018). However, in Indonesia, public awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. It is important to

understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning Copyright (Rahayu et al., 2019). This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement (Lalamentik, 2018). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation.

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia (Purba, 2018). The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations. Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

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Conclusion

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, public awareness needs to be increased through effective education about IPR, so that it can build a better appreciation of the value of creativity, promote respect for copyright, and encourage the creation of a competitive and cultural environment in Indonesia.

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Rewrite the reference writing using Chicago Style, according to the journal reference.

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Legal Protection of Intellectual Property in the Digital Era

Abstract

The advancement of digital technology provides various significant benefits in modern life, especially in terms of access to information and creativity. However, behind this convenience, serious threats arise, especially for the younger generation who do not fully understand the legal consequences of using digital platforms. Digital works are now increasingly popular with the public because they have advantages over physical products, such as ease of distribution, cost efficiency, and wide market reach. This study aims to examine the influence of digitalization on people's lifestyles in creating and enjoying works, while also highlighting the problem of Intellectual Property Rights (IPR) violations that are still rampant in Indonesia. Using a normative legal research method, this study analyzes regulations related to IPR and the level of public awareness of the importance of copyright protection. The results of the study show that public awareness of IPR is still low, which causes many violations to occur without being realized. In fact, IPR protection not only provides benefits for work owners, but also encourages a climate of innovation and increases national economic competitiveness. This study emphasizes the importance of increasing education and socialization regarding IPR in a sustainable manner. Effective education will shape legal awareness, foster respect for creative works, and create a healthy and competitive cultural and economic environment in today's digital era.

Keywords: Intellectual Property Rights, Legal Protection, Innovation, Digital Works.

INTRODUCTION

Digitalization has changed society's paradigm of work, giving rise to two main trends. Many individuals are starting to create works in digital media, such as music, visual arts, writing, and others.[1] Digital tools provide accessibility and flexibility that allows them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also has implications for copyright. Copyright provides legal protection to creators to control the use and distribution of their work.[2] This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. In the digital era, copyright protection has become more complex due to the ease of digital duplication and distribution. On the other hand, copyright still provides broad authority for creators, including to regulate how their work is used in the digital environment.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights.[3] The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, especially because many people do not understand or ignore the laws and sanctions related to copyright infringement. Many works are accessed without including the identity of the creator or using the work outside its intended purpose, such as use

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[1] Leonardi, Paul M., and Jeffrey W. Treem. "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication." *Organization studies* 41, no. 12 (2020): 1601-1625.

[2] Simatupang, Khwarizmi Maulana. "Tinjauan Yuridis Perlindungan Hak Cipta Dalam Ranah Digital." *Jurnal Ilmiah Kebijakan Hukum* 15, no. 1 (2021): 67.

[3] Suryavanshi, Harish. "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence." *Int'l. In-House Counsel J.* 11 (2017): 1.

without permission for commercial purposes. This can be morally and economically detrimental to the creator or copyright holder. Therefore, while digital technology makes it easier to share and access information, it is important for the younger generation to be given a clear understanding of digital ethics and the legal consequences of actions on digital platforms.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered more efficient and practical because they do not require special storage space like physical products.[4] In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the importance of copyright.[5] These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content.[6] Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

METHOD

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This allows researchers to understand the legal implications and impact of the topic being researched more comprehensively. This research relies on secondary data sources, including laws, statutory regulations, as well as various

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[4] Setiawan, Andry, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira. "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang." *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement)* 1, no. 1 (2018): 53-66.

[5] Irawan, Candra. "Protection of traditional knowledge: A perspective on Intellectual Property Law in Indonesia." *The Journal of World Intellectual Property* 20, no. 1-2 (2017): 57-67. See to,

Ivana, Gabriella, and Andriyanto Adhi Nugroho. "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual." *Jurnal USM Law Review* 5, no. 2 (2022).

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RESULTS AND DISCUSSION

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works.[7] With legal protection, creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work. Apart from that, legal protection for creative works also plays an important role in creating a healthy and fair business environment for creative industry players. This will encourage economic growth in the creative sector.[8]

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work.[9] Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. Understanding these risks is important for society to be able to use digital products wisely and ethically. Copyright protection is becoming increasingly important in this digital era, and law enforcement efforts and awareness of the importance of respecting copyright are very necessary. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works.[10]

The rapid development of information technology has given rise to various forms of increasingly complex copyright infringement. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products.[11] For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide

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[7] Mikafa, Alifia Bissil, Tioma R. Hariandja, and Muhammad Hoiru Nail. "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram." *Welfare State Jurnal Hukum* 1, no. 2 (2022): 187-216.

[8] Sinaga, Niru Anita. "Pentingnya Perlindungan Hukum Kekayaan Intelektual Bagi Pembangunan Ekonomi Indonesia." *Jurnal Hukum Sasana* 6, no. 2 (2020): 144-165.

[9] Ivana, Gabriella, and Andriyanto Adhi Nugroho. "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual." *Jurnal USM Law Review* 5, no. 2 (2022).

[10] Dharma, Gde Arya Surya, and Kadek Julia Mahadewi. "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital." *Jurnal Kewarganegaraan* 7, no. 1 (2023): 451-457.

[11] Ullah, Asad, Qingyu Zhang, and Mansoora Ahmed. "The influence of intellectual property rights protection on contribution efforts of participants in online crowdsourcing contests." *Computers in Human Behavior* 123 (2021): 106869.

appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally.[12]

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) still frequently occur in Indonesia, whether intentional or not, because the level of public understanding of IPR is still minimal.[13] Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can occur due to a lack of awareness of the creative and economic rights of creators. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. It is important to continue to increase public understanding of IPR through effective education.[14] This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work.[15] However, in Indonesia, public awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. It is important to understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation.[16] This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning

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[12] Suryavanshi, Harish. "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence." *Int'l. In-House Counsel J.* 11 (2017): 1.

[13] Manurung, Evelyn Angelita Pinondang. "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital." *Verdict: Journal of Law Science* 1, no. 1 (2022): 30-36.

[14] Dharma, Gde Arya Surya, and Kadek Julia Mahadewi. "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital." *Jurnal Kewarganegaraan* 7, no. 1 (2023): 451-457.

[15] Indriani, Iin. "Hak Kekayaan Intelektual: Perlindungan Hukum Terhadap Hak Cipta Karya Musik." *Jurnal Ilmu Hukum* 7, no. 2 (2018): 246-263.

[16] Muchtar, Helitha Novianty, A. M. Ramli, M. R. Ayu, R. R. Permata, S. Dewi, D. E. Sukarsa, and T. Safiranita. "Stimulasi Urgensi Perlindungan Kekayaan Intelektual Karya Kreatif Dan Inovatif Karya Siswa Sma Negeri 8 Bandung Dalam Mendukung Ekonomi Digital." *Kumawula: Jurnal Pengabdian Kepada Masyarakat* 4, no. 1 (2021): 66-73.

Copyright.[17] This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement.[18] The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation.

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia.[19] The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations. Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form.[20]

CONCLUSION

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, public awareness needs to be increased through effective education about IPR, so that it can build a better appreciation of the value of creativity, promote respect for copyright, and encourage the creation of a competitive and cultural environment in Indonesia.

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[17] Rahayu, Solihah Sari, Novianti Syarifah, and Muhamad Dani Somantri. "Jual Beli Produk Imitasi Fashion Perspektif Undang-Undang Hak Cipta Nomor 28 Tahun 2014 Dan Hukum Islam." *Mutawasith: Jurnal Hukum Islam* 2, no. 2 (2019): 201-218.

[18] Lalamentik, Harry Randy. "Kajian Hukum Tentang Hak Terkait (Neighboring Right) Sebagai Hak Ekonomi Pencipta Berdasarkan Undang-Undang Hak Cipta Nomor 28 Tahun 2014." *Lex Privatum* 6, no. 6 (2018).

[19] Amelia, Risky. "perlindungan hukum terhadap para pihak dalam jual beli hak atas tanah dengan kuasa menjual notaris berdasarkan kitab undang-undang hukum perdata dan peraturan pemerintah no. 18 tahun 2021." *Jurnal Adhikari* 2, no. 1 (2022): 235-245.

[20] Kurniawan, Arnold Bagas, and Hary Soeskandhi. "Perlindungan Hukum Kepada Pengguna Elektronik Banking Atas Kejahatan Carding Ditinjau Dari Undang-Undang Informasi dan Transaksi Elektronik." *SUPREMASI: Jurnal Hukum* 5, no. 1 (2022): 64-87.

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Major Revision Required – #40811 [Jurnal Hukum]

Jurnal Hukum <jhukum.unissula@gmail.com> 30 April 2025 pukul 13.42
Kepada: bnainggolan.uki@gmail.com

Dear Author,

We would like to inform you that the review results of your manuscript entitled **"LEGAL PROTECTION OF INTELLECTUAL PROPERTY IN THE DIGITAL ERA",** by the Jurnal Hukum reviewer team have been completed. Based on the evaluation results, we have decided that your manuscript requires major revision.

Several important and substantial notes have been provided by the reviewers, which include improvements in terms of structure, legal arguments, depth of analysis, and completeness of reference sources. Therefore, we request that you make a thorough and substantial revision in accordance with the input that has been attached.

Revisions are expected to be resubmitted within 10 working days from the date of this notification. Thus, we expect that your revisions can be submitted before May 10, 2025.

Thank you for your prompt attention to this matter. We look forward to receiving your revised manuscript.

Best Regards,

Editorial Team

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#40811 Review

SUMMARY **REVIEW** EDITING

Submission

Authors	Bernard Nainggolan, Agus Joko Pramono, Stefan Koos
Title	Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies
Section	Articles
Editor	Karim Abdullah

Peer Review

Round 1

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Reviewer 1 # 40811

 # LEGAL PROTECTION OF INTELLECTUAL PROPERTY IN THE DIGITAL ERA

Sections	Comments to Author	Response from the Author
Title	○ The title "Legal Protection of Intellectual Property in the Digital Era" is too brief and lacks clarity. It would be helpful to provide a more detailed and specific title that better reflects the scope and focus of the paper.	
Abstract and Keywords	○ The abstract needs further improvement, especially regarding the structure and the lack of detail in the methodology.	
Introduction	○ The introduction introduces multiple themes such as digitalization, copyright, and its implications on the younger generation, but it lacks a clear and focused central argument. ○ The introduction provides context on digital technology and copyright issues. However, it needs a more in-depth exploration of the specific challenges and legal consequences of copyright infringement in the digital era. ○ The research problem needs to be enhanced with examples, legal case or case studies from Indonesia to demonstrate why this research is relevant. ○ Introduction lacks in academic rigor with few cited studies particularly on digital copyright issues, particularly in the Indonesian context. ○ The problem, relevance, and purpose of the writing should be added at the end of the introduction.	
Method	○ The methods section is still limited to normative definitions and has not yet addressed the practical aspects of this research, such as what the research actually does, the study design, research approach, the objects being studied, the regulations examined, and the analytical tools used. ○ Please provide more details on these aspects to improve the clarity and applicability of the methodology.	
Results	○ The section's discussion on Intellectual Property Rights (IPR) protection in the digital era lacks	

	specific, concrete examples of IPR violations in Indonesia's digital landscape. ○ The discussion in the results section is still lacking coherence, with too little discussion on copyright protection in Indonesia. It would be better if this section were reorganized with discussions such as: 1. Impact of Digitalization on Work Creation and Consumption 2. Intellectual Property Rights (IPR) Violations in Indonesia 3. Public Awareness and Legal Protection of Copyright in Indonesia ○ The mention of low public awareness of IPR is a critical issue. It would be beneficial to provide more specific strategies or existing initiatives aimed at increasing public understanding of IPR in Indonesia, as well as an assessment of their effectiveness.	
Conclusion	○ The conclusion is too brief and needs to be reorganized with key findings and their implications.	
Reference	○ The references are too few, which results in many arguments not being critically discussed. ○ It is necessary to include more relevant sources from internationally reputable studies.	

Reviewer 2 # 40811

 # LEGAL PROTECTION OF INTELLECTUAL PROPERTY IN THE DIGITAL ERA

Sections	Comments to Author	Response from the Author
Title	○ The title suggests a legal exploration of Intellectual Property Rights (IPR) in the digital era, which is timely and relevant.	
Abstract and Keywords	○ The abstract reads more like a public awareness campaign than an academic legal study. ○ It does not identify a specific legal issue or normative gap, nor does it provide a clear legal research problem or objective grounded in doctrinal analysis.	
Introduction	○ The article lacks a clear and precise legal problem. ○ The paper focuses on general public behavior and awareness regarding IPR, but fails to formulate a normative or conceptual issue regarding the adequacy or enforcement of existing IPR laws in Indonesia. ○ There is no critique of the legal framework or its application.	
Method	○ The paper claims to use a normative juridical method, but its application is superficial. ○ There is no critical evaluation of specific statutes, regulations, or jurisprudence, and legal sources are used descriptively rather than analytically. ○ The analysis relies heavily on broad statements about social behavior without grounding them in legal doctrine or regulatory analysis.	
Results	○ The research does not systematically engage with relevant Indonesian IPR laws, such as Law Number 28 of 2014 concerning Copyright or related legal instruments. ○ No comparative analysis, case law, or legal interpretation is provided to support the normative juridical claim. ○ There is little added value from a legal academic perspective. The paper discusses IPR at the level of general advocacy and lacks depth in terms of legal critique, statutory evaluation, or policy analysis. It reads more as an educational commentary than a piece of rigorous legal scholarship.	

Conclusion	○ The conclusion reiterates public awareness themes but offers no legal recommendations, doctrinal clarification, or normative propositions. ○ It does not address the core legal mechanisms required for strengthening IPR protection in the digital environment, nor does it propose any regulatory reform or interpretive framework.	
Reference	○ This article is not scientifically sound for publication in a legal journal. Although the topic is relevant, the treatment is superficial and lacks rigorous legal analysis. ○ It does not adequately use or interpret legal norms, offers no meaningful critique of the IPR regime in Indonesia, and fails to make a significant contribution to legal scholarship. ○ The article would need to be substantially restructured to meet the standards of doctrinal legal research, with a sharper legal focus and deeper statutory engagement.	

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Legal Protection of Intellectual Property in the Digital Era

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 11 of 2008 on Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Works, Innovation, Intellectual Property Rights, Legal Protection.

INTRODUCTION

Digitalization has changed society's paradigm of work, giving rise to two main trends. Many individuals are starting to create works in digital media, such as music, visual arts, writing, and others (Leonardi & Jeffreey, 2020). Digital tools provide accessibility and flexibility that allows them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also has implications for copyright. Copyright provides legal protection to creators to control the use and distribution of their work (Simatupang, 2021). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work.

In the digital era, enforcing copyright protection has become increasingly complex due to the ease of digital duplication and distribution MOOCs, coupled with gaps in Indonesia's legal framework, such as Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, which struggle to address emerging issues like unauthorized streaming and non-fungible token (NFT) misuse (Ivana & Nugroho, 2022). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. These regulations, while comprehensive, face challenges in enforcement due to limited mechanisms for digital-specific violations and low public awareness, leading to frequent infringements that undermine creators' rights and innovation.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, particularly in Indonesia, where enforcement of existing laws is inconsistent, and judicial precedents on digital IPR violations remain limited. Many works are accessed without including the identity of the creator or using

the work outside its intended purpose, such as use without permission for commercial purposes. This can be morally and economically detrimental to the creator or copyright holder. Therefore, this study aims to critically evaluate the adequacy of Indonesia's IPR legal framework in addressing digital-era challenges, identify enforcement gaps, and propose solutions to strengthen protection for creators in the digital environment.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered more efficient and practical because they do not require special storage space like physical products (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market. However, the lack of robust enforcement mechanisms and public understanding exacerbates violations, necessitating a deeper analysis of how existing laws can be adapted to protect digital works effectively.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the importance of copyright (Irawan, 2017). These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

METHOD

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles, and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In this study, the normative juridical method is employed to critically analyze the adequacy of Indonesia's Intellectual Property Rights (IPR) legal framework, particularly Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, in addressing digital-era challenges. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This includes evaluating relevant judicial precedents and legal doctrines to assess the effectiveness of enforcement mechanisms and identify regulatory gaps in protecting digital works. This allows researchers to understand the legal implications and impact of the topic being researched more comprehensively. This research relies on secondary data sources,

including laws, statutory regulations, as well as various relevant legal materials and literature. Additionally, case studies of digital IPR infringements in Indonesia are examined to provide practical insights into the application of existing laws. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

RESULTS AND DISCUSSION

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work. Apart from that, legal protection for creative works also plays an important role in creating a healthy and fair business environment for creative industry players. This will encourage economic growth in the creative sector (Sinaga, 2020).

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. In Indonesia, Law Number 28 of 2014 concerning Copyright provides a framework for protecting both moral and economic rights of creators, including the right to control reproduction and distribution of digital works. However, its application to digital platforms, such as streaming services or social media, is limited by vague provisions on digital-specific infringements, such as unauthorized downloading or sharing (Simatupang, 2021). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions regulates electronic transactions but lacks specific mechanisms to address complex digital IPR violations, such as those involving user-generated content or peer-to-peer file sharing. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. Copyright protection is becoming increasingly important in this digital era, and law enforcement efforts and awareness of the importance of respecting copyright are very necessary. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

The rapid development of information technology has given rise to various forms of increasingly complex copyright infringement. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators

of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) remain prevalent in Indonesia, largely due to limited public understanding of IPR and weak enforcement mechanisms (Manurung, 2022). Law Number 28 of 2014 concerning Copyright provides comprehensive protection for creators' moral and economic rights, including the exclusive right to control the use and distribution of digital works. However, its enforcement is challenged by the rapid proliferation of digital platforms, such as illegal streaming sites and file-sharing networks, which facilitate unauthorized access to copyrighted content (Lalamentik, 2018). For instance, a 2021 case involving the piracy of cinematographic works on Telegram highlighted the difficulty of enforcing copyright due to the platform's encrypted nature and lack of cooperation from service providers, underscoring gaps in Indonesia's legal framework (Mikafa et al., 2022). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions establishes a legal basis for protecting digital works but lacks specific provisions for addressing complex violations like user-generated content misuse or automated content-sharing algorithms (Manurung, 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can occur due to a lack of awareness of the creative and economic rights of creators. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. A comparative analysis with the United States' Digital Millennium Copyright Act (DMCA) reveals that Indonesia's framework lacks an efficient notice-and-takedown mechanism, which allows platforms to swiftly remove infringing content upon notification, thus reducing violations more effectively (United States Copyright Office, 1998). It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work (Indriani, 2018). However, in Indonesia, public awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. For example, the rise of non-fungible tokens (NFTs) has introduced new challenges, as unauthorized reproduction of digital art as NFTs often goes unaddressed due to the absence of specific regulations in Indonesia's IPR framework, unlike in jurisdictions like the European Union, where clearer guidelines on digital ownership exist (Ivana & Nugroho, 2022). It is important

to understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. The lack of effective enforcement, as seen in cases of widespread music piracy on platforms like Spotify or YouTube in Indonesia, results in significant economic losses and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning Copyright (Rahayu et al., 2019). This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement (Lalamentik, 2018). However, its implementation in the digital realm is hindered by the lack of specific provisions addressing modern challenges, such as automated content distribution or cross-border violations on global platforms. A comparative analysis with the European Union's Copyright Directive (Directive 2019/790) shows that Indonesia could benefit from adopting proactive measures, such as requiring platforms to implement content-filtering technologies to prevent unauthorized uploads (European Union, 2019). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation. The absence of robust judicial precedents in Indonesia, unlike in jurisdictions with established case law like the United States, further complicates enforcement, as courts often lack clear guidance on handling digital IPR disputes (United States Copyright Office, 1998).

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia (Amelia, 2022). The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations. However, its provisions are too general to address specific digital violations, such as deepfake technology or automated content scraping, which require specialized enforcement mechanisms not yet integrated into Indonesia's legal system (Ivana & Nugroho, 2022). Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

CONCLUSION

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. This study finds that while Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions provide a robust legal foundation, their enforcement is hindered by inadequate mechanisms for addressing digital-specific violations, such as unauthorized streaming or non-fungible token (NFT) misuse. To address these gaps, it is recommended that Indonesia adopt a notice-and-takedown mechanism similar to the U.S. Digital Millennium Copyright Act and introduce specific provisions for emerging technologies like NFTs to enhance legal clarity and enforcement. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, alongside public awareness campaigns, regulatory reforms and stronger judicial precedents are needed to build a more effective IPR framework, ensuring respect for copyright and fostering a competitive and culturally vibrant digital environment in Indonesia.

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Legal Protection of Intellectual Property in the Digital Era

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 11 of 2008 on Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Works, Innovation, Intellectual Property Rights, Legal Protection.

INTRODUCTION

Digitalization has changed society's paradigm of work, giving rise to two main trends. Many individuals are starting to create works in digital media, such as music, visual arts, writing, and others (Leonardi & Jeffreey, 2020). Digital tools provide accessibility and flexibility that allows them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also has implications for copyright. Copyright provides legal protection to creators to control the use and distribution of their work (Simatupang, 2021). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work.

In the digital era, enforcing copyright protection has become increasingly complex due to the ease of digital duplication and distribution MOOCs, coupled with gaps in Indonesia's legal framework, such as Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, which struggle to address emerging issues like unauthorized streaming and non-fungible token (NFT) misuse (Ivana & Nugroho, 2022). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. These regulations, while comprehensive, face challenges in enforcement due to limited mechanisms for digital-specific violations and low public awareness, leading to frequent infringements that undermine creators' rights and innovation.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, particularly in Indonesia, where enforcement of existing laws is inconsistent, and judicial precedents on digital IPR violations remain limited. Many works are accessed without including the identity of the creator or using

the work outside its intended purpose, such as use without permission for commercial purposes. This can be morally and economically detrimental to the creator or copyright holder. Therefore, this study aims to critically evaluate the adequacy of Indonesia's IPR legal framework in addressing digital-era challenges, identify enforcement gaps, and propose solutions to strengthen protection for creators in the digital environment.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered more efficient and practical because they do not require special storage space like physical products (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market. However, the lack of robust enforcement mechanisms and public understanding exacerbates violations, necessitating a deeper analysis of how existing laws can be adapted to protect digital works effectively.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the importance of copyright (Irawan, 2017). These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

METHOD

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles, and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In this study, the normative juridical method is employed to critically analyze the adequacy of Indonesia's Intellectual Property Rights (IPR) legal framework, particularly Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, in addressing digital-era challenges. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This includes evaluating relevant judicial precedents and legal doctrines to assess the effectiveness of enforcement mechanisms and identify regulatory gaps in protecting digital works. This allows researchers to understand the legal implications and impact of the topic being researched more comprehensively. This research relies on secondary data sources,

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RESULTS AND DISCUSSION

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work. Apart from that, legal protection for creative works also plays an important role in creating a healthy and fair business environment for creative industry players. This will encourage economic growth in the creative sector (Sinaga, 2020).

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. In Indonesia, Law Number 28 of 2014 concerning Copyright provides a framework for protecting both moral and economic rights of creators, including the right to control reproduction and distribution of digital works. However, its application to digital platforms, such as streaming services or social media, is limited by vague provisions on digital-specific infringements, such as unauthorized downloading or sharing (Simatupang, 2021). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions regulates electronic transactions but lacks specific mechanisms to address complex digital IPR violations, such as those involving user-generated content or peer-to-peer file sharing. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. Copyright protection is becoming increasingly important in this digital era, and law enforcement efforts and awareness of the importance of respecting copyright are very necessary. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

The rapid development of information technology has given rise to various forms of increasingly complex copyright infringement. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators

of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) remain prevalent in Indonesia, largely due to limited public understanding of IPR and weak enforcement mechanisms (Manurung, 2022). Law Number 28 of 2014 concerning Copyright provides comprehensive protection for creators' moral and economic rights, including the exclusive right to control the use and distribution of digital works. However, its enforcement is challenged by the rapid proliferation of digital platforms, such as illegal streaming sites and file-sharing networks, which facilitate unauthorized access to copyrighted content (Lalamentik, 2018). For instance, a 2021 case involving the piracy of cinematographic works on Telegram highlighted the difficulty of enforcing copyright due to the platform's encrypted nature and lack of cooperation from service providers, underscoring gaps in Indonesia's legal framework (Mikafa et al., 2022). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions establishes a legal basis for protecting digital works but lacks specific provisions for addressing complex violations like user-generated content misuse or automated content-sharing algorithms (Manurung, 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can occur due to a lack of awareness of the creative and economic rights of creators. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. A comparative analysis with the United States' Digital Millennium Copyright Act (DMCA) reveals that Indonesia's framework lacks an efficient notice-and-takedown mechanism, which allows platforms to swiftly remove infringing content upon notification, thus reducing violations more effectively (United States Copyright Office, 1998). It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work (Indriani, 2018). However, in Indonesia, public awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. For example, the rise of non-fungible tokens (NFTs) has introduced new challenges, as unauthorized reproduction of digital art as NFTs often goes unaddressed due to the absence of specific regulations in Indonesia's IPR framework, unlike in jurisdictions like the European Union, where clearer guidelines on digital ownership exist (Ivana & Nugroho, 2022). It is important

to understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. The lack of effective enforcement, as seen in cases of widespread music piracy on platforms like Spotify or YouTube in Indonesia, results in significant economic losses and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning Copyright (Rahayu et al., 2019). This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement (Lalamentik, 2018). However, its implementation in the digital realm is hindered by the lack of specific provisions addressing modern challenges, such as automated content distribution or cross-border violations on global platforms. A comparative analysis with the European Union's Copyright Directive (Directive 2019/790) shows that Indonesia could benefit from adopting proactive measures, such as requiring platforms to implement content-filtering technologies to prevent unauthorized uploads (European Union, 2019). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation. The absence of robust judicial precedents in Indonesia, unlike in jurisdictions with established case law like the United States, further complicates enforcement, as courts often lack clear guidance on handling digital IPR disputes (United States Copyright Office, 1998).

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia (Amelia, 2022). The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations. However, its provisions are too general to address specific digital violations, such as deepfake technology or automated content scraping, which require specialized enforcement mechanisms not yet integrated into Indonesia's legal system (Ivana & Nugroho, 2022). Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

CONCLUSION

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. This study finds that while Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions provide a robust legal foundation, their enforcement is hindered by inadequate mechanisms for addressing digital-specific violations, such as unauthorized streaming or non-fungible token (NFT) misuse. To address these gaps, it is recommended that Indonesia adopt a notice-and-takedown mechanism similar to the U.S. Digital Millennium Copyright Act and introduce specific provisions for emerging technologies like NFTs to enhance legal clarity and enforcement. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, alongside public awareness campaigns, regulatory reforms and stronger judicial precedents are needed to build a more effective IPR framework, ensuring respect for copyright and fostering a competitive and culturally vibrant digital environment in Indonesia.

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Legal Protection of Intellectual Property in the Digital Era

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 11 of 2008 on Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Works, Innovation, Intellectual Property Rights, Legal Protection.

INTRODUCTION

Digitalization has changed society's paradigm of work, giving rise to two main trends. Many individuals are starting to create works in digital media, such as music, visual arts, writing, and others (Leonardi & Jeffreey, 2020). Digital tools provide accessibility and flexibility that allows them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also has implications for copyright. Copyright provides legal protection to creators to control the use and distribution of their work (Simatupang, 2021). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work.

In the digital era, enforcing copyright protection has become increasingly complex due to the ease of digital duplication and distribution MOOCs, coupled with gaps in Indonesia's legal framework, such as Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, which struggle to address emerging issues like unauthorized streaming and non-fungible token (NFT) misuse (Ivana & Nugroho, 2022). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. These regulations, while comprehensive, face challenges in enforcement due to limited mechanisms for digital-specific violations and low public awareness, leading to frequent infringements that undermine creators' rights and innovation.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, particularly in Indonesia, where enforcement of existing laws is inconsistent, and judicial precedents on digital IPR violations remain limited. Many works are accessed without including the identity of the creator or using

the work outside its intended purpose, such as use without permission for commercial purposes. This can be morally and economically detrimental to the creator or copyright holder. Therefore, this study aims to critically evaluate the adequacy of Indonesia's IPR legal framework in addressing digital-era challenges, identify enforcement gaps, and propose solutions to strengthen protection for creators in the digital environment.

Digital copyrighted works are increasingly popular among the internet community because they have advantages compared to physical products. Digital products are considered more efficient and practical because they do not require special storage space like physical products (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market. However, the lack of robust enforcement mechanisms and public understanding exacerbates violations, necessitating a deeper analysis of how existing laws can be adapted to protect digital works effectively.

In Indonesia, violations of intellectual property rights often occur, especially in the context of digital copyrighted works, because many people still do not understand the importance of copyright (Irawan, 2017). These violations are often overlooked due to a lack of awareness of the consequences. This lack of understanding triggers actions that are detrimental to the creators or owners of the original content. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

METHOD

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles, and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In this study, the normative juridical method is employed to critically analyze the adequacy of Indonesia's Intellectual Property Rights (IPR) legal framework, particularly Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, in addressing digital-era challenges. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This includes evaluating relevant judicial precedents and legal doctrines to assess the effectiveness of enforcement mechanisms and identify regulatory gaps in protecting digital works. This allows researchers to understand the legal implications and impact of the topic being researched more comprehensively. This research relies on secondary data sources,

including laws, statutory regulations, as well as various relevant legal materials and literature. Additionally, case studies of digital IPR infringements in Indonesia are examined to provide practical insights into the application of existing laws. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

RESULTS AND DISCUSSION

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also allows them to derive fair economic benefits from the results of their work. Apart from that, legal protection for creative works also plays an important role in creating a healthy and fair business environment for creative industry players. This will encourage economic growth in the creative sector (Sinaga, 2020).

Technological advances have given people broad access to digital products and works, making it easier for them to carry out their daily activities. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. In Indonesia, Law Number 28 of 2014 concerning Copyright provides a framework for protecting both moral and economic rights of creators, including the right to control reproduction and distribution of digital works. However, its application to digital platforms, such as streaming services or social media, is limited by vague provisions on digital-specific infringements, such as unauthorized downloading or sharing (Simatupang, 2021). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions regulates electronic transactions but lacks specific mechanisms to address complex digital IPR violations, such as those involving user-generated content or peer-to-peer file sharing. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. Copyright protection is becoming increasingly important in this digital era, and law enforcement efforts and awareness of the importance of respecting copyright are very necessary. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

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of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

Violations of Intellectual Property Rights (IPR) remain prevalent in Indonesia, largely due to limited public understanding of IPR and weak enforcement mechanisms (Manurung, 2022). Law Number 28 of 2014 concerning Copyright provides comprehensive protection for creators' moral and economic rights, including the exclusive right to control the use and distribution of digital works. However, its enforcement is challenged by the rapid proliferation of digital platforms, such as illegal streaming sites and file-sharing networks, which facilitate unauthorized access to copyrighted content (Lalamentik, 2018). For instance, a 2021 case involving the piracy of cinematographic works on Telegram highlighted the difficulty of enforcing copyright due to the platform's encrypted nature and lack of cooperation from service providers, underscoring gaps in Indonesia's legal framework (Mikafa et al., 2022). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions establishes a legal basis for protecting digital works but lacks specific provisions for addressing complex violations like user-generated content misuse or automated content-sharing algorithms (Manurung, 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can occur due to a lack of awareness of the creative and economic rights of creators. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. A comparative analysis with the United States' Digital Millennium Copyright Act (DMCA) reveals that Indonesia's framework lacks an efficient notice-and-takedown mechanism, which allows platforms to swiftly remove infringing content upon notification, thus reducing violations more effectively (United States Copyright Office, 1998). It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By increasing public awareness, it is hoped that there will be a change in behavior that is more respectful of creative and economic rights, as well as reducing the frequency of IPR violations in Indonesia. Apart from that, consistent law enforcement against IPR violations is also needed to provide a deterrent effect and send a signal that these violations are unacceptable in a civilized society.

The function of Intellectual Property Rights (IPR) is to regulate and protect the rights of a creator or work creator over their work (Indriani, 2018). However, in Indonesia, public awareness of the importance of IPR is still low. Many creators or creators of digital works do not realize that their work needs to receive legal recognition and protection. For example, the rise of non-fungible tokens (NFTs) has introduced new challenges, as unauthorized reproduction of digital art as NFTs often goes unaddressed due to the absence of specific regulations in Indonesia's IPR framework, unlike in jurisdictions like the European Union, where clearer guidelines on digital ownership exist (Ivana & Nugroho, 2022). It is important

to understand that IPR does not only have economic motives or only benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. The lack of effective enforcement, as seen in cases of widespread music piracy on platforms like Spotify or YouTube in Indonesia, results in significant economic losses and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, legal protection for intellectual property has been comprehensively regulated in various regulations, one of which is Law Number 28 of 2014 concerning Copyright (Rahayu et al., 2019). This law provides broad legal protection for intellectual works in various fields, including science, art and literature. The Law Number 28 of 2014regulates the economic and moral rights of creators of works, as well as actions that can be taken in the event of copyright infringement (Lalamentik, 2018). However, its implementation in the digital realm is hindered by the lack of specific provisions addressing modern challenges, such as automated content distribution or cross-border violations on global platforms. A comparative analysis with the European Union's Copyright Directive (Directive 2019/790) shows that Indonesia could benefit from adopting proactive measures, such as requiring platforms to implement content-filtering technologies to prevent unauthorized uploads (European Union, 2019). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation. The absence of robust judicial precedents in Indonesia, unlike in jurisdictions with established case law like the United States, further complicates enforcement, as courts often lack clear guidance on handling digital IPR disputes (United States Copyright Office, 1998).

In addition, Law Number 11 of 2008 concerning Electronic Transaction Information provides an important legal basis for protecting Intellectual Property Rights (IPR) in the context of information and electronic transactions in Indonesia (Amelia, 2022). The Law Number 11 of 2008 recognizes that electronic information, electronic documents, internet sites and intellectual works contained therein are part of IPR which are protected in accordance with the provisions of applicable laws and regulations. However, its provisions are too general to address specific digital violations, such as deepfake technology or automated content scraping, which require specialized enforcement mechanisms not yet integrated into Indonesia's legal system (Ivana & Nugroho, 2022). Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

CONCLUSION

Based on this research, it can be concluded that digitalization has changed people's lifestyles in creating and enjoying work. However, easy access to digital works also carries the risk of copyright infringement, which still frequently occurs in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of digital works are not aware of the need for legal recognition and protection for their works. This study finds that while Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions provide a robust legal foundation, their enforcement is hindered by inadequate mechanisms for addressing digital-specific violations, such as unauthorized streaming or non-fungible token (NFT) misuse. To address these gaps, it is recommended that Indonesia adopt a notice-and-takedown mechanism similar to the U.S. Digital Millennium Copyright Act and introduce specific provisions for emerging technologies like NFTs to enhance legal clarity and enforcement. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, alongside public awareness campaigns, regulatory reforms and stronger judicial precedents are needed to build a more effective IPR framework, ensuring respect for copyright and fostering a competitive and culturally vibrant digital environment in Indonesia.

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Legal Protection of Intellectual Property in the Digital Era

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 11 of 2008 on Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Works, Innovation, Intellectual Property Rights, Legal Protection.

INTRODUCTION

Digitalization has transformed the way society perceives work, giving rise to two primary trends. Many people are now making creative works in digital forms, like music, visual art, writing, and more (Leonardi & Jeffreey, 2020). Digital tools provide accessibility and flexibility that allow them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also affects copyright. Copyright gives legal rights to creators so they can control how their work is used and shared (Simatupang, 2021). These rights include moral rights, like being recognized as the creator, and economic rights, like getting money when the work is used.

