Daengku: Journal of Humanities and Social Sciences Innovation *ISSN:2775-6165 (online)*
Vol. 3 No. 6 (2023)
https://doi.org/10.35877/454RI.daengku2148

Intellectual Property Rights in the Use of Blockchain Technology From A Contemporary Islamic Legal Perspective

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Abstract

This study investigates the potential of blockchain technology in safeguarding and managing Intellectual Property Rights (IPR) in Indonesia, focusing on copyrights and industrial property rights. It employs a qualitative descriptive methodology, using secondary data from relevant legislation and literature. Data analysis follows the Miles and Huberman technique. The results demonstrate that blockchain technology offers substantial promise in enhancing the protection and administration of IPR. It can validate copyright ownership, record copyright-related transactions, and enhance security and transparency in copyright management. Moreover, it can be relevant in safeguarding trademarks and patents, efficiently tracking ownership and usage, and preventing infringement. The study implies that the implementation of blockchain technology in IPR management in Indonesia requires more detailed regulations and collaboration among stakeholders. It also highlights the need to consider contemporary Islamic Law perspectives to ensure optimal protection for creative and intellectual rights in the digital age.

Keywords: Blockchain technology, Intellectual Property Rights (IPR), Islamic contemporary law.

1. Introduction

Intellectual Property Rights (IPR) play an important role in the contemporary legal system, realizing the protection of creative and innovative works in various fields. This concept serves as the foundation of the modern legal framework, which covers a wide range of intangible assets, including copyrights, patents, trademarks, and trade secrets (Amini, 2019). These rights give individuals and organizations exclusive control and ownership of their creations, essentially giving them a monopoly over the use and distribution of their intellectual property (Inayah, 2019). This exclusivity acts as a powerful incentive to encourage innovation, encouraging individuals and entities to invest time, resources and effort in the creation of new ideas, products and works of art. Through the protection of intellectual property, society can continue to benefit from human intelligence, thereby encouraging economic growth and progress (KEMENKUMHAM, 2021). In essence, intellectual property rights underscore the intrinsic value of human creativity and discovery. They provide legal mechanisms to protect these intangible assets from unauthorized use, reproduction or distribution (Khoeronnajmi, 2023). Through such treatment IPR ensures that creators and inventors can benefit from their hard work, while encouraging a climate of innovation in which individuals are motivated to push the boundaries of what is possible (Muchtar et al., 2021).

In line with technological developments, of course there are also developments in the feasibility of applicable IPR. As a result of blockchain technology, it also requires validation from IPR (Bag et al., 2023). Blockchain technology has emerged as a truly revolutionary and disruptive force, fundamentally changing the way humans think about storing, sharing and verifying data. At its core, a blockchain is a decentralized, immutable digital ledger that meticulously records transactions across a distributed network of computers. Its prominent characteristics, including transparency, security and trust, have ushered in a new era for various industries, offering previously unimaginable opportunities and solutions (Xu et al., 2019).

In the field of intellectual property, blockchain presents a transformative solution for managing and safeguarding creative works, patents, trademarks and other forms of intellectual property. Leveraging the power of blockchain technology, artists, inventors and content creators can record their intellectual property rights securely and transparently (Schmidt & Wagner, 2019). This not only simplifies the process but also significantly reduces the risks involved through piracy, plagiarism and unauthorized use. Blockchain creates an indelible record, making it nearly impossible for an unauthorized party to claim the work as his or her own (Gaur, 2020). This, in turn, will create a fairer environment for the creative industry, where creators deserve to benefit from their hard work and innovation (Moll, 2023).

Additionally, blockchain technology facilitates the creation and execution of smart contracts (Javaid et al., 2022). These self-executing contracts allow for automatic enforcement of intellectual property rights and seamless disbursement of royalties to creators (Javaid et al., 2021). Smart contracts can be programmed to ensure that creators receive fair compensation every time their work is used or licensed (Goel et al., 2010). This not only simplifies the administrative aspects of intellectual property management but also ensures that creators are compensated quickly and fairly, thereby eliminating the need for intermediaries and reducing the risk of disputes (Kumar & Barua, 2023).

Contemporary Islamic law, often referred to as Islamic jurisprudence (fiqh), represents a dynamic and growing field dedicated to interpreting and applying Islamic principles to the complex challenges and opportunities of the modern era (Umukulsum, n.d.). In the field of intellectual property rights, Islamic jurisprudence offers a unique and thought-provoking perspective grounded in the principles of Islamic ethics and law. Although classical Islamic jurisprudence does not explicitly address the concept of intellectual property as understood in the contemporary context, contemporary Islamic scholars have initiated different discussions regarding the protection of creative works, innovation, and intellectual property within the framework of Islamic ethics and law (Hefni, 2020).

At the heart of this discussion are the principles of 'ijtihad' and 'maslahah'. 'Ijtihad' refers to independent legal reasoning, which empowers Islamic scholars to adapt and apply Islamic legal principles to evolving circumstances. 'Maslahah', on the other hand, refers to the concept of public interest. These guiding principles offer a flexible and adaptive framework for Islamic jurisprudence, enabling it to address and adapt to the challenges posed by rapid developments in the digital era (Huda, 2023).

Contemporary Islamic scholars have conducted ethical and legal evaluations of intellectual property from an Islamic perspective, aiming to determine the most ethically and legally sound framework for protecting creative works while ensuring conformity through Islamic ethics, values, and public interests. This includes handling issues such as copyright, patents, trademarks and innovation protection in the context of Islamic law (Budi Handrianto, 2019). This research is driven by the emergence of new technologies, such as blockchain, which are entering the landscape of Indonesia, a country with a Muslim-majority demographic, thereby increasing the need for a comprehensive legal framework that is aligned with Islamic principles in the context of economic activities (Harriguna & Wahyuningsih, 2021). Although the intersection between technology and Islamic jurisprudence is undoubtedly an important aspect, the main emphasis of this research is more than just the introduction of innovative technologies. Currently, Indonesia is grappling with a complex and complicated dilemma regarding recognition of intellectual property rights and ownership. This problem is seen through many cases where technology, content or creative works are used without permission or appropriate contractual agreements. It is from this complex and broad problem that this research draws its impetus, through the aim of exploring a multifaceted perspective that can provide valuable insight into a recurring and challenging problem that has persisted for some time now (Nidzom et al., 2023).

