

Intellectual Property Rights in The Era of Industrial Revolution 4.0 in The Perspective of Legal Protection

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Abstract

The development of digital technology in the 4.0 Industrial Revolution has a substantial influence on the legal protection of intellectual property rights (IPR). Technologies such as the internet, big data, and artificial intelligence allow the use and utilization of intellectual work by other parties without permission or without paying royalties. In this context, the theoretical study of the legal protection of IPR during the Industrial Revolution 4.0 involves various disciplines, including law, information technology, business, and economics. This study discusses the importance of legal protection of IPR in the framework of the Industrial Revolution 4.0 era. Some of the relevant theories and concepts in this study are intellectual property rights (HKI), Industrial Revolution 4.0, blockchain technology, digital business models, knowledge-based economy, and commercial law. This study concludes that the legal protection of IPR during the Industrial Revolution 4.0 needs to be faced with innovative and integrated solutions. Governments, international institutions, industry players, and society as a whole must work together to develop rules and practices that are more effective in protecting intellectual property rights in the digital world. The study also discusses some of the challenges in the legal protection of IPR in the era of the Industrial Revolution 4.0, such as the issue of unauthorized use of data, copyright abuse, and challenges in developing sustainable business models. Blockchain technology and the concept of a knowledge-based economy can be an effective solution in overcoming these challenges. In this research, a qualitative approach is used by analyzing theories and concepts related to legal protection of IPR during the Industrial Revolution 4.0. The data used in this study are literature from various sources such as scientific journals, books, and official documents from related institutions. This study is expected to contribute and provide input for policy makers, researchers, practitioners, and the general public address the issues of IPR kegal protection in the Industrial Revolution 4.0. Through integrated and collaborative efforts, it is hoped that a more conducive environment for innovation and sustainable technological development can be created.

Keywords: *Intellectual Property Rights; Industrial Revolution 4.0; Legal Protection; Digital Technology; Blockchain; Digital Business Models*

I. INTRODUCTION

The globe is now changing gradually in the industrial world, which may be referred to as the Industrial Revolution. The word “revolution” can be defined as “a fairly fundamental change in the field”. Revolution means a change that has a major impact on the order of life. It is called the Industrial Revolution because this revolution is the fourth revolution that occurred in the history of industrial development. The Industrial Revolution allowed people to apply automation system, i.e. technology and machines in their daily lives, especially in the industrial world, so that their implementation does not require human labor (Abdillah, 2021).

This phenomenon had a major impact on industrial life both positively and negatively. The positive effect seen after the Industrial Revolution is the rapid development of technology that facilitates access to information and telecommunications. In addition, the Industrial Revolution can increase the efficiency and effectiveness of the production of goods or services in the industrial world and reduce production costs to be cheaper. However, with the convenience offered by automation systems, the negative impact is that human labor is no longer needed and is replaced by machines, thus increasing unemployment and high competitiveness in the world of work. Fajrin Rasyid, founder of Bukalapak, said that with the industrial revolution, 800 million jobs in the world could be lost because they will be taken over by robots. The role of technology in the industrial revolution era is very important for the industrial world. Information and communication technology is fully utilized to achieve efficiency in the creation of high-quality and highly competitive products. There are 9 different technologies that will become the main pillars of the development of automation systems in the industrial world, namely *Big Data and Analytics*, *Autonomous Robot*, *Simulation*, *Internet of Things (IOT)*, *System Integration*, *Augmented Reality*, *Cloud Computing*, *Add, Manufaktur and Cybersecurity*. These technologies are increasingly being developed and applied in the industrial world and will bring changes in all industrial sectors (Adini *et al.*, 2021).

The advancement of digital technology in the Industrial Revolution 4.0 era has altered the way humans interact, work, and communicate. Technological developments such as the internet, big data, and artificial intelligence have opened up easier and wider access to information and knowledge. In this context, the protection of intellectual property rights (IPR) has become increasingly important to ensure that creators and owners of rights to intellectual works receive appropriate recognition and rewards.