In the digital age, it's harder to protect copyright because digital copies can be made and shared very easily, especially through MOOCs Also, there are gaps in Indonesia's laws that make it more difficult to enforce these protections, such as Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, which struggle to address emerging issues like unauthorized streaming and non-fungible token (NFT) misuse (Ivana & Nugroho, 2022). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. These regulations, while comprehensive, face challenges in enforcement due to limited mechanisms for digital-specific violations and low public awareness, leading to frequent infringements that undermine creators' rights and innovation.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, particularly in Indonesia, where enforcement of existing laws is inconsistent, and judicial precedents on digital IPR violations remain limited. Many works are accessed without including the identity of the creator or using

the work outside its intended purpose, such as use without permission for commercial purposes. This can harm the creator or the person who owns the copyright in both moral and economic ways. Because of this, this study aims to closely examine how effectively Indonesia's laws on intellectual property rights address new challenges in the digital age. It also aims to identify areas where the system is not functioning effectively and suggest ways to enhance protection for creators in the digital world.

Digital copyrighted works are becoming more popular among people online because they have some key benefits over physical products. Digital products are seen as more useful and easier to use because they don't need special places to store them, unlike physical items (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market. However, the lack of robust enforcement mechanisms and public understanding exacerbates violations, necessitating a deeper analysis of how existing laws can be adapted to protect digital works effectively.

In Indonesia, people often violate intellectual property rules, particularly when it comes to digital content protected by copyright. This happens because many people still don't realize the importance of copyright, as mentioned in Irawan (2017). These violations are often overlooked because people are unaware of the negative consequences they can have. This lack of knowledge leads to behaviors that harm the creators or owners of the original material. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

METHOD

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles, and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In this study, the normative juridical method is employed to critically analyze the adequacy of Indonesia's Intellectual Property Rights (IPR) legal framework, particularly Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, in addressing digital-era challenges. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This includes evaluating relevant judicial precedents and legal doctrines to assess the effectiveness of enforcement mechanisms and identify regulatory gaps in protecting digital works. This allows researchers to understand the legal implications and impact of the topic

being researched more comprehensively. This research relies on secondary data sources, including laws, statutory regulations, as well as various relevant legal materials and literature. Additionally, case studies of digital IPR infringements in Indonesia are examined to provide practical insights into the application of existing laws. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

RESULTS AND DISCUSSION

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also lets them get fair benefits from their work. Besides that, having legal protection for creative works helps create a good and fair environment for people in the creative industry. This encourages growth in the creative sector (Sinaga, 2020).

Technological progress has made it easier for people to access digital products and works, which helps them with their everyday tasks. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. In Indonesia, the Copyright Law Number 28 of 2014 helps protect the rights of creators, both in terms of their moral and economic interests. This includes the right to control how their digital works are copied and shared. However, when it comes to digital platforms like streaming services or social media, the law has some unclear rules about specific digital issues, such as illegal downloading or sharing without permission (Simatupang, 2021). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions regulates electronic transactions but lacks specific mechanisms to address complex digital IPR violations, such as those involving user-generated content or peer-to-peer file sharing. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

The fast growth of technology has led to many new ways of copyright violations, and these issues are getting more complicated. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators

of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

In Indonesia, violations of intellectual property rights are still common, mostly because people don't understand these rights well and the system for enforcing them is not strong enough (Manurung, 2022). Law Number 28 of 2014 concerning Copyright offers full protection for creators' moral and economic rights, giving them the sole power to decide how their digital work is used and shared. However, it is hard to enforce because of the fast growth of digital platforms, like illegal streaming websites and file-sharing networks, which make it easy for people to access copyrighted material without permission (Lalamentik, 2018). For instance, a 2021 case involving the piracy of cinematographic works on Telegram highlighted the difficulty of enforcing copyright due to the platform's encrypted nature and lack of cooperation from service providers, underscoring gaps in Indonesia's legal framework (Mikafa et al., 2022). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions establishes a legal basis for protecting digital works but lacks specific provisions for addressing complex violations like user-generated content misuse or automated content-sharing algorithms (Manurung, 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can happen because people don't know about the creative and economic rights of creators and they don't have access to copyrighted content. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. A comparative analysis with the United States' Digital Millennium Copyright Act (DMCA) reveals that Indonesia's framework lacks an efficient notice-and-takedown mechanism, which allows platforms to swiftly remove infringing content upon notification, thus reducing violations more effectively (United States Copyright Office, 1998). It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By raising public awareness, the goal is to encourage people to behave in a way that respects creative and economic rights, and to decrease the number of intellectual property rights violations in Indonesia. In addition, regular enforcement of the laws against these violations is also important to act as a warning and show that such actions are not acceptable in a civilized society.

Intellectual Property Rights (IPR) serve to safeguard the legal interests of creators over their works (Indriani, 2018). Yet in Indonesia, awareness of IPR remains limited, with many digital creators overlooking the need for formal recognition and protection. The emergence of non-fungible tokens (NFTs) further complicates this issue, as cases of unauthorized use of digital art persist in the absence of specific national regulations contrasting with the European Union, where clearer provisions on digital ownership have been established (Ivana & Nugroho, 2022). It is important to understand that IPR does not only have economic motives or only

benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. The lack of effective enforcement, as seen in cases of widespread music piracy on platforms like Spotify or YouTube in Indonesia, results in significant economic losses and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, intellectual property protection is codified through several legal instruments, most notably Law No. 28 of 2014 on Copyright (Rahayu et al., 2019). This regulation extends comprehensive safeguards to creative works across science, art, and literature. It outlines both the economic and moral rights of authors and specifies remedies available in cases of copyright violation (Lalamentik, 2018). However, its implementation in the digital realm is hindered by the lack of specific provisions addressing modern challenges, such as automated content distribution or cross-border violations on global platforms. A comparative analysis with the European Union's Copyright Directive (Directive 2019/790) shows that Indonesia could benefit from adopting proactive measures, such as requiring platforms to implement content-filtering technologies to prevent unauthorized uploads (European Union, 2019). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation. The absence of robust judicial precedents in Indonesia, unlike in jurisdictions with established case law like the United States, further complicates enforcement, as courts often lack clear guidance on handling digital IPR disputes (United States Copyright Office, 1998).

Furthermore, Law No. 11 of 2008 on Electronic Information and Transactions serves as a key legal foundation for safeguarding Intellectual Property Rights (IPR) within Indonesia's digital and electronic transaction sphere (Amelia, 2022). The law affirms that electronic information, digital documents, websites, and the intellectual content they contain fall under IPR protection in line with existing regulations. Nevertheless, its provisions remain too broad to effectively tackle specific digital infringements, such as deepfake technology or automated content scraping, which demand more specialized enforcement mechanisms that are still absent in Indonesia's legal framework (Ivana & Nugroho, 2022). Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

CONCLUSION

This study demonstrates that digitalization has transformed the way people create and experience their work. However, because digital content is easily accessible, there is a risk of copyright violations, which still occur frequently in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of

digital works are not aware of the need for legal recognition and protection for their works. This study finds that while Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions provide a robust legal foundation, their enforcement is hindered by inadequate mechanisms for addressing digital-specific violations, such as unauthorized streaming or non-fungible token (NFT) misuse. To address these gaps, it is recommended that Indonesia adopt a notice-and-takedown mechanism similar to the U.S. Digital Millennium Copyright Act and introduce specific provisions for emerging technologies like NFTs to enhance legal clarity and enforcement. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, alongside public awareness campaigns, regulatory reforms and stronger judicial precedents are needed to build a more effective IPR framework, ensuring respect for copyright and fostering a competitive and culturally vibrant digital environment in Indonesia.

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Legal Protection of Intellectual Property in the Digital Era

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 11 of 2008 on Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Works, Innovation, Intellectual Property Rights, Legal Protection.

INTRODUCTION

Digitalization has transformed the way society perceives work, giving rise to two primary trends. Many people are now making creative works in digital forms, like music, visual art, writing, and more (Leonardi & Jeffreey, 2020). Digital tools provide accessibility and flexibility that allow them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also affects copyright. Copyright gives legal rights to creators so they can control how their work is used and shared (Simatupang, 2021). These rights include moral rights, like being recognized as the creator, and economic rights, like getting money when the work is used.

In the digital age, it's harder to protect copyright because digital copies can be made and shared very easily, especially through MOOCs Also, there are gaps in Indonesia's laws that make it more difficult to enforce these protections, such as Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, which struggle to address emerging issues like unauthorized streaming and non-fungible token (NFT) misuse (Ivana & Nugroho, 2022). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. These regulations, while comprehensive, face challenges in enforcement due to limited mechanisms for digital-specific violations and low public awareness, leading to frequent infringements that undermine creators' rights and innovation.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, particularly in Indonesia, where enforcement of existing laws is inconsistent, and judicial precedents on digital IPR violations remain limited. Many works are accessed without including the identity of the creator or using

the work outside its intended purpose, such as use without permission for commercial purposes. This can harm the creator or the person who owns the copyright in both moral and economic ways. Because of this, this study aims to closely examine how effectively Indonesia's laws on intellectual property rights address new challenges in the digital age. It also aims to identify areas where the system is not functioning effectively and suggest ways to enhance protection for creators in the digital world.

Digital copyrighted works are becoming more popular among people online because they have some key benefits over physical products. Digital products are seen as more useful and easier to use because they don't need special places to store them, unlike physical items (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market. However, the lack of robust enforcement mechanisms and public understanding exacerbates violations, necessitating a deeper analysis of how existing laws can be adapted to protect digital works effectively.

In Indonesia, people often violate intellectual property rules, particularly when it comes to digital content protected by copyright. This happens because many people still don't realize the importance of copyright, as mentioned in Irawan (2017). These violations are often overlooked because people are unaware of the negative consequences they can have. This lack of knowledge leads to behaviors that harm the creators or owners of the original material. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

METHOD

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles, and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In this study, the normative juridical method is employed to critically analyze the adequacy of Indonesia's Intellectual Property Rights (IPR) legal framework, particularly Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, in addressing digital-era challenges. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This includes evaluating relevant judicial precedents and legal doctrines to assess the effectiveness of enforcement mechanisms and identify regulatory gaps in protecting digital works. This allows researchers to understand the legal implications and impact of the topic

being researched more comprehensively. This research relies on secondary data sources, including laws, statutory regulations, as well as various relevant legal materials and literature. Additionally, case studies of digital IPR infringements in Indonesia are examined to provide practical insights into the application of existing laws. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

RESULTS AND DISCUSSION

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also lets them get fair benefits from their work. Besides that, having legal protection for creative works helps create a good and fair environment for people in the creative industry. This encourages growth in the creative sector (Sinaga, 2020).

Technological progress has made it easier for people to access digital products and works, which helps them with their everyday tasks. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. In Indonesia, the Copyright Law Number 28 of 2014 helps protect the rights of creators, both in terms of their moral and economic interests. This includes the right to control how their digital works are copied and shared. However, when it comes to digital platforms like streaming services or social media, the law has some unclear rules about specific digital issues, such as illegal downloading or sharing without permission (Simatupang, 2021). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions regulates electronic transactions but lacks specific mechanisms to address complex digital IPR violations, such as those involving user-generated content or peer-to-peer file sharing. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

The fast growth of technology has led to many new ways of copyright violations, and these issues are getting more complicated. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators

of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

In Indonesia, violations of intellectual property rights are still common, mostly because people don't understand these rights well and the system for enforcing them is not strong enough (Manurung, 2022). Law Number 28 of 2014 concerning Copyright offers full protection for creators' moral and economic rights, giving them the sole power to decide how their digital work is used and shared. However, it is hard to enforce because of the fast growth of digital platforms, like illegal streaming websites and file-sharing networks, which make it easy for people to access copyrighted material without permission (Lalamentik, 2018). For instance, a 2021 case involving the piracy of cinematographic works on Telegram highlighted the difficulty of enforcing copyright due to the platform's encrypted nature and lack of cooperation from service providers, underscoring gaps in Indonesia's legal framework (Mikafa et al., 2022). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions establishes a legal basis for protecting digital works but lacks specific provisions for addressing complex violations like user-generated content misuse or automated content-sharing algorithms (Manurung, 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can happen because people don't know about the creative and economic rights of creators and they don't have access to copyrighted content. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. A comparative analysis with the United States' Digital Millennium Copyright Act (DMCA) reveals that Indonesia's framework lacks an efficient notice-and-takedown mechanism, which allows platforms to swiftly remove infringing content upon notification, thus reducing violations more effectively (United States Copyright Office, 1998). It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By raising public awareness, the goal is to encourage people to behave in a way that respects creative and economic rights, and to decrease the number of intellectual property rights violations in Indonesia. In addition, regular enforcement of the laws against these violations is also important to act as a warning and show that such actions are not acceptable in a civilized society.

Intellectual Property Rights (IPR) serve to safeguard the legal interests of creators over their works (Indriani, 2018). Yet in Indonesia, awareness of IPR remains limited, with many digital creators overlooking the need for formal recognition and protection. The emergence of non-fungible tokens (NFTs) further complicates this issue, as cases of unauthorized use of digital art persist in the absence of specific national regulations contrasting with the European Union, where clearer provisions on digital ownership have been established (Ivana & Nugroho, 2022). It is important to understand that IPR does not only have economic motives or only

benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. The lack of effective enforcement, as seen in cases of widespread music piracy on platforms like Spotify or YouTube in Indonesia, results in significant economic losses and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, intellectual property protection is codified through several legal instruments, most notably Law No. 28 of 2014 on Copyright (Rahayu et al., 2019). This regulation extends comprehensive safeguards to creative works across science, art, and literature. It outlines both the economic and moral rights of authors and specifies remedies available in cases of copyright violation (Lalamentik, 2018). However, its implementation in the digital realm is hindered by the lack of specific provisions addressing modern challenges, such as automated content distribution or cross-border violations on global platforms. A comparative analysis with the European Union's Copyright Directive (Directive 2019/790) shows that Indonesia could benefit from adopting proactive measures, such as requiring platforms to implement content-filtering technologies to prevent unauthorized uploads (European Union, 2019). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation. The absence of robust judicial precedents in Indonesia, unlike in jurisdictions with established case law like the United States, further complicates enforcement, as courts often lack clear guidance on handling digital IPR disputes (United States Copyright Office, 1998).

Furthermore, Law No. 11 of 2008 on Electronic Information and Transactions serves as a key legal foundation for safeguarding Intellectual Property Rights (IPR) within Indonesia's digital and electronic transaction sphere (Amelia, 2022). The law affirms that electronic information, digital documents, websites, and the intellectual content they contain fall under IPR protection in line with existing regulations. Nevertheless, its provisions remain too broad to effectively tackle specific digital infringements, such as deepfake technology or automated content scraping, which demand more specialized enforcement mechanisms that are still absent in Indonesia's legal framework (Ivana & Nugroho, 2022). Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

CONCLUSION

This study demonstrates that digitalization has transformed the way people create and experience their work. However, because digital content is easily accessible, there is a risk of copyright violations, which still occur frequently in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of

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#40811 Review

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Authors	Bernard Nainggolan, Agus Joko Pramono, Stefan Koos
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Section	Articles
Editor	Karim Abdullah

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Legal Protection of Intellectual Property in the Digital Era

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Commented [s2]: Although this paper presents a fairly technical solution for emerging technologies in the digital world, the title remains quite general. A suggested title is: 'Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies: Streaming Platforms and Non-Fungible Tokens (NFTs)'.

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 11 of 2008 on Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Works, Innovation, Intellectual Property Rights, Legal Protection.

INTRODUCTION

Digitalization has transformed the way society perceives work, giving rise to two primary trends. Many people are now making creative works in digital forms, like music, visual art, writing, and more (Leonardi & Jeffreey, 2020). Digital tools provide accessibility and flexibility that allow them to express their creativity more easily. Apart from that, there are those who prefer to enjoy works on digital platforms, such as streaming music, eBooks and other multimedia content. However, this change also affects copyright. Copyright gives legal rights to creators so they can control how their work is used and shared (Simatupang, 2021). These rights include moral rights, like being recognized as the creator, and economic rights, like getting money when the work is used.

In the digital age, it's harder to protect copyright because digital copies can be made and shared very easily, especially through MOOCs Also, there are gaps in Indonesia's laws that make it more difficult to enforce these protections, such as Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, which struggle to address emerging issues like unauthorized streaming and non-fungible token (NFT) misuse (Ivana & Nugroho, 2022). This includes moral rights, such as being recognized as the author, and economic rights, such as obtaining royalties from use of the work. These regulations, while comprehensive, face challenges in enforcement due to limited mechanisms for digital-specific violations and low public awareness, leading to frequent infringements that undermine creators' rights and innovation.

Advances in digital technology provide great benefits, but also bring serious threats, especially for the younger generation who may not understand the legal consequences related to the use of digital platforms. The principle of information openness and easy access can be the main trigger for potential violations of intellectual property rights (Suryavanshi, 2017). The easier the access, the greater the possibility of unauthorized duplication, duplication, or distribution of the work. This threat is very significant, particularly in Indonesia, where enforcement of existing laws is inconsistent, and judicial precedents on digital IPR violations remain limited. Many works are accessed without including the identity of the creator or using

the work outside its intended purpose, such as use without permission for commercial purposes. This can harm the creator or the person who owns the copyright in both moral and economic ways. Because of this, this study aims to closely examine how effectively Indonesia's laws on intellectual property rights address new challenges in the digital age. It also aims to identify areas where the system is not functioning effectively and suggest ways to enhance protection for creators in the digital world.

Digital copyrighted works are becoming more popular among people online because they have some key benefits over physical products. Digital products are seen as more useful and easier to use because they don't need special places to store them, unlike physical items (Setiawan et al., 2018). In addition, the accessibility of digital copyrighted works by downloading provides significant added value because the process is fast and effective. This makes consumers prefer digital works because they don't have to wait for delivery or face physical limitations that may occur with physical products. Practicality and ease of accessing digital works are also major factors in their popularity among the internet community. By only needing an internet connection and a suitable device, such as a computer or smartphone, consumers can easily download or access various types of digital works, from music, films, books, to software. This not only provides convenience for consumers, but also opens up new opportunities for creators to reach a wider market. However, the lack of robust enforcement mechanisms and public understanding exacerbates violations, necessitating a deeper analysis of how existing laws can be adapted to protect digital works effectively.

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In Indonesia, people often violate intellectual property rules, particularly when it comes to digital content protected by copyright. This happens because many people still don't realize the importance of copyright, as mentioned in Irawan (2017). These violations are often overlooked because people are unaware of the negative consequences they can have. This lack of knowledge leads to behaviors that harm the creators or owners of the original material. Digital copyrighted works are often easily accessed and distributed without permission, whether in the form of illegal downloading, sharing without approval, or use outside its intended use. This provides an opening for rights violations that could have a detrimental impact on the original owner of the work. Even though there have been efforts to enforce laws related to copyright, such as laws governing the protection of intellectual property, violations still occur due to a lack of supervision and public awareness. Wider education is needed regarding copyright and the consequences of violating it, especially in the digital era which makes it easier to disseminate and access works. Violation of intellectual property rights not only harms the original owner of the work economically, but also reduces incentives to create new content (Ardiansyah et al., 2024). Therefore, it is important for society to understand the value and importance of respecting copyright, as well as for the government to improve law enforcement and provide better education regarding this matter.

METHOD

This research applies normative juridical research methods. This approach aims to explore theories, concepts, legal principles, and legal regulations that are relevant to the research subject. The main aim of this research is to gain an in-depth understanding of the issue being researched. In this study, the normative juridical method is employed to critically analyze the adequacy of Indonesia's Intellectual Property Rights (IPR) legal framework, particularly Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions, in addressing digital-era challenges. In a qualitative approach, this research analyzes the object by referring to the legal norms contained in statutory regulations. This includes evaluating relevant judicial precedents and legal doctrines to assess the effectiveness of enforcement mechanisms and identify regulatory gaps in protecting digital works. This allows researchers to understand the legal implications and impact of the topic

being researched more comprehensively. This research relies on secondary data sources, including laws, statutory regulations, as well as various relevant legal materials and literature. Additionally, case studies of digital IPR infringements in Indonesia are examined to provide practical insights into the application of existing laws. This approach allows researchers to gain a robust and detailed understanding of the issues discussed, as well as validate findings by comparing and analyzing various available sources.

RESULTS AND DISCUSSION

Intellectual Property Rights (IPR) in Digital Works

The use of information technology has produced a variety of products with significant economic value. However, this growth also creates new challenges regarding copyright. To support people's creativity and ensure the sustainability of the creative industry, harmony between information technology and legal protection of creative works is important. Legal protection for copyrighted works is a foundation that must be provided to provide incentives to creators to continue producing new works (Mikafa et al., 2022). With legal protection, creators will feel safer and more motivated to develop their creativity. This also lets them get fair benefits from their work. Besides that, having legal protection for creative works helps create a good and fair environment for people in the creative industry. This encourages growth in the creative sector (Sinaga, 2020).

Technological progress has made it easier for people to access digital products and works, which helps them with their everyday tasks. However, behind this convenience, there are risks lurking. This ease of access is often exploited by unauthorized parties to disseminate or distribute works without permission, violating copyright unlawfully. In Indonesia, the Copyright Law Number 28 of 2014 helps protect the rights of creators, both in terms of their moral and economic interests. This includes the right to control how their digital works are copied and shared. However, when it comes to digital platforms like streaming services or social media, the law has some unclear rules about specific digital issues, such as illegal downloading or sharing without permission (Simatupang, 2021). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions regulates electronic transactions but lacks specific mechanisms to address complex digital IPR violations, such as those involving user-generated content or peer-to-peer file sharing. With the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters. Only with a responsible attitude and respect for copyright can we maintain the sustainability of creative and innovative industries, as well as provide appropriate recognition for creators of digital works (Dharma & Mahadewi, 2023).

The fast growth of technology has led to many new ways of copyright violations, and these issues are getting more complicated. If not taken seriously, these violations can have significant negative impacts, both for the industry and for creators. Intellectual Property Rights (IPR) are not only important for respecting and recognizing the existence of creators or creators

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1. Adequacy of Indonesia's Legal Framework for IPR
2. Enforcement Gaps and Challenges in Digital Content Protection
3. Emerging Digital Challenges (NFTs, streaming, new technologies)
- Each subheading should provide analysis of laws, doctrines, and practical examples.

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of works, but also for protecting economic rights. Copyright infringement can harm the industry by causing financial losses and reducing consumer confidence in the authenticity and integrity of products (Ullah et al., 2021). For creators, copyright infringement means losing control over their work and can reduce incentives to continue creating. IPR protection aims to provide appropriate recognition to creators, as well as ensuring that they can make fair use of the results of their work economically. This includes the right to earn royalties, determine how the work is used, and take legal action against infringement. Thus, serious handling of copyright violations is crucial to maintain the sustainability of the creative industry and encourage innovation. IPR protection not only helps create a fair environment for creators, but also strengthens the economic and cultural foundations where innovation and creativity can develop optimally (Suryavanshi, 2017).

Protection of Intellectual Property Rights (IPR) in Digital Works

In Indonesia, violations of intellectual property rights are still common, mostly because people don't understand these rights well and the system for enforcing them is not strong enough (Manurung, 2022). Law Number 28 of 2014 concerning Copyright offers full protection for creators' moral and economic rights, giving them the sole power to decide how their digital work is used and shared. However, it is hard to enforce because of the fast growth of digital platforms, like illegal streaming websites and file-sharing networks, which make it easy for people to access copyrighted material without permission (Lalamentik, 2018). For instance, a 2021 case involving the piracy of cinematographic works on Telegram highlighted the difficulty of enforcing copyright due to the platform's encrypted nature and lack of cooperation from service providers, underscoring gaps in Indonesia's legal framework (Mikafa et al., 2022). Similarly, Law Number 11 of 2008 concerning Electronic Information and Transactions establishes a legal basis for protecting digital works but lacks specific provisions for addressing complex violations like user-generated content misuse or automated content-sharing algorithms (Manurung, 2022). Most Indonesians do not fully understand the concept and importance of IPR protection. In this case, IPR violations can happen because people don't know about the creative and economic rights of creators and they don't have access to copyrighted content. Even though there are some consumers who are aware of the importance of respecting IPR, there are still many who do not understand the implications of such violations. This gap in understanding could be a major factor in the continued occurrence of IPR violations in Indonesia. A comparative analysis with the United States' Digital Millennium Copyright Act (DMCA) reveals that Indonesia's framework lacks an efficient notice-and-takedown mechanism, which allows platforms to swiftly remove infringing content upon notification, thus reducing violations more effectively (United States Copyright Office, 1998). It is important to continue to increase public understanding of IPR through effective education (Dharma & Mahadewi, 2023). This can be done through public campaigns, training programs, and providing easily accessible resources on IPR. By raising public awareness, the goal is to encourage people to behave in a way that respects creative and economic rights, and to decrease the number of intellectual property rights violations in Indonesia. In addition, regular enforcement of the laws against these violations is also important to act as a warning and show that such actions are not acceptable in a civilized society.

Intellectual Property Rights (IPR) serve to safeguard the legal interests of creators over their works (Indriani, 2018). Yet in Indonesia, awareness of IPR remains limited, with many digital creators overlooking the need for formal recognition and protection. The emergence of non-fungible tokens (NFTs) further complicates this issue, as cases of unauthorized use of digital art persist in the absence of specific national regulations contrasting with the European Union, where clearer provisions on digital ownership have been established (Ivana & Nugroho, 2022). It is important to understand that IPR does not only have economic motives or only

benefit the owner or right holder. More than that, IPR also has a positive impact on society at large. IPR protection helps create an environment that supports the growth of creativity and innovation (Muchtar et al., 2021). This provides incentives for creators to continue working, raises living standards, and drives the development of the creative industry as a whole. The lack of effective enforcement, as seen in cases of widespread music piracy on platforms like Spotify or YouTube in Indonesia, results in significant economic losses and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Apart from that, through IPR protection, consumers also benefit. They can trust the authenticity and quality of the products or works they buy or use. IPR protection also facilitates the transfer of knowledge and technology, accelerates innovation, and increases a country's economic competitiveness.

In Indonesia, intellectual property protection is codified through several legal instruments, most notably Law No. 28 of 2014 on Copyright (Rahayu et al., 2019). This regulation extends comprehensive safeguards to creative works across science, art, and literature. It outlines both the economic and moral rights of authors and specifies remedies available in cases of copyright violation (Lalamentik, 2018). However, its implementation in the digital realm is hindered by the lack of specific provisions addressing modern challenges, such as automated content distribution or cross-border violations on global platforms. A comparative analysis with the European Union's Copyright Directive (Directive 2019/790) shows that Indonesia could benefit from adopting proactive measures, such as requiring platforms to implement content-filtering technologies to prevent unauthorized uploads (European Union, 2019). The protection provided includes the exclusive right to use the work, both commercially and non-commercially, as well as the right to regulate how the work is used by other parties. Apart from Law Number 28 of 2014, there are also other regulations that regulate specific aspects of intellectual property, such as the Trademark Law, Patent Law and Industrial Design Law. All of them aim to provide appropriate protection for creators or owners of intellectual property in realizing economic value and promoting innovation. The absence of robust judicial precedents in Indonesia, unlike in jurisdictions with established case law like the United States, further complicates enforcement, as courts often lack clear guidance on handling digital IPR disputes (United States Copyright Office, 1998).

Furthermore, Law No. 11 of 2008 on Electronic Information and Transactions serves as a key legal foundation for safeguarding Intellectual Property Rights (IPR) within Indonesia's digital and electronic transaction sphere (Amelia, 2022). The law affirms that electronic information, digital documents, websites, and the intellectual content they contain fall under IPR protection in line with existing regulations. Nevertheless, its provisions remain too broad to effectively tackle specific digital infringements, such as deepfake technology or automated content scraping, which demand more specialized enforcement mechanisms that are still absent in Indonesia's legal framework (Ivana & Nugroho, 2022). Law Number 11 of 2008 strengthens protection for intellectual works that exist in digital form, such as writing, images, music, videos, etc. that are composed or presented via electronic media. This protection covers the economic and moral rights of work owners, as well as providing a legal basis for enforcing these rights in the digital realm. Apart from strengthening IPR protection, Law Number 11 of 2008 also provides a basis for law enforcement against violations that occur in the context of electronic transactions, such as data theft, dissemination of misleading information, and other illegal acts involving intellectual works in digital form (Kurniawan & Soeskandhi, 2022).

CONCLUSION

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This study demonstrates that digitalization has transformed the way people create and experience their work. However, because digital content is easily accessible, there is a risk of copyright violations, which still occur frequently in Indonesia. Public awareness of the importance of Intellectual Property Rights (IPR) is still low, so many creators or creators of

digital works are not aware of the need for legal recognition and protection for their works. This study finds that while Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions provide a robust legal foundation, their enforcement is hindered by inadequate mechanisms for addressing digital-specific violations, such as unauthorized streaming or non-fungible token (NFT) misuse. To address these gaps, it is recommended that Indonesia adopt a notice-and-takedown mechanism similar to the U.S. Digital Millennium Copyright Act and introduce specific provisions for emerging technologies like NFTs to enhance legal clarity and enforcement. IPR protection is not only about economic rights for work owners, but also has a broad positive impact on society. Through IPR protection, creativity and innovation are encouraged, living standards are improved, and a country's economic competitiveness is increased. Therefore, alongside public awareness campaigns, regulatory reforms and stronger judicial precedents are needed to build a more effective IPR framework, ensuring respect for copyright and fostering a competitive and culturally vibrant digital environment in Indonesia.

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LEGAL PROTECTION OF INTELLECTUAL PROPERTY FOR DIGITAL WORKS BY UTILIZING EMERGING TECHNOLOGIES: STREAMING PLATFORMS AND NON-FUNGIBLE TOKENS (NFTS)

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Copyright, Intellectual Property Rights, Legal Protection, Non-Fungible Tokens (NFTs).

INTRODUCTION

Digitalization has significantly transformed the way society perceives and engages with creative work, leading to two prominent trends. First, there has been a marked increase in individuals producing creative works in digital formats, such as music, visual art, literature, and other media (Leonardi & Jeffreey, 2020). Digital tools provide creators with accessibility, flexibility, and efficiency, allowing them to develop and distribute their works more easily. Second, a growing population of users prefers to consume creative works on digital platforms, including streaming services for music and films, eBooks, and other forms of multimedia content. These platforms offer convenience, rapid access, and practical benefits, enabling users to enjoy works without physical storage limitations or long waiting periods. As a result, digitalization has not only expanded the avenues for creative production and consumption but has also shifted expectations regarding accessibility, immediacy, and convenience in creative industries.

However, the rapid rise of digital creative works has also created substantial challenges for copyright protection. Copyright provides creators with legal rights to control how their works are used and shared (Simatupang, 2021). These rights include moral rights, such as recognition as the author, and economic rights, such as receiving royalties when the work is utilized. Protecting these rights in the digital era is increasingly difficult because digital works can be easily copied, shared, and modified. The proliferation of online platforms, including MOOCs, streaming services, and peer-to-peer networks, has amplified the ease of replication and distribution. In Indonesia, existing laws, including Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, face challenges in addressing emerging issues such as unauthorized streaming, misuse of non-fungible tokens (NFTs), and illegal downloading (Ivana & Nugroho, 2022). Enforcement mechanisms remain limited for digital-specific violations, public awareness of copyright law is

generally low, and judicial precedents regarding digital intellectual property rights are scarce. Consequently, creators' moral and economic rights are often inadequately protected, undermining both innovation and fair compensation for their work (Leonardi & Jeffreey, 2020; Setiawan et al., 2018; Suryavanshi, 2017).

Advances in digital technology bring significant benefits but also introduce serious threats, particularly to younger generations who may not fully understand the legal implications of using digital platforms. The principles of information openness and easy access can facilitate potential violations of intellectual property rights (Suryavanshi, 2017). The greater the accessibility of digital content, the higher the likelihood of unauthorized duplication or distribution. This issue is particularly critical in Indonesia, where enforcement of existing laws is inconsistent, and judicial decisions on digital IPR violations remain limited. Many digital works are accessed without acknowledging the creator or are used outside their intended purpose, such as for commercial exploitation without permission. Such practices can harm creators both morally, by denying recognition, and economically, by reducing income generated from their works.

Digital works have become increasingly popular among online users due to several advantages over physical products. Digital products are perceived as more practical, easier to use, and do not require physical storage space, unlike traditional media (Setiawan et al., 2018). The process of downloading or streaming digital works is fast and efficient, allowing users to access content immediately without waiting for delivery or encountering physical limitations. This ease of access not only benefits consumers but also provides opportunities for creators to reach wider audiences, expanding market potential beyond traditional constraints. However, these same advantages also create vulnerabilities for intellectual property violations.

In Indonesia, violations of intellectual property laws, especially concerning digital content, remain widespread. Many people still lack awareness of the importance of copyright, which leads to behaviors that harm creators or copyright owners (Irawan, 2017). The Ministry of Law and Human Rights, through the Directorate General of Intellectual Property Rights (DJKI), stated that piracy of music, films, software, and digital books still dominates IP violations. Online marketplaces and social media are often exploited to sell pirated content (Victoria, 2025). A DJKI report indicates that illegal streaming sites, chat apps, and social media platforms are the primary channels for violations. Authorities have blocked thousands of infringing sites and stated that internet anonymization tools are increasingly complicating law enforcement (DJKI, 2024; DJKI, 2025).

Enforcement of unauthorized digital public performances has also been highlighted, such as when the DJKI held a hearing with the Indonesian Video Streaming Association (AVISI) and discovered unlicensed video content being broadcast in cafes/restaurants in Bali. A raid was even conducted to crack down on the practice (DJKI, 2025). Furthermore, according to a 2013 WIPO study, the level of software piracy in Indonesia is very high. This indicates that IPR violations are not limited to creative works, but also include software in general (Massot, Prieto, & Weiry, 2013).

Irianti & Basri (2025) concluded that many Indonesian users access illegal websites to stream or download films. They noted that social and cultural norms related to digital piracy remain deeply entrenched. The problem revolves around a weak public understanding of the importance of copyright, a lack of effective

oversight, and technical challenges in enforcing digital law. Consequently, creators suffer moral and economic harm, while violations continue to grow and are difficult to control. The consequences of these violations extend beyond individual creators. They undermine the economic benefits of creative work, reduce incentives for producing new content, and may impede the growth of Indonesia's creative industries (Ardiansyah et al., 2024).

Digitalization has brought significant changes to the creative industry in Indonesia. The legal framework for intellectual property rights (IPR), including Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions (amended by Law Number 1 of 2024), has not been fully effective in addressing growing digital violations, such as unauthorized streaming, NFT misuse, and illegal downloading (Simatupang, 2021; Ivana & Nugroho, 2022; Irawan, 2017; Ardiansyah et al., 2024). Digital tools increase accessibility and flexibility for creators and consumers, but law enforcement is often weak due to limited digital-specific mechanisms, low public awareness, and a lack of judicial precedent (Leonardi & Jeffreey, 2020; Setiawan et al., 2018; Suryavanshi, 2017).

New technologies, including blockchain and NFTs, offer opportunities to improve IPR confirmation, transparency, and cost efficiency. The implementation of this technology in Indonesia has not been extensively analyzed, particularly regarding communal ownership and traditional cultural expressions (Ma et al., 2025; Chime, 2025; Lu et al., 2024; Palaniappan et al., 2024; Alqarni, 2024; Ramirez Lopez & Morillo Ledezma, 2025; Makridis & Ammons, 2025). Other gaps exist in NFT copyright, metadata protection, and permissionless tokenization, including the limited integration of positive law with Islamic principles and sui generis regimes for geographical indications or folklore (Das, 2025; Valeonti et al., 2021; Schwiderowski et al., 2023; Guadamuz, 2021; Kumar et al., 2025; Nurani et al., 2025).