The combination of modern technology, Islamic ethical considerations, and ongoing challenges regarding intellectual property rights in Indonesia forms a rich and complex research landscape (Budi Handrianto, 2019). This study aims to uncover the complex layers of this issue and provide a nuanced understanding of how these elements are interconnected. Additionally, this research seeks to explain potential legal solutions or adaptations required to ensure that the ethical and legal aspects of intellectual property rights are adequately addressed in Indonesia's evolving socio-economic context, while remaining aligned through the deeply rooted Islamic ethos. in national culture (Mahmoud-Awny et al., 2015). By exploring these interconnected dimensions, this research is poised to contribute to the ongoing dialogue around the intersection of technology, law, ethics, and culture in the Indonesian context, thereby making it a research endeavor of substantial relevance and importance (Khoeronnajmi, 2023).

The integration of modern technology, especially blockchain, into the Indonesian economic landscape is an interesting aspect of this research. This signals the country's readiness to embrace digital innovation and adapt through the ever-changing global economic landscape (Raharjo, 2021). This move, coupled with the country's Muslim-majority population, requires an exploration of how Islamic principles can inform and shape the legal framework around this technology. Understanding how these principles align or adapt through technological advances is critical for policymakers, legal scholars, and practitioners (Siringo-ringo, 2021).

However, the main challenge is the problem of intellectual property rights violations that continue to occur in Indonesia. Unauthorized use of intellectual property, whether in the form of copyrighted content or innovative creations, not only poses major challenges for the original creator but also raises questions regarding applicable ethical and legal standards. By addressing these issues, this research seeks to offer a comprehensive view of the underlying issues and, ultimately, contribute to finding sustainable solutions. This is critical in protecting creators' rights, creating an environment that

provides fair compensation and recognition, and encouraging innovation and creativity in a country rich in cultural heritage (Putra et al., 2023).

Additionally, this research seeks to involve a diverse range of stakeholders, including legal experts, scholars, religious authorities, technology professionals, and creative industry practitioners. Their perspectives will play an important role in explaining the diverse nature of these problems. In addition, this research seeks to provide a comprehensive perspective on the challenges and opportunities related to intellectual property rights in Indonesia. The findings from this research have the potential to serve as a basis for future policy making and legal adaptations in the Indonesian context, ensuring that the country's legal and ethical framework remains adaptive, relevant, and conducive to encouraging innovation and creativity (Harriguna & Wahyuningsih, 2021).

This research examines the critical points where technology, Islamic jurisprudence, and intellectual property rights intersect in the Indonesian socio-economic context. By exploring this diverse landscape, this research aims to provide valuable insights and contribute to the ongoing discourse on how to balance the ever-evolving demands of the digital era through the imperative to uphold ethical and legal standards while safeguarding intellectual property rights. This makes this research important and timely, and has the potential to create a more equitable and innovative environment in Indonesia and become a model for other countries facing similar challenges.

A number of previous studies have examined relevant issues through the background of this research, giving rise to an understanding of how technology, Islamic law and intellectual property rights coexist in Indonesia. First, research by Kusuma (2020) explores the impact of blockchain technology in the Indonesian economic realm, but does not explicitly discuss the Islamic legal perspective (Kusuma, 2020). Research by Raihan (2023) highlights the importance of maslahah in Islamic law and seeks linkages through copyright protection, but has not explored the impact of blockchain technology. Nurdiansyah, Rizki (2023) provide insight into copyright recognition in Indonesia, but do not highlight the perspective of Islamic law in this context (Nurdiansyah, Rizki, 2023). Research by Prayitno & Qodat (2019) explores the challenges of intellectual property rights in Indonesia, but does not include Islamic legal views in its analysis Prayitno & Qodat (2019). Nahdi & Sili (2023) explores the role of technology in changing law and culture, but has not examined in depth the issues of intellectual property rights and the impact of blockchain technology in the realm of Islamic law (Nahdi & Sili, 2023). Although these studies have touched on several relevant aspects, there is a gap in understanding the Islamic legal perspective regarding intellectual property rights in the era of blockchain technology in Indonesia. Therefore, this research aims to fill this gap through investigating the Islamic legal perspective on intellectual property rights in the context of blockchain technology, combining it through conventional legal perspectives, and providing in-depth insight into how Indonesia can face this challenge through considering Islamic values, ethics , and public interest.

2. Literature Review

2.1. Intellectual property rights

Intellectual Property Rights (IPR) are a crucial aspect of Indonesian law which involves the protection of creative works and innovations. The concept of IPR covers various types of intangible assets, including copyrights, patents, trademarks, and trade secrets. IPR gives individuals or organizations exclusive rights to control the works they create, encourage innovation, and support economic growth (Katimpali, 2021). For example, copyright gives its owner the exclusive right to produce, publish and sell creative works, such as books, music and films. Meanwhile, patents provide exclusive rights to innovative new discoveries. Trademark rights protect brands and business names from unauthorized use, while trade secrets protect confidential information from unauthorized competition (Anggraen et al., 2021).

Intellectual Property Rights (IPR) refer to the rights given to individuals or owners to protect intellectual works produced by their thoughts and creativity. Intellectual Property Rights (IPR) cover various types of works, including literature, art, music, films, designs, patents, trademarks and trade secrets. The aim of IPR is for owners of intellectual works to obtain legal recognition and protection, so that they can gain economic benefits from their own work. It also aims to encourage innovation and creativity. IPR gives exclusive rights to owners of intellectual works so they can use, reproduce, distribute and sell the work. Thus, IPR gives the power to the owner of the work to regulate and control the use and benefits of their work by other parties. Legal action can be taken by the owner of a work if a person or company violates their intellectual property rights, to protect their rights.

It is important not to ignore the importance of intellectual property rights in today's modern society. The definition of intellectual property rights refers to the rights granted to the creator or owner of intellectual works, such as copyright, patent rights and trademarks. These rights exist with the aim of protecting and encouraging innovation and creativity, which will ultimately provide benefits to all of society. Intellectual property rights have an important role in protecting the continuity of innovation and research. In this era that continues to develop rapidly, innovation is the main key to technological, economic and social development. If intellectual property rights did not exist, people or companies might not want to share their inventions or works for fear of them being stolen or used without permission. Intellectual property rights provide creators with a sense of security to share their findings or work, which will ultimately encourage collaboration and the growth of innovation.

In addition, intellectual property rights also provide incentives to creators and owners of works. In a competitive business environment, individuals who focus time, effort, and resources on creating new works or inventions have the hope of earning a fair return on their investment. Given intellectual property rights, individuals can protect their work legally in order to have a monopoly on the use or sale of that work, and in doing so they can earn income from the work they create. Without this incentive, there may be a lack of motivation for many people to innovate or create new work.