However, at the same time, digital technology also allows the use and utilization of intellectual works by other parties without permission or without paying royalties. This

poses new challenges for the legal protection of IPR in the era of the Industrial Revolution 4.0. Industry players and the government must take these challenges seriously and find innovative, integrated solutions to safeguard the interests of intellectual property rights owners (Arbar, 2019).

The theoretical study of legal protection of IPR in the era of the Industrial Revolution 4.0 involves various disciplines, including law, information technology, business, and economics. This study discusses the importance of legal protection of IPR in the context of the Industrial Revolution 4.0 era. Some of the relevant theories and concepts in this study are Copyright Law, intellectual property rights (IPR), Industrial Revolution 4.0, blockchain technology, digital business models, knowledge-based economy, and commercial law.

Known copyright means that the creator or copyright owner receives exclusive rights that regulate, transfer or reproduce the use or license of certain ideas, creations or information, without prejudice to the limitations imposed by applicable law. Because it comprises science, art, and literature (art and literature), copyright is included in the category of intellectual property with the largest extent of protected items. The right to a creation protected by copyright is very important for the creator, so that no one takes the creation created by the creator or do something detrimental to the creator. Copyright is also a form of influence in the economic development of the country (Budiarta *et al.*, 2020).

In this Revolutionary era, the development of technology has become very fast. The internet as a form of technology application is the main source for many people to get information easily. This technological development is very useful for increasing understanding and getting faster and more complete information, every year changes in the technology industry are increasing, which can also affect people's lifestyles. Where with the internet can make people more creative in making a work and can be traded online. but it does not rule out the possibility that this increasingly advanced technology will have a negative impact. Therefore, addressing technological developments must be in line with human thinking in order to work well with technological developments, unless humans themselves utilize the advantages of technological developments to do things that are not good. This paper will discuss the challenges and solutions in the legal protection of IPR during the Industrial Revolution 4.0. In this context, blockchain technology can be an effective solution in addressing the problem of unauthorized use of data and copyright abuse. The concept of a knowledge-based economy can also be a solution to developing a more sustainable business model during the Industrial Revolution 4.0.

In the context of legal protection of IPR throughout the Industrial Revolution 4.0, there are several challenges that need to be overcome. One of the challenges is the unauthorized use of data or copyright misuse. Along with the technological advances, data is becoming increasingly accessible and distributed. This allows for the unauthorized dissemination of intellectual works and without the permission of the rights owner.

To solve this problem, blockchain technology can be used as an effective solution. Blockchain is the underlying technology of digital currencies such as Bitcoin. This technology allows digital transactions to occur securely and reliably without involving a third party as an intermediary. In the context of legal protection of IPR, blockchain technology can be used as a digital rights management system. In this system, information about rights to intellectual works such as copyrights, patents, and brands are registered and protected in digital form and distributed across the blockchain network. This system will ensure that data about intellectual property rights cannot be manipulated or altered without the permission of the rights owner (Disemadi *et al.*, 2021).

In addition to the challenge of unauthorized use of data, legal protection of IPR during the Industrial Revolution 4.0 also faces challenges in developing a more sustainable business model. Digital business models generally rely on data as the main resource. This poses challenges in the management and protection of personal data and confidential information used in digital business models. Therefore, innovative and integrated solutions are needed in the development of sustainable business models.

One solution that can be adopted is the concept of a knowledge-based economy. This concept prioritizes the development of human resources and knowledge as the main factors in economic development. In the context of digital business models, this concept can be interpreted as business development that focuses on developing human resources and knowledge to produce more sustainable added value. In the practice, this business model can be applied in the development of new technologies that are more sustainable and can provide benefits to the wider society.