Empirical research addressing law enforcement in local contexts, such as music streaming, social media violations, and SME practices, is still limited (Mulqi et al., 2025; Busroh et al., 2025; Nasrianti et al., 2025; Zahra, 2025; Mirawanty et al., 2025; Sukania et al., 2025). Previous research on digital markets and traditional knowledge documentation has demonstrated disparities in commercialization, but has not explored the unique risks of the digital economy and anti-theft strategies (Prihastomo & Nugroho, 2024; Disemadi et al., 2024; Sujatmiko et al., 2024; Setiyono et al., 2024; Panjaitan et al., 2024). This study fills this gap by empirically assessing the effectiveness of Indonesian IPR law in the context of modern digital platforms, including streaming and NFTs. The novelty lies in identifying legal, technological, and enforcement gaps, as well as understanding the protection of creators' moral and economic rights in Indonesia's digital era. Thus, this study aims to assess the effectiveness of Indonesia's copyright and intellectual property laws in regulating digital works on emerging platforms, identify gaps that contribute to infringements, and explore ways to better protect creators' moral and economic rights. The research questions are: How effective are Indonesia's current copyright and intellectual property laws in regulating digital works on emerging platforms, such as streaming services and NFTs?; What legal, technological, and enforcement gaps contribute to copyright infringements on streaming platforms and in the misuse of NFTs in Indonesia?; and, How can Indonesia strengthen its legal framework and enforcement mechanisms to protect creators' moral and economic rights in the context of emerging digital technologies?

METHOD

This research employs a normative juridical method supported by descriptive qualitative analysis. The normative juridical approach is used to examine theories, concepts, legal doctrines, and regulations relevant to the protection and enforcement of Intellectual Property Rights (IPR) in Indonesia's digital ecosystem. Specifically, this research focuses on a critical analysis of the adequacy of Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 as the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, particularly in addressing the challenges of the digital era.

To strengthen the analysis, this research incorporates descriptive analysis, which involves a systematic description and interpretation of how the current legal framework operates in practice. This research relies on secondary data, including laws and regulations, government policies, books, journal articles, and websites of competent legal authorities. Furthermore, several case studies concerning digital IPR infringement in Indonesia are analyzed to illustrate the challenges of real-world law implementation and enforcement. This triangulation approach allows for an understanding of regulatory gaps, barriers to law enforcement, and their implications for the protection of creators' moral and economic rights in the digital age.

RESULTS AND DISCUSSION

1. Indonesia's Copyright and Intellectual Property Laws on Emerging Digital Platforms

Indonesia's current intellectual property legal framework comprises Law Number 28 of 2014 concerning Copyright (the Copyright Law) and Law Number 11 of 2008 concerning Electronic Information and Transactions (the ITE Law), as amended by Law Number 1 of 2024. Law 28/2014 establishes moral and economic rights for creators, covering the reproduction, public performance, distribution, and adaptation of copyrighted works. Article 2 recognizes creators' moral rights, including the right to be recognized as creators, while Article 9 protects economic rights by authorizing creators to authorize the reproduction, distribution, rental, and public performance of their works. These provisions are crucial in regulating digital content disseminated through streaming platforms, online marketplaces, and emerging technologies such as NFTs.

The ITE Law complements copyright law by regulating the use and dissemination of electronic information, including digital works. Article 30 prohibits unauthorized access to electronic systems or content, which can be applied to digital piracy and illegal streaming activities. Article 32 addresses the illegal use of electronic information for commercial purposes, offering a framework for prosecuting individuals or platforms that distribute copyrighted content without authorization.

In its implementation, relevant authorities, such as the Directorate General of Intellectual Property (DJKI), have actively implemented this law to monitor and control unauthorized digital distribution. For example, the DJKI held formal discussions with the Video Streaming Association (AVISI) and took enforcement action against bars and cafes in Bali that broadcast copyrighted video content without proper authorization (DMS, 2024). These actions demonstrate that Law 28/2014 provides a

legal basis for intervening in the public display of digital works, allowing regulators to impose sanctions and demand compliance from violators.

The Directorate General of Intellectual Property (DJKI) has demonstrated active involvement in addressing illegal streaming activities through direct collaboration with industry associations, underscoring the importance of collaboration between regulators and stakeholders. For example, the DJKI held a formal meeting with the Indonesian Video Streaming Association (AVISI) to discuss and address illegal streaming practices. During the meeting, the DJKI reported on enforcement actions taken against bars and cafes in Bali for broadcasting copyrighted video content without proper licenses (DMS, 2024). This case demonstrates that Indonesia has a legal framework capable of producing concrete action to curb unauthorized public displays of digital works. This coordinated effort facilitates the identification of violations at physical locations where digital content is publicly distributed and demonstrates the regulator's ability to interact directly with the industry sector to support intellectual property rights compliance.

Unlicensed public streaming activities remain widespread. Much digital content is consumed in cafes, bars, and various public spaces without obtaining official permission from copyright owners. This situation highlights limitations in monitoring and enforcement, as violations occur at widely dispersed digital consumption points and are difficult to monitor in real time. Existing legal mechanisms do cover this type of violation, but enforcement capacity is often hampered by limited human and technical resources, as well as challenges in tracking and prosecuting each violation. The high frequency of violations highlights the significant gap between existing regulations and practical implementation on the ground, and demonstrates the need for more adaptive enforcement strategies for digital content consumption in public spaces.

In the context of Non-Fungible Tokens (NFTs), the Directorate General of Intellectual Property (DJKI) has explored the potential of blockchain technology as a tool to enhance protection for digital creators. NFTs combined with smart contracts allow for automatically encoded royalty and usage rights, allowing creators to receive economic benefits every time their work is used (AMO, 2022). A study on the OpenSea platform shows that the Indonesian Copyright Law (Law 28/2014) does not explicitly regulate ownership and copyright for NFT-based works, creating legal ambiguity and potential future disputes (Akasyah et al., 2023). Further legal analysis confirms that ownership of an NFT does not automatically grant copyright to the underlying work; These tokens reflect digital ownership, not creator rights, leaving creators' creativity and economic interests vulnerable to abuse (Putra Miasa & Dwijayanthi, 2025).

Smart contracts offer a technical solution for enforcing terms of use and royalty distribution, significantly reducing the risk of unauthorized use and protecting creators' economic rights (Agusman et al., 2025). However, jurisdictional issues remain a serious obstacle to international law enforcement, as violators located outside Indonesia are difficult to prosecute through national legal mechanisms. In practice, NFT creators can often only request content removal through international platforms like OpenSea, with no guarantee of comprehensive legal redress (Mahendra, 2022). These limitations highlight the need to develop clearer legal guidelines for blockchain-based digital works, as well as cross-border enforcement mechanisms that can bridge the gap between new technologies and existing legal systems in Indonesia.

The DJKI's efforts in both cases (illegal streaming and NFTs) demonstrate the regulator's ability to address violations, but also reveal significant challenges. Public streaming and NFT transactions require a deeper understanding of digital technology, the ability to coordinate with various parties, and more adaptive legal implementation. Case data shows that legal protection for digital content remains limited in terms of practical reach, regulatory clarity, and enforcement capacity, necessitating continued improvements in policy, technology, and public education.

This shows that Implementation of Indonesia's copyright and intellectual property laws on emerging digital platforms shows a mixture of successes and persistent gaps. The authorities have proactively monitored and collaborated with industry associations. This reflects the ability of the regulatory framework to produce concrete actions against unauthorized public streaming (DMS, 2024). Enforcement efforts illustrate how legal provisions under UU No. 28/2014 and UU No. 11/2008 can be operationalized to address violations. These measures demonstrate that regulators can leverage statutory authority to demand compliance, impose sanctions, and encourage adherence to copyright obligations in physical venues hosting digital content.

Despite these interventions, the scale and nature of digital content consumption create enforcement challenges. Public streaming often occurs in widely dispersed locations, making real-time monitoring resource-intensive. Limited staffing, technological tools, and technical capacity hinder systematic enforcement, while digital content can be captured, redistributed, or streamed simultaneously to multiple devices, amplifying the potential for infringement (Ramli et al., 2023; Panjaitan et al., 2024). Social media platforms and OTT services further complicate monitoring, as user-generated sharing and peer-to-peer distribution circumvent traditional licensing channels, creating a persistent enforcement gap. The ITE Law (Articles 30 and 32) provides legal grounds to prosecute unauthorized access and commercial misuse, yet practical enforcement remains uneven across digital ecosystems (Maddusila et al., 2024; Silfiani, 2022).

In the context of Non-Fungible Tokens (NFTs), the authorities have explored blockchain integration as a tool to encode economic rights through smart contracts (AMO, 2022). These contracts automate royalty payments and usage conditions, theoretically aligning with Article 9 of UU No. 28/2014. However, legal ambiguity remains: ownership of an NFT does not inherently confer copyright over the underlying work, leaving creators vulnerable to misuse in international marketplaces such as OpenSea (Akasyah et al., 2023; Putra Miasa & Dwijayanthi, 2025). Enforcement is further complicated by jurisdictional constraints, as violators located outside Indonesia cannot be effectively prosecuted under domestic law, requiring reliance on platform-based takedown mechanisms (Mahendra, 2022).

The integration of blockchain and smart contracts demonstrates technological potential to enhance legal protections, yet practical implementation is still limited. Regulatory guidance for NFT minting, licensing, and cross-border transactions is underdeveloped, and creators often face uncertainty regarding how existing copyright law applies to these novel digital assets (Agusman et al., 2025; Das, 2025; Alqarni, 2024). Additionally, the DJKI's efforts must balance technology adoption with public education and compliance promotion, as limited awareness among creators and consumers contributes to ongoing infringements in both streaming and NFT markets (Ramli et al., 2023; Panjaitan et al., 2024).

2. Legal, Technological, and Enforcement Gaps Contributing to Copyright Infringements

The rapid development of information technology has created a wide range of digital products with substantial economic value, while simultaneously presenting new challenges for copyright protection. Ensuring harmony between technological progress and legal safeguards is essential for sustaining creativity and protecting the creative industry. Strong legal protection motivates creators to continue producing innovative works, provides fair economic benefits, and supports a healthy creative ecosystem (Mikafa et al., 2022; Sinaga, 2020). Indonesia's digital landscape has expanded quickly through streaming platforms, online marketplaces, social media, and blockchain-based innovations such as NFTs. Although these developments offer new opportunities, they also increase the risk of unauthorized access, duplication, and distribution of digital content. The ease of accessing digital works has often been exploited by parties who disseminate copyrighted material without permission, resulting in significant copyright violations.

Law No. 28 of 2014 on Copyright guarantees creators' moral and economic rights, including control over reproduction and distribution of digital works. However, the law does not clearly regulate several platform-specific issues, such as illegal streaming, unauthorized downloads, and the misuse of user-generated content (Simatupang, 2021). Likewise, Law No. 1 of 2024, which amends the Electronic Information and Transactions Law, provides general provisions for digital transactions but lacks detailed mechanisms to address complex digital IPR infringements, particularly those involving peer-to-peer sharing or decentralized technologies.

These regulatory gaps show that although Indonesia has established a solid legal foundation, current laws remain insufficiently adaptive to emerging digital platforms, enabling copyright infringements to persist across streaming services, social media, and NFT ecosystems.

The Copyright Law recognizes creators' exclusive rights to reproduction, distribution, adaptation, and communication of works to the public. These provisions are conceptually aligned with digital distribution models, yet the law lacks explicit mechanisms tailored to digital infringements, such as illegal streaming, peer-to-peer file sharing, automated scraping, or the circulation of copyrighted content via encrypted platforms (Simatupang, 2021; Ivana & Nugroho, 2022). As a result, enforcement agencies must rely on general provisions that were drafted with traditional, offline forms of infringement in mind.

A persistent problem lies in the absence of a statutory notice-and-takedown mechanism, unlike the Digital Millennium Copyright Act (DMCA) in the United States, which obliges platforms to promptly remove infringing content upon notification (United States Copyright Office, 1998). Without such a mechanism, Indonesian regulators cannot compel global platforms—YouTube, Telegram, Discord, TikTok, or NFT marketplaces—to take swift corrective action. This creates a severe gap in the speed of enforcement: infringing digital content can be duplicated, mirrored, or redistributed faster than regulators can issue administrative warnings.

Moreover, cross-border jurisdictional limitations significantly weaken Indonesia's legal reach. Many digital platforms operate servers overseas, and individuals minting NFTs or redistributing illegal streams may reside outside Indonesia. The Copyright Law does not address the complexity of enforcing rights against foreign-based violators,

and the ITE Law lacks implementing provisions for international cooperation on digital IP crimes (Manurung, 2022; Mahendra, 2022).

Similar gaps appear in the treatment of emerging technologies. Current legislation does not define the legal status of NFTs, nor does it regulate smart contracts used to embed royalty conditions (Akasyah et al., 2023; Putra Miasa & Dwijayanthi, 2025). Ownership of an NFT remains separate from ownership of the underlying copyright, creating legal ambiguity that has already led to unauthorized minting and sale of Indonesian digital artworks on global blockchain marketplaces (Ivana & Nugroho, 2022). Without explicit statutory provisions, creators have little recourse other than platform-level takedowns.

Comparative analysis with the EU Copyright Directive (Directive 2019/790) shows that Indonesia has not adopted proactive measures requiring platforms to implement content recognition technologies or automated upload filters (European Union, 2019). This leaves a gap in preventive enforcement at the platform level, allowing unauthorized uploads and redistribution to persist without structural barriers.

In addition, with the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters g (Dharma & Mahadewi, 2023).

The rapid development of digital technologies has enabled sophisticated methods of evasion by infringers. Encrypted messaging platforms such as Telegram, WhatsApp, and Discord allow the circulation of copyrighted films, music, and books in closed groups that are nearly impossible for authorities to monitor (Mikafa et al., 2022). Advances in anonymizing technologies, including VPNs, proxy servers, cloud mirroring, and decentralized file-sharing systems, make user identities difficult to trace. Platforms hosting illegal streams frequently relocate to new domains, switching servers across multiple jurisdictions to avoid takedowns. This technological agility far outpaces the enforcement capacity of DJKI and cyber authorities. On streaming platforms, digital piracy occurs through real-time screen capture software, data interception tools, or modified applications, allowing infringing content to be redistributed instantly across multiple sites. Streaming mirrors and IPTV boxes are widely available, enabling cafes and entertainment venues to publicly screen copyrighted content without proper licenses (DMS, 2024; Ramli et al., 2023).

Blockchain technology presents additional difficulties. NFTs can embed copyrighted content permanently on decentralized networks, making removal nearly impossible. Even if platforms like OpenSea remove the listed token, the original digital file may remain accessible on the IPFS network or mirrored on third-party sites. Smart

contracts also operate autonomously, limiting human intervention to halt infringing activities (Agusman et al., 2025). Collectively, these technological challenges illustrate that enforcement agencies lack the digital forensics capabilities, automated monitoring tools, and cross-platform interoperability needed to detect and respond to violations at scale. Although the authorities have collaborated with industry associations and conducts field enforcement, the scale of infringement across digital platforms far exceeds enforcement capacity (DMS, 2024). With millions of daily uploads across social media, streaming services, and NFT marketplaces, manual monitoring is insufficient, and no centralized digital monitoring system exists to track and identify infringing content in real time. Weak interagency coordination further hampers enforcement. Digital copyright violations often fall between overlapping jurisdictions of DJKI, Kominfo, and cybercrime units, leading to fragmented responses. The enforcement process is also slowed by the absence of fast-track judicial or administrative procedures for digital IP cases, unlike the expedited processes available in DMCA-style systems.

A significant challenge is low public understanding of IPR. Many users believe that streaming a film in a café, downloading music from Telegram, or minting another person's artwork as an NFT is harmless or inconsequential (Manurung, 2022; Dharma & Mahadewi, 2023). This cultural normalization of digital piracy perpetuates widespread violations. Limited access to affordable legal content also contributes to reliance on illegal platforms, especially among younger users and lower-income groups (Ullah et al., 2021). Digital creators themselves often underestimate the importance of registering their works or using digital rights management tools. Many rely solely on platform timestamps without pursuing formal copyright registration, leaving them legally vulnerable when disputes arise (Indriani, 2018; Muchtar et al., 2021).

The cumulative effect of legal, technological, and enforcement gaps significantly undermines the sustainability of Indonesia's creative industry. Unauthorized redistribution of music, film, and digital art leads to substantial economic losses, reducing creators' royalties and deterring innovation (Dharma & Mahadewi, 2023; Sinaga, 2020). Public mistrust grows when original creators cannot maintain control over the integrity of their work, especially when unauthorized modifications or AI-generated derivatives circulate widely.

For digital artists, the rise of NFTs presents both opportunity and risk. Without regulatory certainty, creators face exposure to plagiarism, unauthorized minting, and loss of revenue, while consumers risk purchasing NFTs that do not convey legitimate rights. The absence of cross-border enforcement mechanisms further diminishes the protective value of Indonesian copyright law in global digital markets. Meanwhile, the creative industry struggles to compete with illegal platforms offering free access to copyrighted works. This discourages investment in local content production, undermines the long-term viability of streaming platforms operating legally, and limits Indonesia's competitiveness in the global digital economy (Suryavanshi, 2017).

3. Strategies to Strengthen Legal Framework and Enforcement Mechanisms

Strengthening Indonesia's legal and institutional capacity to protect intellectual property rights (IPR) in the digital environment requires a comprehensive strategy that aligns regulatory reforms, technological innovation, enforcement enhancements, and public education. As digital platforms expand rapidly—ranging from streaming services and social media to decentralized blockchain systems—copyright

infringements are becoming more sophisticated and harder to detect. These violations not only undermine the economic rights of creators but also weaken consumer trust and the overall integrity of the creative industry (Ullah et al., 2021). To ensure long-term sustainability, Indonesia must adopt adaptive strategies capable of responding to new forms of violations while reinforcing foundational legal principles.

In this context, Indonesia can strengthen copyright and intellectual property protection in the digital realm through four complementary strategic pillars: substantive legal reform, blockchain technology integration, institutional enforcement capacity enhancement, and public education and awareness. These four pillars are essential given the rapid development of digital platforms, NFTs, metaverses, and OTTs, which continue to generate new modes of infringement (Maddusila et al., 2024; Panjaitan et al., 2024; Shafik, 2025).

The first is strengthening substantive legal provisions and regulatory clarity. Indonesia's core legal instruments (Law No. 28 of 2014 on Copyright and the Electronic Information and Transactions Law) provide essential protection for the moral and economic rights of creators. However, both laws face structural limitations in addressing contemporary digital challenges. Copyright Law 28/2014 does not yet regulate platform-specific issues such as automated content distribution, user-generated content disputes, or cross-border infringements common in streaming and file-sharing networks (Lalamentik, 2018). Likewise, the ITE Law, although central to digital governance, lacks tailored mechanisms for responding to complex online violations, including algorithm-driven reposting, deepfake manipulation, or unauthorized use of digital assets such as NFTs (Manurung, 2022; Ivana & Nugroho, 2022).

To strengthen these frameworks, Indonesia may draw on established international models. The United States' Digital Millennium Copyright Act (DMCA) demonstrates the effectiveness of a structured notice-and-takedown system, enabling platforms to remove infringing content swiftly and reducing the spread of illegal material (United States Copyright Office, 1998). Similarly, the European Union's Directive 2019/790 obliges platforms to deploy proactive content-filtering technologies to prevent unauthorized uploads (European Union, 2019). Adapting these mechanisms would significantly enhance Indonesia's ability to manage large-scale digital infringements.

The substantive legal reform and strengthening the regulatory framework do provide a foundation for protecting the moral and economic rights of creators, but they do not explicitly regulate digital platforms' responsibilities for royalty distribution, notice-and-takedown for UGC, or the separation of NFT ownership from copyright of the underlying work (Silfiani, 2022; Ramli et al., 2023; Das, 2025). The adoption of a DMCA-style notice-and-takedown mechanism and proactive filtering obligations as stipulated in EU Directive 2019/790 could serve as a reference for incorporating "safe harbor with responsibility" provisions for OTT and social media platforms (Maddusila et al., 2024; Mulqi et al., 2025). In addition, specific regulations regarding smart contracts and automatic royalties on NFTs and the metaverse need to be formulated immediately to create legal certainty (Alqarni, 2024; Makridis & Ammons, 2025; Hosseini Bamakan & Banaeian Far, 2025).

The second is expanding technological enforcement and blockchain integration. Technological advancement must complement legal reform. Blockchain technology offers significant potential for improving copyright verification, ownership

authentication, and royalty tracking. Smart contracts embedded within digital works or NFTs can automate payment flows and ensure transparent use of creative assets, thereby protecting creators' economic rights (Agusman et al., 2025). However, without explicit legal recognition of tokenized ownership and its distinction from copyright ownership, disputes will continue to arise, as seen in repeated instances of unauthorized NFT minting on global platforms (Putra Miasa & Dwijayanthi, 2025).

Indonesia's IPR authority can strengthen enforcement by promoting blockchain-based registration systems and digital watermarking technologies to track content distribution. These innovations would enable detection of piracy on encrypted applications where traditional enforcement mechanisms face limitations due to platform anonymity (Mikafa et al., 2022). This integration of blockchain and NFT technology as a transparent and efficient enforcement instrument will enable incorruptible ownership records, automated royalty distribution, and the prevention of unauthorized minting (Ma et al., 2025; Lu et al., 2024; Palaniappan et al., 2024). Several studies have shown that an NFT-IPFS-based system can reduce copyright registration time by up to 13% and significantly reduce maintenance costs (Ma et al., 2025; Kumar et al., 2025). The Directorate General of Intellectual Property (DJKI) can develop a national blockchain-based registry integrated with the IP Marketplace platform so that creators, including MSMEs and indigenous communities, can obtain immutable proof of ownership and more liquid commercialization channels (Prihastomo & Nugroho, 2024; Sukania et al., 2025; Chime, 2025). Lazy minting, which has been shown to improve NFT sales performance, can also be adopted to lower barriers to entry for local creators (Fang et al., 2025).

The third is enhancing institutional enforcement capacity. Effective enforcement requires not only strong laws but also capable institutions. Currently, law enforcement efforts are hindered by limited technical resources and fragmented coordination between agencies, platforms, and rights holders (Manurung, 2022). Strengthening the institutional capacity of law enforcement, expanding specialized cyber-IPR units, and establishing formal cooperation channels with digital service providers can significantly improve response times and investigative accuracy.

Regular enforcement actions serve as a deterrent. However, as seen with widespread music piracy across streaming and social media platforms, inconsistent enforcement reduces credibility and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Developing judicial guidelines and expanding case law precedents, areas where Indonesia currently lacks robust foundations, would also provide courts with clearer references for adjudicating digital IPR disputes. Given the low number of dedicated cyber copyright units, limited human resources familiar with blockchain technology, and fragmented coordination between the Directorate General of Intellectual Property Rights (DJKI), the Ministry of Communication and Information Technology, the Indonesian National Police (Polri), and the National Institute of Sciences (LMKN), this has reduced the ability to conduct early detection, verification, and effective action against copyright infringement in the digital realm (Panjaitan et al., 2024; Maddusila et al., 2024). The establishment of a cross-agency Cyber Intellectual Property Rights Task Force, intensive training for judges and investigators on digital evidence and NFTs, and formal collaboration with global platforms (OpenSea, Spotify, TikTok) through a Memorandum of Understanding (MoU) will accelerate the response to infringement (Nurani et al., 2025; Setiyono et al., 2024). A sui generis model for Geographical Indications and Traditional Cultural Expressions

involving participatory digital registration and proactive enforcement can also serve as a blueprint for communal protection in the digital age (Nurani et al., 2025; Disemadi et al., 2024; Nasrianti et al., 2025).

The fourth is public awareness and education initiatives. A fundamental barrier to IPR protection in Indonesia is the low level of public understanding of copyright norms (Manurung, 2022). Many users unknowingly violate IPR due to a lack of awareness of creators' rights and the broader societal impacts of infringement. Educational programs, public campaigns, and accessible online resources are therefore essential to foster a culture that respects creativity. Increasing awareness would not only reduce unintentional violations but also strengthen the market for legitimate content, thereby supporting economic growth in the creative sector (Dharma & Mahadewi, 2023).

IPR protection benefits society at large by ensuring fair competition, encouraging innovation, and strengthening cultural and economic development (Muchtar et al., 2021). Through effective public education, Indonesia can cultivate an environment where consumers trust the authenticity of digital products and creators receive the recognition and compensation they deserve.

However, low public understanding of copyright among both consumers and businesses is a major driver of unintentional infringement (Chime, 2025; Sukania et al., 2025). Massive educational programs through schools, universities, and digital campaigns targeting Gen Z and creative MSMEs will shift content consumption behavior from piracy to the use of legal services (Ramli et al., 2020; Attamimi et al., 2024). The integration of copyright materials and blockchain technology into higher education curricula, as well as digital creator certification, will create a generation that is not only creative but also respects the value of intellectual property (Ramirez Lopez & Morillo Ledezma, 2025).

These four pillars, if implemented in an integrated manner, will create an adaptive, technology-driven, and equitable copyright protection ecosystem. The result is not only a significant reduction in violations, but also an increase in the contribution of a more inclusive digital-based creative economy from independent musicians, NFT artists, to communities of owners of traditional cultural expressions while strengthening Indonesia's competitiveness in the era of Society 5.0 and the global knowledge-based economy (Ante & Fiedler, 2025; Valeonti et al., 2021; Mirawanty et al., 2025).

CONCLUSION

This study highlights that rapid digitalization has fundamentally changed how creative works are produced, distributed, and consumed, while simultaneously intensifying the challenges of copyright protection in Indonesia. Although Law No. 28 of 2014 on Copyright and the Electronic Information and Transactions Law provide essential protection for creators' moral and economic rights, they remain insufficient for addressing digital-specific infringements such as illegal streaming, encrypted file sharing, user-generated content misuse, and unauthorized minting of non-fungible tokens (NFTs). Enforcement is further constrained by limited institutional capacity, weak platform cooperation, and the absence of detailed legal provisions suited to contemporary digital ecosystems.

Strengthening Indonesia's copyright system therefore requires a combination of regulatory, technological, and educational strategies. Regulatory reforms should

include clearer rules for platform liability, explicit recognition of blockchain-based assets, and the adoption of an efficient notice-and-takedown mechanism to ensure rapid removal of infringing content. Technological solutions, such as blockchain for copyright verification and content-filtering tools, can complement legal reforms by enabling more accurate monitoring and automated royalty protection. At the same time, improving public literacy about Intellectual Property Rights (IPR) is crucial, as low awareness remains a core driver of widespread infringement. Ultimately, enhancing IPR protection is not solely about safeguarding economic interests but also about fostering a creative, innovative, and competitive digital environment. By strengthening enforcement mechanisms, expanding public education, and improving regulatory clarity, Indonesia can build a more resilient copyright framework that supports creators while ensuring the sustainable growth of its digital creative economy.

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LEGAL PROTECTION OF INTELLECTUAL PROPERTY FOR DIGITAL WORKS BY UTILIZING EMERGING TECHNOLOGIES: STREAMING PLATFORMS AND NON-FUNGIBLE TOKENS (NFTS)

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Copyright, Intellectual Property Rights, Legal Protection, Non-Fungible Tokens (NFTs).

INTRODUCTION

Digitalization has significantly transformed the way society perceives and engages with creative work, leading to two prominent trends. First, there has been a marked increase in individuals producing creative works in digital formats, such as music, visual art, literature, and other media (Leonardi & Jeffreey, 2020). Digital tools provide creators with accessibility, flexibility, and efficiency, allowing them to develop and distribute their works more easily. Second, a growing population of users prefers to consume creative works on digital platforms, including streaming services for music and films, eBooks, and other forms of multimedia content. These platforms offer convenience, rapid access, and practical benefits, enabling users to enjoy works without physical storage limitations or long waiting periods. As a result, digitalization has not only expanded the avenues for creative production and consumption but has also shifted expectations regarding accessibility, immediacy, and convenience in creative industries.

However, the rapid rise of digital creative works has also created substantial challenges for copyright protection. Copyright provides creators with legal rights to control how their works are used and shared (Simatupang, 2021). These rights include moral rights, such as recognition as the author, and economic rights, such as receiving royalties when the work is utilized. Protecting these rights in the digital era is increasingly difficult because digital works can be easily copied, shared, and modified. The proliferation of online platforms, including MOOCs, streaming services, and peer-to-peer networks, has amplified the ease of replication and distribution. In Indonesia, existing laws, including Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, face challenges in addressing emerging issues such as unauthorized streaming, misuse of non-fungible tokens (NFTs), and illegal downloading (Ivana & Nugroho, 2022). Enforcement mechanisms remain limited for digital-specific violations, public awareness of copyright law is

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generally low, and judicial precedents regarding digital intellectual property rights are scarce. Consequently, creators' moral and economic rights are often inadequately protected, undermining both innovation and fair compensation for their work (Leonardi & Jeffreey, 2020; Setiawan et al., 2018; Suryavanshi, 2017).

Advances in digital technology bring significant benefits but also introduce serious threats, particularly to younger generations who may not fully understand the legal implications of using digital platforms. The principles of information openness and easy access can facilitate potential violations of intellectual property rights (Suryavanshi, 2017). The greater the accessibility of digital content, the higher the likelihood of unauthorized duplication or distribution. This issue is particularly critical in Indonesia, where enforcement of existing laws is inconsistent, and judicial decisions on digital IPR violations remain limited. Many digital works are accessed without acknowledging the creator or are used outside their intended purpose, such as for commercial exploitation without permission. Such practices can harm creators both morally, by denying recognition, and economically, by reducing income generated from their works.

Digital works have become increasingly popular among online users due to several advantages over physical products. Digital products are perceived as more practical, easier to use, and do not require physical storage space, unlike traditional media (Setiawan et al., 2018). The process of downloading or streaming digital works is fast and efficient, allowing users to access content immediately without waiting for delivery or encountering physical limitations. This ease of access not only benefits consumers but also provides opportunities for creators to reach wider audiences, expanding market potential beyond traditional constraints. However, these same advantages also create vulnerabilities for intellectual property violations.

In Indonesia, violations of intellectual property laws, especially concerning digital content, remain widespread. Many people still lack awareness of the importance of copyright, which leads to behaviors that harm creators or copyright owners (Irawan, 2017). The Ministry of Law and Human Rights, through the Directorate General of Intellectual Property Rights (DJKI), stated that piracy of music, films, software, and digital books still dominates IP violations. Online marketplaces and social media are often exploited to sell pirated content (Victoria, 2025). A DJKI report indicates that illegal streaming sites, chat apps, and social media platforms are the primary channels for violations. Authorities have blocked thousands of infringing sites and stated that internet anonymization tools are increasingly complicating law enforcement (DJKI, 2024; DJKI, 2025).

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Enforcement of unauthorized digital public performances has also been highlighted, such as when the DJKI held a hearing with the Indonesian Video Streaming Association (AVISI) and discovered unlicensed video content being broadcast in cafes/restaurants in Bali. A raid was even conducted to crack down on the practice (DJKI, 2025). Furthermore, according to a 2013 WIPO study, the level of software piracy in Indonesia is very high. This indicates that IPR violations are not limited to creative works, but also include software in general (Massot, Prieto, & Weiry, 2013).

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Irianti & Basri (2025) concluded that many Indonesian users access illegal websites to stream or download films. They noted that social and cultural norms related to digital piracy remain deeply entrenched. The problem revolves around a weak public understanding of the importance of copyright, a lack of effective

oversight, and technical challenges in enforcing digital law. Consequently, creators suffer moral and economic harm, while violations continue to grow and are difficult to control. The consequences of these violations extend beyond individual creators. They undermine the economic benefits of creative work, reduce incentives for producing new content, and may impede the growth of Indonesia's creative industries (Ardiansyah et al., 2024).

Digitalization has brought significant changes to the creative industry in Indonesia. The legal framework for intellectual property rights (IPR), including Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions (amended by Law Number 1 of 2024), has not been fully effective in addressing growing digital violations, such as unauthorized streaming, NFT misuse, and illegal downloading (Simatupang, 2021; Ivana & Nugroho, 2022; Irawan, 2017; Ardiansyah et al., 2024). Digital tools increase accessibility and flexibility for creators and consumers, but law enforcement is often weak due to limited digital-specific mechanisms, low public awareness, and a lack of judicial precedent (Leonardi & Jeffreey, 2020; Setiawan et al., 2018; Suryavanshi, 2017).

New technologies, including blockchain and NFTs, offer opportunities to improve IPR confirmation, transparency, and cost efficiency. The implementation of this technology in Indonesia has not been extensively analyzed, particularly regarding communal ownership and traditional cultural expressions (Ma et al., 2025; Chime, 2025; Lu et al., 2024; Palaniappan et al., 2024; Alqarni, 2024; Ramirez Lopez & Morillo Ledezma, 2025; Makridis & Ammons, 2025). Other gaps exist in NFT copyright, metadata protection, and permissionless tokenization, including the limited integration of positive law with Islamic principles and sui generis regimes for geographical indications or folklore (Das, 2025; Valeonti et al., 2021; Schwiderowski et al., 2023; Guadamuz, 2021; Kumar et al., 2025; Nurani et al., 2025).

Empirical research addressing law enforcement in local contexts, such as music streaming, social media violations, and SME practices, is still limited (Mulqi et al., 2025; Busroh et al., 2025; Nasrianti et al., 2025; Zahra, 2025; Mirawanty et al., 2025; Sukania et al., 2025). Previous research on digital markets and traditional knowledge documentation has demonstrated disparities in commercialization, but has not explored the unique risks of the digital economy and anti-theft strategies (Prihastomo & Nugroho, 2024; Disemadi et al., 2024; Sujatmiko et al., 2024; Setiyono et al., 2024; Panjaitan et al., 2024). This study fills this gap by empirically assessing the effectiveness of Indonesian IPR law in the context of modern digital platforms, including streaming and NFTs. The novelty lies in identifying legal, technological, and enforcement gaps, as well as understanding the protection of creators' moral and economic rights in Indonesia's digital era. Thus, this study aims to assess the effectiveness of Indonesia's copyright and intellectual property laws in regulating digital works on emerging platforms, identify gaps that contribute to infringements, and explore ways to better protect creators' moral and economic rights. The research questions are: How effective are Indonesia's current copyright and intellectual property laws in regulating digital works on emerging platforms, such as streaming services and NFTs?; What legal, technological, and enforcement gaps contribute to copyright infringements on streaming platforms and in the misuse of NFTs in Indonesia?; and, How can Indonesia strengthen its legal framework and enforcement mechanisms to protect creators' moral and economic rights in the context of emerging digital technologies?

METHOD

This research employs a normative juridical method supported by descriptive qualitative analysis. The normative juridical approach is used to examine theories, concepts, legal doctrines, and regulations relevant to the protection and enforcement of Intellectual Property Rights (IPR) in Indonesia's digital ecosystem. Specifically, this research focuses on a critical analysis of the adequacy of Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 as the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, particularly in addressing the challenges of the digital era.

To strengthen the analysis, this research incorporates descriptive analysis, which involves a systematic description and interpretation of how the current legal framework operates in practice. This research relies on secondary data, including laws and regulations, government policies, books, journal articles, and websites of competent legal authorities. Furthermore, several case studies concerning digital IPR infringement in Indonesia are analyzed to illustrate the challenges of real-world law implementation and enforcement. This triangulation approach allows for an understanding of regulatory gaps, barriers to law enforcement, and their implications for the protection of creators' moral and economic rights in the digital age.

RESULTS AND DISCUSSION

1. Indonesia's Copyright and Intellectual Property Laws on Emerging Digital Platforms

Indonesia's current intellectual property legal framework comprises Law Number 28 of 2014 concerning Copyright (the Copyright Law) and Law Number 11 of 2008 concerning Electronic Information and Transactions (the ITE Law), as amended by Law Number 1 of 2024. Law 28/2014 establishes moral and economic rights for creators, covering the reproduction, public performance, distribution, and adaptation of copyrighted works. Article 2 recognizes creators' moral rights, including the right to be recognized as creators, while Article 9 protects economic rights by authorizing creators to authorize the reproduction, distribution, rental, and public performance of their works. These provisions are crucial in regulating digital content disseminated through streaming platforms, online marketplaces, and emerging technologies such as NFTs.

The ITE Law complements copyright law by regulating the use and dissemination of electronic information, including digital works. Article 30 prohibits unauthorized access to electronic systems or content, which can be applied to digital piracy and illegal streaming activities. Article 32 addresses the illegal use of electronic information for commercial purposes, offering a framework for prosecuting individuals or platforms that distribute copyrighted content without authorization.