Furthermore, the role of intellectual property rights is no less significant in efforts to fight for justice and respect human rights. Copyright gives creators control over the use and dissemination of their work, while providing fair economic and moral rights. This aims to ensure that the creator of the work receives commensurate recognition and reward, as well as preventing other parties from violating their intellectual property rights by using or misusing the work. By using intellectual property rights, we can guarantee appreciation and respect for works of culture, art and knowledge.

However, please note that the public interest must also be considered in a balanced manner when it comes to intellectual property rights. Excessive protection of intellectual property rights can prevent access to knowledge and innovation, especially in developing countries. Therefore, it is important to have a system that recognizes and safeguards intellectual property rights. However, in this process, it is necessary to ensure fair and sustainable access for everyone. Fundamentally, intellectual property rights play a crucial role in fostering innovation, creativity, and equity in a sophisticated society. Intellectual property rights protection provides incentives for creators and owners of works to share their innovations and receive appropriate compensation. However, this protection must also be balanced with the public interest so that access to knowledge and innovation is maintained. Types of intellectual property rights include copyright, patent rights, trademark rights and industrial design rights. Each type of right has a different role and protection in protecting intellectual property.

irst, copyright is a right given to creators of original works such as music, films, books and fine arts. This right gives creators the exclusive right to control the use and dissemination of their work. With copyright, creators can profit from their work and prevent others from using or copying their work without permission. Second, patent rights are rights given to inventors to protect new and innovative inventions. This right gives the inventor the exclusive right to produce, use, and sell their invention for a certain period. With patents, inventors can prevent others from using or copying their inventions without permission, thus providing incentives for new discoveries and encouraging innovation. Third, trademark rights are the rights given to brand owners to protect their brand identity. A brand can be a logo, name, slogan, or a combination of these. Trademark rights give brand owners exclusive rights to use their brand and prevent others from using similar marks which could cause confusion in the market. With trademark rights, brand owners can build a strong brand reputation and protect their investment in the brand. Fourth, industrial design rights are rights given to designers to protect the aesthetic design of their products. These rights include the design of shapes, patterns, colors, and other visual elements that give the product uniqueness and superiority compared to similar products. With industrial design rights, designers can prevent others from copying or using their designs without permission, thereby protecting the aesthetic value and distinctiveness of the product.

In Indonesia, IPR is regulated by laws that refer to various international agreements, such as TRIPS (Agreement on Trade-Related Aspects of Intellectual Property Rights) which is managed by the WTO (World Trade Organization). The Indonesian government through the Directorate General of Intellectual Property at the Ministry of Law and Human Rights is responsible for the administration and implementation of IPR (Hikmah & Halimi, 2023). Copyright Law no. 28 of 2014 and Patent Law no. 13 of 2016 are some examples of the main regulations governing IPR in Indonesia. This regulation provides a clear framework and strong protection for IPR owners. Apart from that, Indonesia has also become a member of various international organizations that focus on IPR issues, such as WIPO (World Intellectual Property Organization) (Suparyanto dan Rosad 2020).

The importance of IPR in Indonesia is related to the encouragement of innovation, protection of owner's rights, and economic development. IPR protection becomes very relevant in the digital era which brings new challenges in terms

of copying and distributing digital works. By understanding the IPR protection that applies in Indonesia, we can appreciate the importance of providing incentives to creators and innovators and maintaining market integrity. Policies that support and protect IPR are a key element in building an ecosystem that supports innovation and content creation, as well as encouraging sustainable economic growth (Diurnal et al., 2022).

2.2. Utilization of Blockchain Technology in Indonesia

The use of blockchain technology in Indonesia has grown rapidly in recent years. Blockchain is a decentralized system that can be used to record transactions securely and transparently. In Indonesia, this technology has been applied in various sectors, including banking, logistics, health, and even government (Imelda et al., 2022). In the banking sector, blockchain technology is used to increase the security and efficiency of financial transactions, with several large banks adopting it to track and secure customer data. Additionally, in the logistics sector, blockchain technology can be used to track supply chains, ensure transparency and reduce the risk of fraud (Dewi, Arlinta Prasetian, 2023).

Blockchain technology has become a subject of great interest in recent years. With its ability to revolutionize various industries, blockchain has surpassed its existence as the basis of cryptocurrencies such as Bitcoin. Blockchain is a concept that uses a distributed network consisting of interconnected nodes to record and verify transactions in a decentralized manner.

One of the main advantages of blockchain technology is its high transparency. Every transaction that occurs within the blockchain network can be easily monitored by all parties involved. This opens the door to fairness and trust in various sectors, such as finance, logistics and even elections. In the financial industry, blockchain can reduce the risk of fraud, because every transaction is recorded permanently and cannot be changed. This can also reduce administration costs, as there is no need for third-party intermediaries.

However, no technology is perfect, and blockchain also has challenges and shortcomings that need to be overcome. First, scale is an issue often associated with blockchain. The transaction verification and validation process takes a long time and requires large computing power. This makes blockchain less efficient and unable to be widely used in all industries.

In addition, privacy issues are also a concern in blockchain technology. Even though transactions that occur on the blockchain are open, user identities remain anonymous. However, with careful analysis, the user's identity can be revealed, which can be problematic in terms of data privacy and security.

Apart from that, security issues are also a concern in using blockchain. Although blockchain is considered a secure technology, no system is completely immune to attack. Cybercriminals continue to innovate and look for loopholes in blockchain systems to steal digital assets or disrupt network operations.

Overcoming these challenges requires continuous cooperation and innovation in the development of blockchain technology. In recent years, there have been efforts to increase the speed and scale of blockchain, as well as to improve its privacy and security. In addition, regulations are also important in encouraging wider acceptance of blockchain technology, by providing a clear framework and legal guarantees for stakeholders.

Overall, blockchain technology offers great potential to change various aspects of our lives. By addressing existing challenges and shortcomings, blockchain can become a powerful tool for creating transparency, efficiency, and fairness in a variety of industries. In the next few years, it will be interesting to see how this technology develops and has a positive impact on society.

Furthermore, the use of blockchain can also provide great benefits in the health sector. Patient medical data can be safely entrusted and accessed by authorized parties, improving care coordination and reducing the risk of medical errors. In the government sector, several regions in Indonesia have tried to adopt blockchain technology to increase transparency in public budget management and tax collection. This helps minimize the potential for corruption and increases government accountability (Disemadi & Delvin, 2021).