The urgency of legal protection of intellectual property rights (IPR) in the 4.0 Industrial Revolution is very important because the rapid development of electronic technology has a major impact on the sustainability of business and the economy globally. The development of increasingly sophisticated digital technology has enabled the creation, use, and dissemination of intellectual works easily and quickly. This has triggered the growth of new business opportunities related to the use of digital technology, such as platform businesses, e-commerce, fintech, and many more.

However, the impact of the development in digital technology can also pose risks to intellectual property rights owners. Valuable data and information such as designs, patents, brands, and copyrights can be easily accessed, duplicated, or used unlawfully by other parties without the permission of the rights owner. This results in financial losses for the rights owner, reduces the value of the IPR investment, and can even damage the reputation of the rights owner.

In addition, the development of digital technology also poses new challenges in developing more sustainable business models. Digital business models generally rely on data as a key resource. Inappropriate use of data or misuse of copyrights can pose serious legal risks to companies and rights owners.

Therefore, legal protection of IPR is essential to ensure business and economic sustainability globally. In the context of legal protection of IPR during the Industrial Revolution 4.0, innovative and integrated solutions are needed in the development of sustainable business models, as well as an effective digital rights management system to protect intellectual property rights from misuse or unauthorized use. Effective legal protection of IPRs will help to increase the value of IPR investments, ensure the sustainability of businesses, and improve the welfare of society through the development of more sustainable and innovative technologies.

II. LITERATURE REVIEW

Theoretical Studies

The theoretical study of the rights to intellectual property protected by law in the period of the 4.0 Industrial Revolution involves various disciplines, including law, information technology, business, and economics. Some of the relevant theories and concepts in this study are:

1. Copyright Law

The Copyright Act (Copyright Law) is a law that regulates the rights of writers, artists, creators, and copyright owners to their works. The Copyright Law aims at safeguarding the concerns of copyright owners so that their works are not misused by other parties without permission or without paying royalties. The Copyright Law grants exclusive rights to copyright owners to do or delegate authority to other parties to do certain things related to the work, such as announcing, copying, reproducing, and making derivative works. The exclusive rights apply during the copyright validity period that has been determined. The Copyright Law also regulates the moral rights of copyright owners, such as the right to be recognized

as the creator, the right to determine the use of the work, and the right to maintain the integrity of the work (Disemadi *et al.*, 2021).

Copyright violations can occur if someone takes actions that violate the exclusive rights of the copyright owner, such as copying or reproducing the work without permission or without paying royalties. Copyright infringement may be subject to legal sanctions, such as criminal and/or civil, in accordance with the provisions stipulated in the Copyright Law

In addition, the Copyright Law also regulates the settlement of copyright disputes, including how to resolve through legal and alternative processes such as arbitration and mediation. The Copyright Law in Indonesia was last amended in 2014 through Law Number 28 of 2014 concerning Copyright. The Copyright Law replaces the previous Copyright Law that has been in place since 2002.

The Copyright Law (Copyright Law) is part of the Intellectual Property Rights (IPR) protection system in Indonesia. IPRs are the rights granted for the intellectual works produced by one person or group of people, such as copyrights, licenses, trademarks, industrial designs, trade secrets, and integrated circuit topography protection (Fadhillah *et al.*, 2022).

Copyright is one type of IPR that protects the rights of writers, artists, creators, and copyright owners for their works. The Copyright Law provides exclusive rights to copyright owners to do or give permission to other parties to do certain things related to their works, such as announcing, copying, reproducing, and making derivative works.

In addition to copyright, IPR also includes other rights, such as patents that protect inventions, brands that protect the identity of products or services, industrial designs that protect product designs, trade secrets that protect confidential business information, and integrated circuit topography protection that protects the design of integrated circuit structures.

In the context of overall IPR protection, the Copyright Law is one of the important legal instruments to protect the rights of copyright owners and ensure that these works are not misused by other parties. IPR itself is very important for industrial development and innovation in a country, because it provides incentives to creators to continue to create and develop new works and increases the competitiveness of products in the global market.