In its implementation, relevant authorities, such as the Directorate General of Intellectual Property (DJKI), have actively implemented this law to monitor and control unauthorized digital distribution. For example, the DJKI held formal discussions with the Video Streaming Association (AVISI) and took enforcement action against bars and cafes in Bali that broadcast copyrighted video content without proper authorization (DMS, 2024). These actions demonstrate that Law 28/2014 provides a

legal basis for intervening in the public display of digital works, allowing regulators to impose sanctions and demand compliance from violators.

The Directorate General of Intellectual Property (DJKI) has demonstrated active involvement in addressing illegal streaming activities through direct collaboration with industry associations, underscoring the importance of collaboration between regulators and stakeholders. For example, the DJKI held a formal meeting with the Indonesian Video Streaming Association (AVISI) to discuss and address illegal streaming practices. During the meeting, the DJKI reported on enforcement actions taken against bars and cafes in Bali for broadcasting copyrighted video content without proper licenses (DMS, 2024). This case demonstrates that Indonesia has a legal framework capable of producing concrete action to curb unauthorized public displays of digital works. This coordinated effort facilitates the identification of violations at physical locations where digital content is publicly distributed and demonstrates the regulator's ability to interact directly with the industry sector to support intellectual property rights compliance.

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Unlicensed public streaming activities remain widespread. Much digital content is consumed in cafes, bars, and various public spaces without obtaining official permission from copyright owners. This situation highlights limitations in monitoring and enforcement, as violations occur at widely dispersed digital consumption points and are difficult to monitor in real time. Existing legal mechanisms do cover this type of violation, but enforcement capacity is often hampered by limited human and technical resources, as well as challenges in tracking and prosecuting each violation. The high frequency of violations highlights the significant gap between existing regulations and practical implementation on the ground, and demonstrates the need for more adaptive enforcement strategies for digital content consumption in public spaces.

In the context of Non-Fungible Tokens (NFTs), the Directorate General of Intellectual Property (DJKI) has explored the potential of blockchain technology as a tool to enhance protection for digital creators. NFTs combined with smart contracts allow for automatically encoded royalty and usage rights, allowing creators to receive economic benefits every time their work is used (AMO, 2022). A study on the OpenSea platform shows that the Indonesian Copyright Law (Law 28/2014) does not explicitly regulate ownership and copyright for NFT-based works, creating legal ambiguity and potential future disputes (Akasyah et al., 2023). Further legal analysis confirms that ownership of an NFT does not automatically grant copyright to the underlying work; These tokens reflect digital ownership, not creator rights, leaving creators' creativity and economic interests vulnerable to abuse (Putra Miasa & Dwijayanthi, 2025).

Smart contracts offer a technical solution for enforcing terms of use and royalty distribution, significantly reducing the risk of unauthorized use and protecting creators' economic rights (Agusman et al., 2025). However, jurisdictional issues remain a serious obstacle to international law enforcement, as violators located outside Indonesia are difficult to prosecute through national legal mechanisms. In practice, NFT creators can often only request content removal through international platforms like OpenSea, with no guarantee of comprehensive legal redress (Mahendra, 2022). These limitations highlight the need to develop clearer legal guidelines for blockchain-based digital works, as well as cross-border enforcement mechanisms that can bridge the gap between new technologies and existing legal systems in Indonesia.

The DJKI's efforts in both cases (illegal streaming and NFTs) demonstrate the regulator's ability to address violations, but also reveal significant challenges. Public streaming and NFT transactions require a deeper understanding of digital technology, the ability to coordinate with various parties, and more adaptive legal implementation. Case data shows that legal protection for digital content remains limited in terms of practical reach, regulatory clarity, and enforcement capacity, necessitating continued improvements in policy, technology, and public education.

This shows that Implementation of Indonesia's copyright and intellectual property laws on emerging digital platforms shows a mixture of successes and persistent gaps. The authorities have proactively monitored and collaborated with industry associations. This reflects the ability of the regulatory framework to produce concrete actions against unauthorized public streaming (DMS, 2024). Enforcement efforts illustrate how legal provisions under UU No. 28/2014 and UU No. 11/2008 can be operationalized to address violations. These measures demonstrate that regulators can leverage statutory authority to demand compliance, impose sanctions, and encourage adherence to copyright obligations in physical venues hosting digital content.

Despite these interventions, the scale and nature of digital content consumption create enforcement challenges. Public streaming often occurs in widely dispersed locations, making real-time monitoring resource-intensive. Limited staffing, technological tools, and technical capacity hinder systematic enforcement, while digital content can be captured, redistributed, or streamed simultaneously to multiple devices, amplifying the potential for infringement (Ramli et al., 2023; Panjaitan et al., 2024). Social media platforms and OTT services further complicate monitoring, as user-generated sharing and peer-to-peer distribution circumvent traditional licensing channels, creating a persistent enforcement gap. The ITE Law (Articles 30 and 32) provides legal grounds to prosecute unauthorized access and commercial misuse, yet practical enforcement remains uneven across digital ecosystems (Maddusila et al., 2024; Silfiani, 2022).

In the context of Non-Fungible Tokens (NFTs), the authorities have explored blockchain integration as a tool to encode economic rights through smart contracts (AMO, 2022). These contracts automate royalty payments and usage conditions, theoretically aligning with Article 9 of UU No. 28/2014. However, legal ambiguity remains: ownership of an NFT does not inherently confer copyright over the underlying work, leaving creators vulnerable to misuse in international marketplaces such as OpenSea (Akasyah et al., 2023; Putra Miasa & Dwijayanthi, 2025). Enforcement is further complicated by jurisdictional constraints, as violators located outside Indonesia cannot be effectively prosecuted under domestic law, requiring reliance on platform-based takedown mechanisms (Mahendra, 2022).

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The integration of blockchain and smart contracts demonstrates technological potential to enhance legal protections, yet practical implementation is still limited. Regulatory guidance for NFT minting, licensing, and cross-border transactions is underdeveloped, and creators often face uncertainty regarding how existing copyright law applies to these novel digital assets (Agusman et al., 2025; Das, 2025; Alqarni, 2024). Additionally, the DJKI's efforts must balance technology adoption with public education and compliance promotion, as limited awareness among creators and consumers contributes to ongoing infringements in both streaming and NFT markets (Ramli et al., 2023; Panjaitan et al., 2024).

2. Legal, Technological, and Enforcement Gaps Contributing to Copyright Infringements

The rapid development of information technology has created a wide range of digital products with substantial economic value, while simultaneously presenting new challenges for copyright protection. Ensuring harmony between technological progress and legal safeguards is essential for sustaining creativity and protecting the creative industry. Strong legal protection motivates creators to continue producing innovative works, provides fair economic benefits, and supports a healthy creative ecosystem (Mikafa et al., 2022; Sinaga, 2020). Indonesia's digital landscape has expanded quickly through streaming platforms, online marketplaces, social media, and blockchain-based innovations such as NFTs. Although these developments offer new opportunities, they also increase the risk of unauthorized access, duplication, and distribution of digital content. The ease of accessing digital works has often been exploited by parties who disseminate copyrighted material without permission, resulting in significant copyright violations.

Law No. 28 of 2014 on Copyright guarantees creators' moral and economic rights, including control over reproduction and distribution of digital works. However, the law does not clearly regulate several platform-specific issues, such as illegal streaming, unauthorized downloads, and the misuse of user-generated content (Simatupang, 2021). Likewise, Law No. 1 of 2024, which amends the Electronic Information and Transactions Law, provides general provisions for digital transactions but lacks detailed mechanisms to address complex digital IPR infringements, particularly those involving peer-to-peer sharing or decentralized technologies.

The Copyright Law recognizes creators' exclusive rights to reproduction, distribution, adaptation, and communication of works to the public. These provisions are conceptually aligned with digital distribution models, yet the law lacks explicit mechanisms tailored to digital infringements, such as illegal streaming, peer-to-peer file sharing, automated scraping, or the circulation of copyrighted content via encrypted platforms (Simatupang, 2021; Ivana & Nugroho, 2022). As a result, enforcement agencies must rely on general provisions that were drafted with traditional, offline forms of infringement in mind.

A persistent problem lies in the absence of a statutory notice-and-takedown mechanism, unlike the Digital Millennium Copyright Act (DMCA) in the United States, which obliges platforms to promptly remove infringing content upon notification (United States Copyright Office, 1998). Without such a mechanism, Indonesian regulators cannot compel global platforms—YouTube, Telegram, Discord, TikTok, or NFT marketplaces—to take swift corrective action. This creates a severe gap in the speed of enforcement: infringing digital content can be duplicated, mirrored, or redistributed faster than regulators can issue administrative warnings.

Moreover, cross-border jurisdictional limitations significantly weaken Indonesia's legal reach. Many digital platforms operate servers overseas, and individuals minting NFTs or redistributing illegal streams may reside outside Indonesia. The Copyright Law does not address the complexity of enforcing rights against foreign-based violators, and the ITE Law lacks implementing provisions for international cooperation on digital IP crimes (Manurung, 2022; Mahendra, 2022).

Similar gaps appear in the treatment of emerging technologies. Current legislation does not define the legal status of NFTs, nor does it regulate smart contracts used to

embed royalty conditions (Akasyah et al., 2023; Putra Miasa & Dwijayanthi, 2025). Ownership of an NFT remains separate from ownership of the underlying copyright, creating legal ambiguity that has already led to unauthorized minting and sale of Indonesian digital artworks on global blockchain marketplaces (Ivana & Nugroho, 2022). Without explicit statutory provisions, creators have little recourse other than platform-level takedowns.

Comparative analysis with the EU Copyright Directive (Directive 2019/790) shows that Indonesia has not adopted proactive measures requiring platforms to implement content recognition technologies or automated upload filters (European Union, 2019). This leaves a gap in preventive enforcement at the platform level, allowing unauthorized uploads and redistribution to persist without structural barriers.

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In addition, with the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work (Ivana & Nugroho, 2022). For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters g (Dharma & Mahadewi, 2023).

The rapid development of digital technologies has enabled sophisticated methods of evasion by infringers. Encrypted messaging platforms such as Telegram, WhatsApp, and Discord allow the circulation of copyrighted films, music, and books in closed groups that are nearly impossible for authorities to monitor (Mikafa et al., 2022). Advances in anonymizing technologies, including VPNs, proxy servers, cloud mirroring, and decentralized file-sharing systems, make user identities difficult to trace. Platforms hosting illegal streams frequently relocate to new domains, switching servers across multiple jurisdictions to avoid takedowns. This technological agility far outpaces the enforcement capacity of DJKI and cyber authorities. On streaming platforms, digital piracy occurs through real-time screen capture software, data interception tools, or modified applications, allowing infringing content to be redistributed instantly across multiple sites. Streaming mirrors and IPTV boxes are widely available, enabling cafes and entertainment venues to publicly screen copyrighted content without proper licenses (DMS, 2024; Ramli et al., 2023).

Blockchain technology presents additional difficulties. NFTs can embed copyrighted content permanently on decentralized networks, making removal nearly impossible. Even if platforms like OpenSea remove the listed token, the original digital file may remain accessible on the IPFS network or mirrored on third-party sites. Smart contracts also operate autonomously, limiting human intervention to halt infringing activities (Agusman et al., 2025). Collectively, these technological challenges illustrate that enforcement agencies lack the digital forensics capabilities, automated monitoring tools, and cross-platform interoperability needed to detect and respond to violations

at scale. Although the authorities have collaborated with industry associations and conducts field enforcement, the scale of infringement across digital platforms far exceeds enforcement capacity (DMS, 2024). With millions of daily uploads across social media, streaming services, and NFT marketplaces, manual monitoring is insufficient, and no centralized digital monitoring system exists to track and identify infringing content in real time. Weak interagency coordination further hampers enforcement. Digital copyright violations often fall between overlapping jurisdictions of DJKI, Kominfo, and cybercrime units, leading to fragmented responses. The enforcement process is also slowed by the absence of fast-track judicial or administrative procedures for digital IP cases, unlike the expedited processes available in DMCA-style systems.

A significant challenge is low public understanding of IPR. Many users believe that streaming a film in a café, downloading music from Telegram, or minting another person's artwork as an NFT is harmless or inconsequential (Manurung, 2022; Dharma & Mahadewi, 2023). This cultural normalization of digital piracy perpetuates widespread violations. Limited access to affordable legal content also contributes to reliance on illegal platforms, especially among younger users and lower-income groups (Ullah et al., 2021). Digital creators themselves often underestimate the importance of registering their works or using digital rights management tools. Many rely solely on platform timestamps without pursuing formal copyright registration, leaving them legally vulnerable when disputes arise (Indriani, 2018; Muchtar et al., 2021).

The cumulative effect of legal, technological, and enforcement gaps significantly undermines the sustainability of Indonesia's creative industry. Unauthorized redistribution of music, film, and digital art leads to substantial economic losses, reducing creators' royalties and deterring innovation (Dharma & Mahadewi, 2023; Sinaga, 2020). Public mistrust grows when original creators cannot maintain control over the integrity of their work, especially when unauthorized modifications or AI-generated derivatives circulate widely.

For digital artists, the rise of NFTs presents both opportunity and risk. Without regulatory certainty, creators face exposure to plagiarism, unauthorized minting, and loss of revenue, while consumers risk purchasing NFTs that do not convey legitimate rights. The absence of cross-border enforcement mechanisms further diminishes the protective value of Indonesian copyright law in global digital markets. Meanwhile, the creative industry struggles to compete with illegal platforms offering free access to copyrighted works. This discourages investment in local content production, undermines the long-term viability of streaming platforms operating legally, and limits Indonesia's competitiveness in the global digital economy (Suryavanshi, 2017).

3. Strategies to Strengthen Legal Framework and Enforcement Mechanisms

Strengthening Indonesia's legal and institutional capacity to protect intellectual property rights (IPR) in the digital environment requires a comprehensive strategy that aligns regulatory reforms, technological innovation, enforcement enhancements, and public education. As digital platforms expand rapidly—ranging from streaming services and social media to decentralized blockchain systems—copyright infringements are becoming more sophisticated and harder to detect. These violations not only undermine the economic rights of creators but also weaken consumer trust and the overall integrity of the creative industry (Ullah et al., 2021). To ensure long-

term sustainability, Indonesia must adopt adaptive strategies capable of responding to new forms of violations while reinforcing foundational legal principles.

In this context, Indonesia can strengthen copyright and intellectual property protection in the digital realm through four complementary strategic pillars: substantive legal reform, blockchain technology integration, institutional enforcement capacity enhancement, and public education and awareness. These four pillars are essential given the rapid development of digital platforms, NFTs, metaverses, and OTTs, which continue to generate new modes of infringement (Maddusila et al., 2024; Panjaitan et al., 2024; Shafik, 2025).

The first is strengthening substantive legal provisions and regulatory clarity. Indonesia's core legal instruments (Law No. 28 of 2014 on Copyright and the Electronic Information and Transactions Law) provide essential protection for the moral and economic rights of creators. However, both laws face structural limitations in addressing contemporary digital challenges. Copyright Law 28/2014 does not yet regulate platform-specific issues such as automated content distribution, user-generated content disputes, or cross-border infringements common in streaming and file-sharing networks (Lalamentik, 2018). Likewise, the ITE Law, although central to digital governance, lacks tailored mechanisms for responding to complex online violations, including algorithm-driven reposting, deepfake manipulation, or unauthorized use of digital assets such as NFTs (Manurung, 2022; Ivana & Nugroho, 2022).

To strengthen these frameworks, Indonesia may draw on established international models. The United States' Digital Millennium Copyright Act (DMCA) demonstrates the effectiveness of a structured notice-and-takedown system, enabling platforms to remove infringing content swiftly and reducing the spread of illegal material (United States Copyright Office, 1998). Similarly, the European Union's Directive 2019/790 obliges platforms to deploy proactive content-filtering technologies to prevent unauthorized uploads (European Union, 2019). Adapting these mechanisms would significantly enhance Indonesia's ability to manage large-scale digital infringements.

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The substantive legal reform and strengthening the regulatory framework do provide a foundation for protecting the moral and economic rights of creators, but they do not explicitly regulate digital platforms' responsibilities for royalty distribution, notice-and-takedown for UGC, or the separation of NFT ownership from copyright of the underlying work (Silfiani, 2022; Ramli et al., 2023; Das, 2025). The adoption of a DMCA-style notice-and-takedown mechanism and proactive filtering obligations as stipulated in EU Directive 2019/790 could serve as a reference for incorporating "safe harbor with responsibility" provisions for OTT and social media platforms (Maddusila et al., 2024; Mulqi et al., 2025). In addition, specific regulations regarding smart contracts and automatic royalties on NFTs and the metaverse need to be formulated immediately to create legal certainty (Alqarni, 2024; Makridis & Ammons, 2025; Hosseini Bamakan & Banaeian Far, 2025).

The second is expanding technological enforcement and blockchain integration. Technological advancement must complement legal reform. Blockchain technology offers significant potential for improving copyright verification, ownership authentication, and royalty tracking. Smart contracts embedded within digital works or NFTs can automate payment flows and ensure transparent use of creative assets, thereby protecting creators' economic rights (Agusman et al., 2025). However, without

explicit legal recognition of tokenized ownership and its distinction from copyright ownership, disputes will continue to arise, as seen in repeated instances of unauthorized NFT minting on global platforms (Putra Miasa & Dwijayanthi, 2025).

Indonesia's IPR authority can strengthen enforcement by promoting blockchain-based registration systems and digital watermarking technologies to track content distribution. These innovations would enable detection of piracy on encrypted applications where traditional enforcement mechanisms face limitations due to platform anonymity (Mikafa et al., 2022). This integration of blockchain and NFT technology as a transparent and efficient enforcement instrument will enable incorruptible ownership records, automated royalty distribution, and the prevention of unauthorized minting (Ma et al., 2025; Lu et al., 2024; Palaniappan et al., 2024). Several studies have shown that an NFT-IPFS-based system can reduce copyright registration time by up to 13% and significantly reduce maintenance costs (Ma et al., 2025; Kumar et al., 2025). The Directorate General of Intellectual Property (DJKI) can develop a national blockchain-based registry integrated with the IP Marketplace platform so that creators, including MSMEs and indigenous communities, can obtain immutable proof of ownership and more liquid commercialization channels (Prihastomo & Nugroho, 2024; Sukania et al., 2025; Chime, 2025). Lazy minting, which has been shown to improve NFT sales performance, can also be adopted to lower barriers to entry for local creators (Fang et al., 2025).

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The third is enhancing institutional enforcement capacity. Effective enforcement requires not only strong laws but also capable institutions. Currently, law enforcement efforts are hindered by limited technical resources and fragmented coordination between agencies, platforms, and rights holders (Manurung, 2022). Strengthening the institutional capacity of law enforcement, expanding specialized cyber-IPR units, and establishing formal cooperation channels with digital service providers can significantly improve response times and investigative accuracy.

Regular enforcement actions serve as a deterrent. However, as seen with widespread music piracy across streaming and social media platforms, inconsistent enforcement reduces credibility and diminishes creators' incentives to innovate (Dharma & Mahadewi, 2023). Developing judicial guidelines and expanding case law precedents, areas where Indonesia currently lacks robust foundations, would also provide courts with clearer references for adjudicating digital IPR disputes. Given the low number of dedicated cyber copyright units, limited human resources familiar with blockchain technology, and fragmented coordination between the Directorate General of Intellectual Property Rights (DJKI), the Ministry of Communication and Information Technology, the Indonesian National Police (Polri), and the National Institute of Sciences (LMKN), this has reduced the ability to conduct early detection, verification, and effective action against copyright infringement in the digital realm (Panjaitan et al., 2024; Maddusila et al., 2024). The establishment of a cross-agency Cyber Intellectual Property Rights Task Force, intensive training for judges and investigators on digital evidence and NFTs, and formal collaboration with global platforms (OpenSea, Spotify, TikTok) through a Memorandum of Understanding (MoU) will accelerate the response to infringement (Nurani et al., 2025; Setiyono et al., 2024). A sui generis model for Geographical Indications and Traditional Cultural Expressions involving participatory digital registration and proactive enforcement can also serve as a blueprint for communal protection in the digital age (Nurani et al., 2025; Disemadi et al., 2024; Nasrianti et al., 2025).

The fourth is public awareness and education initiatives. A fundamental barrier to IPR protection in Indonesia is the low level of public understanding of copyright norms (Manurung, 2022). Many users unknowingly violate IPR due to a lack of awareness of creators' rights and the broader societal impacts of infringement. Educational programs, public campaigns, and accessible online resources are therefore essential to foster a culture that respects creativity. Increasing awareness would not only reduce unintentional violations but also strengthen the market for legitimate content, thereby supporting economic growth in the creative sector (Dharma & Mahadewi, 2023).

IPR protection benefits society at large by ensuring fair competition, encouraging innovation, and strengthening cultural and economic development (Muchtar et al., 2021). Through effective public education, Indonesia can cultivate an environment where consumers trust the authenticity of digital products and creators receive the recognition and compensation they deserve.

However, low public understanding of copyright among both consumers and businesses is a major driver of unintentional infringement (Chime, 2025; Sukania et al., 2025). Massive educational programs through schools, universities, and digital campaigns targeting Gen Z and creative MSMEs will shift content consumption behavior from piracy to the use of legal services (Ramli et al., 2020; Attamimi et al., 2024). The integration of copyright materials and blockchain technology into higher education curricula, as well as digital creator certification, will create a generation that is not only creative but also respects the value of intellectual property (Ramirez Lopez & Morillo Ledezma, 2025).

These four pillars, if implemented in an integrated manner, will create an adaptive, technology-driven, and equitable copyright protection ecosystem. The result is not only a significant reduction in violations, but also an increase in the contribution of a more inclusive digital-based creative economy from independent musicians, NFT artists, to communities of owners of traditional cultural expressions while strengthening Indonesia's competitiveness in the era of Society 5.0 and the global knowledge-based economy (Ante & Fiedler, 2025; Valeonti et al., 2021; Mirawanty et al., 2025).

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CONCLUSION

This study highlights that rapid digitalization has fundamentally changed how creative works are produced, distributed, and consumed, while simultaneously intensifying the challenges of copyright protection in Indonesia. Although Law No. 28 of 2014 on Copyright and the Electronic Information and Transactions Law provide essential protection for creators' moral and economic rights, they remain insufficient for addressing digital-specific infringements such as illegal streaming, encrypted file sharing, user-generated content misuse, and unauthorized minting of non-fungible tokens (NFTs). Enforcement is further constrained by limited institutional capacity, weak platform cooperation, and the absence of detailed legal provisions suited to contemporary digital ecosystems.

Strengthening Indonesia's copyright system therefore requires a combination of regulatory, technological, and educational strategies. Regulatory reforms should include clearer rules for platform liability, explicit recognition of blockchain-based assets, and the adoption of an efficient notice-and-takedown mechanism to ensure rapid removal of infringing content. Technological solutions, such as blockchain for

copyright verification and content-filtering tools, can complement legal reforms by enabling more accurate monitoring and automated royalty protection. At the same time, improving public literacy about Intellectual Property Rights (IPR) is crucial, as low awareness remains a core driver of widespread infringement. Ultimately, enhancing IPR protection is not solely about safeguarding economic interests but also about fostering a creative, innovative, and competitive digital environment. By strengthening enforcement mechanisms, expanding public education, and improving regulatory clarity, Indonesia can build a more resilient copyright framework that supports creators while ensuring the sustainable growth of its digital creative economy.

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LEGAL PROTECTION OF INTELLECTUAL PROPERTY FOR DIGITAL WORKS BY UTILIZING EMERGING TECHNOLOGIES

ABSTRACT
The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords: Digital Copyright; Intellectual Property Rights; Legal Protection; Non-Fungible Tokens (NFTs).

1. Introduction

Digitalization has significantly transformed the way society perceives and engages with creative work, leading to two prominent trends. First, there has been a marked increase in individuals producing creative works in digital formats, such as music, visual art, literature, and other media.[1] Digital tools provide creators with accessibility, flexibility, and efficiency, allowing them to develop and distribute their works more easily. Second, a growing population of users prefers to consume creative works on digital platforms, including streaming services for music and films, eBooks, and other forms of multimedia content. These platforms offer convenience, rapid access, and practical benefits, enabling users to enjoy works without physical storage limitations or long waiting periods. As a result, digitalization has not only expanded the avenues for creative production and consumption but has also shifted expectations regarding accessibility, immediacy, and convenience in creative industries.

However, the rapid rise of digital creative works has also created substantial challenges for copyright protection. Copyright provides creators with legal rights to control how their works are used and shared.[2] These rights include moral rights, such as recognition as the author, and economic rights, such as receiving royalties when the work is utilized. Protecting these rights in the digital era is increasingly difficult because digital works can be easily copied, shared, and modified. The proliferation of online platforms, including MOOCs, streaming services, and peer-to-peer networks, has amplified the ease of replication and distribution. In

[1] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1619.

[2] Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.67.

Indonesia, existing laws, including Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, face challenges in addressing emerging issues such as unauthorized streaming, misuse of non-fungible tokens (NFTs), and illegal downloading.[3] Enforcement mechanisms remain limited for digital-specific violations, public awareness of copyright law is generally low, and judicial precedents regarding digital intellectual property rights are scarce. Consequently, creators' moral and economic rights are often inadequately protected, undermining both innovation and fair compensation for their work.[4]

Advances in digital technology bring significant benefits but also introduce serious threats, particularly to younger generations who may not fully understand the legal implications of using digital platforms. The principles of information openness and easy access can facilitate potential violations of intellectual property rights.[5] The greater the accessibility of digital content, the higher the likelihood of unauthorized duplication or distribution. This issue is particularly critical in Indonesia, where enforcement of existing laws is inconsistent, and judicial decisions on digital IPR violations remain limited. Many digital works are accessed without acknowledging the creator or are used outside their intended purpose, such as for commercial exploitation without permission. Such practices can harm creators both morally, by denying recognition, and economically, by reducing income generated from their works.

Digital works have become increasingly popular among online users due to several advantages over physical products. Digital products are perceived as more practical, easier to use, and do not require physical storage space, unlike traditional media.[6] The process of downloading or streaming digital works is fast and efficient, allowing users to access content immediately without waiting for delivery or encountering physical limitations. This ease of access not only benefits consumers but also provides opportunities for creators to reach wider audiences, expanding market potential beyond traditional constraints. However, these same advantages also create vulnerabilities for intellectual property violations.[7]

In Indonesia, violations of intellectual property laws, especially concerning digital

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[3] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.712.

[4] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1620. See too, Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.55; Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.1.

[5] Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.2.

[6] Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.56.

[7] Zulkifli, Almusawir, Almusawir, and Tira, A., "Communal intellectual property rights and creative industry development through integration patterns," *Jurnal Hukum Unissula*, Vol.41, no.3, 2025; 773.

content, remain widespread. Many people still lack awareness of the importance of copyright, which leads to behaviors that harm creators or copyright owners.[8] The Ministry of Law and Human Rights, through the Directorate General of Intellectual Property Rights (*Direktorat Jenderal Kekayaan Intelektual/*DJKI), stated that piracy of music, films, software, and digital books still dominates IP violations. Online marketplaces and social media are often exploited to sell pirated content.[9] A DJKI report indicates that illegal streaming sites, chat apps, and social media platforms are the primary channels for violations. Authorities have blocked thousands of infringing sites and stated that internet anonymization tools are increasingly complicating law enforcement.[10]

Enforcement of unauthorized digital public performances has also been highlighted, such as when the DJKI held a hearing with the Indonesian Video Streaming Association (*Asosiasi Video Streaming Indonesia*/AVISI) and discovered unlicensed video content being broadcast in cafes/restaurants in Bali. A raid was even conducted to crack down on the practice.[11] Furthermore, according to a 2013 WIPO study, the level of software piracy in Indonesia is very high. This indicates that IPR violations are not limited to creative works, but also include software in general.

Irianti and Basri[12] concluded that many Indonesian users access illegal websites to stream or download films. They noted that social and cultural norms related to digital piracy remain deeply entrenched. The problem revolves around a weak public understanding of the importance of copyright, a lack of effective oversight, and technical challenges in enforcing digital law. Consequently, creators suffer moral and economic harm, while violations continue to grow and are difficult to control. The consequences of these violations extend beyond individual creators. They undermine the economic benefits of creative work, reduce incentives for producing new content, and may impede the growth of Indonesia's creative industries.[13]

Digitalization has brought significant changes to the creative industry in Indonesia. The legal framework for intellectual property rights (IPR), including Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions (amended by Law Number 1 of 2024), has not been fully effective in addressing growing digital violations, such as

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[8] Candra Irawan., "Protection of traditional knowledge: A perspective on Intellectual Property Law in Indonesia," *The Journal of World Intellectual Property,* Vol.20, no.2, 2017, page.63.

[9] A. O. Victoria., "Kemenkum sebut pelanggaran KI di Indonesia marak pada era digital," *Antara News*, Februari 3, 2025.

[10] SYL., "Pelindungan Hak Cipta di Era Digital: DJKI Intensifkan Penegakan Hukum dan Edukasi Publik,*" Direktorat Jenderal Kekayaan Intelektual*, September 9, 2024. See too, DJKI., "Tantangan Membasmi Pelanggaran Kekayaan Intelektual di Era Digital*," Direktorat Jenderal Kekayaan Intelektual*, Febuary 3, 2025.

[11] DJKI., "Tantangan Membasmi Pelanggaran Kekayaan Intelektual di Era Digital*," Direktorat Jenderal Kekayaan Intelektual*, Febuary 3, 2025.

[12] R.A Diah Irianti P.S., and Herlina Basri., "Pelanggaran Hak Cipta Film Melalui Situs Ilegal di Indonesia," *Prosiding SENANTIAS: Seminar Nasional Hasil Penelitian dan Pengabdian Kepada Masyarakat*, Vol.6, no.1, 2025; 288–295.

[13] Dicky Ardiansyah, Nidhar Irham Muharram, Raja Satria Utama, Ridho Ahmad Bukhori, and R. B. P. Efendi., "Aspek Hukum Hak Kekayaan Intelektual Dalam Hak Cipta Indonesia," *Causa: Jurnal Hukum Dan Kewarganegaraan,* Vol.2, no.2, 2024, page.52.

unauthorized streaming, NFT misuse, and illegal downloading.[14] Digital tools increase accessibility and flexibility for creators and consumers, but law enforcement is often weak due to limited digital-specific mechanisms, low public awareness, and a lack of judicial precedent.[15]

New technologies, including blockchain and NFTs, offer opportunities to improve IPR confirmation, transparency, and cost efficiency. The implementation of this technology in Indonesia has not been extensively analyzed, particularly regarding communal ownership and traditional cultural expressions.[16] Other gaps exist in NFT copyright, metadata protection, and permissionless tokenization, including the limited integration of positive law with Islamic principles and sui generis regimes for geographical indications or folklore.[17]

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[14] Dicky Ardiansyah, Nidhar Irham Muharram, Raja Satria Utama, Ridho Ahmad Bukhori, and R. B. P. Efendi., "Aspek Hukum Hak Kekayaan Intelektual Dalam Hak Cipta Indonesia," *Causa: Jurnal Hukum Dan Kewarganegaraan,* Vol.2, no.2, 2024, page.53. See too, Candra Irawan., "Protection of traditional knowledge: A perspective on Intellectual Property Law in Indonesia," *The Journal of World Intellectual Property,* Vol.20, no.2, 2017, page.65; Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.712; Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.68.

[15] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1621. See too, Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.57; Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.3.

[16] Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.23. See too, Weisheng Lu, and Liupengfei Wu., "A blockchain-based deployment framework for protecting building design intellectual property rights in collaborative digital environments," *Computers in Industry,* Vol.159, no.12, 2024, page.1040; Weigang Ma, Jiaqi Qi, Minying Ye, and Yibo Zhang., "Blockchain Empowered Knowledge Resource Protection Model and Its Application," *IET Communications,* Vol.19, no.1, 2025; page.123; Christos A. Makridis, and Joshua D. Ammons., "Governing the large language model commons: using digital assets to endow intellectual property rights," *Journal of Institutional Economics,* Vol.21, no.2, 2025, page.32; Vishnu Periyannan Palaniappan, Palaniappan Sellappan, and Kavitha Shanmugam., "A Study on the Role of Non-Fungible Tokens (NFTS) in Expanding the Intellectual Property (IP) Market," In *2024 Second, International Conference on Intelligent Cyber Physical Systems and Internet of Things*, IEEE, 2024, page.782; Leonardo Juan Ramirez Lopez, and Genesis Gabriela Morillo Ledezma., "Employing Blockchain, NFTs, and Digital Certificates for Unparalleled Authenticity and Data Protection in Source Code: A Systematic Review," *Computers,* Vol.14, no.4, 2025, page.131.

[17] Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.519. See too, Andres Guadamuz., "The treachery of images: non-fungible tokens and copyright," *Journal Of Intellectual Property Law and Practice,* Vol.16, no.12, 2021; 1374; Kalangi Praveen Kumar, B. Uttej Reddy, and V. Asha Judi., "Patent own product rights using NFTs," In *AIP Conference Proceedings*, vol.3257, no.1, AIP Publishing LLC, 2025, page.192; Nina Nurani, and Hafied Noor Bagja., "Sui Generis Geographical Indications: Reforming Indonesia's Intellectual Property Rights for Agricultural Protection," *International Journal of Law and Society,* Vol.4, no.2, 2025, page.312; Jan Schwiderowski, Asger Balle Pedersen, Jonas Kasper Jensen, and Roman Beck., "Value creation and capture in decentralized finance markets: Non-fungible tokens as a class of digital assets," *Electronic Markets,* Vol.33, no.1, 2023, page.45; Foteini Valeonti, Antonis Bikakis, Melissa Terras, Chris Speed, Andrew Hudson-Smith, and Konstantinos Chalkias., "Crypto collectibles,

Empirical research addressing law enforcement in local contexts, such as music streaming, social media violations, and SME practices, is still limited.[18] Previous research on digital markets and traditional knowledge documentation has demonstrated disparities in commercialization, but has not explored the unique risks of the digital economy and anti-theft strategies.[19] This study fills this gap by empirically assessing the effectiveness of Indonesian IPR law in the context of modern digital platforms, including streaming and NFTs. The novelty lies in identifying legal, technological, and enforcement gaps, as well as understanding the protection of creators' moral and economic rights in Indonesia's digital era. Thus, this study aims to assess the effectiveness of Indonesia's copyright and intellectual property laws in regulating digital works on emerging platforms, identify gaps that contribute to infringements, and explore ways to better protect creators' moral and economic rights. The research questions are: How effective are Indonesia's current copyright and intellectual property laws in regulating digital works on emerging platforms, such as streaming services and NFTs?; What legal, technological, and enforcement gaps contribute to copyright infringements on streaming platforms and in the misuse of NFTs in Indonesia?; and, How can Indonesia strengthen its legal framework and enforcement mechanisms to protect creators' moral and economic rights in the context of emerging digital

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museum funding and OpenGLAM: challenges, opportunities and the potential of Non-Fungible Tokens (NFTs)," *Applied Sciences,* Vol.11, no.21, 2021, page.9931.

[18] Firman Freaddy Busroh, Fatria Khairo, and Sitta Saraya., "Reevaluating "First-to-File" vs the Legality Principle: Rethinking Justice for Original Rights Holders in Indonesia," *Jambe Law Journal* Vol.8, no.1, 2025; 432. See too, Jade Kouletakis, and Nkem Itanyi., *Decolonising Intellectual Property Law: An Afrocentric Approach,* Oxfordshire, Taylor & Francis, 2025, page.32; Novi Mirawanty, Muhammad Zilal Hamzah, and Freddy Harris., "Indonesia Data Protection Policy of Intellectual Property And Its Effect on the Economy," *OIDA International Journal of Sustainable Development,* Vol.18, no.3, 2025, page.116; Tb Apriza Mulqi, Ahmad M. Ramli, Dadang Rahmat Hidayat, and Ranti Fauza Mayana., "Regulation on Broadcasting Rights in Indonesia Based on Law No. 28 of 2014 on Copyright and Law No. 32 Of 2022 on Broadcasting," *Journal of Intellectual Property Rights,* Vol.30, no.4, 2025, page.410; Nasrianti, Sanusi Sanusi, Azhari Azhari, and Ilyas Ilyas., "Legal Protection of Traditional Cultural Expressions in Aceh: A Comparative Legal Analysis of Islamic Law and Positive Law in Indonesia," *Al-Istinbath: Jurnal Hukum Islam,* Vol.10, no.1, 2025, page.90; I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.523; Fatimatuz Zahra., "Legal Review of Knock-off Culture in K-Pop-Inspired Outfits Based on Industrial Design Law," *Media Iuris* Vo,l.8, no.1, 2025, page.32.