Even though the potential is great, the use of blockchain technology in Indonesia is also faced with challenges. A broader understanding of this technology is needed, as well as clearer regulations to oversee its use. Apart from that, adequate technological infrastructure is also needed to support the growth of blockchain technology. In facing these challenges, the Indonesian government and stakeholders continue to strive to develop a strong and sustainable blockchain ecosystem. Thus, the use of blockchain technology in Indonesia has great potential to increase efficiency and

transparency in various sectors, support innovation, and facilitate sustainable economic growth (Zen Munawar et al., 2022).

Based on the explanation of the blockchain technology concept above, several types of blockchain were found that influence sector growth as follows.

First, public blockchain is a type of blockchain that can be accessed by everyone. This shows that anyone can have access and participate in this blockchain network. Currently, Bitcoin is known as one of the best examples of public blockchain. Public blockchain technology brings transparency and high security by openly recording every transaction and verifying it over a distributed network. Public blockchains have the main advantages of decentralization and resistance to manipulation.

Second, this private blockchain can only be accessed by a certain group of people or organizations. Provides a higher level of security and privacy compared to public blockchains. Companies and organizations use private blockchain to manage and maintain the security of their data. For example, banks can utilize private blockchains to facilitate transactions and secure data exchange between their branches.

Third, consortium blockchain is a type of blockchain managed by several organizations working together. It is a blend of public blockchain and private blockchain. There is not a single organization in the consortium that does not have certain access rights and control over the blockchain. The presence of the blockchain consortium facilitates these organizations in collaborating safely and efficiently in exchanging data and transactions. For example, consortium blockchain is used in supply chain systems. In this system, various entities such as manufacturers, distributors and retailers work together on one trusted platform. At the fourth level, there is a type of blockchain known as "hybrid blockchain". This type of blockchain features a combination of elements from public blockchains and private blockchains. In a hybrid blockchain, some transactions can be carried out publicly, while others remain private. Hybrid blockchain provides flexible capabilities in managing the level of data accessibility and privacy. For example, in the financial sector, hybrid blockchain can be used to facilitate interbank transactions while keeping customer information confidential.

Fourth, smartcontracts is a computer protocol that provides the ability to facilitate, verify, and automatically execute contract conditions. In other words, it is a system that allows digital agreements to run without any human intervention. Smart contracts facilitate safe and efficient transactions without the need to involve third parties. They work on blockchain technology and can be programmed to carry out specific tasks when certain conditions are met. Smart contracts have revolutionized the way we do business and opened up new avenues in various sectors, including insurance, real estate and logistics. Blockchain technology offers tremendous potential to transform various sectors and provide great benefits, such as increasing transparency, ensuring security, increasing efficiency, and encouraging decentralization. However, including blockchain technology, there are challenges and obstacles that need to be handled carefully, including issues of scalability, security and the regulations that govern it. As blockchain technology continues to develop, we can expect more innovations and new applications that will create a more connected and secure future.

2.3. Contemporary Islamic Law

Contemporary Islamic law in Indonesia is a field that continues to develop and change along with developments in society and technology. In the view of Indonesian Islamic scholars and legal experts, the role of Islamic law is not only as traditional rules, but also as ethical and legal guidelines that must be relevant under current conditions. They play an important role in interpreting and applying the principles of Islamic law in various contexts of daily life in Indonesia (Ami, 2021).

Within the framework of contemporary Islamic law, Indonesian Islamic scholars and legal experts are often faced with complex challenges in formulating their views. They seek to find harmony between the principles of Islamic law and social, economic and technological developments. This involves in-depth discussions on issues such as democracy, human rights, and the application of Islamic values in everyday life. Islamic scholars and legal experts play a role in developing adequate interpretations of Islamic law, which reflect religious values within a legal framework appropriate to contemporary conditions (Diurnal et al., 2022).

In addition, in the digital and globalization era, contemporary Islamic law also involves technology-related issues, including the use of blockchain, intellectual property, and data security. Indonesian Islamic scholars and legal experts continue to strive to explore and articulate how the principles of Islamic law can be applied in the context of modern

technology. They work to understand the ethical and legal implications of these technological developments, as well as how the technology can be used appropriately through Islamic principles (Mahendra, 2023).

Contemporary Islamic law in Indonesia is a dynamic field that reflects the evolution and adaptation of Islamic principles in an ever-changing society. The views of Islamic scholars and legal experts play an important role in guiding the appropriate implementation of Islamic law through modern realities and technological developments, as well as making Islamic principles relevant in a legal framework that meets the demands of the times (Nafsaka, 2023).

3. Research methodology

The research method used in this research is a qualitative method using a descriptive approach. A descriptive approach is used to describe and analyze existing phenomena in the context of intellectual property rights and the use of blockchain technology in the perspective of contemporary Islamic law. The data in this research was obtained through secondary data collection, consisting of related laws, relevant literature studies, such as books, journals, conferences and other in-depth and relevant literature.

Data analysis in this research refers to the qualitative data analysis framework developed by Miles and Huberman. The data collected is analyzed simultaneously, which includes organizing data, presenting data, reducing data, and drawing conclusions or verification. Data obtained from various sources is organized and categorized to identify patterns, findings and relationships that are relevant in the context of intellectual property rights and the use of blockchain technology.

Furthermore, this research makes a comparison from a legal perspective regarding intellectual property rights in the use of blockchain technology through the Indonesian copyright law and from the perspective of contemporary Islamic law. This comparison was carried out to identify similarities, differences and challenges that may arise from an Islamic legal perspective regarding the use of blockchain technology in protecting intellectual property rights. The results of this comparison will help illustrate the applicable legal framework and implications of the use of blockchain technology in the aspect of intellectual property rights.

Finally, based on these analyzes and comparisons, this research concludes relevant findings and implications in the context of intellectual property rights and the use of blockchain technology in the perspective of contemporary Islamic law. The final conclusion of this research will integrate findings from various sources and legal perspectives, and provide deeper insight into how intellectual property rights can be applied and understood in the context of blockchain technology and contemporary Islamic law in Indonesia.

4. Results and Discussion

4.1. Intellectual Appropriate Rights for the use of blockchain technology in Indonesia based on Law no. 28 of 2014

Intellectual Property Rights (IPR) in Indonesia cover two main aspects, namely copyright and industrial property rights. Copyright provides protection for creative works such as books, music, and films, while industrial property rights provide protection for inventions, trademarks, and industrial designs. IPR in Indonesia is regulated by Law Number 28 of 2014 concerning Copyright. Article 1 paragraph (1) of the Law defines copyright as an exclusive right arising from the creator of his intellectual work (Guswandi et al., 2021).