2. Intellectual Property Rights (HKI)

IPRs are an exclusive rights granted to the creator or owner of an intellectual work, including copyrights, patents, trademarks, industrial designs, and trade secrets.

This right provides protection against the use or utilization of intellectual work by other parties without permission or without paying royalties (Guswandi *et al.*, 2021).

Intellectual Property Rights or IPR is a term used to describe the legal rights granted to owners of intellectual property for works produced or invented. IPR includes various types of rights, such as copyright, patent rights, trademark rights, industrial design rights, and trade secret rights. IPR grants the owner the exclusive right to utilize and trade the products or services associated with his or her intellectual property (Harahap *et al.*, 2020).

IPRs provide legal protection for intellectual property owners, allowing them to take legal action against acts of infringement by other parties. This includes actions against piracy, unauthorized use, and infringement of brand rights. These legal protections are important to ensure that intellectual property owners are able to utilize their work commercially and derive economic benefits from their work (Hartini *et al.*, 2018).

In this digital era, legal protection of IPRs is becoming more important due to the easy access to information and the ability to quickly copy and disseminate the intellectual works. In this context, the use of digital technology also provides new challenges in IPR protection, as many works can be easily copied and distributed over the internet.

However, the existence of IPRs also raises some controversial issues. Some critics argue that IPRs can be limiting to innovation and technological development, as intellectual property owners tend to maintain their exclusive rights and prevent others from utilizing or developing related products or services. In addition, some developing countries also criticize IPRs for being unfair and providing benefits only to developed countries.

In facing the challenges and issues that arise in the management of IPR, a balanced approach is needed between the rights of intellectual property owners and the public interest. This can be achieved through the development of better policies and regulations, including international agreements governing IPR protection, as well as the development of sustainable technology and innovation.

Overall, IPR is an important concept in developing both innovation and the economy, as well as providing legal protection for intellectual property owners. However, to ensure that IPRs can contribute positively to technological development and the well-being of society globally, a balanced approach that is responsive to technological developments and the public interest is required.

3. Industrial Revolution 4.0

The Industrial Revolution 4.0 refers to the digital transformation and automation that occurs in various industrial sectors, such as manufacturing, transportation, healthcare, and finance. This revolution is driven by technological developments such as the Internet of Things (IoT), big data, artificial intelligence, and robotics. The Industrial Revolution 4.0 has affected almost all aspects in life, including industry, government, education and society in general. As technology continues to evolve and become more integrated with the way we work, interact and make decisions, it provides great potential to improve productivity and efficiency (Jamba, 2015).

However, the Industrial Revolution 4.0 brings with certain new issues that must be addressed. One of the major issues is the issue of inequality and concerns about the replacement of human workers by robots and AI. In addition, the Industrial Revolution 4.0 also raises concerns about data privacy and cybersecurity, as more and more personal data is collected and used by companies and governments.

In the economic context, the Industrial Revolution 4.0 also provides challenges and opportunities for businesses. Companies must adapt quickly to technological changes and consumer trends, and make large investments in technology development and integration. On the other hand, more advanced technologies also provide opportunities to create more innovative and efficient products and services, which can improve business competitiveness (Noorsanti *et al.*, 2018).

The Industrial Revolution 4.0 also affects the public sector, including government and education. The government must pay attention to relevant regulations and policies to ensure the safe and effective use of technology, and promote inclusivity and equality of access to technology. Education must also adapt curricula and learning methods to new technology trends, so that students can develop relevant skills and be ready to face the demands of an increasingly competitive world of work.

The Industrial Revolution 4.0 also provides opportunities to improve social and environmental issues, such as improving quality of life and reducing environmental impact. Advanced technologies can be used to create innovative solutions that are sustainable and benefit society in general.

4. Blockchain Technology

Blockchain is a distributed database technology that uses cryptography to ensure the security and validity of transactions. This technology can be used to secure intellectual property data, including copyrights and patents (Prasetyo *et al.*, 2018).