[19] Hari Sutra Disemadi, Sholahuddin Al-Fatih, Ninne Zahara Silviani, Shelvi Rusdiana, and Emiliya Febriyani., "Revitalizing intellectual property rights in Indonesia: a Maqasid Al-Shariah perspective on communal ownership," *Al-Istinbath: Jurnal Hukum Islam,* Vol.9, no.2, 2024, page.632; Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.242; Yoga Prihastomo, and Yunianto A. Nugroho., "The development model of intellectual property marketplace in Indonesia," In *AIP Conference Proceedings*, Vol.2867, no.1, AIP Publishing LLC, 2024. Page.234; Laina Rafianti, Aam Suryamah, Afrizal Musdah Eka Putra, and Ahmad M. Ramli., "Swing the angklung tube in the digital economy era: based on intangible cultural heritage and intellectual property rights perspective," *Indonesian J. Int'l L.,* Vol.18, no.2, 2020, page.323; Setiyono Setiyono, Dinda Keumala, Ahmad Sabirin, and Nadia Nursantih., "Has Indonesia Safeguarded Traditional Cultural Expressions?," *Jambura Law Review,* Vol.6, no.2, 2024, page.223; Agung Sujatmiko, Mochamad Kevin Romadhona, Patrick Keizer, and Christoph Antons., "The legal reform of trademark protection and dispute mitigation: Lessons from licensing well-established brands in Indonesia," *Journal of Law and Legal Reform,* Vol.5, no.2, 2024; page.460.

technologies?

2. Research Methods

This research employs a normative juridical method supported by descriptive qualitative analysis. The normative juridical approach is used to examine theories, concepts, legal doctrines, and regulations relevant to the protection and enforcement of Intellectual Property Rights (IPR) in Indonesia's digital ecosystem. Specifically, this research focuses on a critical analysis of the adequacy of Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 as the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, particularly in addressing the challenges of the digital era.

To strengthen the analysis, this research incorporates descriptive analysis, which involves a systematic description and interpretation of how the current legal framework operates in practice. This research relies on secondary data, including laws and regulations, government policies, books, journal articles, and websites of competent legal authorities. Furthermore, several case studies concerning digital IPR infringement in Indonesia are analyzed to illustrate the challenges of real-world law implementation and enforcement. This triangulation approach allows for an understanding of regulatory gaps, barriers to law enforcement, and their implications for the protection of creators' moral and economic rights in the digital age.

3. Results and Discussion

3.1. Indonesia's Copyright and Intellectual Property Laws on Emerging Digital Platforms

Indonesia's current intellectual property legal framework comprises Law Number 28 of 2014 concerning Copyright (the Copyright Law) and Law Number 11 of 2008 concerning Electronic Information and Transactions (the ITE Law), as amended by Law Number 1 of 2024. Law 28/2014 establishes moral and economic rights for creators, covering the reproduction, public performance, distribution, and adaptation of copyrighted works. Article 2 recognizes creators' moral rights, including the right to be recognized as creators, while Article 9 protects economic rights by authorizing creators to authorize the reproduction, distribution, rental, and public performance of their works. These provisions are crucial in regulating digital content disseminated through streaming platforms, online marketplaces, and emerging technologies such as NFTs.

The ITE Law complements copyright law by regulating the use and dissemination of electronic information, including digital works. Article 30 prohibits unauthorized access to electronic systems or content, which can be applied to digital piracy and illegal streaming activities. Article 32 addresses the illegal use of electronic information for commercial purposes, offering a framework for prosecuting individuals or platforms that distribute copyrighted content without authorization.[20]

In its implementation, relevant authorities, such as the Directorate General of Intellectual Property (DJKI), have actively implemented this law to monitor and control unauthorized digital distribution. For example, the DJKI held formal

[20] Muhammad Junaidi, Hendro Widodo, and Ahmed Kheir Osman., "The Legal Security in Electronic Transactions to Protect Freedom of Speech: The Concept of Forming Legislation on Electronic Transactions," *Jurnal Hukum* 40, no.2, 2024; 307-321.

discussions with the Video Streaming Association (AVISI) and took enforcement action against bars and cafes in Bali that broadcast copyrighted video content without proper authorization.[21] These actions demonstrate that Law 28/2014 provides a legal basis for intervening in the public display of digital works, allowing regulators to impose sanctions and demand compliance from violators.

The Directorate General of Intellectual Property (*Direktorat Jenderal Kekayaan Intelektual/*DJKI) has demonstrated active involvement in addressing illegal streaming activities through direct collaboration with industry associations, underscoring the importance of collaboration between regulators and stakeholders. For example, the DJKI held a formal meeting with the Indonesian Video Streaming Association (AVISI) to discuss and address illegal streaming practices. During the meeting, the DJKI reported on enforcement actions taken against bars and cafes in Bali for broadcasting copyrighted video content without proper licenses.[22] This case demonstrates that Indonesia has a legal framework capable of producing concrete action to curb unauthorized public displays of digital works. This coordinated effort facilitates the identification of violations at physical locations where digital content is publicly distributed and demonstrates the regulator's ability to interact directly with the industry sector to support intellectual property rights compliance.

Unlicensed public streaming activities remain widespread. Much digital content is consumed in cafes, bars, and various public spaces without obtaining official permission from copyright owners. This situation highlights limitations in monitoring and enforcement, as violations occur at widely dispersed digital consumption points and are difficult to monitor in real time. Existing legal mechanisms do cover this type of violation, but enforcement capacity is often hampered by limited human and technical resources, as well as challenges in tracking and prosecuting each violation. The high frequency of violations highlights the significant gap between existing regulations and practical implementation on the ground, and demonstrates the need for more adaptive enforcement strategies for digital content consumption in public spaces.

In the context of Non-Fungible Tokens (NFTs), the Directorate General of Intellectual Property (DJKI) has explored the potential of blockchain technology as a tool to enhance protection for digital creators. NFTs combined with smart contracts allow for automatically encoded royalty and usage rights, allowing creators to receive economic benefits every time their work is used.[23] A study on the OpenSea platform shows that the Indonesian Copyright Law (Law 28/2014) does not explicitly regulate ownership and copyright for NFT-based works, creating

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[21] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025. See too, Solihah Sari Rahayu, Novianti Syarifah, and Muhamad Dani Somantri., "Jual Beli Produk Imitasi Fashion Perspektif Undang-Undang Hak Cipta Nomor 28 Tahun 2014 Dan Hukum Islam," *Mutawasith: Jurnal Hukum Islam,* Vol.2, no.2, 2019, page.210.

[22] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

[23] AMO., "Kolaborasi DJKI, Teknologi NFT & Blockchain Bantu Mudahkan Kreator Seni Indonesia," *DJKI*, October 30, 2022.

legal ambiguity and potential future disputes.[24] Further legal analysis confirms that ownership of an NFT does not automatically grant copyright to the underlying work; These tokens reflect digital ownership, not creator rights, leaving creators' creativity and economic interests vulnerable to abuse.[25]

Smart contracts offer a technical solution for enforcing terms of use and royalty distribution, significantly reducing the risk of unauthorized use and protecting creators' economic rights.[26] However, jurisdictional issues remain a serious obstacle to international law enforcement, as violators located outside Indonesia are difficult to prosecute through national legal mechanisms. In practice, NFT creators can often only request content removal through international platforms like OpenSea, with no guarantee of comprehensive legal redress.[27] These limitations highlight the need to develop clearer legal guidelines for blockchain-based digital works, as well as cross-border enforcement mechanisms that can bridge the gap between new technologies and existing legal systems in Indonesia.

The DJKI's efforts in both cases (illegal streaming and NFTs) demonstrate the regulator's ability to address violations, but also reveal significant challenges. Public streaming and NFT transactions require a deeper understanding of digital technology, the ability to coordinate with various parties, and more adaptive legal implementation. Case data shows that legal protection for digital content remains limited in terms of practical reach, regulatory clarity, and enforcement capacity, necessitating continued improvements in policy, technology, and public education.

This shows that Implementation of Indonesia's copyright and intellectual property laws on emerging digital platforms shows a mixture of successes and persistent gaps. The authorities have proactively monitored and collaborated with industry associations. This reflects the ability of the regulatory framework to produce concrete actions against unauthorized public streaming.[28] Enforcement efforts illustrate how legal provisions under UU Number 28/2014 and UU Number 11/2008 can be operationalized to address violations. These measures demonstrate that regulators can leverage statutory authority to demand compliance, impose sanctions, and encourage adherence to copyright obligations in physical venues hosting digital content.

Despite these interventions, the scale and nature of digital content consumption create enforcement challenges. Public streaming often occurs in widely dispersed locations, making real-time monitoring resource-intensive. Limited staffing, technological tools, and technical capacity hinder systematic enforcement, while digital content can be captured, redistributed, or streamed simultaneously to

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[24] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.37.

[25] I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.380.

[26] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.389.

[27] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.232.

[28] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

multiple devices, amplifying the potential for infringement.[29] Social media platforms and OTT services further complicate monitoring, as user-generated sharing and peer-to-peer distribution circumvent traditional licensing channels, creating a persistent enforcement gap. The ITE Law (Articles 30 and 32) provides legal grounds to prosecute unauthorized access and commercial misuse, yet practical enforcement remains uneven across digital ecosystems.[30]

In the context of Non-Fungible Tokens (NFTs), the authorities have explored blockchain integration as a tool to encode economic rights through smart contracts.[31] These contracts automate royalty payments and usage conditions, theoretically aligning with Article 9 of UU Number 28/2014. However, legal ambiguity remains: ownership of an NFT does not inherently confer copyright over the underlying work, leaving creators vulnerable to misuse in international marketplaces such as OpenSea.[32] Enforcement is further complicated by jurisdictional constraints, as violators located outside Indonesia cannot be effectively prosecuted under domestic law, requiring reliance on platform-based takedown mechanisms.[33]

The integration of blockchain and smart contracts demonstrates technological potential to enhance legal protections, yet practical implementation is still limited. Regulatory guidance for NFT minting, licensing, and cross-border transactions is underdeveloped, and creators often face uncertainty regarding how existing copyright law applies to these novel digital assets.[34] Additionally, the DJKI's efforts must balance technology adoption with public education and compliance promotion, as limited awareness among creators and consumers contributes to ongoing infringements in both streaming and NFT markets.[35]

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[29] Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.243. See too, Tasya Safiranita Ramli, Sherly Ayuna Putri, Amelia Cahyadini, Andreana Lestari, and Rizki Fauzi., "Digital platform responsibility on administering royalty for music creators from the perspective of copyright law," *NTUT Journal of Intellectual Property Law and Management*, Vol.12, no.1, 2023, page.15.

[30] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.30. See too, Diana Silfiani., "Indonesian legal protection for song commercialization and music copyrights in digital platforms," *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law),* Vol.9, no.2, 2022, pager.7.

[31] AMO., "Kolaborasi DJKI, Teknologi NFT & Blockchain Bantu Mudahkan Kreator Seni Indonesia," *DJKI*, October 30, 2022.

[32] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.38. See too, I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.381.

[33] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.234.

[34] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.390. See too, Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.24; Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.520.

[35] Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for

3.2. Legal, Technological, and Enforcement Gaps Contributing to Copyright Infringements

The rapid development of information technology has created a wide range of digital products with substantial economic value, while simultaneously presenting new challenges for copyright protection. Ensuring harmony between technological progress and legal safeguards is essential for sustaining creativity and protecting the creative industry. Strong legal protection motivates creators to continue producing innovative works, provides fair economic benefits, and supports a healthy creative ecosystem.[36] Indonesia's digital landscape has expanded quickly through streaming platforms, online marketplaces, social media, and blockchain-based innovations such as NFTs. Although these developments offer new opportunities, they also increase the risk of unauthorized access, duplication, and distribution of digital content. The ease of accessing digital works has often been exploited by parties who disseminate copyrighted material without permission, resulting in significant copyright violations.

Law Number 28 of 2014 on Copyright guarantees creators' moral and economic rights, including control over reproduction and distribution of digital works. However, the law does not clearly regulate several platform-specific issues, such as illegal streaming, unauthorized downloads, and the misuse of user-generated content.[37] Likewise, Law Number 1 of 2024, which amends the Electronic Information and Transactions Law, provides general provisions for digital transactions but lacks detailed mechanisms to address complex digital IPR infringements, particularly those involving peer-to-peer sharing or decentralized technologies.

The Copyright Law recognizes creators' exclusive rights to reproduction, distribution, adaptation, and communication of works to the public. These provisions are conceptually aligned with digital distribution models, yet the law lacks explicit mechanisms tailored to digital infringements, such as illegal streaming, peer-to-peer file sharing, automated scraping, or the circulation of copyrighted content via encrypted platforms.[38] As a result, enforcement agencies

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enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.244. See too, Tasya Safiranita Ramli, Ahmad M. Ramli, Huala ADolf, Eddy Damian, and Miranda Risang Ayu Palar., "Over-the-top media in digital economy and society 5.0," *Journal of Telecommunications and the Digital Economy,* Vol.8, no.3, 2020, page.61.

[36] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.190. See too, Niru Anita Sinaga., "Pentingnya Perlindungan Hukum Kekayaan Intelektual Bagi Pembangunan Ekonomi Indonesia," *Jurnal Hukum Sasana* Vol.6, no.2, 2020, page.150; Ramon Nofrial, Talib Adnan Abood, Haider Ahmed Shihab, and Adhi Budi Susilo., "The Consumer Protection in The Balance of Business Actors and Consumers: A Paradigm of Justice," *Jurnal Hukum* 41, no.1, 2025, page.81.

[37] Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.69.

[38] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.715. See too, Khaled Khwaileh, and Ena Kazić., "Illicit Trade in Counterfeit Medicines: Challenges, Solutions, and a Case Study of Indonesia," *Solutions, and a Case Study of Indonesia,* Vol.2, no.3 2025, page.234; Dwi Tiara Kurnilasari, Annalisa Yahanan, and Rohani Abdul Rahim., "Indonesiaâ€™ s Traditional Knowledge Documentation in Intellectual Property

must rely on general provisions that were drafted with traditional, offline forms of infringement in mind.

A persistent problem lies in the absence of a statutory notice-and-takedown mechanism, unlike the Digital Millennium Copyright Act (DMCA) in the United States, which obliges platforms to promptly remove infringing content upon notification (United States Copyright Office, 1998). Without such a mechanism, Indonesian regulators cannot compel global platforms YouTube, Telegram, Discord, TikTok, or NFT marketplaces to take swift corrective action. This creates a severe gap in the speed of enforcement: infringing digital content can be duplicated, mirrored, or redistributed faster than regulators can issue administrative warnings.

Moreover, cross-border jurisdictional limitations significantly weaken Indonesia's legal reach. Many digital platforms operate servers overseas, and individuals minting NFTs or redistributing illegal streams may reside outside Indonesia. The Copyright Law does not address the complexity of enforcing rights against foreign-based violators, and the ITE Law lacks implementing provisions for international cooperation on digital IP crimes.[39]

Similar gaps appear in the treatment of emerging technologies. Current legislation does not define the legal status of NFTs, nor does it regulate smart contracts used to embed royalty conditions.[40] Ownership of an NFT remains separate from ownership of the underlying copyright, creating legal ambiguity that has already led to unauthorized minting and sale of Indonesian digital artworks on global blockchain marketplaces.[41] Without explicit statutory provisions, creators have little recourse other than platform-level takedowns.

Comparative analysis with the EU Copyright Directive (Directive 2019/790) shows that Indonesia has not adopted proactive measures requiring platforms to implement content recognition technologies or automated upload filters.[42] This leaves a gap in preventive enforcement at the platform level, allowing unauthorized uploads and redistribution to persist without structural barriers.

In addition, with the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without

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Rightsâ€™ Perspective," *Sriwijaya Law Review,* Vol.2, no.4, 2018, page.117; Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.70.

[39] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.236. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.32.

[40] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.40. See too, I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.383.

[41] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.717.

[42] Vo Trung Hau1, and Vo Hoang Thong., "Copyright protection for digital content on online platforms: A comparative study of Vietnamese and European Union law," *International Journal of Law* Vol,11, no.10, 2025, page.151.

permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work.[43] For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters g.[44]

The rapid development of digital technologies has enabled sophisticated methods of evasion by infringers. Encrypted messaging platforms such as Telegram, WhatsApp, and Discord allow the circulation of copyrighted films, music, and books in closed groups that are nearly impossible for authorities to monitor.[45] Advances in anonymizing technologies, including VPNs, proxy servers, cloud mirroring, and decentralized file-sharing systems, make user identities difficult to trace. Platforms hosting illegal streams frequently relocate to new domains, switching servers across multiple jurisdictions to avoid takedowns. This technological agility far outpaces the enforcement capacity of DJKI and cyber authorities. On streaming platforms, digital piracy occurs through real-time screen capture software, data interception tools, or modified applications, allowing infringing content to be redistributed instantly across multiple sites. Streaming mirrors and IPTV boxes are widely available, enabling cafes and entertainment venues to publicly screen copyrighted content without proper licenses.[46]

Blockchain technology presents additional difficulties. NFTs can embed copyrighted content permanently on decentralized networks, making removal nearly impossible. Even if platforms like OpenSea remove the listed token, the original digital file may remain accessible on the IPFS network or mirrored on third-party sites. Smart contracts also operate autonomously, limiting human intervention to halt infringing activities.[47] Collectively, these technological

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[43] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.719.

[44] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.453.

[45] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.191.

[46] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025. See too, Tasya Safiranita Ramli, Ahmad M. Ramli, Huala ADolf, Eddy Damian, and Miranda Risang Ayu Palar., "Over-the-top media in digital economy and society 5.0," *Journal of Telecommunications and the Digital Economy,* Vol.8, no.3, 2020, page.62.

[47] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.391.

challenges illustrate that enforcement agencies lack the digital forensics capabilities, automated monitoring tools, and cross-platform interoperability needed to detect and respond to violations at scale. Although the authorities have collaborated with industry associations and conducts field enforcement, the scale of infringement across digital platforms far exceeds enforcement capacity.[48] With millions of daily uploads across social media, streaming services, and NFT marketplaces, manual monitoring is insufficient, and no centralized digital monitoring system exists to track and identify infringing content in real time. Weak interagency coordination further hampers enforcement. Digital copyright violations often fall between overlapping jurisdictions of DJKI, Kominfo, and cybercrime units, leading to fragmented responses. The enforcement process is also slowed by the absence of fast-track judicial or administrative procedures for digital IP cases, unlike the expedited processes available in DMCA-style systems.

A significant challenge is low public understanding of IPR. Many users believe that streaming a film in a café, downloading music from Telegram, or minting another person's artwork as an NFT is harmless or inconsequential.[49] This cultural normalization of digital piracy perpetuates widespread violations. Limited access to affordable legal content also contributes to reliance on illegal platforms, especially among younger users and lower-income groups.[50] Digital creators themselves often underestimate the importance of registering their works or using digital rights management tools. Many rely solely on platform timestamps without pursuing formal copyright registration, leaving them legally vulnerable when disputes arise.[51]

The cumulative effect of legal, technological, and enforcement gaps significantly undermines the sustainability of Indonesia's creative industry. Unauthorized redistribution of music, film, and digital art leads to substantial economic losses, reducing creators' royalties and deterring innovation.[52] Public mistrust grows when original creators cannot maintain control over the integrity of their work, especially when unauthorized modifications or AI-generated derivatives circulate widely.

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[48] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

[49] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.454. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.33.

[50] Asad Ullah, Qingyu Zhang, and Mansoora Ahmed., "The influence of intellectual property rights protection on contribution efforts of participants in online crowdsourcing contests," *Computers in Human Behavior,* Vol.12, no.3, 2021, page.106.

[51] Iin Indriani., "Hak Kekayaan Intelektual: Perlindungan Hukum Terhadap Hak Cipta Karya Musik," *Jurnal Ilmu Hukum,* Vol.7, no.2, 2018, page.254. See too, Helitha Novianty Muchtar, A. M. Ramli, M. R. Ayu, R. R. Permata, S. Dewi, D. E. Sukarsa, and T. Safiranita., "Stimulasi Urgensi Perlindungan Kekayaan Intelektual Karya Kreatif Dan Inovatif Karya Siswa Sma Negeri 8 Bandung Dalam Mendukung Ekonomi Digital," *Kumawula: Jurnal Pengabdian Kepada Masyarakat,* Vol.4, no.1, 2021, page.69.

[52] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.455. See too, Niru Anita Sinaga., "Pentingnya Perlindungan Hukum Kekayaan Intelektual Bagi Pembangunan Ekonomi Indonesia," *Jurnal Hukum Sasana* Vol.6, no.2, 2020, page.151.

For digital artists, the rise of NFTs presents both opportunity and risk. Without regulatory certainty, creators face exposure to plagiarism, unauthorized minting, and loss of revenue, while consumers risk purchasing NFTs that do not convey legitimate rights. The absence of cross-border enforcement mechanisms further diminishes the protective value of Indonesian copyright law in global digital markets. Meanwhile, the creative industry struggles to compete with illegal platforms offering free access to copyrighted works. This discourages investment in local content production, undermines the long-term viability of streaming platforms operating legally, and limits Indonesia's competitiveness in the global digital economy.[53]

3.3. Strategies to Strengthen Legal Framework and Enforcement Mechanisms

Strengthening Indonesia's legal and institutional capacity to protect Intellectual Property Rights (IPR) in the digital environment requires a comprehensive strategy that aligns regulatory reforms, technological innovation, enforcement enhancements, and public education. As digital platforms expand rapidly ranging from streaming services and social media to decentralized blockchain systems copyright infringements are becoming more sophisticated and harder to detect. These violations not only undermine the economic rights of creators but also weaken consumer trust and the overall integrity of the creative industry.[54] To ensure long-term sustainability, Indonesia must adopt adaptive strategies capable of responding to new forms of violations while reinforcing foundational legal principles.

In this context, Indonesia can strengthen copyright and intellectual property protection in the digital realm through four complementary strategic pillars: substantive legal reform, blockchain technology integration, institutional enforcement capacity enhancement, and public education and awareness. These four pillars are essential given the rapid development of digital platforms, NFTs, metaverses, and OTTs, which continue to generate new modes of infringement.[55]

The first is strengthening substantive legal provisions and regulatory clarity. Indonesia's core legal instruments (Law Number 28 of 2014 on Copyright and the Electronic Information and Transactions Law) provide essential protection for the moral and economic rights of creators. However, both laws face structural limitations in addressing contemporary digital challenges. Copyright Law 28/2014 does not yet regulate platform-specific issues such as automated content distribution, user-generated content disputes, or cross-border infringements

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[53] Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.4.

[54] Asad Ullah, Qingyu Zhang, and Mansoora Ahmed., "The influence of intellectual property rights protection on contribution efforts of participants in online crowdsourcing contests," *Computers in Human Behavior,* Vol.12, no.3, 2021, page.107.

[55] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.31. See too, Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.244; WasswaShafik., "Exploring NFTs and Metaverse Collaborations: Innovations, Opportunities, and Challenges," *Sustainable Branding, Cultural Intelligence and Co-Marketing,* Vol.2, no.1, 2026, page.253.

common in streaming and file-sharing networks.[56] Likewise, the ITE Law, although central to digital governance, lacks tailored mechanisms for responding to complex online violations, including algorithm-driven reposting, deepfake manipulation, or unauthorized use of digital assets such as NFTs.[57]

To strengthen these frameworks, Indonesia may draw on established international models. The United States' Digital Millennium Copyright Act (DMCA) demonstrates the effectiveness of a structured notice-and-takedown system, enabling platforms to remove infringing content swiftly and reducing the spread of illegal material (United States Copyright Office, 1998). Similarly, the European Union's Directive 2019/790 obliges platforms to deploy proactive content-filtering technologies to prevent unauthorized uploads.[58] Adapting these mechanisms would significantly enhance Indonesia's ability to manage large-scale digital infringements.

The substantive legal reform and strengthening the regulatory framework do provide a foundation for protecting the moral and economic rights of creators, but they do not explicitly regulate digital platforms' responsibilities for royalty distribution, notice-and-takedown for UGC, or the separation of NFT ownership from copyright of the underlying work.[59] The adoption of a DMCA-style notice-and-takedown mechanism and proactive filtering obligations as stipulated in EU Directive 2019/790 could serve as a reference for incorporating "safe harbor with responsibility" provisions for OTT and social media platforms.[60] In addition, specific regulations regarding smart contracts and automatic royalties on NFTs and the metaverse need to be formulated immediately to create legal certainty.[61]

The second is expanding technological enforcement and blockchain integration. Technological advancement must complement legal reform. Blockchain technology

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[56] Harry Randy Lalamentik., "Kajian Hukum Tentang Hak Terkait (Neighboring Right) Sebagai Hak Ekonomi Pencipta Berdasarkan Undang-Undang Hak Cipta Nomor 28 Tahun 2014," *Lex Privatum* Vol.6, no.6, 2018, page.332.

[57] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.720. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.34.

[58] Vo Trung Hau1, and Vo Hoang Thong., "Copyright protection for digital content on online platforms: A comparative study of Vietnamese and European Union law," *International Journal of Law* Vol,11, no.10, 2025, page.152.

[59] Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.521. See too, Diana Silfiani., "Indonesian legal protection for song commercialization and music copyrights in digital platforms," *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law),* Vol.9, no.2, 2022, pager.8.

[60] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.32. See too, Tb Apriza Mulqi, Ahmad M. Ramli, Dadang Rahmat Hidayat, and Ranti Fauza Mayana., "Regulation on Broadcasting Rights in Indonesia Based on Law No. 28 of 2014 on Copyright and Law No. 32 Of 2022 on Broadcasting," *Journal of Intellectual Property Rights,* Vol.30, no.4, 2025, page.412.

[61] Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.26. See too, Seyed Mojtaba Hosseini Bamakan, and Saeed Banaeian Far., "Distributed and trustworthy digital twin platform based on blockchain and Web3 technologies," *Cyber Security and Applications,* Vol.3, no.2, 2025, page.243; Christos A. Makridis, and Joshua D. Ammons., "Governing the large language model commons: using digital assets to endow intellectual property rights," *Journal of Institutional Economics,* Vol.21, no.2, 2025, page.34.

offers significant potential for improving copyright verification, ownership authentication, and royalty tracking. Smart contracts embedded within digital works or NFTs can automate payment flows and ensure transparent use of creative assets, thereby protecting creators' economic rights.[62] However, without explicit legal recognition of tokenized ownership and its distinction from copyright ownership, disputes will continue to arise, as seen in repeated instances of unauthorized NFT minting on global platforms.[63]

Indonesia's IPR authority can strengthen enforcement by promoting blockchain-based registration systems and digital watermarking technologies to track content distribution. These innovations would enable detection of piracy on encrypted applications where traditional enforcement mechanisms face limitations due to platform anonymity.[64] This integration of blockchain and NFT technology as a transparent and efficient enforcement instrument will enable incorruptible ownership records, automated royalty distribution, and the prevention of unauthorized minting.[65] Several studies have shown that an NFT-IPFS-based system can reduce copyright registration time by up to 13% and significantly reduce maintenance costs.[66] The Directorate General of Intellectual Property (DJKI) can develop a national blockchain-based registry integrated with the IP Marketplace platform so that creators, including MSMEs and indigenous communities, can obtain immutable proof of ownership and more liquid commercialization channels.[67] Lazy minting, which has been shown to improve NFT sales performance, can also be adopted to lower barriers to entry for local creators.[68]

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[62] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no.2, 2025, page.392.

[63] I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.385.

[64] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.192.

[65] Weisheng Lu, and Liupengfei Wu., "A blockchain-based deployment framework for protecting building design intellectual property rights in collaborative digital environments," *Computers in Industry,* Vol.159, no.12, 2024, page.1041. See too, Weigang Ma, Jiaqi Qi, Minying Ye, and Yibo Zhang., "Blockchain Empowered Knowledge Resource Protection Model and Its Application," *IET Communications,* Vol.19, no.1, 2025; page.124.

[66] Kalangi Praveen Kumar, B. Uttej Reddy, and V. Asha Judi., "Patent own product rights using NFTs," In *AIP Conference Proceedings*, vol.3257, no.1, AIP Publishing LLC, 2025, page.193. See too, Arnold Bagas Kurniawan, and Hary Soeskandhi., "Perlindungan Hukum Kepada Pengguna Elektronik Banking Atas Kejahatan Carding Ditinjau Dari Undang-Undang Informasi dan Transaksi Elektronik," *SUPREMASI: Jurnal Hukum,* Vol.5, no.1, 2022, page.74; Vishnu Periyannan Palaniappan, Palaniappan Sellappan, and Kavitha Shanmugam., "A Study on the Role of Non-Fungible Tokens (NFTS) in Expanding the Intellectual Property (IP) Market," In *2024 Second, International Conference on Intelligent Cyber Physical Systems and Internet of Things*, IEEE, 2024, page.783.

[67] Yoga Prihastomo, and Yunianto A. Nugroho., "The development model of intellectual property marketplace in Indonesia," In *AIP Conference Proceedings*, Vol.2867, no.1, AIP Publishing LLC, 2024. Page.235. See too, I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.524.

[68] Mengyuan Fang, Yulin Fang, Chaoyue Gao, Alvin Chung Man Leung, and Qiang Ye., "The impact of "Lazy Minting" on seller performance in NFT marketplaces A transaction cost economics

The third is enhancing institutional enforcement capacity. Effective enforcement requires not only strong laws but also capable institutions. Currently, law enforcement efforts are hindered by limited technical resources and fragmented coordination between agencies, platforms, and rights holders.[69] Strengthening the institutional capacity of law enforcement, expanding specialized cyber-IPR units, and establishing formal cooperation channels with digital service providers can significantly improve response times and investigative accuracy.

Regular enforcement actions serve as a deterrent. However, as seen with widespread music piracy across streaming and social media platforms, inconsistent enforcement reduces credibility and diminishes creators' incentives to innovate.[70] Developing judicial guidelines and expanding case law precedents, areas where Indonesia currently lacks robust foundations, would also provide courts with clearer references for adjudicating digital IPR disputes. Given the low number of dedicated cyber copyright units, limited human resources familiar with blockchain technology, and fragmented coordination between the Directorate General of Intellectual Property Rights (DJKI), the Ministry of Communication and Information Technology, the Indonesian National Police (Polri), and the National Institute of Sciences, this has reduced the ability to conduct early detection, verification, and effective action against copyright infringement in the digital realm.[71] The establishment of a cross-agency Cyber Intellectual Property Rights Task Force, intensive training for judges and investigators on digital evidence and NFTs, and formal collaboration with global platforms (OpenSea, Spotify, TikTok) through a Memorandum of Understanding (MoU) will accelerate the response to infringement.[72] A sui generis model for Geographical Indications and Traditional Cultural Expressions involving participatory digital registration and proactive enforcement can also serve as a blueprint for communal protection in the digital age.[73]

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perspective," *Journal of Operations Management,* Vol.71, no.7, 2025, page.1023. See too, V. Henry Soelistyo Budi, Matahari Girodon-Hutagalung, and Jovita Irawati., "Integrating IPR Integrity and Freedom of Expression: A Normative Analysis," *Law Reform,* Vol.20, no.1, 2024, 158.

[69] Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.36. See too, Ujang Suratno, and Tri Setiady., "Strategic Intellectual Property Rights as Banking Credit Collateral Assets in Computerized Age," *International Journal of Cyber Criminology,* Vol.18, no.2, 2024, page.27.

[70] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.456.

[71] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.34. See too, Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.246.

[72] Nina Nurani, and Hafied Noor Bagja., "Sui Generis Geographical Indications: Reforming Indonesia's Intellectual Property Rights for Agricultural Protection," *International Journal of Law and Society,* Vol.4, no.2, 2025, page.313. See too, Setiyono Setiyono, Dinda Keumala, Ahmad Sabirin, and Nadia Nursantih., "Has Indonesia Safeguarded Traditional Cultural Expressions?," *Jambura Law Review,* Vol.6, no.2, 2024, page.224.

[73] Hari Sutra Disemadi, Abdurrakhman Alhakim, Ninne Zahara Silviani, and Emiliya Febriyani. "Intellectual property synergies: merging halal certification with Indonesian communal intellectual property rights laws," *Legality: Jurnal Ilmiah Hukum,* Vol.32, no.1, 2024, page.23. See too,

The fourth is public awareness and education initiatives. A fundamental barrier to IPR protection in Indonesia is the low level of public understanding of copyright norms.[74] Many users unknowingly violate IPR due to a lack of awareness of creators' rights and the broader societal impacts of infringement. Educational programs, public campaigns, and accessible online resources are therefore essential to foster a culture that respects creativity. Increasing awareness would not only reduce unintentional violations but also strengthen the market for legitimate content, thereby supporting economic growth in the creative sector.[75]

IPR protection benefits society at large by ensuring fair competition, encouraging innovation, and strengthening cultural and economic development.[76] Through effective public education, Indonesia can cultivate an environment where consumers trust the authenticity of digital products and creators receive the recognition and compensation they deserve.

However, low public understanding of copyright among both consumers and businesses is a major driver of unintentional infringement.[77] Massive educational programs through schools, universities, and digital campaigns targeting Gen Z and creative MSMEs will shift content consumption behavior from piracy to the use of legal services.[78] The integration of copyright materials and blockchain technology into higher education curricula, as well as digital creator certification, will create a generation that is not only creative but also respects the value of intellectual property.[79]

These four pillars, if implemented in an integrated manner, will create an adaptive, technology-driven, and equitable copyright protection ecosystem. The result is not only a significant reduction in violations, but also an increase in the contribution of a more inclusive digital-based creative economy from independent musicians, NFT artists, to communities of owners of traditional cultural expressions while

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Nasrianti, Sanusi Sanusi, Azhari Azhari, and Ilyas Ilyas., "Legal Protection of Traditional Cultural Expressions in Aceh: A Comparative Legal Analysis of Islamic Law and Positive Law in Indonesia," *Al-Istinbath: Jurnal Hukum Islam,* Vol.10, no.1, 2025, page.92.

[74] Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.37.

[75] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.457.

[76] Helitha Novianty Muchtar, A. M. Ramli, M. R. Ayu, R. R. Permata, S. Dewi, D. E. Sukarsa, and T. Safiranita., "Stimulasi Urgensi Perlindungan Kekayaan Intelektual Karya Kreatif Dan Inovatif Karya Siswa Sma Negeri 8 Bandung Dalam Mendukung Ekonomi Digital," *Kumawula: Jurnal Pengabdian Kepada Masyarakat,* Vol.4, no.1, 2021, page.70.

[77] I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.525.

[78] Zeehan Fuad Attamimi, Amalina Ahmad Tajudin, and Fadhil Umar., "The Role of Music Aggregator Distribution Toward Music Performers in View of the Three Pillars of the Copyright System," *Journal of Law and Legal Reform,* Vol.5, no.1, 2024, page.373. See too, Tasya Safiranita Ramli, Sherly Ayuna Putri, Amelia Cahyadini, Andreana Lestari, and Rizki Fauzi., "Digital platform responsibility on administering royalty for music creators from the perspective of copyright law," *NTUT Journal of Intellectual Property Law and Management*, Vol.12, no.1, 2023, page.16.