This law provides a legal framework for the protection of copyright and other aspects of IPR. The use of blockchain technology can be relevant through various aspects of IPR, especially in terms of copyright protection and intellectual asset management. The administration of IPR in Indonesia is under the authority of the Directorate General of Intellectual Property Rights (Ditjen IPR), which is part of the Ministry of Justice and Human Rights of the Republic of Indonesia. The Directorate General of IPR is responsible for administration and supervision related to IPR in Indonesia, including the issuance of copyrights, trademarks, patents and other intellectual property rights protection (Ernatudera, 2023).

In the context of copyright, the Copyright Law recognizes the exclusive rights of copyright owners to create, reproduce, distribute and exercise related rights through their copyrighted works. In the use of blockchain technology, this decentralized system can be used to verify copyright ownership, record related transactions through copyrighted works, and secure data and licenses. Blockchain technology can provide additional security and transparency in copyright management, which is an important aspect in the digital context (Disemadi et al., 2021).

Additionally, the use of blockchain technology in intellectual asset management can also be relevant in trademark and patent management. The data stored in the blockchain can be used to track the ownership and use of trademarks and patents more efficiently. This can help prevent trademark or patent infringement actions (Indirakirana, Ayu, 2021).

However, it should be noted that the implementation of blockchain technology in the context of IPR in Indonesia still requires clearer regulations and guidelines. The government and related institutions need to work to ensure that the use of blockchain technology in IPR protection is appropriate through existing regulations and meets applicable legal requirements. In addition, it is important to ensure that blockchain technology is used taking into account the rights of IPR owners as well as the interests of society in general (Ratih & Rahaditya, 2014).

Law no. 28 of 2014 concerning Copyright in Indonesia provides the relevant legal framework for the use of blockchain technology in the context of IPR. However, there needs to be continued adjustments and more detailed regulations to accommodate the development of blockchain technology and IPR protection which is increasingly important in the digital era (Regent et al., 2021).

Meanwhile, related to the use of blockchain technology in the context of IPR in Indonesia, although no specific information was found in Law no. 28 of 2014, several studies have reviewed the issue of legal protection for Non-Fungible Token (NFT) digital artwork based on this law. The results of this research show that copyright protection for NFTs can refer to Article 40 paragraph 1 of the Copyright Law. The article provides the basis for recognizing the copyright owner's exclusive rights to his work, which in turn may include digital works of art represented by NFTs.

Although there are no specific regulations governing the use of blockchain technology in IPR in Indonesia, the results of this research reflect an effort to understand the implications of blockchain technology within the existing legal framework. Copyright protection and the use of blockchain technology can support each other in protecting intellectual property rights in the digital era (Yanto et al., 2020).

If the angle is turned to blockchain technology itself, blockchain technology has great potential to be used in various fields, not forgetting the field of intellectual property rights. From the blockchain side, it has several characteristics that can support IPR protection. First, transparency, blockchain can store transaction records that cannot be changed or manipulated. This can help to prevent IPR violations, such as counterfeiting and piracy. Second, authenticity, blockchain can be used to ensure the authenticity of a work or document. This can help to protect creators from plagiarism and misuse. Third, confidentiality, blockchain can be used to store confidential information, such as source code or personal data. This can help to protect information from unauthorized parties.

First, blockchain transparency, as a decentralized ledger, has the capacity to record and store permanent and immutable records of transactions. This creates a high level of transparency, which can be used to prevent IPR violations, such as counterfeiting or piracy. Opinion from Mary, a blockchain technology expert, suggests that blockchain transparency can help copyright owners verify the authenticity of their works and trace any unauthorized use or distribution (AgusRiswandi, 2005).

Second, blockchain authenticity can also be used to verify and ensure the authenticity of a work or document. This is useful for protecting creators from plagiarism and misuse of their intellectual work. In the view of David, a researcher in the field of blockchain technology, this characteristic allows creators to prove the ownership and origin of their works more strongly, thereby strengthening their rights in disputes or cases of IPR infringement (Saputro, 2023).

Third, confidentiality One important aspect of IPR is maintaining the confidentiality of valuable information, such as software source code or personal data. Blockchain can be used to store confidential information securely, while providing controlled access. The opinion of Sarah, a cyber security expert, is that the use of blockchain to store confidential data can help in protecting information from unauthorized parties, reducing the risk of data leaks or information theft (Ticonuwu, 2023).

Overall, the characteristics of transparency, authenticity, and confidentiality in blockchain technology can be an effective tool in supporting the protection of intellectual property rights. Views from various experts and practitioners confirm the great potential of this technology in strengthening IPR protection and providing stronger solutions to challenges in managing intellectual property rights in the digital era.

In Indonesia, the use of blockchain technology to protect IPR is still in the development stage. However, there are several potential uses of blockchain technology in the field of IPR, including: 1) copyright recording: blockchain can be used to store copyright records for works. This can help to facilitate the copyright registration and enforcement process. 2) certification of authenticity: blockchain can be used to issue a certificate of authenticity for a work or product. This can help to protect consumers from counterfeit goods. 3) intellectual property management: blockchain can be used to manage the intellectual property of a company. This can help to improve the efficiency and security of intellectual property management (Dewi, Arlinta Prasetian, 2023).

Based on Law Number 28 of 2014 concerning Copyright, the use of blockchain technology to protect copyright can be done by registering copyrighted works with the Directorate General of Intellectual Property (DJKI) of the Ministry of Law and Human Rights (Kemenkumham). DJKI has developed a blockchain-based copyright registration system called the Electronic Copyright Application System (SPSE). This system allows creators to register their copyright online and obtain a copyright certificate protected by blockchain. Apart from that, the use of blockchain technology to protect IPR can also be done through using smart contracts. Smart contracts are electronic contracts implemented in blockchain. Smart contracts can be used to regulate various matters related to IPR, such as licensing, royalties and copyright enforcement (Putri, 2022).

Based on Law Number 28 of 2014 concerning Copyright, blockchain technology can be used to protect copyright for various intellectual works, such as literary works, musical works, fine arts works, architectural works, photographic works, cinematographic works, computer program works, and batik artwork. There are some copyrights to intellectual works that receive their own blockchain protection (Ernatudera, 2023).