Blockchain technology is known as the underlying technology of digital currencies such as bitcoin. However, it can also be used in areas such as supply chain management, property ownership, and financial services, among others. Blockchain technology has the potential to speed up business processes, increase transparency, and strengthen data security.

Blockchain is a distributed database technology that stores transactions transparently and permanently. Data on the blockchain is not stored on one central server, but rather spread across a network of computers connected via the internet. Every transaction that occurs on the blockchain is authenticated by a group of nodes on the network and stored in blocks that are interlinked with each other like a chain.

The advantages of blockchain technology include transparency, security, and decentralization. Blockchain transparency means that every transaction that occurs on the blockchain can be seen by anyone with access to the network. Since every transaction is authenticated by a group of nodes on the network, blockchain security is stronger than conventional databases operated by a single company or organization. Lastly, decentralized blockchain technology implies that neither single party or institution manages the entire network, making it impossible to manipulate or alter data on the blockchain (Prathama *et al.*, 2021).

There have been many applications of blockchain technology in recent years. Supply chain management, banking, insurance, and other financial services are examples of blockchain uses in business. In the management of supply chains, blockchain technology allows manufacturers, suppliers, and consumers to track products from the beginning to an end. In finance, blockchain technology can speed up transactions and reduce costs associated with processing financial transactions (Pratistha, 2019).

While blockchain technology has many advantages, there are still some challenges to overcome. First, the technology is still relatively new and not fully mature, which requires further development. Second, the adoption of blockchain technology is still limited due to interoperability issues between various blockchain networks. Third, some regulators still don't understand or are skeptical of blockchain technology and its potential use in business.

Blockchain technology has great potential to improve both efficiency and transparency in business. However, there are still many challenges to overcome in order to achieve wider adoption. In the near future, blockchain technology will

continue to evolve and become more mature, so further research and development is needed to fully utilize the potential of this technology.

Blockchain technology is closely related to the Industrial Revolution 4.0. As one of the technologies that is a pillar in this revolution, Blockchain provides the potential to change many aspects in various fields, such as economics, finance, law, and so on.

In the Industrial Revolution 4.0, Blockchain technology plays an important role in facilitating secure, fast, and efficient transactions. In this case, Blockchain can be used as a platform for financial transactions, such as payments, money transfers, and digital asset storage. By using Blockchain technology, financial transactions can be carried out at a lower cost and faster compared to traditional methods. In addition, Blockchain technology also provides better security because it cannot be manipulated and the transactions are recorded in a decentralized manner on an entire network.

Apart from finance, Blockchain technology can also be used in other fields, such as logistics, manufacturing, and education. For example, in the logistics industry, Blockchain technology can be used to monitor the supply chain on a real-time basis, from the shipment of the items all the way to the delivery and ends at the customer. In the manufacturing industry, Blockchain technology can be used to speed up the manufacturing process and improve production efficiency. However, in the sphere of education, Blockchain technology can be used to store and verify data on academic qualifications and professional certifications (Purba *et al.*, 2021).

In the context of intellectual property rights protection, Blockchain technology can also be used to secure and verify copyrights, patents, and trademarks. In this regard, Blockchain technology provides higher transparency and security for the filing and registration of intellectual property rights (Putri *et al.*, 2021). Thus, it can be concluded that Blockchain technology is closely related to the Industrial Revolution 4.0 and provides great potential in changing many aspects for human life, including the protection of intellectual property rights.

5. Digital Business Model

Digital business models are new ways of producing both value and creating profits through the utilization of digital technology. Some examples of digital business models are software licensing, digital content sales, and e-commerce trading (Rahardja *et al.*, 2020).