[79] Leonardo Juan Ramirez Lopez, and Genesis Gabriela Morillo Ledezma., "Employing Blockchain, NFTs, and Digital Certificates for Unparalleled Authenticity and Data Protection in Source Code: A Systematic Review," *Computers,* Vol.14, no.4, 2025, page.133.

strengthening Indonesia's competitiveness in the era of Society 5.0 and the global knowledge-based economy.[80]

4. Conclusion

This study highlights that rapid digitalization has fundamentally changed how creative works are produced, distributed, and consumed, while simultaneously intensifying the challenges of copyright protection in Indonesia. Although Law Number 28 of 2014 on Copyright and the Electronic Information and Transactions Law provide essential protection for creators' moral and economic rights, they remain insufficient for addressing digital-specific infringements such as illegal streaming, encrypted file sharing, user-generated content misuse, and unauthorized minting of non-fungible tokens (NFTs). Enforcement is further constrained by limited institutional capacity, weak platform cooperation, and the absence of detailed legal provisions suited to contemporary digital ecosystems.

Strengthening Indonesia's copyright system therefore requires a combination of regulatory, technological, and educational strategies. Regulatory reforms should include clearer rules for platform liability, explicit recognition of blockchain-based assets, and the adoption of an efficient notice-and-takedown mechanism to ensure rapid removal of infringing content. Technological solutions, such as blockchain for copyright verification and content-filtering tools, can complement legal reforms by enabling more accurate monitoring and automated royalty protection. At the same time, improving public literacy about Intellectual Property Rights (IPR) is crucial, as low awareness remains a core driver of widespread infringement. Ultimately, enhancing IPR protection is not solely about safeguarding economic interests but also about fostering a creative, innovative, and competitive digital environment. By strengthening enforcement mechanisms, expanding public education, and improving regulatory clarity, Indonesia can build a more resilient copyright framework that supports creators while ensuring the sustainable growth of its digital creative economy.

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[80] Lennart Ante, and Ingo Fiedler., "The new digital economy: How decentralized finance (DeFi) and non-fungible tokens (NFTs) are transforming value creation, ownership models, and economic systems," *Digital Business,* Vol.5, no.1, 2025, page.194; Novi Mirawanty, Muhammad Zilal Hamzah, and Freddy Harris., "Indonesia Data Protection Policy of Intellectual Property And Its Effect on the Economy," *OIDA International Journal of Sustainable Development,* Vol.18, no.3, 2025, page.118; Foteini Valeonti, Antonis Bikakis, Melissa Terras, Chris Speed, Andrew Hudson-Smith, and Konstantinos Chalkias., "Crypto collectibles, museum funding and OpenGLAM: challenges, opportunities and the potential of Non-Fungible Tokens (NFTs)," *Applied Sciences,* Vol.11, no.21, 2021, page.9933.

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LEGAL PROTECTION OF INTELLECTUAL PROPERTY FOR DIGITAL WORKS BY UTILIZING EMERGING TECHNOLOGIES

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ABSTRACT

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and non-fungible tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

1. Introduction

Digitalization has significantly transformed the way society perceives and engages with creative work, leading to two prominent trends. First, there has been a marked increase in individuals producing creative works in digital formats, such as music, visual art, literature, and other media.[1] Digital tools provide creators with accessibility, flexibility, and efficiency, allowing them to develop and distribute their works more easily. Second, a growing population of users prefers to consume

[1] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1619.

creative works on digital platforms, including streaming services for music and films, eBooks, and other forms of multimedia content. These platforms offer convenience, rapid access, and practical benefits, enabling users to enjoy works without physical storage limitations or long waiting periods. As a result, digitalization has not only expanded the avenues for creative production and consumption but has also shifted expectations regarding accessibility, immediacy, and convenience in creative industries.

However, the rapid rise of digital creative works has also created substantial challenges for copyright protection. Copyright provides creators with legal rights to control how their works are used and shared.[2] These rights include moral rights, such as recognition as the author, and economic rights, such as receiving royalties when the work is utilized. Protecting these rights in the digital era is increasingly difficult because digital works can be easily copied, shared, and modified. The proliferation of online platforms, including MOOCs, streaming services, and peer-to-peer networks, has amplified the ease of replication and distribution. In Indonesia, existing laws, including Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, face challenges in addressing emerging issues such as unauthorized streaming, misuse of non-fungible tokens (NFTs), and illegal downloading.[3] Enforcement mechanisms remain limited for digital-specific violations, public awareness of copyright law is generally low, and judicial precedents regarding digital intellectual property rights are scarce. Consequently, creators' moral and economic rights are often inadequately protected, undermining both innovation and fair compensation for their work.[4]

Advances in digital technology bring significant benefits but also introduce serious threats, particularly to younger generations who may not fully understand the legal implications of using digital platforms. The principles of information openness and easy access can facilitate potential violations of intellectual property rights.[5] The greater the accessibility of digital content, the higher the likelihood of unauthorized duplication or distribution. This issue is particularly critical in Indonesia, where

[2] Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.67.

[3] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.712.

[4] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1620. See too, Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.55; Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.1.

[5] Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.2.

enforcement of existing laws is inconsistent, and judicial decisions on digital IPR violations remain limited. Many digital works are accessed without acknowledging the creator or are used outside their intended purpose, such as for commercial exploitation without permission. Such practices can harm creators both morally, by denying recognition, and economically, by reducing income generated from their works.

Digital works have become increasingly popular among online users due to several advantages over physical products. Digital products are perceived as more practical, easier to use, and do not require physical storage space, unlike traditional media.[6] The process of downloading or streaming digital works is fast and efficient, allowing users to access content immediately without waiting for delivery or encountering physical limitations. This ease of access not only benefits consumers but also provides opportunities for creators to reach wider audiences, expanding market potential beyond traditional constraints. However, these same advantages also create vulnerabilities for intellectual property violations.[7]

In Indonesia, violations of intellectual property laws, especially concerning digital content, remain widespread. Many people still lack awareness of the importance of copyright, which leads to behaviors that harm creators or copyright owners.[8] The Ministry of Law and Human Rights, through the Directorate General of Intellectual Property Rights (*Direktorat Jenderal Kekayaan Intelektual/*DJKI), stated that piracy of music, films, software, and digital books still dominates IP violations. Online marketplaces and social media are often exploited to sell pirated content.[9] A DJKI report indicates that illegal streaming sites, chat apps, and social media platforms are the primary channels for violations. Authorities have blocked thousands of infringing sites and stated that internet anonymization tools are increasingly complicating law enforcement.[10]

Enforcement of unauthorized digital public performances has also been highlighted, such as when the DJKI held a hearing with the Indonesian Video Streaming Association (*Asosiasi Video Streaming Indonesia*/AVISI) and discovered unlicensed video content being broadcast in cafes/restaurants in Bali. A raid was even conducted to crack down on the practice.[11] Furthermore, according to a 2013 WIPO study, the level of software piracy in Indonesia is very high. This indicates

[6] Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.56.

[7] Zulkifli, Almusawir, Almusawir, and Tira, A., "Communal intellectual property rights and creative industry development through integration patterns," *Jurnal Hukum Unissula*, Vol.41, no.3, 2025; 773.

[8] Candra Irawan., "Protection of traditional knowledge: A perspective on Intellectual Property Law in Indonesia," *The Journal of World Intellectual Property,* Vol.20, no.2, 2017, page.63.

[9] A. O. Victoria., "Kemenkum sebut pelanggaran KI di Indonesia marak pada era digital," *Antara News*, Februari 3, 2025.

[10] SYL., "Pelindungan Hak Cipta di Era Digital: DJKI Intensifkan Penegakan Hukum dan Edukasi Publik,*" Direktorat Jenderal Kekayaan Intelektual*, September 9, 2024. See too, DJKI., "Tantangan Membasmi Pelanggaran Kekayaan Intelektual di Era Digital*," Direktorat Jenderal Kekayaan Intelektual*, Febuary 3, 2025.

[11] DJKI., "Tantangan Membasmi Pelanggaran Kekayaan Intelektual di Era Digital*," Direktorat Jenderal Kekayaan Intelektual*, Febuary 3, 2025.

that IPR violations are not limited to creative works, but also include software in general.

Irianti and Basri[12] concluded that many Indonesian users access illegal websites to stream or download films. They noted that social and cultural norms related to digital piracy remain deeply entrenched. The problem revolves around a weak public understanding of the importance of copyright, a lack of effective oversight, and technical challenges in enforcing digital law. Consequently, creators suffer moral and economic harm, while violations continue to grow and are difficult to control. The consequences of these violations extend beyond individual creators. They undermine the economic benefits of creative work, reduce incentives for producing new content, and may impede the growth of Indonesia's creative industries.[13]

Digitalization has brought significant changes to the creative industry in Indonesia. The legal framework for intellectual property rights (IPR), including Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions (amended by Law Number 1 of 2024), has not been fully effective in addressing growing digital violations, such as unauthorized streaming, NFT misuse, and illegal downloading.[14] Digital tools increase accessibility and flexibility for creators and consumers, but law enforcement is often weak due to limited digital-specific mechanisms, low public awareness, and a lack of judicial precedent.[15]

New technologies, including blockchain and NFTs, offer opportunities to improve IPR confirmation, transparency, and cost efficiency. The implementation of this technology in Indonesia has not been extensively analyzed, particularly regarding

[12] R.A Diah Irianti P.S., and Herlina Basri., "Pelanggaran Hak Cipta Film Melalui Situs Ilegal di Indonesia," *Prosiding SENANTIAS: Seminar Nasional Hasil Penelitian dan Pengabdian Kepada Masyarakat*, Vol.6, no.1, 2025; 288–295.

[13] Dicky Ardiansyah, Nidhar Irham Muharram, Raja Satria Utama, Ridho Ahmad Bukhori, and R. B. P. Efendi., "Aspek Hukum Hak Kekayaan Intelektual Dalam Hak Cipta Indonesia," *Causa: Jurnal Hukum Dan Kewarganegaraan,* Vol.2, no.2, 2024, page.52.

[14] Dicky Ardiansyah, Nidhar Irham Muharram, Raja Satria Utama, Ridho Ahmad Bukhori, and R. B. P. Efendi., "Aspek Hukum Hak Kekayaan Intelektual Dalam Hak Cipta Indonesia," *Causa: Jurnal Hukum Dan Kewarganegaraan,* Vol.2, no.2, 2024, page.53. See too, Candra Irawan., "Protection of traditional knowledge: A perspective on Intellectual Property Law in Indonesia," *The Journal of World Intellectual Property,* Vol.20, no.2, 2017, page.65; Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.712; Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.68.

[15] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1621. See too, Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.57; Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.3.

communal ownership and traditional cultural expressions.[16] Other gaps exist in NFT copyright, metadata protection, and permissionless tokenization, including the limited integration of positive law with Islamic principles and sui generis regimes for geographical indications or folklore.[17]

Empirical research addressing law enforcement in local contexts, such as music streaming, social media violations, and SME practices, is still limited.[18] Previous research on digital markets and traditional knowledge documentation has

[16] Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.23. See too, Weisheng Lu, and Liupengfei Wu., "A blockchain-based deployment framework for protecting building design intellectual property rights in collaborative digital environments," *Computers in Industry,* Vol.159, no.12, 2024, page.1040; Weigang Ma, Jiaqi Qi, Minying Ye, and Yibo Zhang., "Blockchain Empowered Knowledge Resource Protection Model and Its Application," *IET Communications,* Vol.19, no.1, 2025; page.123; Christos A. Makridis, and Joshua D. Ammons., "Governing the large language model commons: using digital assets to endow intellectual property rights," *Journal of Institutional Economics,* Vol.21, no.2, 2025, page.32; Vishnu Periyannan Palaniappan, Palaniappan Sellappan, and Kavitha Shanmugam., "A Study on the Role of Non-Fungible Tokens (NFTS) in Expanding the Intellectual Property (IP) Market," In *2024 Second, International Conference on Intelligent Cyber Physical Systems and Internet of Things*, IEEE, 2024, page.782; Leonardo Juan Ramirez Lopez, and Genesis Gabriela Morillo Ledezma., "Employing Blockchain, NFTs, and Digital Certificates for Unparalleled Authenticity and Data Protection in Source Code: A Systematic Review," *Computers,* Vol.14, no.4, 2025, page.131.

[17] Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.519. See too, Andres Guadamuz., "The treachery of images: non-fungible tokens and copyright," *Journal Of Intellectual Property Law and Practice,* Vol.16, no.12, 2021; 1374; Kalangi Praveen Kumar, B. Uttej Reddy, and V. Asha Judi., "Patent own product rights using NFTs," In *AIP Conference Proceedings*, vol.3257, no.1, AIP Publishing LLC, 2025, page.192; Nina Nurani, and Hafied Noor Bagja., "Sui Generis Geographical Indications: Reforming Indonesia's Intellectual Property Rights for Agricultural Protection," *International Journal of Law and Society,* Vol.4, no.2, 2025, page.312; Jan Schwiderowski, Asger Balle Pedersen, Jonas Kasper Jensen, and Roman Beck., "Value creation and capture in decentralized finance markets: Non-fungible tokens as a class of digital assets," *Electronic Markets,* Vol.33, no.1, 2023, page.45; Foteini Valeonti, Antonis Bikakis, Melissa Terras, Chris Speed, Andrew Hudson-Smith, and Konstantinos Chalkias., "Crypto collectibles, museum funding and OpenGLAM: challenges, opportunities and the potential of Non-Fungible Tokens (NFTs)," *Applied Sciences,* Vol.11, no.21, 2021, page.9931.

[18] Firman Freaddy Busroh, Fatria Khairo, and Sitta Saraya., "Reevaluating "First-to-File" vs the Legality Principle: Rethinking Justice for Original Rights Holders in Indonesia," *Jambe Law Journal* Vol.8, no.1, 2025; 432. See too, Jade Kouletakis, and Nkem Itanyi., *Decolonising Intellectual Property Law: An Afrocentric Approach,* Oxfordshire, Taylor & Francis, 2025, page.32; Novi Mirawanty, Muhammad Zilal Hamzah, and Freddy Harris., "Indonesia Data Protection Policy of Intellectual Property And Its Effect on the Economy," *OIDA International Journal of Sustainable Development,* Vol.18, no.3, 2025, page.116; Tb Apriza Mulqi, Ahmad M. Ramli, Dadang Rahmat Hidayat, and Ranti Fauza Mayana., "Regulation on Broadcasting Rights in Indonesia Based on Law No. 28 of 2014 on Copyright and Law No. 32 Of 2022 on Broadcasting," *Journal of Intellectual Property Rights,* Vol.30, no.4, 2025, page.410; Nasrianti, Sanusi Sanusi, Azhari Azhari, and Ilyas Ilyas., "Legal Protection of Traditional Cultural Expressions in Aceh: A Comparative Legal Analysis of Islamic Law and Positive Law in Indonesia," *Al-Istinbath: Jurnal Hukum Islam,* Vol.10, no.1, 2025, page.90; I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.523; Fatimatuz Zahra., "Legal Review of Knock-off Culture in K-Pop-Inspired Outfits Based on Industrial Design Law," *Media Iuris* Vo,l.8, no.1, 2025, page.32.

demonstrated disparities in commercialization, but has not explored the unique risks of the digital economy and anti-theft strategies.[19] This study fills this gap by empirically assessing the effectiveness of Indonesian IPR law in the context of modern digital platforms, including streaming and NFTs. The novelty lies in identifying legal, technological, and enforcement gaps, as well as understanding the protection of creators' moral and economic rights in Indonesia's digital era. Thus, this study aims to assess the effectiveness of Indonesia's copyright and intellectual property laws in regulating digital works on emerging platforms, identify gaps that contribute to infringements, and explore ways to better protect creators' moral and economic rights. The research questions are: How effective are Indonesia's current copyright and intellectual property laws in regulating digital works on emerging platforms, such as streaming services and NFTs?; What legal, technological, and enforcement gaps contribute to copyright infringements on streaming platforms and in the misuse of NFTs in Indonesia?; and, How can Indonesia strengthen its legal framework and enforcement mechanisms to protect creators' moral and economic rights in the context of emerging digital technologies?

2. Research Methods

This research employs a normative juridical method supported by descriptive qualitative analysis. The normative juridical approach is used to examine theories, concepts, legal doctrines, and regulations relevant to the protection and enforcement of Intellectual Property Rights (IPR) in Indonesia's digital ecosystem. Specifically, this research focuses on a critical analysis of the adequacy of Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 as the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, particularly in addressing the challenges of the digital era.

To strengthen the analysis, this research incorporates descriptive analysis, which

[19] Hari Sutra Disemadi, Sholahuddin Al-Fatih, Ninne Zahara Silviani, Shelvi Rusdiana, and Emiliya Febriyani., "Revitalizing intellectual property rights in Indonesia: a Maqasid Al-Shariah perspective on communal ownership," *Al-Istinbath: Jurnal Hukum Islam,* Vol.9, no.2, 2024, page.632; Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.242; Yoga Prihastomo, and Yunianto A. Nugroho., "The development model of intellectual property marketplace in Indonesia," In *AIP Conference Proceedings*, Vol.2867, no.1, AIP Publishing LLC, 2024. Page.234; Laina Rafianti, Aam Suryamah, Afrizal Musdah Eka Putra, and Ahmad M. Ramli., "Swing the angklung tube in the digital economy era: based on intangible cultural heritage and intellectual property rights perspective," *Indonesian J. Int'l L.,* Vol.18, no.2, 2020, page.323; Setiyono Setiyono, Dinda Keumala, Ahmad Sabirin, and Nadia Nursantih., "Has Indonesia Safeguarded Traditional Cultural Expressions?," *Jambura Law Review,* Vol.6, no.2, 2024, page.223; Agung Sujatmiko, Mochamad Kevin Romadhona, Patrick Keizer, and Christoph Antons., "The legal reform of trademark protection and dispute mitigation: Lessons from licensing well-established brands in Indonesia," *Journal of Law and Legal Reform,* Vol.5, no.2, 2024; page.460.

involves a systematic description and interpretation of how the current legal framework operates in practice. This research relies on secondary data, including laws and regulations, government policies, books, journal articles, and websites of competent legal authorities. Furthermore, several case studies concerning digital IPR infringement in Indonesia are analyzed to illustrate the challenges of real-world law implementation and enforcement. This triangulation approach allows for an understanding of regulatory gaps, barriers to law enforcement, and their implications for the protection of creators' moral and economic rights in the digital age.

3. Results and Discussion

3.1. Indonesia's Copyright and Intellectual Property Laws on Emerging Digital Platforms

Indonesia's current intellectual property legal framework comprises Law Number 28 of 2014 concerning Copyright (the Copyright Law) and Law Number 11 of 2008 concerning Electronic Information and Transactions (the ITE Law), as amended by Law Number 1 of 2024. Law 28/2014 establishes moral and economic rights for creators, covering the reproduction, public performance, distribution, and adaptation of copyrighted works. Article 2 recognizes creators' moral rights, including the right to be recognized as creators, while Article 9 protects economic rights by authorizing creators to authorize the reproduction, distribution, rental, and public performance of their works. These provisions are crucial in regulating digital content disseminated through streaming platforms, online marketplaces, and emerging technologies such as NFTs.

The ITE Law complements copyright law by regulating the use and dissemination of electronic information, including digital works. Article 30 prohibits unauthorized access to electronic systems or content, which can be applied to digital piracy and illegal streaming activities. Article 32 addresses the illegal use of electronic information for commercial purposes, offering a framework for prosecuting individuals or platforms that distribute copyrighted content without authorization.[20]

In its implementation, relevant authorities, such as the Directorate General of Intellectual Property (DJKI), have actively implemented this law to monitor and control unauthorized digital distribution. For example, the DJKI held formal discussions with the Video Streaming Association (AVISI) and took enforcement action against bars and cafes in Bali that broadcast copyrighted video content without proper authorization.[21] These actions demonstrate that Law 28/2014 provides a legal basis for intervening in the public display of digital works, allowing

[20] Muhammad Junaidi, Hendro Widodo, and Ahmed Kheir Osman., "The Legal Security in Electronic Transactions to Protect Freedom of Speech: The Concept of Forming Legislation on Electronic Transactions," *Jurnal Hukum* 40, no.2, 2024; 307-321.

[21] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025. See too, Solihah Sari Rahayu, Novianti Syarifah, and Muhamad Dani Somantri., "Jual Beli Produk Imitasi Fashion Perspektif Undang-Undang Hak Cipta Nomor 28 Tahun 2014 Dan Hukum Islam," *Mutawasith: Jurnal Hukum Islam,* Vol.2, no.2, 2019, page.210.

regulators to impose sanctions and demand compliance from violators.

The Directorate General of Intellectual Property (*Direktorat Jenderal Kekayaan Intelektual/*DJKI) has demonstrated active involvement in addressing illegal streaming activities through direct collaboration with industry associations, underscoring the importance of collaboration between regulators and stakeholders. For example, the DJKI held a formal meeting with the Indonesian Video Streaming Association (AVISI) to discuss and address illegal streaming practices. During the meeting, the DJKI reported on enforcement actions taken against bars and cafes in Bali for broadcasting copyrighted video content without proper licenses.[22] This case demonstrates that Indonesia has a legal framework capable of producing concrete action to curb unauthorized public displays of digital works. This coordinated effort facilitates the identification of violations at physical locations where digital content is publicly distributed and demonstrates the regulator's ability to interact directly with the industry sector to support intellectual property rights compliance.

Unlicensed public streaming activities remain widespread. Much digital content is consumed in cafes, bars, and various public spaces without obtaining official permission from copyright owners. This situation highlights limitations in monitoring and enforcement, as violations occur at widely dispersed digital consumption points and are difficult to monitor in real time. Existing legal mechanisms do cover this type of violation, but enforcement capacity is often hampered by limited human and technical resources, as well as challenges in tracking and prosecuting each violation. The high frequency of violations highlights the significant gap between existing regulations and practical implementation on the ground, and demonstrates the need for more adaptive enforcement strategies for digital content consumption in public spaces.

In the context of Non-Fungible Tokens (NFTs), the Directorate General of Intellectual Property (DJKI) has explored the potential of blockchain technology as a tool to enhance protection for digital creators. NFTs combined with smart contracts allow for automatically encoded royalty and usage rights, allowing creators to receive economic benefits every time their work is used.[23] A study on the OpenSea platform shows that the Indonesian Copyright Law (Law 28/2014) does not explicitly regulate ownership and copyright for NFT-based works, creating legal ambiguity and potential future disputes.[24] Further legal analysis confirms that ownership of an NFT does not automatically grant copyright to the underlying work; These tokens reflect digital ownership, not creator rights, leaving creators'

[22] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

[23] AMO., "Kolaborasi DJKI, Teknologi NFT & Blockchain Bantu Mudahkan Kreator Seni Indonesia," *DJKI*, October 30, 2022.

[24] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.37.

creativity and economic interests vulnerable to abuse.[25]

Smart contracts offer a technical solution for enforcing terms of use and royalty distribution, significantly reducing the risk of unauthorized use and protecting creators' economic rights.[26] However, jurisdictional issues remain a serious obstacle to international law enforcement, as violators located outside Indonesia are difficult to prosecute through national legal mechanisms. In practice, NFT creators can often only request content removal through international platforms like OpenSea, with no guarantee of comprehensive legal redress.[27] These limitations highlight the need to develop clearer legal guidelines for blockchain-based digital works, as well as cross-border enforcement mechanisms that can bridge the gap between new technologies and existing legal systems in Indonesia.

The DJKI's efforts in both cases (illegal streaming and NFTs) demonstrate the regulator's ability to address violations, but also reveal significant challenges. Public streaming and NFT transactions require a deeper understanding of digital technology, the ability to coordinate with various parties, and more adaptive legal implementation. Case data shows that legal protection for digital content remains limited in terms of practical reach, regulatory clarity, and enforcement capacity, necessitating continued improvements in policy, technology, and public education.

This shows that Implementation of Indonesia's copyright and intellectual property laws on emerging digital platforms shows a mixture of successes and persistent gaps. The authorities have proactively monitored and collaborated with industry associations. This reflects the ability of the regulatory framework to produce concrete actions against unauthorized public streaming.[28] Enforcement efforts illustrate how legal provisions under UU Number 28/2014 and UU Number 11/2008 can be operationalized to address violations. These measures demonstrate that regulators can leverage statutory authority to demand compliance, impose sanctions, and encourage adherence to copyright obligations in physical venues hosting digital content.

Despite these interventions, the scale and nature of digital content consumption create enforcement challenges. Public streaming often occurs in widely dispersed locations, making real-time monitoring resource-intensive. Limited staffing, technological tools, and technical capacity hinder systematic enforcement, while digital content can be captured, redistributed, or streamed simultaneously to multiple devices, amplifying the potential for infringement.[29] Social media

[25] I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.380.

[26] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.389.

[27] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.232.

[28] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

[29] Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.243. See too, Tasya Safiranita

platforms and OTT services further complicate monitoring, as user-generated sharing and peer-to-peer distribution circumvent traditional licensing channels, creating a persistent enforcement gap. The ITE Law (Articles 30 and 32) provides legal grounds to prosecute unauthorized access and commercial misuse, yet practical enforcement remains uneven across digital ecosystems.[30]

In the context of Non-Fungible Tokens (NFTs), the authorities have explored blockchain integration as a tool to encode economic rights through smart contracts.[31] These contracts automate royalty payments and usage conditions, theoretically aligning with Article 9 of UU Number 28/2014. However, legal ambiguity remains: ownership of an NFT does not inherently confer copyright over the underlying work, leaving creators vulnerable to misuse in international marketplaces such as OpenSea.[32] Enforcement is further complicated by jurisdictional constraints, as violators located outside Indonesia cannot be effectively prosecuted under domestic law, requiring reliance on platform-based takedown mechanisms.[33]

The integration of blockchain and smart contracts demonstrates technological potential to enhance legal protections, yet practical implementation is still limited. Regulatory guidance for NFT minting, licensing, and cross-border transactions is underdeveloped, and creators often face uncertainty regarding how existing copyright law applies to these novel digital assets.[34] Additionally, the DJKI's efforts must balance technology adoption with public education and compliance promotion, as limited awareness among creators and consumers contributes to

Ramli, Sherly Ayuna Putri, Amelia Cahyadini, Andreana Lestari, and Rizki Fauzi., "Digital platform responsibility on administering royalty for music creators from the perspective of copyright law," *NTUT Journal of Intellectual Property Law and Management*, Vol.12, no.1, 2023, page.15.

[30] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.30. See too, Diana Silfiani., "Indonesian legal protection for song commercialization and music copyrights in digital platforms," *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law),* Vol.9, no.2, 2022, pager.7.

[31] AMO., "Kolaborasi DJKI, Teknologi NFT & Blockchain Bantu Mudahkan Kreator Seni Indonesia," *DJKI*, October 30, 2022.

[32] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.38. See too, I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.381.

[33] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.234.

[34] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.390. See too, Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.24; Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.520.

ongoing infringements in both streaming and NFT markets.[35]

3.2. Legal, Technological, and Enforcement Gaps Contributing to Copyright Infringements

The rapid development of information technology has created a wide range of digital products with substantial economic value, while simultaneously presenting new challenges for copyright protection. Ensuring harmony between technological progress and legal safeguards is essential for sustaining creativity and protecting the creative industry. Strong legal protection motivates creators to continue producing innovative works, provides fair economic benefits, and supports a healthy creative ecosystem.[36] Indonesia's digital landscape has expanded quickly through streaming platforms, online marketplaces, social media, and blockchain-based innovations such as NFTs. Although these developments offer new opportunities, they also increase the risk of unauthorized access, duplication, and distribution of digital content. The ease of accessing digital works has often been exploited by parties who disseminate copyrighted material without permission, resulting in significant copyright violations.

Law Number 28 of 2014 on Copyright guarantees creators' moral and economic rights, including control over reproduction and distribution of digital works. However, the law does not clearly regulate several platform-specific issues, such as illegal streaming, unauthorized downloads, and the misuse of user-generated content.[37] Likewise, Law Number 1 of 2024, which amends the Electronic Information and Transactions Law, provides general provisions for digital transactions but lacks detailed mechanisms to address complex digital IPR infringements, particularly those involving peer-to-peer sharing or decentralized technologies.

The Copyright Law recognizes creators' exclusive rights to reproduction, distribution, adaptation, and communication of works to the public. These provisions are conceptually aligned with digital distribution models, yet the law lacks explicit mechanisms tailored to digital infringements, such as illegal streaming, peer-to-peer file sharing, automated scraping, or the circulation of

[35] Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.244. See too, Tasya Safiranita Ramli, Ahmad M. Ramli, Huala ADolf, Eddy Damian, and Miranda Risang Ayu Palar., "Over-the-top media in digital economy and society 5.0," *Journal of Telecommunications and the Digital Economy,* Vol.8, no.3, 2020, page.61.

[36] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.190. See too, Niru Anita Sinaga., "Pentingnya Perlindungan Hukum Kekayaan Intelektual Bagi Pembangunan Ekonomi Indonesia," *Jurnal Hukum Sasana* Vol.6, no.2, 2020, page.150; Ramon Nofrial, Talib Adnan Abood, Haider Ahmed Shihab, and Adhi Budi Susilo., "The Consumer Protection in The Balance of Business Actors and Consumers: A Paradigm of Justice," *Jurnal Hukum* 41, no.1, 2025, page.81.

[37] Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.69.

copyrighted content via encrypted platforms.[38] As a result, enforcement agencies must rely on general provisions that were drafted with traditional, offline forms of infringement in mind.

A persistent problem lies in the absence of a statutory notice-and-takedown mechanism, unlike the Digital Millennium Copyright Act (DMCA) in the United States, which obliges platforms to promptly remove infringing content upon notification (United States Copyright Office, 1998). Without such a mechanism, Indonesian regulators cannot compel global platforms YouTube, Telegram, Discord, TikTok, or NFT marketplaces to take swift corrective action. This creates a severe gap in the speed of enforcement: infringing digital content can be duplicated, mirrored, or redistributed faster than regulators can issue administrative warnings.

Moreover, cross-border jurisdictional limitations significantly weaken Indonesia's legal reach. Many digital platforms operate servers overseas, and individuals minting NFTs or redistributing illegal streams may reside outside Indonesia. The Copyright Law does not address the complexity of enforcing rights against foreign-based violators, and the ITE Law lacks implementing provisions for international cooperation on digital IP crimes.[39]

Similar gaps appear in the treatment of emerging technologies. Current legislation does not define the legal status of NFTs, nor does it regulate smart contracts used to embed royalty conditions.[40] Ownership of an NFT remains separate from ownership of the underlying copyright, creating legal ambiguity that has already led to unauthorized minting and sale of Indonesian digital artworks on global blockchain marketplaces.[41] Without explicit statutory provisions, creators have little recourse other than platform-level takedowns.

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[38] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.715. See too, Khaled Khwaileh, and Ena Kazić., "Illicit Trade in Counterfeit Medicines: Challenges, Solutions, and a Case Study of Indonesia," *Solutions, and a Case Study of Indonesia,* Vol.2, no.3 2025, page.234; Dwi Tiara Kurnilasari, Annalisa Yahanan, and Rohani Abdul Rahim., "Indonesiaâ€™ s Traditional Knowledge Documentation in Intellectual Property Rightsâ€™ Perspective," *Sriwijaya Law Review,* Vol.2, no.4, 2018, page.117; Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.70.

[39] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.236. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.32.

[40] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.40. See too, I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.383.

[41] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.717.

Comparative analysis with the EU Copyright Directive (Directive 2019/790) shows that Indonesia has not adopted proactive measures requiring platforms to implement content recognition technologies or automated upload filters.[42] This leaves a gap in preventive enforcement at the platform level, allowing unauthorized uploads and redistribution to persist without structural barriers.

In addition, with the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work.[43] For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters g.[44]

The rapid development of digital technologies has enabled sophisticated methods of evasion by infringers. Encrypted messaging platforms such as Telegram, WhatsApp, and Discord allow the circulation of copyrighted films, music, and books in closed groups that are nearly impossible for authorities to monitor.[45] Advances in anonymizing technologies, including VPNs, proxy servers, cloud mirroring, and decentralized file-sharing systems, make user identities difficult to trace. Platforms hosting illegal streams frequently relocate to new domains, switching servers across multiple jurisdictions to avoid takedowns. This technological agility far outpaces the enforcement capacity of DJKI and cyber authorities. On streaming platforms, digital piracy occurs through real-time screen capture software, data interception tools, or modified applications, allowing infringing content to be redistributed instantly across multiple sites. Streaming mirrors and IPTV boxes are widely available, enabling cafes and entertainment venues to publicly screen copyrighted content without proper licenses.[46]

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[42] Vo Trung Hau1, and Vo Hoang Thong., "Copyright protection for digital content on online platforms: A comparative study of Vietnamese and European Union law," *International Journal of Law* Vol,11, no.10, 2025, page.151.

[43] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.719.

[44] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.453.

[45] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.191.

[46] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025. See too, Tasya Safiranita

Blockchain technology presents additional difficulties. NFTs can embed copyrighted content permanently on decentralized networks, making removal nearly impossible. Even if platforms like OpenSea remove the listed token, the original digital file may remain accessible on the IPFS network or mirrored on third-party sites. Smart contracts also operate autonomously, limiting human intervention to halt infringing activities.[47] Collectively, these technological challenges illustrate that enforcement agencies lack the digital forensics capabilities, automated monitoring tools, and cross-platform interoperability needed to detect and respond to violations at scale. Although the authorities have collaborated with industry associations and conducts field enforcement, the scale of infringement across digital platforms far exceeds enforcement capacity.[48] With millions of daily uploads across social media, streaming services, and NFT marketplaces, manual monitoring is insufficient, and no centralized digital monitoring system exists to track and identify infringing content in real time. Weak interagency coordination further hampers enforcement. Digital copyright violations often fall between overlapping jurisdictions of DJKI, Kominfo, and cybercrime units, leading to fragmented responses. The enforcement process is also slowed by the absence of fast-track judicial or administrative procedures for digital IP cases, unlike the expedited processes available in DMCA-style systems.

A significant challenge is low public understanding of IPR. Many users believe that streaming a film in a café, downloading music from Telegram, or minting another person's artwork as an NFT is harmless or inconsequential.[49] This cultural normalization of digital piracy perpetuates widespread violations. Limited access to affordable legal content also contributes to reliance on illegal platforms, especially among younger users and lower-income groups.[50] Digital creators themselves often underestimate the importance of registering their works or using digital rights management tools. Many rely solely on platform timestamps without pursuing formal copyright registration, leaving them legally vulnerable when

Ramli, Ahmad M. Ramli, Huala ADolf, Eddy Damian, and Miranda Risang Ayu Palar., "Over-the-top media in digital economy and society 5.0," *Journal of Telecommunications and the Digital Economy,* Vol.8, no.3, 2020, page.62.

[47] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.391.

[48] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

[49] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.454. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.33.

[50] Asad Ullah, Qingyu Zhang, and Mansoora Ahmed., "The influence of intellectual property rights protection on contribution efforts of participants in online crowdsourcing contests," *Computers in Human Behavior,* Vol.12, no.3, 2021, page.106.

disputes arise.[51]

The cumulative effect of legal, technological, and enforcement gaps significantly undermines the sustainability of Indonesia's creative industry. Unauthorized redistribution of music, film, and digital art leads to substantial economic losses, reducing creators' royalties and deterring innovation.[52] Public mistrust grows when original creators cannot maintain control over the integrity of their work, especially when unauthorized modifications or AI-generated derivatives circulate widely.

For digital artists, the rise of NFTs presents both opportunity and risk. Without regulatory certainty, creators face exposure to plagiarism, unauthorized minting, and loss of revenue, while consumers risk purchasing NFTs that do not convey legitimate rights. The absence of cross-border enforcement mechanisms further diminishes the protective value of Indonesian copyright law in global digital markets. Meanwhile, the creative industry struggles to compete with illegal platforms offering free access to copyrighted works. This discourages investment in local content production, undermines the long-term viability of streaming platforms operating legally, and limits Indonesia's competitiveness in the global digital economy.[53]

3.3. Strategies to Strengthen Legal Framework and Enforcement Mechanisms

Strengthening Indonesia's legal and institutional capacity to protect Intellectual Property Rights (IPR) in the digital environment requires a comprehensive strategy that aligns regulatory reforms, technological innovation, enforcement enhancements, and public education. As digital platforms expand rapidly ranging from streaming services and social media to decentralized blockchain systems copyright infringements are becoming more sophisticated and harder to detect. These violations not only undermine the economic rights of creators but also weaken consumer trust and the overall integrity of the creative industry.[54] To ensure long-term sustainability, Indonesia must adopt adaptive strategies capable of responding to new forms of violations while reinforcing foundational legal principles.