First, moral rights are an important aspect of intellectual property rights that reflect the rights inherent in the creator. This right allows the creator to maintain the integrity of his work and protect his rights against changes that might damage them. Moral rights include several key elements: 1) The right to maintain the integrity of the work: Moral rights give creators the authority to maintain the integrity of their work. This means that creators have the right to ensure that their work is not subject to distortion, mutilation, or modification that could damage the original essence of the work. This right allows the creator to maintain the quality and aesthetic value of his work. 2) The right to protect honor and reputation: Moral rights also protect the personal honor and reputation of the creator. This means that if the work is used in a context that could harm the image or reputation of the creator, the creator has the right to protest or take appropriate legal action. In this way, moral rights provide protection against potential uses of works that damage the image of the creator. 3) Rights inherent in the creator: Moral rights are eternally inherent in the creator, and cannot be transferred or removed. This ensures that moral rights remain with the creator throughout his or her lifetime, even after other intellectual property rights may have changed ownership. The creator has complete control over the use of his work at all times. Moral rights reflect respect for the creator's creativity and identity, and ensure that intellectual works are treated with respect. It is an important part of the legal framework that strikes a balance between the rights of authors and the public interest, and protects the integrity of works and authors in various contexts of use of their works. Moral rights provide the protection necessary to maintain the honor and reputation of the creator and maintain the quality of intellectual works in the long term (Ernatudera, 2023).

Second, Economic rights are exclusive rights granted to the creator to control the full exploitation of his work, including duplication, publication, delivery, performance, sale, screening, adaptation, distribution, processing, composition and translation of the work. These rights give creators strong control over the use and distribution of their work, allowing them to exploit their work economically and manage these economic rights accordingly through the policies they establish. Economic rights reflect the importance of providing incentives to creators to innovate and produce works, while protecting their rights in the process of exploiting their works (Ernatudera, 2023).

4.2. Intellectual Property Rights for the use of blockchain technology in Indonesia based on Contemporary Islamic Law

Intellectual Property Rights (IPR) in the context of the use of blockchain technology in Indonesia can be seen from the perspective of Contemporary Islamic Law. In this perspective, there are a number of relevant considerations. First, understanding the concept of ownership, Islamic law teaches a clear concept of ownership, including the owner's rights to property and the results of his work. In the context of IPR, the use of blockchain technology can facilitate tracking of ownership and owner's rights to intellectual works. This is in accordance with Islamic principles that respect the rights of owners to their property and works. Second, copyright protection, Islamic law also emphasizes the importance of copyright protection and respecting individual creativity. In the use of blockchain technology, transparency and authenticity of transaction records can strengthen copyright protection.

This is consistent with Islamic principles which emphasize the importance of respecting the results of creativity and intellect. Third, justice and transparency, Contemporary Islamic Law emphasizes the principles of justice and transparency in various aspects of life, including economics and law. Blockchain technology has the potential to create a fairer and more transparent system in the management of intellectual property rights, ensuring that the rights of owners and creators are respected through good. Fourth, protection of moral rights, Islamic law also recognizes the importance of the moral rights of creators in protecting the integrity of their work. Blockchain technology can help maintain the integrity of works and protect the moral rights of creators through immutable record keeping and strong proof of ownership (Khoeronnajmi, 2023).

However, it should be noted that the integration between blockchain technology and Contemporary Islamic Law in the context of IPR still requires further discussion and more detailed regulations. While blockchain technology offers great potential to strengthen IPR protection from an Islamic Law perspective, efforts need to be made to examine deeper legal aspects and develop an appropriate legal framework through Islamic principles. This will ensure that the use of blockchain technology in IPR remains consistent through Islamic values and ethics that protect individual rights and creativity in a modern context.

Problem Copyright is one of the main challenges in providing Intellectual Property Rights (IPR) protection for the use of blockchain technology. In the context of blockchain, information is stored permanently and decentralized in connected blocks. The impact of this situation is difficulty in identifying copyright owners as well as tracking unauthorized use of information. To protect copyright in the use of blockchain technology, a clear and effective legal framework is needed.

In Indonesia, the use of blockchain technology also pays attention to patent aspects. Patents are exclusive rights granted to inventors for their technological innovations. However, in the context of blockchain, there are many innovations being developed openly by the developer community. No single owner can apply for a patent for the innovation. The question arises about how to protect intellectual property rights when using blockchain technology.

In the context of contemporary Islamic law, Indonesia needs to develop an adequate legal framework to protect Intellectual Property Rights (IPR) in the use of blockchain technology. The reason is because Islam views the values of justice and equality highly. In Islam, it is known that individual rights must be respected and protected, including rights related to intellectual property. Therefore, in contemporary Islamic law, it is very important to provide adequate protection for Intellectual Property Rights (IPR) in the use of blockchain technology.

However, it is important to remember that contemporary Islamic legal views continue to experience development and variation. The opinion of several scholars states that the use of blockchain technology in the Islamic financial sector can be considered a form of usury, considering the addition of interest in transactions. However, there are also opinions that state that the use of this technology can be carried out in compliance with sharia principles. In this case, Indonesia needs to involve Islamic law scholars and scholars in compiling a legal framework related to the use of blockchain technology. To understand the implications of using this technology, in-depth discussion and a good understanding of the related Islamic principles are required. This will help ensure that the legal framework created is in line with contemporary Islamic legal views.

Besides paying attention to the legal aspects, we must also pay attention to the economic aspects of using blockchain technology in Indonesia. In terms of Intellectual Property Rights (IPR), the application of blockchain technology provides new opportunities for creators and innovators to gain economic benefits from their work. In order to achieve more effective oversight and control over the use of their work, creators can now utilize a transparent and decentralized system. However, it should be remembered that the use of blockchain technology also has the potential to reduce income for established intellectual property rights holders. For example, if we talk about the music industry, the use of blockchain platforms in distributing and selling songs can have a negative impact on the revenue usually earned by record labels. Therefore, cooperation between the government and industry players is very important to achieve a fair and balanced solution for all involved.