Digital business models are closely related to the Industrial Revolution 4.0. The Industrial Revolution 4.0 is a revolution in technology that marks a change in the

way humans work and produce, where digital technologies such as the Internet of Things (IoT), big data, and artificial intelligence are key to the production process. The digital business model is the main key in utilizing digital technology to optimize business. In the Industrial Revolution 4.0, companies should be competent in integrating digital technology in all aspects of their business, including product and service development, distribution, and marketing. Digital business models allow companies to take advantage of digital technology, such as improving production efficiency, increasing customer engagement, and expanding market reach (Riswandi *et al.*, 2022).

In addition, digital business models can also assist companies in facing the challenges that arise in the Industrial Revolution 4.0, such as the increase of global competition, changes in consumer behavior, and increased business complexity. By using digital business models, companies can adapt more quickly to rapid changes in the business environment and meet increasingly high customer needs. Overall, digital business models hold an important key in facing the Industrial Revolution 4.0, where companies should be able to integrate digital technology in all aspects of their business to gain more profit and increase competitiveness in the global market.

6. Knowledge Based Economy

A knowledge-based economy leads to an economy driven by innovation, knowledge, and creativity. In such economy, IPRs are becoming even more important as intellectual work is one of the key resources for creating value.

Knowledge-Based Economy leads to a form of economy that is driven by innovation, knowledge, and creativity as the main resources in creating economic value. This economic concept emphasizes the use of knowledge, information, and technology in creating, distributing, and managing wealth (Rohimah, 2021).

IPRs (Intellectual Property Rights) are becoming increasingly important in the knowledge-based economy as intellectual work is one of the key resources for creating value. IPRs protect intellectual property rights, such as copyrights, patents, trademarks, and industrial designs, which can be the basis of economic activities that generate new products and services.

In a knowledge-based economy, technological innovation and creativity are becoming more important. Successful companies in this economy must be able to create additional value by developing new products and services that are different from those that existed before. This innovation is driven by fast-evolving

knowledge and technology, as well as the creativity of creating new solutions for the problems encountered.

An example of a successful knowledge-based economy is Silicon Valley in the United States. This region has become the world's center of innovation and technology because it is supported by the presence of leading universities, large investments from the private sector, and government policies that support technology development (Sanusi *et al.*, 2019).

However, the challenges faced in a knowledge-based economy are not small. There is a risk of job losses in traditional sectors due to the shift in economic focus to new sectors that are more related to knowledge and technology. In addition, not all countries have equal access to knowledge and technology, so economic gaps between countries may become wider.

Overall, a knowledge-based economy is a form of economy that refers to the use of knowledge, information, and technology as a key resources in creating economic value. IPRs are becoming increasingly important in this economy as intellectual work is one of the key resources for creating value. In this type of economy, technological innovation and creativity are becoming increasingly important, and the challenges faced in this economy include job losses in traditional sectors and economic disparities between countries (Sembiring, 2002).

7. Commercial Law

Commercial law covers rules and regulations related to business activities, including international trade, investment, and intellectual property. In the study of legal protection of IPR in the era of the Industrial Revolution 4.0, commercial law becomes very relevant because it involves business transactions that cross national boundaries and digital platforms (Sembiring, 2002).

Commercial law is a field of law concerned with the regulations and laws that apply to commercial operations. This area of law covers various aspects of business, such as international trade, investment, intellectual property, business agreements, as well as environmental regulations and work safety. During the Industrial Revolution 4.0, commercial law is becoming increasingly relevant as international trade expands and business transactions are crossing national borders and digital platforms (Sukarnoto, 2020).

The development of digital technology has accelerated the growth of international trade and enabled businesses to be globally operated. However, it also brings new challenges in terms of commercial legal arrangements. Digital transactions are

require clear and harmonized legal arrangements, especially in terms of intellectual property and personal data protection.

During the Industrial Revolution 4.0, legal protection of IPR (Intellectual Property Rights) is becoming increasingly important. IPR is becoming a highly valuable asset in an intensely competitive business environment, and the protection of copyrights, patents, trademarks, and industrial designs has become key in maintaining business excellence. However, the challenges in regulating IPR are also getting more complex, especially in the digital era where information can be easily copied and disseminated around the world (Surniandari, 2016).