In this context, Indonesia can strengthen copyright and intellectual property

[51] Iin Indriani., "Hak Kekayaan Intelektual: Perlindungan Hukum Terhadap Hak Cipta Karya Musik," *Jurnal Ilmu Hukum,* Vol.7, no.2, 2018, page.254. See too, Helitha Novianty Muchtar, A. M. Ramli, M. R. Ayu, R. R. Permata, S. Dewi, D. E. Sukarsa, and T. Safiranita., "Stimulasi Urgensi Perlindungan Kekayaan Intelektual Karya Kreatif Dan Inovatif Karya Siswa Sma Negeri 8 Bandung Dalam Mendukung Ekonomi Digital," *Kumawula: Jurnal Pengabdian Kepada Masyarakat,* Vol.4, no.1, 2021, page.69.

[52] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.455. See too, Niru Anita Sinaga., "Pentingnya Perlindungan Hukum Kekayaan Intelektual Bagi Pembangunan Ekonomi Indonesia," *Jurnal Hukum Sasana* Vol.6, no.2, 2020, page.151.

[53] Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.4.

[54] Asad Ullah, Qingyu Zhang, and Mansoora Ahmed., "The influence of intellectual property rights protection on contribution efforts of participants in online crowdsourcing contests," *Computers in Human Behavior,* Vol.12, no.3, 2021, page.107.

protection in the digital realm through four complementary strategic pillars: substantive legal reform, blockchain technology integration, institutional enforcement capacity enhancement, and public education and awareness. These four pillars are essential given the rapid development of digital platforms, NFTs, metaverses, and OTTs, which continue to generate new modes of infringement.[55]

The first is strengthening substantive legal provisions and regulatory clarity. Indonesia's core legal instruments (Law Number 28 of 2014 on Copyright and the Electronic Information and Transactions Law) provide essential protection for the moral and economic rights of creators. However, both laws face structural limitations in addressing contemporary digital challenges. Copyright Law 28/2014 does not yet regulate platform-specific issues such as automated content distribution, user-generated content disputes, or cross-border infringements common in streaming and file-sharing networks.[56] Likewise, the ITE Law, although central to digital governance, lacks tailored mechanisms for responding to complex online violations, including algorithm-driven reposting, deepfake manipulation, or unauthorized use of digital assets such as NFTs.[57]

To strengthen these frameworks, Indonesia may draw on established international models. The United States' Digital Millennium Copyright Act (DMCA) demonstrates the effectiveness of a structured notice-and-takedown system, enabling platforms to remove infringing content swiftly and reducing the spread of illegal material (United States Copyright Office, 1998). Similarly, the European Union's Directive 2019/790 obliges platforms to deploy proactive content-filtering technologies to prevent unauthorized uploads.[58] Adapting these mechanisms would significantly enhance Indonesia's ability to manage large-scale digital infringements.

The substantive legal reform and strengthening the regulatory framework do provide a foundation for protecting the moral and economic rights of creators, but

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[55] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.31. See too, Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.244; WasswaShafik., "Exploring NFTs and Metaverse Collaborations: Innovations, Opportunities, and Challenges," *Sustainable Branding, Cultural Intelligence and Co-Marketing,* Vol.2, no.1, 2026, page.253.

[56] Harry Randy Lalamentik., "Kajian Hukum Tentang Hak Terkait (Neighboring Right) Sebagai Hak Ekonomi Pencipta Berdasarkan Undang-Undang Hak Cipta Nomor 28 Tahun 2014," *Lex Privatum* Vol.6, no.6, 2018, page.332.

[57] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.720. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.34.

[58] Vo Trung Hau1, and Vo Hoang Thong., "Copyright protection for digital content on online platforms: A comparative study of Vietnamese and European Union law," *International Journal of Law* Vol,11, no.10, 2025, page.152.

they do not explicitly regulate digital platforms' responsibilities for royalty distribution, notice-and-takedown for UGC, or the separation of NFT ownership from copyright of the underlying work.[59] The adoption of a DMCA-style notice-and-takedown mechanism and proactive filtering obligations as stipulated in EU Directive 2019/790 could serve as a reference for incorporating "safe harbor with responsibility" provisions for OTT and social media platforms.[60] In addition, specific regulations regarding smart contracts and automatic royalties on NFTs and the metaverse need to be formulated immediately to create legal certainty.[61]

The second is expanding technological enforcement and blockchain integration. Technological advancement must complement legal reform. Blockchain technology offers significant potential for improving copyright verification, ownership authentication, and royalty tracking. Smart contracts embedded within digital works or NFTs can automate payment flows and ensure transparent use of creative assets, thereby protecting creators' economic rights.[62] However, without explicit legal recognition of tokenized ownership and its distinction from copyright ownership, disputes will continue to arise, as seen in repeated instances of unauthorized NFT minting on global platforms.[63]

Indonesia's IPR authority can strengthen enforcement by promoting blockchain-based registration systems and digital watermarking technologies to track content distribution. These innovations would enable detection of piracy on encrypted applications where traditional enforcement mechanisms face limitations due to platform anonymity.[64] This integration of blockchain and NFT technology as a transparent and efficient enforcement instrument will enable incorruptible ownership records, automated royalty distribution, and the prevention of

[59] Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.521. See too, Diana Silfiani., "Indonesian legal protection for song commercialization and music copyrights in digital platforms," *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law),* Vol.9, no.2, 2022, pager.8.

[60] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.32. See too, Tb Apriza Mulqi, Ahmad M. Ramli, Dadang Rahmat Hidayat, and Ranti Fauza Mayana., "Regulation on Broadcasting Rights in Indonesia Based on Law No. 28 of 2014 on Copyright and Law No. 32 Of 2022 on Broadcasting," *Journal of Intellectual Property Rights,* Vol.30, no.4, 2025, page.412.

[61] Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.26. See too, Seyed Mojtaba Hosseini Bamakan, and Saeed Banaeian Far., "Distributed and trustworthy digital twin platform based on blockchain and Web3 technologies," *Cyber Security and Applications,* Vol.3, no.2, 2025, page.243; Christos A. Makridis, and Joshua D. Ammons., "Governing the large language model commons: using digital assets to endow intellectual property rights," *Journal of Institutional Economics,* Vol.21, no.2, 2025, page.34.

[62] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no.2, 2025, page.392.

[63] I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.385.

[64] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.192.

unauthorized minting.[65] Several studies have shown that an NFT-IPFS-based system can reduce copyright registration time by up to 13% and significantly reduce maintenance costs.[66] The Directorate General of Intellectual Property (DJKI) can develop a national blockchain-based registry integrated with the IP Marketplace platform so that creators, including MSMEs and indigenous communities, can obtain immutable proof of ownership and more liquid commercialization channels.[67] Lazy minting, which has been shown to improve NFT sales performance, can also be adopted to lower barriers to entry for local creators.[68]

The third is enhancing institutional enforcement capacity. Effective enforcement requires not only strong laws but also capable institutions. Currently, law enforcement efforts are hindered by limited technical resources and fragmented coordination between agencies, platforms, and rights holders.[69] Strengthening the institutional capacity of law enforcement, expanding specialized cyber-IPR units, and establishing formal cooperation channels with digital service providers can significantly improve response times and investigative accuracy.

Regular enforcement actions serve as a deterrent. However, as seen with

[65] Weisheng Lu, and Liupengfei Wu., "A blockchain-based deployment framework for protecting building design intellectual property rights in collaborative digital environments," *Computers in Industry,* Vol.159, no.12, 2024, page.1041. See too, Weigang Ma, Jiaqi Qi, Minying Ye, and Yibo Zhang., "Blockchain Empowered Knowledge Resource Protection Model and Its Application," *IET Communications,* Vol.19, no.1, 2025; page.124.

[66] Kalangi Praveen Kumar, B. Uttej Reddy, and V. Asha Judi., "Patent own product rights using NFTs," In *AIP Conference Proceedings*, vol.3257, no.1, AIP Publishing LLC, 2025, page.193. See too, Arnold Bagas Kurniawan, and Hary Soeskandhi., "Perlindungan Hukum Kepada Pengguna Elektronik Banking Atas Kejahatan Carding Ditinjau Dari Undang-Undang Informasi dan Transaksi Elektronik," *SUPREMASI: Jurnal Hukum,* Vol.5, no.1, 2022, page.74; Vishnu Periyannan Palaniappan, Palaniappan Sellappan, and Kavitha Shanmugam., "A Study on the Role of Non-Fungible Tokens (NFTS) in Expanding the Intellectual Property (IP) Market," In *2024 Second, International Conference on Intelligent Cyber Physical Systems and Internet of Things*, IEEE, 2024, page.783.

[67] Yoga Prihastomo, and Yunianto A. Nugroho., "The development model of intellectual property marketplace in Indonesia," In *AIP Conference Proceedings*, Vol.2867, no.1, AIP Publishing LLC, 2024. Page.235. See too, I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.524.

[68] Mengyuan Fang, Yulin Fang, Chaoyue Gao, Alvin Chung Man Leung, and Qiang Ye., "The impact of "Lazy Minting" on seller performance in NFT marketplaces A transaction cost economics perspective," *Journal of Operations Management,* Vol.71, no.7, 2025, page.1023. See too, V. Henry Soelistyo Budi, Matahari Girodon-Hutagalung, and Jovita Irawati., "Integrating IPR Integrity and Freedom of Expression: A Normative Analysis," *Law Reform,* Vol.20, no.1, 2024, 158.

[69] Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.36. See too, Ujang Suratno, and Tri Setiady., "Strategic Intellectual Property Rights as Banking Credit Collateral Assets in Computerized Age," *International Journal of Cyber Criminology,* Vol.18, no.2, 2024, page.27.

widespread music piracy across streaming and social media platforms, inconsistent enforcement reduces credibility and diminishes creators' incentives to innovate.[70] Developing judicial guidelines and expanding case law precedents, areas where Indonesia currently lacks robust foundations, would also provide courts with clearer references for adjudicating digital IPR disputes. Given the low number of dedicated cyber copyright units, limited human resources familiar with blockchain technology, and fragmented coordination between the Directorate General of Intellectual Property Rights (DJKI), the Ministry of Communication and Information Technology, the Indonesian National Police (Polri), and the National Institute of Sciences, this has reduced the ability to conduct early detection, verification, and effective action against copyright infringement in the digital realm.[71] The establishment of a cross-agency Cyber Intellectual Property Rights Task Force, intensive training for judges and investigators on digital evidence and NFTs, and formal collaboration with global platforms (OpenSea, Spotify, TikTok) through a Memorandum of Understanding (MoU) will accelerate the response to infringement.[72] A sui generis model for Geographical Indications and Traditional Cultural Expressions involving participatory digital registration and proactive enforcement can also serve as a blueprint for communal protection in the digital age.[73]

The fourth is public awareness and education initiatives. A fundamental barrier to IPR protection in Indonesia is the low level of public understanding of copyright norms.[74] Many users unknowingly violate IPR due to a lack of awareness of creators' rights and the broader societal impacts of infringement. Educational programs, public campaigns, and accessible online resources are therefore essential to foster a culture that respects creativity. Increasing awareness would not only reduce unintentional violations but also strengthen the market for

[70] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.456.

[71] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.34. See too, Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.246.

[72] Nina Nurani, and Hafied Noor Bagja., "Sui Generis Geographical Indications: Reforming Indonesia's Intellectual Property Rights for Agricultural Protection," *International Journal of Law and Society,* Vol.4, no.2, 2025, page.313. See too, Setiyono Setiyono, Dinda Keumala, Ahmad Sabirin, and Nadia Nursantih., "Has Indonesia Safeguarded Traditional Cultural Expressions?," *Jambura Law Review,* Vol.6, no.2, 2024, page.224.

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legitimate content, thereby supporting economic growth in the creative sector.[75]

IPR protection benefits society at large by ensuring fair competition, encouraging innovation, and strengthening cultural and economic development.[76] Through effective public education, Indonesia can cultivate an environment where consumers trust the authenticity of digital products and creators receive the recognition and compensation they deserve.

However, low public understanding of copyright among both consumers and businesses is a major driver of unintentional infringement.[77] Massive educational programs through schools, universities, and digital campaigns targeting Gen Z and creative MSMEs will shift content consumption behavior from piracy to the use of legal services.[78] The integration of copyright materials and blockchain technology into higher education curricula, as well as digital creator certification, will create a generation that is not only creative but also respects the value of intellectual property.[79]

These four pillars, if implemented in an integrated manner, will create an adaptive, technology-driven, and equitable copyright protection ecosystem. The result is not only a significant reduction in violations, but also an increase in the contribution of a more inclusive digital-based creative economy from independent musicians, NFT artists, to communities of owners of traditional cultural expressions while strengthening Indonesia's competitiveness in the era of Society 5.0 and the global knowledge-based economy.[80]

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4. Conclusion

This study highlights that rapid digitalization has fundamentally changed how creative works are produced, distributed, and consumed, while simultaneously intensifying the challenges of copyright protection in Indonesia. Although Law Number 28 of 2014 on Copyright and the Electronic Information and Transactions Law provide essential protection for creators' moral and economic rights, they remain insufficient for addressing digital-specific infringements such as illegal streaming, encrypted file sharing, user-generated content misuse, and unauthorized minting of non-fungible tokens (NFTs). Enforcement is further constrained by limited institutional capacity, weak platform cooperation, and the absence of detailed legal provisions suited to contemporary digital ecosystems.

Strengthening Indonesia's copyright system therefore requires a combination of regulatory, technological, and educational strategies. Regulatory reforms should include clearer rules for platform liability, explicit recognition of blockchain-based assets, and the adoption of an efficient notice-and-takedown mechanism to ensure rapid removal of infringing content. Technological solutions, such as blockchain for copyright verification and content-filtering tools, can complement legal reforms by enabling more accurate monitoring and automated royalty protection. At the same time, improving public literacy about Intellectual Property Rights (IPR) is crucial, as low awareness remains a core driver of widespread infringement. Ultimately, enhancing IPR protection is not solely about safeguarding economic interests but also about fostering a creative, innovative, and competitive digital environment. By strengthening enforcement mechanisms, expanding public education, and improving regulatory clarity, Indonesia can build a more resilient copyright framework that supports creators while ensuring the sustainable growth of its digital creative economy.

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Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies

Bernard Nainggolan, Agus Joko Pramono, Stefan Koos

Abstract

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and Non-Fungible Tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

Keywords

Digital Copyright; Intellectual Property Rights; Legal Protection; Non-Fungible Tokens

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LEGAL PROTECTION OF INTELLECTUAL PROPERTY FOR DIGITAL WORKS BY UTILIZING EMERGING TECHNOLOGIES

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ABSTRACT

The advancement of digital technology has transformed access to information and creativity, enabling widespread distribution of digital works. However, this ease of access has led to significant challenges in enforcing Intellectual Property Rights (IPR), particularly in Indonesia, where legal frameworks like Law Number 28 of 2014 on Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions are tested by rampant digital infringements. This study examines the adequacy of existing Indonesian legal frameworks in protecting IPR in the digital era, focusing on gaps in enforcement and regulatory adaptation to emerging technologies such as streaming platforms and Non-Fungible Tokens (NFTs). Using a normative juridical method, this research analyzes relevant statutes, case law, and legal doctrines to assess their effectiveness in addressing digital IPR violations. The findings reveal that while Indonesia has a robust legal foundation, enforcement remains weak due to limited public awareness and inadequate mechanisms for addressing digital-specific infringements. This study emphasizes the need for regulatory reform, enhanced enforcement mechanisms, and targeted education to strengthen IPR protection, fostering innovation and economic competitiveness in Indonesia's digital landscape.

1. Introduction

Digitalization has significantly transformed the way society perceives and engages with creative work, leading to two prominent trends. First, there has been a marked increase in individuals producing creative works in digital formats, such as music, visual art, literature, and other media.[1] Digital tools provide creators with accessibility, flexibility, and efficiency, allowing them to develop and distribute their works more easily. Second, a growing population of users prefers to consume creative works on digital platforms, including streaming services for music and films, eBooks, and other forms of multimedia content. These platforms offer convenience, rapid access, and practical benefits, enabling users to enjoy works without physical storage limitations or long waiting periods. As a result, digitalization has not only expanded the avenues for creative production and consumption but has also shifted expectations regarding accessibility, immediacy, and convenience in creative industries.

However, the rapid rise of digital creative works has also created substantial challenges for copyright protection. Copyright provides creators with legal rights to control how their works are used and shared.[2] These rights include moral rights, such as recognition as the author, and economic rights, such as receiving royalties when the work is utilized. Protecting these rights in the digital era is increasingly difficult because digital works can be easily copied, shared, and modified. The proliferation of online platforms, including MOOCs, streaming services, and peer-to-peer networks, has amplified the ease of replication and distribution. In Indonesia, existing laws, including Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, face challenges in addressing emerging issues such as unauthorized streaming, misuse of Non-Fungible Tokens (NFTs), and illegal downloading.[3] Enforcement mechanisms remain limited for digital-specific violations, public awareness of copyright law is generally low, and judicial precedents regarding digital intellectual property rights are scarce. Consequently, creators' moral and economic rights are often inadequately protected, undermining both innovation and fair compensation for their work.[4]

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[1] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1619.

[2] Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.67.

[3] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.712.

[4] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1620. See too, Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1,

Advances in digital technology bring significant benefits but also introduce serious threats, particularly to younger generations who may not fully understand the legal implications of using digital platforms. The principles of information openness and easy access can facilitate potential violations of intellectual property rights.[5] The greater the accessibility of digital content, the higher the likelihood of unauthorized duplication or distribution. This issue is particularly critical in Indonesia, where enforcement of existing laws is inconsistent, and judicial decisions on digital IPR violations remain limited. Many digital works are accessed without acknowledging the creator or are used outside their intended purpose, such as for commercial exploitation without permission. Such practices can harm creators both morally, by denying recognition, and economically, by reducing income generated from their works.

Digital works have become increasingly popular among online users due to several advantages over physical products. Digital products are perceived as more practical, easier to use, and do not require physical storage space, unlike traditional media.[6] The process of downloading or streaming digital works is fast and efficient, allowing users to access content immediately without waiting for delivery or encountering physical limitations. This ease of access not only benefits consumers but also provides opportunities for creators to reach wider audiences, expanding market potential beyond traditional constraints. However, these same advantages also create vulnerabilities for intellectual property violations.[7]

In Indonesia, violations of intellectual property laws, especially concerning digital content, remain widespread. Many people still lack awareness of the importance of copyright, which leads to behaviors that harm creators or copyright owners.[8] The Ministry of Law and Human Rights, through the Directorate General of Intellectual Property Rights (*Direktorat Jenderal Kekayaan Intelektual/*DJKI), stated that piracy of music, films, software, and digital books still dominates IP violations. Online marketplaces and social media are often exploited to sell pirated content.[9] A DJKI report indicates that illegal streaming sites, chat apps, and social media platforms are the primary channels for violations. Authorities have blocked thousands of infringing sites and stated that internet anonymization tools are increasingly complicating law enforcement.[10]

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no.1, 2018, page.55; Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.1.

[5] Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.2.

[6] Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.56.

[7] Zulkifli, Almusawir, Almusawir, and Tira, A., "Communal intellectual property rights and creative industry development through integration patterns," *Jurnal Hukum Unissula*, Vol.41, no.3, 2025; 773.

[8] Candra Irawan., "Protection of traditional knowledge: A perspective on Intellectual Property Law in Indonesia," *The Journal of World Intellectual Property,* Vol.20, no.2, 2017, page.63.

[9] A. O. Victoria., "Kemenkum sebut pelanggaran KI di Indonesia marak pada era digital," *Antara News*, Februari 3, 2025.

[10] SYL., "Pelindungan Hak Cipta di Era Digital: DJKI Intensifkan Penegakan Hukum dan Edukasi Publik, *" Direktorat Jenderal Kekayaan Intelektual*, September 9, 2024. See too, DJKI., "Tantangan

Enforcement of unauthorized digital public performances has also been highlighted, such as when the DJKI held a hearing with the Indonesian Video Streaming Association (*Asosiasi Video Streaming Indonesia*/AVISI) and discovered unlicensed video content being broadcast in cafes/restaurants in Bali. A raid was even conducted to crack down on the practice.[11] Furthermore, according to a 2013 WIPO study, the level of software piracy in Indonesia is very high. This indicates that IPR violations are not limited to creative works, but also include software in general.

Irianti and Basri[12] concluded that many Indonesian users access illegal websites to stream or download films. They noted that social and cultural norms related to digital piracy remain deeply entrenched. The problem revolves around a weak public understanding of the importance of copyright, a lack of effective oversight, and technical challenges in enforcing digital law. Consequently, creators suffer moral and economic harm, while violations continue to grow and are difficult to control. The consequences of these violations extend beyond individual creators. They undermine the economic benefits of creative work, reduce incentives for producing new content, and may impede the growth of Indonesia's creative industries.[13]

Digitalization has brought significant changes to the creative industry in Indonesia. The legal framework for intellectual property rights (IPR), including Law Number 28 of 2014 concerning Copyright and Law Number 11 of 2008 concerning Electronic Information and Transactions (amended by Law Number 1 of 2024), has not been fully effective in addressing growing digital violations, such as unauthorized streaming, NFT misuse, and illegal downloading.[14] Digital tools increase accessibility and flexibility for creators and consumers, but law enforcement is often weak due to limited digital-specific mechanisms, low public

Membasmi Pelanggaran Kekayaan Intelektual di Era Digital*," Direktorat Jenderal Kekayaan Intelektual*, Febuary 3, 2025.

[11] DJKI., "Tantangan Membasmi Pelanggaran Kekayaan Intelektual di Era Digital*," Direktorat Jenderal Kekayaan Intelektual*, Febuary 3, 2025.

[12] R.A Diah Irianti P.S., and Herlina Basri., "Pelanggaran Hak Cipta Film Melalui Situs Ilegal di Indonesia," *Prosiding SENANTIAS: Seminar Nasional Hasil Penelitian dan Pengabdian Kepada Masyarakat*, Vol.6, no.1, 2025; 288–295.

[13] Dicky Ardiansyah, Nidhar Irham Muharram, Raja Satria Utama, Ridho Ahmad Bukhori, and R. B. P. Efendi., "Aspek Hukum Hak Kekayaan Intelektual Dalam Hak Cipta Indonesia," *Causa: Jurnal Hukum Dan Kewarganegaraan,* Vol.2, no.2, 2024, page.52.

[14] Dicky Ardiansyah, Nidhar Irham Muharram, Raja Satria Utama, Ridho Ahmad Bukhori, and R. B. P. Efendi., "Aspek Hukum Hak Kekayaan Intelektual Dalam Hak Cipta Indonesia," *Causa: Jurnal Hukum Dan Kewarganegaraan,* Vol.2, no.2, 2024, page.53. See too, Candra Irawan., "Protection of traditional knowledge: A perspective on Intellectual Property Law in Indonesia," *The Journal of World Intellectual Property,* Vol.20, no.2, 2017, page.65; Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.712; Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.68.

awareness, and a lack of judicial precedent.[15]

New technologies, including blockchain and NFTs, offer opportunities to improve IPR confirmation, transparency, and cost efficiency. The implementation of this technology in Indonesia has not been extensively analyzed, particularly regarding communal ownership and traditional cultural expressions.[16] Other gaps exist in NFT copyright, metadata protection, and permissionless tokenization, including the limited integration of positive law with Islamic principles and sui generis regimes for geographical indications or folklore.[17]

Empirical research addressing law enforcement in local contexts, such as music streaming, social media violations, and SME practices, is still limited.[18] Previous

[15] Paul M. Leonardi, and Jeffrey W. Treem., "Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication," *Organization studies,* Vol.41, no.12, 2020, page.1621. See too, Andry Setiawan, Rindia Fanny Kusumaningtyas, and Ivan Bhakti Yudistira, "Diseminasi Hukum Hak Cipta pada Produk Digital di Kota Semarang," *Jurnal Pengabdian Hukum Indonesia (Indonesian Journal of Legal Community Engagement),* Vol.1, no.1, 2018, page.57; Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.3.

[16] Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.23. See too, Weisheng Lu, and Liupengfei Wu., "A blockchain-based deployment framework for protecting building design intellectual property rights in collaborative digital environments," *Computers in Industry,* Vol.159, no.12, 2024, page.1040; Weigang Ma, Jiaqi Qi, Minying Ye, and Yibo Zhang., "Blockchain Empowered Knowledge Resource Protection Model and Its Application," *IET Communications,* Vol.19, no.1, 2025; page.123; Christos A. Makridis, and Joshua D. Ammons., "Governing the large language model commons: using digital assets to endow intellectual property rights," *Journal of Institutional Economics,* Vol.21, no.2, 2025, page.32; Vishnu Periyannan Palaniappan, Palaniappan Sellappan, and Kavitha Shanmugam., "A Study on the Role of Non-Fungible Tokens (NFTS) in Expanding the Intellectual Property (IP) Market," In *2024 Second, International Conference on Intelligent Cyber Physical Systems and Internet of Things*, IEEE, 2024, page.782; Leonardo Juan Ramirez Lopez, and Genesis Gabriela Morillo Ledezma., "Employing Blockchain, NFTs, and Digital Certificates for Unparalleled Authenticity and Data Protection in Source Code: A Systematic Review," *Computers,* Vol.14, no.4, 2025, page.131.

[17] Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.519. See too, Andres Guadamuz., "The treachery of images: non-fungible tokens and copyright," *Journal Of Intellectual Property Law and Practice,* Vol.16, no.12, 2021; 1374; Kalangi Praveen Kumar, B. Uttej Reddy, and V. Asha Judi., "Patent own product rights using NFTs," In *AIP Conference Proceedings*, vol.3257, no.1, AIP Publishing LLC, 2025, page.192; Nina Nurani, and Hafied Noor Bagja., "Sui Generis Geographical Indications: Reforming Indonesia's Intellectual Property Rights for Agricultural Protection," *International Journal of Law and Society,* Vol.4, no.2, 2025, page.312; Jan Schwiderowski, Asger Balle Pedersen, Jonas Kasper Jensen, and Roman Beck., "Value creation and capture in decentralized finance markets: Non-fungible tokens as a class of digital assets," *Electronic Markets,* Vol.33, no.1, 2023, page.45; Foteini Valeonti, Antonis Bikakis, Melissa Terras, Chris Speed, Andrew Hudson-Smith, and Konstantinos Chalkias., "Crypto collectibles, museum funding and OpenGLAM: challenges, opportunities and the potential of Non-Fungible Tokens (NFTs)," *Applied Sciences,* Vol.11, no.21, 2021, page.9931.

[18] Firman Freaddy Busroh, Fatria Khairo, and Sitta Saraya., "Reevaluating "First-to-File" vs the Legality Principle: Rethinking Justice for Original Rights Holders in Indonesia," *Jambe Law Journal* Vol.8, no.1, 2025; 432. See too, Jade Kouletakis, and Nkem Itanyi., *Decolonising Intellectual Property Law: An Afrocentric Approach,* Oxfordshire, Taylor & Francis, 2025, page.32; Novi Mirawanty, Muhammad Zilal Hamzah, and Freddy Harris., "Indonesia Data Protection Policy of Intellectual Property And Its Effect on the Economy," *OIDA International Journal of Sustainable*

research on digital markets and traditional knowledge documentation has demonstrated disparities in commercialization, but has not explored the unique risks of the digital economy and anti-theft strategies.[19] This study fills this gap by empirically assessing the effectiveness of Indonesian IPR law in the context of modern digital platforms, including streaming and NFTs. The novelty lies in identifying legal, technological, and enforcement gaps, as well as understanding the protection of creators' moral and economic rights in Indonesia's digital era. Thus, this study aims to assess the effectiveness of Indonesia's copyright and intellectual property laws in regulating digital works on emerging platforms, identify gaps that contribute to infringements, and explore ways to better protect creators' moral and economic rights. The research questions are: How effective are Indonesia's current copyright and intellectual property laws in regulating digital works on emerging platforms, such as streaming services and NFTs?; What legal, technological, and enforcement gaps contribute to copyright infringements on streaming platforms and in the misuse of NFTs in Indonesia?; and, How can Indonesia strengthen its legal framework and enforcement mechanisms to protect creators' moral and economic rights in the context of emerging digital technologies?

2. Research Methods

This research employs a normative juridical method supported by descriptive

Development, Vol.18, no.3, 2025, page.116; Tb Apriza Mulqi, Ahmad M. Ramli, Dadang Rahmat Hidayat, and Ranti Fauza Mayana., "Regulation on Broadcasting Rights in Indonesia Based on Law No. 28 of 2014 on Copyright and Law No. 32 Of 2022 on Broadcasting," *Journal of Intellectual Property Rights,* Vol.30, no.4, 2025, page.410; Nasrianti, Sanusi Sanusi, Azhari Azhari, and Ilyas Ilyas., "Legal Protection of Traditional Cultural Expressions in Aceh: A Comparative Legal Analysis of Islamic Law and Positive Law in Indonesia," *Al-Istinbath: Jurnal Hukum Islam,* Vol.10, no.1, 2025, page.90; I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.523; Fatimatuz Zahra., "Legal Review of Knock-off Culture in K-Pop-Inspired Outfits Based on Industrial Design Law," *Media Iuris* Vo,l.8, no.1, 2025, page.32.

[19] Hari Sutra Disemadi, Sholahuddin Al-Fatih, Ninne Zahara Silviani, Shelvi Rusdiana, and Emiliya Febriyani., "Revitalizing intellectual property rights in Indonesia: a Maqasid Al-Shariah perspective on communal ownership," *Al-Istinbath: Jurnal Hukum Islam,* Vol.9, no.2, 2024, page.632; Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.242; Yoga Prihastomo, and Yunianto A. Nugroho., "The development model of intellectual property marketplace in Indonesia," In *AIP Conference Proceedings*, Vol.2867, no.1, AIP Publishing LLC, 2024. Page.234; Laina Rafianti, Aam Suryamah, Afrizal Musdah Eka Putra, and Ahmad M. Ramli., "Swing the angklung tube in the digital economy era: based on intangible cultural heritage and intellectual property rights perspective," *Indonesian J. Int'l L.,* Vol.18, no.2, 2020, page.323; Setiyono Setiyono, Dinda Keumala, Ahmad Sabirin, and Nadia Nursantih., "Has Indonesia Safeguarded Traditional Cultural Expressions?," *Jambura Law Review,* Vol.6, no.2, 2024, page.223; Agung Sujatmiko, Mochamad Kevin Romadhona, Patrick Keizer, and Christoph Antons., "The legal reform of trademark protection and dispute mitigation: Lessons from licensing well-established brands in Indonesia," *Journal of Law and Legal Reform,* Vol.5, no.2, 2024; page.460.

qualitative analysis. The normative juridical approach is used to examine theories, concepts, legal doctrines, and regulations relevant to the protection and enforcement of Intellectual Property Rights (IPR) in Indonesia's digital ecosystem. Specifically, this research focuses on a critical analysis of the adequacy of Law Number 28 of 2014 concerning Copyright and Law Number 1 of 2024 as the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, particularly in addressing the challenges of the digital era.

To strengthen the analysis, this research incorporates descriptive analysis, which involves a systematic description and interpretation of how the current legal framework operates in practice. This research relies on secondary data, including laws and regulations, government policies, books, journal articles, and websites of competent legal authorities. Furthermore, several case studies concerning digital IPR infringement in Indonesia are analyzed to illustrate the challenges of real-world law implementation and enforcement. This triangulation approach allows for an understanding of regulatory gaps, barriers to law enforcement, and their implications for the protection of creators' moral and economic rights in the digital age.

3. Results and Discussion

3.1. Indonesia's Copyright and Intellectual Property Laws on Emerging Digital Platforms

Indonesia's current intellectual property legal framework comprises Law Number 28 of 2014 concerning Copyright (the Copyright Law) and Law Number 11 of 2008 concerning Electronic Information and Transactions (the ITE Law), as amended by Law Number 1 of 2024. Law 28/2014 establishes moral and economic rights for creators, covering the reproduction, public performance, distribution, and adaptation of copyrighted works. Article 2 recognizes creators' moral rights, including the right to be recognized as creators, while Article 9 protects economic rights by authorizing creators to authorize the reproduction, distribution, rental, and public performance of their works. These provisions are crucial in regulating digital content disseminated through streaming platforms, online marketplaces, and emerging technologies such as NFTs.

The ITE Law complements copyright law by regulating the use and dissemination of electronic information, including digital works. Article 30 prohibits unauthorized access to electronic systems or content, which can be applied to digital piracy and illegal streaming activities. Article 32 addresses the illegal use of electronic information for commercial purposes, offering a framework for prosecuting individuals or platforms that distribute copyrighted content without authorization.[20]

In its implementation, relevant authorities, such as the Directorate General of Intellectual Property, have actively implemented this law to monitor and control unauthorized digital distribution. For example, the DJKI held formal discussions with the Video Streaming Association and took enforcement action against bars and cafes in Bali that broadcast copyrighted video content without proper

[20] Muhammad Junaidi, Hendro Widodo, and Ahmed Kheir Osman., "The Legal Security in Electronic Transactions to Protect Freedom of Speech: The Concept of Forming Legislation on Electronic Transactions," *Jurnal Hukum* 40, no.2, 2024; 307-321.

authorization.[21] These actions demonstrate that Law 28/2014 provides a legal basis for intervening in the public display of digital works, allowing regulators to impose sanctions and demand compliance from violators.

The Directorate General of Intellectual Property (*Direktorat Jenderal Kekayaan Intelektual/*DJKI) has demonstrated active involvement in addressing illegal streaming activities through direct collaboration with industry associations, underscoring the importance of collaboration between regulators and stakeholders. For example, the DJKI held a formal meeting with the Indonesian Video Streaming Association to discuss and address illegal streaming practices. During the meeting, the DJKI reported on enforcement actions taken against bars and cafes in Bali for broadcasting copyrighted video content without proper licenses.[22] This case demonstrates that Indonesia has a legal framework capable of producing concrete action to curb unauthorized public displays of digital works. This coordinated effort facilitates the identification of violations at physical locations where digital content is publicly distributed and demonstrates the regulator's ability to interact directly with the industry sector to support intellectual property rights compliance.

Unlicensed public streaming activities remain widespread. Much digital content is consumed in cafes, bars, and various public spaces without obtaining official permission from copyright owners. This situation highlights limitations in monitoring and enforcement, as violations occur at widely dispersed digital consumption points and are difficult to monitor in real time. Existing legal mechanisms do cover this type of violation, but enforcement capacity is often hampered by limited human and technical resources, as well as challenges in tracking and prosecuting each violation. The high frequency of violations highlights the significant gap between existing regulations and practical implementation on the ground, and demonstrates the need for more adaptive enforcement strategies for digital content consumption in public spaces.

In the context of Non-Fungible Tokens (NFTs), the Directorate General of Intellectual Property has explored the potential of blockchain technology as a tool to enhance protection for digital creators. NFTs combined with smart contracts allow for automatically encoded royalty and usage rights, allowing creators to receive economic benefits every time their work is used.[23] A study on the OpenSea platform shows that the Indonesian Copyright Law (Law 28/2014) does not explicitly regulate ownership and copyright for NFT-based works, creating legal

[21] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025. See too, Solihah Sari Rahayu, Novianti Syarifah, and Muhamad Dani Somantri., "Jual Beli Produk Imitasi Fashion Perspektif Undang-Undang Hak Cipta Nomor 28 Tahun 2014 Dan Hukum Islam," *Mutawasith: Jurnal Hukum Islam,* Vol.2, no.2, 2019, page.210.