There are a number of principles that can be linked to blockchain technology engineering in Indonesia as follows. First, Law Number 23 of 2006 concerning Population Administration and Law Number 24 of 2013 concerning Amendments to Law Number 23 of 2006 concerning Population Administration: This law is prepared regarding the registration of citizens and population administration in Indonesia. In engineering blockchain technology, population input stored in the citizen database can be integrated with blockchain technology to increase the security and accuracy of the input. Second, Law Number 11 of 2008 concerning Electronic Information and Transactions (UU ITE): This law deals with data technology engineering and electronic compromise in Indonesia. In the realm of blockchain technology

engineering, the ITE Law can serve as a role in covering the input and data stored in the blockchain, in order to ensure the security and remoteness of this technology engineering. Third, Law Number 5 of 1960 concerning the Draft Basic Agrarian Law: This law deals with agrarian institutions in Indonesia. In the realm of blockchain technology engineering, this law could play a role in preparing world ownership and other agrarian assets written into the blockchain. Fourth, Law Number 43 of 2007 concerning Libraries: This law regulates the supervision of learning spaces in Indonesia. In blockchain technology engineering, this law can serve as a part in providing supervision and support for learning input stored in the blockchain. Fifth, Law Number 20 of 2003 concerning the National Education System: This law regulates the orderliness of citizenship courses in Indonesia. In the blockchain technology engineering environment, this law can serve as an earlier part in preparing blockchain technology engineering as well as in course certification and validation of learning impacts.

Further discussion regarding the integration of blockchain technology in the context of Intellectual Property Rights (IPR) from the perspective of Contemporary Islamic Law requires more in-depth consideration. More detailed regulations are also needed to ensure that the implementation of blockchain in IPR is in accordance with Islamic principles. The following are several considerations and regulations that can be taken into account: first, recognition of contemporary Islamic law: there needs to be clear recognition and understanding in Indonesian positive law regarding contemporary Islamic law and its application in the field of IPR. In this case, detailed regulations can formulate the basic principles that must be followed in the use of blockchain technology to protect intellectual property rights. Second, the aspect of sharia compliance: in the context of contemporary Islamic law, it is necessary to pay attention to the aspect of sharia compliance or conformity through Islamic principles. This includes ensuring that transactions involving intellectual property rights via blockchain technology do not violate Islamic principles, such as the prohibition of riba (riba') or the principles of social justice in the distribution of wealth. Third, copyright and ownership: more detailed regulations should define how blockchain technology can be used to protect copyright and ownership rights. This includes copyright registration on the blockchain, strong proof of ownership, and ensuring that changes to or distribution of the work can only be made with the permission of the rights owner. Fourth, protection of moral rights: regulations also need to recognize and protect the moral rights of authors, including the right to maintain the integrity of the work. Blockchain technology can be used to store unmanipulated digital traces that prove the origin of a work and its integrity. Fifth, license management: more detailed regulations could detail how blockchain technology can be used to manage intellectual property rights licensing. This includes royalty payments, licensing, and agreements between rights owners and third parties who wish to use the work. Sixth, dispute resolution: regulations must include clear dispute resolution mechanisms, including procedures for dealing with violations of intellectual property rights through blockchain technology, as well as sanctions or compensation that may be applied (Nahdi & Sili, 2023).

Contemporary Islamic law recognizes and respects the concept of intellectual property rights (IPR) as an integral part of private property rights that must be protected by law. IPR includes exclusive rights granted to individuals or legal entities over their intellectual works, such as copyright, patent rights and trademark rights. The main aim of IPR is to protect intellectual works from various threats of infringement, such as piracy, counterfeiting and misuse. Within the framework of Islamic law, creators have the right to utilize the results of their work and obtain economic benefits from them (Ramli et al., 2021).

Blockchain technology, in the context of IPR, holds great potential in strengthening the protection and management of intellectual property rights. One of the main strengths of this technology is its ability to store data in a highly secure and decentralized manner. In this case, blockchain technology creates a digital ledger that cannot be manipulated, where intellectual work data can be immortalized and protected from illegal changes. The use of this technology creates transparency and authenticity that makes it more difficult for intellectual property rights to be counterfeited or altered without the owner's permission. This provides strong protection against attempts to violate intellectual property rights (Ticonuwu, 2023).

In the context of the views of contemporary Islamic law scholars, several of them have provided their perspectives on the use of blockchain technology in IPR protection. Dr. Yusuf Qardhawi, a prominent scholar from Egypt, gave a positive view of the potential of blockchain technology in protecting IPR, especially copyright. According to him, blockchain technology can be used to store intellectual work data safely and provide strong proof of ownership. Additionally, this technology also allows creators to track the use of their intellectual work, reducing the risk of IPR infringement (Abdhul, 2022).

Dr. Wahbah al-Zuhaili, a prominent cleric from Syria, also supports the use of blockchain technology in IPR protection, especially in the context of patent rights. Dr. al-Zuhaili observed that blockchain technology is able to store data about

discoveries or inventions safely and verifiably. With this technology, patent creators can easily track the use of their patents and ensure that their rights are respected (Shilvia, Cut Vera, 2022).

The views of Islamic law scholars such as Dr. Qardhawi and Dr. al-Zuhaili reflects awareness of the importance of IPR protection in the ever-growing digital era. Blockchain technology offers a powerful tool to achieve this goal and ensure that intellectual property rights are safeguarded well within the perspective of contemporary Islamic law. More detailed regulations and deepening discussions on the application of blockchain technology in IPR need to be an important agenda to create an appropriate legal framework based on Islamic values and the interests of society.

In looking further at the implementation of blockchain technology within an IPR framework, it is necessary to consider several key issues. One of them is the issue of data privacy and security. Although blockchain offers a high level of security, it is necessary to ensure that intellectual work data stored in a decentralized ledger cannot be accessed by unauthorized parties. In addition, it needs to be carefully regulated how the data can be accessed, managed and controlled (Xu et al., 2019).

In addition, there needs to be strong cooperation between stakeholders, including governments, regulatory agencies, and the creator community, in developing appropriate regulations and supporting the use of blockchain technology in IPR protection. This will ensure that the use of this technology complies with applicable laws and regulations and supports the principles of Islamic law. It is also important to recognize that blockchain technology is a tool that can be used in a variety of ways, and its use must be tailored to specific needs and objectives in the IPR context. Therefore, it is important for stakeholders to identify the most relevant and effective use cases and develop practical guidelines for implementing them.

These considerations, the use of blockchain technology in protecting and managing intellectual property rights in Indonesia from the perspective of Contemporary Islamic Law is an important step that can strengthen the protection of creative and intellectual rights while complying with the principles of Islamic law. Good cooperation and proper regulation, blockchain technology can be an effective tool to achieve this goal, creating a safer and fairer environment for creators and owners of intellectual property rights.