In terms of international trade, commercial law is also important in regulating contracts and business agreements between countries. Several international agreements such as the WTO (World Trade Organization) and the ASEAN Free Trade Area have been established to regulate international trade. Yet, challenges in regulating international trade continue to arise, such as trade disputes and dumping practices that can affect trade equity.

In addition, commercial law also plays an important role in maintaining environmental health and safety and occupational safety. Strict environmental and occupational safety regulations are necessary to ensure that businesses operate ethically and responsibly towards society and the surrounding environment.

Overall, commercial law plays an important role in regulating business activities, especially in the digital era and widespread international trade. Legal protection of IPR is becoming more relevant during the Industrial Revolution 4.0, while international trade arrangements and environmental and occupational safety regulations are also important in maintaining fairness and business responsibility.

In the theoretical study of legal protection of intellectual property rights in the Industrial Revolution 4.0 era, it is necessary to take an interdisciplinary approach that integrates various aspects of law, technology, business, and economics.

III. METHODELOGY

This paper uses a literature study of research methodology. Literature study research methodology or literature review is one of the research methods carried out by searching and analyzing various sources of information or literature relevant to the research topic being conducted. This method is carried out to gain a better understanding of the research topic, and also to build a strong theoretical foundation for the research to be carried out.

This method is usually used in descriptive research or research using secondary data. Literature review can be done through searching for literature sources through various media, such as scientific journals, books, articles, or online documents. Searching for literature sources can also be done through online search engines, such as Google Scholar or other academic databases.

The steps in conducting a literature review include identifying research topics, searching for literature sources, selecting literature sources, evaluating literature sources, analyzing literature sources, and writing literature studies.

The result of the literature review is a literature review or review paper that includes an introduction, research objectives, research methods, analysis results, and conclusions. The literature review contains the results of an analysis of literature sources relevant to the topic of the research being conducted, which will later become the theoretical basis for the research conducted.

In conducting a literature review, it is critical to give importance to the credibility and novelty of the literature that is used, as well as conducting a systematic and selective search process for literature sources to increase the validity of the research results. Literature reviews can also make an important contribution to the development of knowledge and understanding in certain fields.

This paper on the legal protection of intellectual property rights in the era of the Industrial Revolution 4.0 is a very complex and broad topic. Therefore, using the literature study research methodology is very suitable for this research.

IV. RESULT AND DISCUSSION

The role of Copyright Law (Copyright Law) is very important in the protection of Intellectual Property Rights (IPR) in the Industrial Revolution Era. In this era, technology is getting more advanced and allows easier access to information and dissemination of works. Therefore, IPR protection is becoming increasingly crucial to prevent the use and dissemination of works without the permission of the copyright owner.

Copyright Law has an important role in encouraging the innovations and creativity within the industry in the Industrial Revolution Era. In this case, the Copyright Law provides sufficient legal protection to copyright owners for the work that is produced. This includes the exclusive right to do or give permission to other parties to do certain things related to the work, such as announcing, copying, reproducing, and making derivative works.

Strong IPR protection through the Copyright Law also provides legal certainty for investors and creators, thus encouraging investment in the creative and industrial sectors. Therefore, the Copyright Law is the key to encouraging economic growth based on creativity and innovation in the Industrial Revolution Era.

In addition, Copyright Law is critical in governing the moral rights of copyright owners, such as the right to be recognized as the creator, the right to determine the use of the work, and the right to maintain the integrity of the work. This ensures that the works are not improperly altered or changed, as well as giving proper recognition to the creator of the work.