[22] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

[23] AMO., "Kolaborasi DJKI, Teknologi NFT & Blockchain Bantu Mudahkan Kreator Seni Indonesia," *DJKI*, October 30, 2022.

ambiguity and potential future disputes.[24] Further legal analysis confirms that ownership of an NFT does not automatically grant copyright to the underlying work; These tokens reflect digital ownership, not creator rights, leaving creators' creativity and economic interests vulnerable to abuse.[25]

Smart contracts offer a technical solution for enforcing terms of use and royalty distribution, significantly reducing the risk of unauthorized use and protecting creators' economic rights.[26] However, jurisdictional issues remain a serious obstacle to international law enforcement, as violators located outside Indonesia are difficult to prosecute through national legal mechanisms. In practice, NFT creators can often only request content removal through international platforms like OpenSea, with no guarantee of comprehensive legal redress.[27] These limitations highlight the need to develop clearer legal guidelines for blockchain-based digital works, as well as cross-border enforcement mechanisms that can bridge the gap between new technologies and existing legal systems in Indonesia.

The DJKI's efforts in both cases (illegal streaming and NFTs) demonstrate the regulator's ability to address violations, but also reveal significant challenges. Public streaming and NFT transactions require a deeper understanding of digital technology, the ability to coordinate with various parties, and more adaptive legal implementation. Case data shows that legal protection for digital content remains limited in terms of practical reach, regulatory clarity, and enforcement capacity, necessitating continued improvements in policy, technology, and public education.

This shows that Implementation of Indonesia's copyright and intellectual property laws on emerging digital platforms shows a mixture of successes and persistent gaps. The authorities have proactively monitored and collaborated with industry associations. This reflects the ability of the regulatory framework to produce concrete actions against unauthorized public streaming.[28] Enforcement efforts illustrate how legal provisions under UU Number 28/2014 and UU Number 11/2008 can be operationalized to address violations. These measures demonstrate that regulators can leverage statutory authority to demand compliance, impose sanctions, and encourage adherence to copyright obligations in physical venues hosting digital content.

Despite these interventions, the scale and nature of digital content consumption create enforcement challenges. Public streaming often occurs in widely dispersed locations, making real-time monitoring resource-intensive. Limited staffing,

[24] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.37.

[25] I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.380.

[26] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.389.

[27] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.232.

[28] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

technological tools, and technical capacity hinder systematic enforcement, while digital content can be captured, redistributed, or streamed simultaneously to multiple devices, amplifying the potential for infringement.[29] Social media platforms and OTT services further complicate monitoring, as user-generated sharing and peer-to-peer distribution circumvent traditional licensing channels, creating a persistent enforcement gap. The ITE Law (Articles 30 and 32) provides legal grounds to prosecute unauthorized access and commercial misuse, yet practical enforcement remains uneven across digital ecosystems.[30]

In the context of Non-Fungible Tokens (NFTs), the authorities have explored blockchain integration as a tool to encode economic rights through smart contracts.[31] These contracts automate royalty payments and usage conditions, theoretically aligning with Article 9 of UU Number 28/2014. However, legal ambiguity remains: ownership of an NFT does not inherently confer copyright over the underlying work, leaving creators vulnerable to misuse in international marketplaces such as OpenSea.[32] Enforcement is further complicated by jurisdictional constraints, as violators located outside Indonesia cannot be effectively prosecuted under domestic law, requiring reliance on platform-based takedown mechanisms.[33]

The integration of blockchain and smart contracts demonstrates technological potential to enhance legal protections, yet practical implementation is still limited. Regulatory guidance for NFT minting, licensing, and cross-border transactions is underdeveloped, and creators often face uncertainty regarding how existing copyright law applies to these novel digital assets.[34] Additionally, the DJKI's efforts

[29] Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.243. See too, Tasya Safiranita Ramli, Sherly Ayuna Putri, Amelia Cahyadini, Andreana Lestari, and Rizki Fauzi., "Digital platform responsibility on administering royalty for music creators from the perspective of copyright law," *NTUT Journal of Intellectual Property Law and Management*, Vol.12, no.1, 2023, page.15.

[30] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.30. See too, Diana Silfiani., "Indonesian legal protection for song commercialization and music copyrights in digital platforms," *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law),* Vol.9, no.2, 2022, pager.7.

[31] AMO., "Kolaborasi DJKI, Teknologi NFT & Blockchain Bantu Mudahkan Kreator Seni Indonesia," *DJKI*, October 30, 2022.

[32] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.38. See too, I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.381.

[33] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.234.

[34] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.390. See too, Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1,

must balance technology adoption with public education and compliance promotion, as limited awareness among creators and consumers contributes to ongoing infringements in both streaming and NFT markets.[35]

3.2. Legal, Technological, and Enforcement Gaps Contributing to Copyright Infringements

The rapid development of information technology has created a wide range of digital products with substantial economic value, while simultaneously presenting new challenges for copyright protection. Ensuring harmony between technological progress and legal safeguards is essential for sustaining creativity and protecting the creative industry. Strong legal protection motivates creators to continue producing innovative works, provides fair economic benefits, and supports a healthy creative ecosystem.[36] Indonesia's digital landscape has expanded quickly through streaming platforms, online marketplaces, social media, and blockchain-based innovations such as NFTs. Although these developments offer new opportunities, they also increase the risk of unauthorized access, duplication, and distribution of digital content. The ease of accessing digital works has often been exploited by parties who disseminate copyrighted material without permission, resulting in significant copyright violations.

Law Number 28 of 2014 on Copyright guarantees creators' moral and economic rights, including control over reproduction and distribution of digital works. However, the law does not clearly regulate several platform-specific issues, such as illegal streaming, unauthorized downloads, and the misuse of user-generated content.[37] Likewise, Law Number 1 of 2024, which amends the Electronic Information and Transactions Law, provides general provisions for digital transactions but lacks detailed mechanisms to address complex digital IPR infringements, particularly those involving peer-to-peer sharing or decentralized technologies.

The Copyright Law recognizes creators' exclusive rights to reproduction, distribution, adaptation, and communication of works to the public. These provisions are conceptually aligned with digital distribution models, yet the law

2024, page.24; Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.520.

[35] Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.244. See too, Tasya Safiranita Ramli, Ahmad M. Ramli, Huala ADolf, Eddy Damian, and Miranda Risang Ayu Palar., "Over-the-top media in digital economy and society 5.0," *Journal of Telecommunications and the Digital Economy,* Vol.8, no.3, 2020, page.61.

[36] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.190. See too, Niru Anita Sinaga., "Pentingnya Perlindungan Hukum Kekayaan Intelektual Bagi Pembangunan Ekonomi Indonesia," *Jurnal Hukum Sasana* Vol.6, no.2, 2020, page.150; Ramon Nofrial, Talib Adnan Abood, Haider Ahmed Shihab, and Adhi Budi Susilo., "The Consumer Protection in The Balance of Business Actors and Consumers: A Paradigm of Justice," *Jurnal Hukum* 41, no.1, 2025, page.81.

[37] Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.69.

lacks explicit mechanisms tailored to digital infringements, such as illegal streaming, peer-to-peer file sharing, automated scraping, or the circulation of copyrighted content via encrypted platforms.[38] As a result, enforcement agencies must rely on general provisions that were drafted with traditional, offline forms of infringement in mind.

A persistent problem lies in the absence of a statutory notice-and-takedown mechanism, unlike the Digital Millennium Copyright Act (DMCA) in the United States, which obliges platforms to promptly remove infringing content upon notification (United States Copyright Office, 1998). Without such a mechanism, Indonesian regulators cannot compel global platforms YouTube, Telegram, Discord, TikTok, or NFT marketplaces to take swift corrective action. This creates a severe gap in the speed of enforcement: infringing digital content can be duplicated, mirrored, or redistributed faster than regulators can issue administrative warnings.

Moreover, cross-border jurisdictional limitations significantly weaken Indonesia's legal reach. Many digital platforms operate servers overseas, and individuals minting NFTs or redistributing illegal streams may reside outside Indonesia. The Copyright Law does not address the complexity of enforcing rights against foreign-based violators, and the ITE Law lacks implementing provisions for international cooperation on digital IP crimes.[39]

Similar gaps appear in the treatment of emerging technologies. Current legislation does not define the legal status of NFTs, nor does it regulate smart contracts used to embed royalty conditions.[40] Ownership of an NFT remains separate from ownership of the underlying copyright, creating legal ambiguity that has already led to unauthorized minting and sale of Indonesian digital artworks on global

[38] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.715. See too, Khaled Khwaileh, and Ena Kazić., "Illicit Trade in Counterfeit Medicines: Challenges, Solutions, and a Case Study of Indonesia," *Solutions, and a Case Study of Indonesia,* Vol.2, no.3 2025, page.234; Dwi Tiara Kurnilasari, Annalisa Yahanan, and Rohani Abdul Rahim., "Indonesiaâ€™ s Traditional Knowledge Documentation in Intellectual Property Rightsâ€™ Perspective," *Sriwijaya Law Review,* Vol.2, no.4, 2018, page.117; Khwarizmi Maulana Simatupang., "Tinjauan yuridis perlindungan hak cipta dalam ranah digital," *Jurnal Ilmiah Kebijakan Hukum,* Vol.15, no.1, 2021, page.70.

[39] Aprillio Pasya Mahendra Nim., "Kajian Yuridis Terhadap Hak Cipta Di Dalam Non-Fungible Token (Nft) Pada Platform Opensea," *Jurnal Fatwa Hukum,* Vol.5, no.4, 2022, page.236. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.32.

[40] Syaidina Akasyah, Deslaely Putranti, and Reza Ajeng Febiani., "Perlindungan Hak Cipta terhadap NFT (Non-Fungible Token) di Indonesia (Studi pada Platform Opensea)," *Borobudur Law and Society Journal* 2, no.2, 2023, page.40. See too, I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.383.

blockchain marketplaces.[41] Without explicit statutory provisions, creators have little recourse other than platform-level takedowns.

Comparative analysis with the EU Copyright Directive (Directive 2019/790) shows that Indonesia has not adopted proactive measures requiring platforms to implement content recognition technologies or automated upload filters.[42] This leaves a gap in preventive enforcement at the platform level, allowing unauthorized uploads and redistribution to persist without structural barriers.

In addition, with the ease with which a digital work can be downloaded or accessed, the work is vulnerable to piracy, duplication or modification without permission from the original owner. This is not only financially detrimental to the copyright owner, but can also damage the reputation and integrity of the work.[43] For instance, unauthorized distribution of digital music or films on platforms like Telegram or illegal streaming sites has led to significant economic losses, undermining the incentives for creators and the creative industry's growth. Moreover, unauthorized changes or modifications may alter the original meaning or context of the work. These violations highlight the legal implications of inadequate enforcement mechanisms, which fail to deter digital piracy and protect creators' rights in Indonesia's rapidly evolving digital landscape. Understanding these risks is important for society to be able to use digital products wisely and ethically. In today's digital world, protecting copyrights is more important than ever. It's essential for authorities to take action and for people to understand why respecting copyright matters g.[44]

The rapid development of digital technologies has enabled sophisticated methods of evasion by infringers. Encrypted messaging platforms such as Telegram, WhatsApp, and Discord allow the circulation of copyrighted films, music, and books in closed groups that are nearly impossible for authorities to monitor.[45] Advances in anonymizing technologies, including VPNs, proxy servers, cloud mirroring, and decentralized file-sharing systems, make user identities difficult to trace. Platforms hosting illegal streams frequently relocate to new domains, switching servers across multiple jurisdictions to avoid takedowns. This technological agility far outpaces the enforcement capacity of DJKI and cyber authorities. On streaming platforms, digital piracy occurs through real-time screen capture software, data interception tools, or modified applications, allowing infringing content to be

[41] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.717.

[42] Vo Trung Hau1, and Vo Hoang Thong., "Copyright protection for digital content on online platforms: A comparative study of Vietnamese and European Union law," *International Journal of Law* Vol,11, no.10, 2025, page.151.

[43] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.719.

[44] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.453.

[45] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.191.

redistributed instantly across multiple sites. Streaming mirrors and IPTV boxes are widely available, enabling cafes and entertainment venues to publicly screen copyrighted content without proper licenses.[46]

Blockchain technology presents additional difficulties. NFTs can embed copyrighted content permanently on decentralized networks, making removal nearly impossible. Even if platforms like OpenSea remove the listed token, the original digital file may remain accessible on the IPFS network or mirrored on third-party sites. Smart contracts also operate autonomously, limiting human intervention to halt infringing activities.[47] Collectively, these technological challenges illustrate that enforcement agencies lack the digital forensics capabilities, automated monitoring tools, and cross-platform interoperability needed to detect and respond to violations at scale. Although the authorities have collaborated with industry associations and conducts field enforcement, the scale of infringement across digital platforms far exceeds enforcement capacity.[48] With millions of daily uploads across social media, streaming services, and NFT marketplaces, manual monitoring is insufficient, and no centralized digital monitoring system exists to track and identify infringing content in real time. Weak interagency coordination further hampers enforcement. Digital copyright violations often fall between overlapping jurisdictions of DJKI, Kominfo, and cybercrime units, leading to fragmented responses. The enforcement process is also slowed by the absence of fast-track judicial or administrative procedures for digital IP cases, unlike the expedited processes available in DMCA-style systems.

A significant challenge is low public understanding of IPR. Many users believe that streaming a film in a café, downloading music from Telegram, or minting another person's artwork as an NFT is harmless or inconsequential.[49] This cultural normalization of digital piracy perpetuates widespread violations. Limited access to affordable legal content also contributes to reliance on illegal platforms, especially among younger users and lower-income groups.[50] Digital creators

[46] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025. See too, Tasya Safiranita Ramli, Ahmad M. Ramli, Huala ADolf, Eddy Damian, and Miranda Risang Ayu Palar., "Over-the-top media in digital economy and society 5.0," *Journal of Telecommunications and the Digital Economy,* Vol.8, no.3, 2020, page.62.

[47] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no. 2, 2025, page.391.

[48] DMS., "Tegakan Hukum KI Di Dunia Digital, DJKI Terima Audiensi Dari Asosiasi Vidio Streaming Indonesia," *Direktorat Jenderal Kekayaan Intelektual*, March 18, 2025.

[49] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.454. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.33.

[50] Asad Ullah, Qingyu Zhang, and Mansoora Ahmed., "The influence of intellectual property rights protection on contribution efforts of participants in online crowdsourcing contests," *Computers in Human Behavior,* Vol.12, no.3, 2021, page.106.

themselves often underestimate the importance of registering their works or using digital rights management tools. Many rely solely on platform timestamps without pursuing formal copyright registration, leaving them legally vulnerable when disputes arise.[51]

The cumulative effect of legal, technological, and enforcement gaps significantly undermines the sustainability of Indonesia's creative industry. Unauthorized redistribution of music, film, and digital art leads to substantial economic losses, reducing creators' royalties and deterring innovation.[52] Public mistrust grows when original creators cannot maintain control over the integrity of their work, especially when unauthorized modifications or AI-generated derivatives circulate widely.

For digital artists, the rise of NFTs presents both opportunity and risk. Without regulatory certainty, creators face exposure to plagiarism, unauthorized minting, and loss of revenue, while consumers risk purchasing NFTs that do not convey legitimate rights. The absence of cross-border enforcement mechanisms further diminishes the protective value of Indonesian copyright law in global digital markets. Meanwhile, the creative industry struggles to compete with illegal platforms offering free access to copyrighted works. This discourages investment in local content production, undermines the long-term viability of streaming platforms operating legally, and limits Indonesia's competitiveness in the global digital economy.[53]

3.3. Strategies to Strengthen Legal Framework and Enforcement Mechanisms

Strengthening Indonesia's legal and institutional capacity to protect Intellectual Property Rights (IPR) in the digital environment requires a comprehensive strategy that aligns regulatory reforms, technological innovation, enforcement enhancements, and public education. As digital platforms expand rapidly ranging from streaming services and social media to decentralized blockchain systems copyright infringements are becoming more sophisticated and harder to detect. These violations not only undermine the economic rights of creators but also weaken consumer trust and the overall integrity of the creative industry.[54] To ensure long-term sustainability, Indonesia must adopt adaptive strategies capable

[51] Iin Indriani., "Hak Kekayaan Intelektual: Perlindungan Hukum Terhadap Hak Cipta Karya Musik," *Jurnal Ilmu Hukum,* Vol.7, no.2, 2018, page.254. See too, Helitha Novianty Muchtar, A. M. Ramli, M. R. Ayu, R. R. Permata, S. Dewi, D. E. Sukarsa, and T. Safiranita., "Stimulasi Urgensi Perlindungan Kekayaan Intelektual Karya Kreatif Dan Inovatif Karya Siswa Sma Negeri 8 Bandung Dalam Mendukung Ekonomi Digital," *Kumawula: Jurnal Pengabdian Kepada Masyarakat,* Vol.4, no.1, 2021, page.69.

[52] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.455. See too, Niru Anita Sinaga., "Pentingnya Perlindungan Hukum Kekayaan Intelektual Bagi Pembangunan Ekonomi Indonesia," *Jurnal Hukum Sasana* Vol.6, no.2, 2020, page.151.

[53] Harish Suryavanshi., "India's Intellectual Property Rights (IPR) Regime & Global Economic Influence," *Int'l. In-House Counsel J.,* Vol.11, no.2, 2017, page.4.

[54] Asad Ullah, Qingyu Zhang, and Mansoora Ahmed., "The influence of intellectual property rights protection on contribution efforts of participants in online crowdsourcing contests," *Computers in Human Behavior,* Vol.12, no.3, 2021, page.107.

of responding to new forms of violations while reinforcing foundational legal principles.

In this context, Indonesia can strengthen copyright and intellectual property protection in the digital realm through four complementary strategic pillars: substantive legal reform, blockchain technology integration, institutional enforcement capacity enhancement, and public education and awareness. These four pillars are essential given the rapid development of digital platforms, NFTs, metaverses, and OTTs, which continue to generate new modes of infringement.[55]

The first is strengthening substantive legal provisions and regulatory clarity. Indonesia's core legal instruments (Law Number 28 of 2014 on Copyright and the Electronic Information and Transactions Law) provide essential protection for the moral and economic rights of creators. However, both laws face structural limitations in addressing contemporary digital challenges. Copyright Law 28/2014 does not yet regulate platform-specific issues such as automated content distribution, user-generated content disputes, or cross-border infringements common in streaming and file-sharing networks.[56] Likewise, the ITE Law, although central to digital governance, lacks tailored mechanisms for responding to complex online violations, including algorithm-driven reposting, deepfake manipulation, or unauthorized use of digital assets such as NFTs.[57]

To strengthen these frameworks, Indonesia may draw on established international models. The United States' Digital Millennium Copyright Act (DMCA) demonstrates the effectiveness of a structured notice-and-takedown system, enabling platforms to remove infringing content swiftly and reducing the spread of illegal material (United States Copyright Office, 1998). Similarly, the European Union's Directive 2019/790 obliges platforms to deploy proactive content-filtering technologies to prevent unauthorized uploads.[58] Adapting these mechanisms would significantly

[55] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.31. See too, Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum Unissula,* Vol.40, no.2, 2024, page.244; WasswaShafik., "Exploring NFTs and Metaverse Collaborations: Innovations, Opportunities, and Challenges," *Sustainable Branding, Cultural Intelligence and Co-Marketing,* Vol.2, no.1, 2026, page.253.

[56] Harry Randy Lalamentik., "Kajian Hukum Tentang Hak Terkait (Neighboring Right) Sebagai Hak Ekonomi Pencipta Berdasarkan Undang-Undang Hak Cipta Nomor 28 Tahun 2014," *Lex Privatum* Vol.6, no.6, 2018, page.332.

[57] Gabriella Ivana, and Andriyanto Adhi Nugroho., "Akibat Kekosongan Hukum Terhadap Non-Fungible Token Sebagai Pelanggaran Hak Kekayaan Intelektual," *Jurnal USM Law Review,* Vol.5, no.2, 2022, page.720. See too, Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.34.

[58] Vo Trung Hau1, and Vo Hoang Thong., "Copyright protection for digital content on online platforms: A comparative study of Vietnamese and European Union law," *International Journal of Law* Vol,11, no.10, 2025, page.152.

enhance Indonesia's ability to manage large-scale digital infringements.

The substantive legal reform and strengthening the regulatory framework do provide a foundation for protecting the moral and economic rights of creators, but they do not explicitly regulate digital platforms' responsibilities for royalty distribution, notice-and-takedown for UGC, or the separation of NFT ownership from copyright of the underlying work.[59] The adoption of a DMCA-style notice-and-takedown mechanism and proactive filtering obligations as stipulated in EU Directive 2019/790 could serve as a reference for incorporating "safe harbor with responsibility" provisions for OTT and social media platforms.[60] In addition, specific regulations regarding smart contracts and automatic royalties on NFTs and the metaverse need to be formulated immediately to create legal certainty.[61]

The second is expanding technological enforcement and blockchain integration. Technological advancement must complement legal reform. Blockchain technology offers significant potential for improving copyright verification, ownership authentication, and royalty tracking. Smart contracts embedded within digital works or NFTs can automate payment flows and ensure transparent use of creative assets, thereby protecting creators' economic rights.[62] However, without explicit legal recognition of tokenized ownership and its distinction from copyright ownership, disputes will continue to arise, as seen in repeated instances of unauthorized NFT minting on global platforms.[63]

Indonesia's IPR authority can strengthen enforcement by promoting blockchain-based registration systems and digital watermarking technologies to track content distribution. These innovations would enable detection of piracy on encrypted applications where traditional enforcement mechanisms face limitations due to

[59] Debdeep Das., "Tokenized Art: The Implications of Copyright Law on NFTs," *Journal of Intellectual Property Rights,* Vol.30, no.5, 2025, page.521. See too, Diana Silfiani., "Indonesian legal protection for song commercialization and music copyrights in digital platforms," *Padjadjaran Jurnal Ilmu Hukum (Journal of Law),* Vol.9, no.2, 2022, pager.8.

[60] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.32. See too, Tb Apriza Mulqi, Ahmad M. Ramli, Dadang Rahmat Hidayat, and Ranti Fauza Mayana., "Regulation on Broadcasting Rights in Indonesia Based on Law No. 28 of 2014 on Copyright and Law No. 32 Of 2022 on Broadcasting," *Journal of Intellectual Property Rights,* Vol.30, no.4, 2025, page.412.

[61] Amani Alqarni., "A blockchain-based solution for transparent intellectual property rights management: smart contracts as enablers," *Kybernetes* Vol.2, no.1, 2024, page.26. See too, Seyed Mojtaba Hosseini Bamakan, and Saeed Banaeian Far., "Distributed and trustworthy digital twin platform based on blockchain and Web3 technologies," *Cyber Security and Applications,* Vol.3, no.2, 2025, page.243; Christos A. Makridis, and Joshua D. Ammons., "Governing the large language model commons: using digital assets to endow intellectual property rights," *Journal of Institutional Economics,* Vol.21, no.2, 2025, page.34.

[62] Dzaky Agusman., "Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital," *Jurnal Teknologi dan Manajemen Industri Terapan,* Vol.4, no.2, 2025, page.392.

[63] I. Made Putra Miasa, and Putri Triari Dwijayanthi., "Perlindungan Hukum terhadap Hak Kekayaan Intelektual Karya Cipta Non-Fungible Token (NFT)," *Kertha Semaya*, Vol.13, no.3, 2025, page.385.

platform anonymity.[64] This integration of blockchain and NFT technology as a transparent and efficient enforcement instrument will enable incorruptible ownership records, automated royalty distribution, and the prevention of unauthorized minting.[65] Several studies have shown that an NFT-IPFS-based system can reduce copyright registration time by up to 13% and significantly reduce maintenance costs.[66] The Directorate General of Intellectual Property (DJKI) can develop a national blockchain-based registry integrated with the IP Marketplace platform so that creators, including MSMEs and indigenous communities, can obtain immutable proof of ownership and more liquid commercialization channels.[67] Lazy minting, which has been shown to improve NFT sales performance, can also be adopted to lower barriers to entry for local creators.[68]

The third is enhancing institutional enforcement capacity. Effective enforcement requires not only strong laws but also capable institutions. Currently, law enforcement efforts are hindered by limited technical resources and fragmented coordination between agencies, platforms, and rights holders.[69] Strengthening the

[64] Alifia Bissil Mikafa, Tioma R. Hariandja, and Muhammad Hoiru Nail., "Perlindungan Hukum Pemilik Hak Cipta Terkait Pembajakan Karya Sinematografi Pada Platform Telegram," *Welfare State Jurnal Hukum,* Vol.1, no.2, 2022; page.192.

[65] Weisheng Lu, and Liupengfei Wu., "A blockchain-based deployment framework for protecting building design intellectual property rights in collaborative digital environments," *Computers in Industry,* Vol.159, no.12, 2024, page.1041. See too, Weigang Ma, Jiaqi Qi, Minying Ye, and Yibo Zhang., "Blockchain Empowered Knowledge Resource Protection Model and Its Application," *IET Communications,* Vol.19, no.1, 2025; page.124.

[66] Kalangi Praveen Kumar, B. Uttej Reddy, and V. Asha Judi., "Patent own product rights using NFTs," In *AIP Conference Proceedings*, vol.3257, no.1, AIP Publishing LLC, 2025, page.193. See too, Arnold Bagas Kurniawan, and Hary Soeskandhi., "Perlindungan Hukum Kepada Pengguna Elektronik Banking Atas Kejahatan Carding Ditinjau Dari Undang-Undang Informasi dan Transaksi Elektronik," *SUPREMASI: Jurnal Hukum,* Vol.5, no.1, 2022, page.74; Vishnu Periyannan Palaniappan, Palaniappan Sellappan, and Kavitha Shanmugam., "A Study on the Role of Non-Fungible Tokens (NFTS) in Expanding the Intellectual Property (IP) Market," In *2024 Second, International Conference on Intelligent Cyber Physical Systems and Internet of Things*, IEEE, 2024, page.783.

[67] Yoga Prihastomo, and Yunianto A. Nugroho., "The development model of intellectual property marketplace in Indonesia," In *AIP Conference Proceedings*, Vol.2867, no.1, AIP Publishing LLC, 2024. Page.235. See too, I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.524.

[68] Mengyuan Fang, Yulin Fang, Chaoyue Gao, Alvin Chung Man Leung, and Qiang Ye., "The impact of "Lazy Minting" on seller performance in NFT marketplaces A transaction cost economics perspective," *Journal of Operations Management,* Vol.71, no.7, 2025, page.1023. See too, V. Henry Soelistyo Budi, Matahari Girodon-Hutagalung, and Jovita Irawati., "Integrating IPR Integrity and Freedom of Expression: A Normative Analysis," *Law Reform,* Vol.20, no.1, 2024, 158.

[69] Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.36. See too, Ujang Suratno, and Tri Setiady., "Strategic Intellectual Property Rights as Banking Credit Collateral

institutional capacity of law enforcement, expanding specialized cyber-IPR units, and establishing formal cooperation channels with digital service providers can significantly improve response times and investigative accuracy.

Regular enforcement actions serve as a deterrent. However, as seen with widespread music piracy across streaming and social media platforms, inconsistent enforcement reduces credibility and diminishes creators' incentives to innovate.[70] Developing judicial guidelines and expanding case law precedents, areas where Indonesia currently lacks robust foundations, would also provide courts with clearer references for adjudicating digital IPR disputes. Given the low number of dedicated cyber copyright units, limited human resources familiar with blockchain technology, and fragmented coordination between the Directorate General of Intellectual Property Rights (DJKI), the Ministry of Communication and Information Technology, the Indonesian National Police, and the National Institute of Sciences, this has reduced the ability to conduct early detection, verification, and effective action against copyright infringement in the digital realm.[71] The establishment of a cross-agency Cyber Intellectual Property Rights Task Force, intensive training for judges and investigators on digital evidence and NFTs, and formal collaboration with global platforms (OpenSea, Spotify, TikTok) through a Memorandum of Understanding (MoU) will accelerate the response to infringement.[72] A sui generis model for Geographical Indications and Traditional Cultural Expressions involving participatory digital registration and proactive enforcement can also serve as a blueprint for communal protection in the digital age.[73]

The fourth is public awareness and education initiatives. A fundamental barrier to IPR protection in Indonesia is the low level of public understanding of copyright norms.[74] Many users unknowingly violate IPR due to a lack of awareness of

Assets in Computerized Age," *International Journal of Cyber Criminology,* Vol.18, no.2, 2024, page.27.

[70] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.456.

[71] Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., "Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge," *International Journal of Criminal Justice Sciences,* Vol.19, no.2, 2024, page.34. See too, Hulman Panjaitan, Andrew Betlehn, Tomson Situmeang, Md Zubair Kasem Khan, and Mahadi Hasan Miraz., "Music copyright protection in the digital era: Legal framework and strategies for enforcement," *Jurnal Hukum UNISSULA,* Vol.40, no.2, 2024, page.246.

[72] Nina Nurani, and Hafied Noor Bagja., "Sui Generis Geographical Indications: Reforming Indonesia's Intellectual Property Rights for Agricultural Protection," *International Journal of Law and Society,* Vol.4, no.2, 2025, page.313. See too, Setiyono Setiyono, Dinda Keumala, Ahmad Sabirin, and Nadia Nursantih., "Has Indonesia Safeguarded Traditional Cultural Expressions?," *Jambura Law Review,* Vol.6, no.2, 2024, page.224.

[73] Hari Sutra Disemadi, Abdurrakhman Alhakim, Ninne Zahara Silviani, and Emiliya Febriyani. "Intellectual property synergies: merging halal certification with Indonesian communal intellectual property rights laws," *Legality: Jurnal Ilmiah Hukum,* Vol.32, no.1, 2024, page.23. See too, Nasrianti, Sanusi Sanusi, Azhari Azhari, and Ilyas Ilyas., "Legal Protection of Traditional Cultural Expressions in Aceh: A Comparative Legal Analysis of Islamic Law and Positive Law in Indonesia," *Al-Istinbath: Jurnal Hukum Islam,* Vol.10, no.1, 2025, page.92.

[74] Evelyn Angelita Pinondang Manurung, "Karya Digital Dan Perlindungan Hak Kekayaan Intelektual Di Era Digital," *Verdict: Journal of Law Science,* Vol.1, no.1, 2022, page.37.

creators' rights and the broader societal impacts of infringement. Educational programs, public campaigns, and accessible online resources are therefore essential to foster a culture that respects creativity. Increasing awareness would not only reduce unintentional violations but also strengthen the market for legitimate content, thereby supporting economic growth in the creative sector.[75]

IPR protection benefits society at large by ensuring fair competition, encouraging innovation, and strengthening cultural and economic development.[76] Through effective public education, Indonesia can cultivate an environment where consumers trust the authenticity of digital products and creators receive the recognition and compensation they deserve.

However, low public understanding of copyright among both consumers and businesses is a major driver of unintentional infringement.[77] Massive educational programs through schools, universities, and digital campaigns targeting Gen Z and creative MSMEs will shift content consumption behavior from piracy to the use of legal services.[78] The integration of copyright materials and blockchain technology into higher education curricula, as well as digital creator certification, will create a generation that is not only creative but also respects the value of intellectual property.[79]

These four pillars, if implemented in an integrated manner, will create an adaptive, technology-driven, and equitable copyright protection ecosystem. The result is not only a significant reduction in violations, but also an increase in the contribution of a more inclusive digital-based creative economy from independent musicians, NFT artists, to communities of owners of traditional cultural expressions while strengthening Indonesia's competitiveness in the era of Society 5.0 and the global

[75] Gde Arya Surya Dharma, and Kadek Julia Mahadewi., "Perlindungan Hak Cipta Dalam Industri Musik Digital di Indonesia: Studi Normatif Terhadap Perlindungan Hak Cipta Penggunaan Musik Digital," *Jurnal Kewarganegaraan,* Vol.7, no.1, 2023, page.457.

[76] Helitha Novianty Muchtar, A. M. Ramli, M. R. Ayu, R. R. Permata, S. Dewi, D. E. Sukarsa, and T. Safiranita., "Stimulasi Urgensi Perlindungan Kekayaan Intelektual Karya Kreatif Dan Inovatif Karya Siswa Sma Negeri 8 Bandung Dalam Mendukung Ekonomi Digital," *Kumawula: Jurnal Pengabdian Kepada Masyarakat,* Vol.4, no.1, 2021, page.70.

[77] I. Wayan Sukania, Agustinus Purna Irawan, Fransisca Iriani Roesmala Dewi, and Esanov Azamat Esirgapovich., "Legal Protection of Intellectual Property Rights in Indonesia for SME Performance," *Journal of Sustainable Development and Regulatory Issues,* Vol.3, no.3, 2025, page.525.

[78] Zeehan Fuad Attamimi, Amalina Ahmad Tajudin, and Fadhil Umar., "The Role of Music Aggregator Distribution Toward Music Performers in View of the Three Pillars of the Copyright System," *Journal of Law and Legal Reform,* Vol.5, no.1, 2024, page.373. See too, Tasya Safiranita Ramli, Sherly Ayuna Putri, Amelia Cahyadini, Andreana Lestari, and Rizki Fauzi., "Digital platform responsibility on administering royalty for music creators from the perspective of copyright law," *NTUT Journal of Intellectual Property Law and Management*, Vol.12, no.1, 2023, page.16.

[79] Leonardo Juan Ramirez Lopez, and Genesis Gabriela Morillo Ledezma., "Employing Blockchain, NFTs, and Digital Certificates for Unparalleled Authenticity and Data Protection in Source Code: A Systematic Review," *Computers,* Vol.14, no.4, 2025, page.133.

knowledge-based economy.[80]

4. Conclusion

This study highlights that rapid digitalization has fundamentally changed how creative works are produced, distributed, and consumed, while simultaneously intensifying the challenges of copyright protection in Indonesia. Although Law Number 28 of 2014 on Copyright and the Electronic Information and Transactions Law provide essential protection for creators' moral and economic rights, they remain insufficient for addressing digital-specific infringements such as illegal streaming, encrypted file sharing, user-generated content misuse, and unauthorized minting of non-fungible tokens (NFTs). Enforcement is further constrained by limited institutional capacity, weak platform cooperation, and the absence of detailed legal provisions suited to contemporary digital ecosystems.

Strengthening Indonesia's copyright system therefore requires a combination of regulatory, technological, and educational strategies. Regulatory reforms should include clearer rules for platform liability, explicit recognition of blockchain-based assets, and the adoption of an efficient notice-and-takedown mechanism to ensure rapid removal of infringing content. Technological solutions, such as blockchain for copyright verification and content-filtering tools, can complement legal reforms by enabling more accurate monitoring and automated royalty protection. At the same time, improving public literacy about Intellectual Property Rights (IPR) is crucial, as low awareness remains a core driver of widespread infringement. Ultimately, enhancing IPR protection is not solely about safeguarding economic interests but also about fostering a creative, innovative, and competitive digital environment. By strengthening enforcement mechanisms, expanding public education, and improving regulatory clarity, Indonesia can build a more resilient copyright framework that supports creators while ensuring the sustainable growth of its digital creative economy.

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[80] Lennart Ante, and Ingo Fiedler., "The new digital economy: How decentralized finance (DeFi) and non-fungible tokens (NFTs) are transforming value creation, ownership models, and economic systems," *Digital Business,* Vol.5, no.1, 2025, page.194; Novi Mirawanty, Muhammad Zilal Hamzah, and Freddy Harris., "Indonesia Data Protection Policy of Intellectual Property And Its Effect on the Economy," *OIDA International Journal of Sustainable Development,* Vol.18, no.3, 2025, page.118; Foteini Valeonti, Antonis Bikakis, Melissa Terras, Chris Speed, Andrew Hudson-Smith, and Konstantinos Chalkias., "Crypto collectibles, museum funding and OpenGLAM: challenges, opportunities and the potential of Non-Fungible Tokens (NFTs)," *Applied Sciences,* Vol.11, no.21, 2021, page.9933.

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