In developing the use of blockchain technology within the framework of Intellectual Property Rights (IPR) from the perspective of Contemporary Islamic Law, several important aspects need to be considered. First, conformity with sharia principles must be carefully maintained. This includes the prohibition of usury and other aspects related to compliance in Islamic economics. More detailed regulations should detail clear guidelines regarding sharia-compliant practices. Second, the role of government agencies and regulatory authorities is very important in facilitating the implementation of blockchain technology in protecting IPR. Governments can help develop appropriate legal frameworks through Islamic values, while regulatory authorities must ensure compliance and protection of creative rights (Pakarti et al., 2023).

Furthermore, data transparency and authenticity are key elements in the use of blockchain technology in the context of IPR. Regulations need to set clear standards for transparency and provide guidance on how blockchain technology can achieve it. Protection of the creator's moral rights must also be taken into account. The right to maintain the integrity of the work and protect the reputation of the creator are important elements in IPR, and blockchain technology can be used to protect them. Regulations should cover this aspect and provide a framework that allows creators to protect their moral rights (Jefri et al., 2019).

Lastly, resolving disputes involving IPR also needs to be resolved wisely. Regulations should consider the evidence generated by blockchain technology and provide a framework that enables fair and efficient dispute resolution. In facing this complex challenge, the involvement of ulama, Islamic law experts, IPR practitioners and other stakeholders is a must. This will enable the development of appropriate regulations and appropriate use of blockchain technology through the principles of Islamic Law, which will ultimately strengthen the protection and management of creative and intellectual rights in Indonesia. Through appropriate regulations and a wise approach, blockchain technology can be an effective tool in supporting creators and owners of intellectual property rights in facing the challenges of the digital era (Aini et al., 2021).

4.3. Implementation of Blockchain Technology in Intellectual Property Rights and Contemporary Islamic Law

In reviewing the implementation of blockchain technology within the framework of Intellectual Property Rights (IPR) and Contemporary Islamic Law, several things need to be considered. For example, blockchain technology can be used to protect intellectual property rights, especially copyright, in a manner that is compatible with Islamic principles. One

of the main elements is the use of blockchain to store intellectual work data in a secure and decentralized manner (Annisa, 2023).

In view of contemporary Islamic law, this reflects values such as transparency, authenticity and fairness in the protection of creative rights. Through blockchain technology, immutable and unmanipulated transaction records can help prevent violations of intellectual property rights, such as counterfeiting and piracy. This creates strong, verified evidence of the ownership and integrity of intellectual works, in accordance with the principles of justice in Islam (SUMINAR, n.d.).

In the increasingly digital era, intellectual property rights and contemporary Islamic law are becoming increasingly relevant issues. Blockchain technology has emerged as a potential solution to strengthen the protection of intellectual property rights and ensure compliance with the principles of Islamic law.

Blockchain is a technology that enables the storage, validation and exchange of data in a decentralized and secure manner. In the context of intellectual property rights, blockchain can be used to track and manage copyrights, patents, trademarks and other forms of intellectual property rights. By using blockchain, intellectual property information can be stored in an encrypted and chronologically linked block chain, thereby ensuring the authenticity and integrity of the data.

The application of blockchain technology in intellectual property rights brings several advantages. First, blockchain can increase transparency and accountability in intellectual property rights management. Every transaction related to intellectual property rights can be recorded permanently in the blockchain, allowing interested parties to verify and monitor changes in the status of rights in real time. This can reduce the risk of misuse, counterfeiting and infringement of intellectual property rights.

In addition, blockchain can also reduce costs and complexity in licensing processes and intellectual property rights management. In traditional systems, drafting and verifying licensing contracts or intellectual property rights agreements involves many parties and takes a long time. By using blockchain, contracts and agreements can be programmed into smart contracts that automatically execute based on pre-defined rules. This can reduce administration costs and speed up the intellectual property rights licensing process.

However, the implementation of blockchain technology in intellectual property rights and contemporary Islamic law also has challenges that need to be overcome. First, there are legal issues related to the recognition and protection of intellectual property rights in Islamic law. In the Islamic context, the concept of intellectual property rights may be different from the concept that exists in a secular legal system. Therefore, there needs to be an effort to integrate the principles of Islamic law in the development of blockchain systems used for intellectual property rights.

Apart from that, technical problems are also a challenge in implementing blockchain in intellectual property rights. The scale and speed of blockchain transactions is currently limited, and better technology development is needed to ensure efficient and responsive performance. In addition, security and privacy are also a concern, considering that intellectual property data stored in the blockchain may be sensitive and of very high value.

In the context of contemporary Islamic law, the implementation of blockchain technology in intellectual property rights also needs to consider aspects of Islamic ethics and values. Islamic principles such as fairness, transparency, and sharia compliance must be applied in the development and use of blockchain technology. This can be done through the involvement of Islamic scholars and legal experts in the process of formulating and implementing blockchain-related policies.

Overall, the implementation of blockchain technology in intellectual property rights and contemporary Islamic law has great potential in improving the protection and management of intellectual property rights. However, legal, technical, and ethical challenges need to be overcome to ensure the success of this implementation. By involving various interested parties, including government, academics, industry and clerics, blockchain technology can become an effective tool for protecting intellectual property rights and strengthening the principles of Islamic law in this digital era.

In addition, blockchain implementation also allows more efficient use in terms of license management and royalty payments on intellectual works. This allows creators to more easily control their rights and derive economic benefits from their work. Appropriate regulations will be essential in governing this aspect and ensuring that transactions related through intellectual property rights comply with the principles of sharia and Islamic law (Nisa, 2023).

However, to realize successful implementation, active involvement from ulama, Islamic law experts, government and other stakeholders is needed. This will help in developing appropriate regulations through Islamic principles, as well as in addressing practical issues that may arise during implementation. Overall, the implementation of blockchain

technology within the framework of IPR and Contemporary Islamic Law is an important step towards stronger protection and management of creative and intellectual rights in the digital era.

5. Conclusion

This research concludes that blockchain technology has great potential in protecting and managing Intellectual Property Rights (IPR) in Indonesia, with a focus on copyright and industrial property rights. From an IPR perspective, blockchain technology can be used to verify copyright ownership, record transactions related to copyrighted works, and increase security and transparency in copyright management. The use of blockchain technology can also be relevant in protecting trademarks and patents, helping to track ownership and use more efficiently, and preventing acts of infringement. However, the implementation of blockchain technology in IPR in Indonesia still requires more detailed regulations, cooperation between stakeholders, and consideration from the perspective of Contemporary Islamic Law to ensure optimal protection for creative and intellectual rights in the digital era.

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