During the Industrial Revolution, where the circulation of information and works is getting faster and easier, IPR protection through the Copyright Law is very important to prevent copyright infringement and encourage the creation of a healthy economic environment for creative and innovative industries. The Copyright Law also has a role in encouraging the dissemination of information and knowledge. In an era where access to information is getting easier, proper IPR protection will also encourage copyright owners to grant permission to other parties to use their works, including for educational and research purposes.

Copyright Law also plays an important role in maintaining fairness for copyright owners, especially when it comes to the dissemination of works in the digital age. The dissemination of works on the internet has allowed easy access to the works of others, but often without the permission of the copyright owner. The Copyright Act allows copyright owners to pursue legal action against these copyright infringements, thus ensuring that their works are not misused.

In the global context, protection of IPRs through Copyright Law is also important in promoting fair and balanced international trade. At the same time, international cooperation in protecting IPR is also necessary to ensure that copyright owners from weaker countries are not disadvantaged by stronger countries in terms of IPR protection.

In conclusion, the Copyright Law is critical in the protection of IPR in the Industrial Revolution Era. The Copyright Act provides sufficient legal protection for copyright owners, encourages innovation and creativity in the industrial sector, and prevents copyright infringement. IPR protection through Copyright Law is also important in maintaining fairness for copyright owners, promoting fair and balanced international trade, and encouraging the dissemination of information and knowledge. Therefore, the Copyright Law must be continuously improved and updated in accordance with technological and industrial developments in the Industrial Revolution Era.

Legal protection of IPR has a very important impact on copyright owners, society, and the economy as a whole. One of the main impacts of the legal protection of IPR is to encourage innovation and creativity. With legal guarantees that their works are protected and will not be misused, copyright owners feel more secure and encouraged to continue creating new, innovative works. This can bring benefits to the industrial sector, such as in the fields of technology, music, movies, and others.

In addition, legal protection of IPR also provides benefits to the general public, because they can easily access and use these works without worrying about violating copyright. With clear regulations and well enforced, the public can benefit from the works that have been created by copyright owners.

Another impact of legal protection of IPR is that it enables the creation of a sustainable creative industry. In a fair and regulated environment, copyright owners can utilize their works as a stable source of income. This can have a positive impact on the economy as a whole, especially in the digital age where works can be easily accessed through the internet.

However, there are also some negative impacts of legal protection of IPR, such as limiting access and use of certain works. Therefore, it is necessary to strike the right balance between copyright protection and the public interest, so that no party is harmed in the long run.

The correlation between legal protection of IPR and the industrial revolution is quite tight. The industrial revolution is characterized by the adoption of rapidly developing new technologies, such as digital technology and the internet. This has enabled works of art, music, and other information to be easily transmitted and accessed by millions of people around the world. However, with the presence of these technologies, these works have also become more vulnerable to copyright infringement, such as piracy and acts of unauthorized use.

Therefore, legal protection of IPR has become very important during the industrial revolution. In an ever-evolving digital environment, there needs to be a clear set of regulations and laws to protect the copyright of the owners of the works from violations. In addition, legal protection can also encourage innovation and creativity in the creative industry in the industrial revolution era, which can have a positive impact on the economy and society as a whole.

Therefore, the legal protection of IPR is an important factor in overcoming the challenges that arise due to the adoption of new technologies during the industrial revolution. With proper protection, the creative industry can continue to grow with sustainable innovation and provide benefits to the entire community.

Blockchain technology has a significant impact on the protection of intellectual property rights in the industrial revolution era. This technology enables the creation of a safe and secure decentralized database, which allows copyright owners to better protect their works.

In the music industry, blockchain technology enables the creation of a decentralized music distribution platform, where royalties can be given directly to songwriters without going through a third party. This can reduce transaction costs and ensure songwriters get a fairer share of the revenue generated.

In the film and television sector, blockchain technology can be used to ensure that the copyrights of movies and television series are strictly guarded. In traditional systems, copyrights can be counterfeited or stolen easily, but with blockchain technology, every transaction can be recorded and verified automatically, allowing copyright owners to better control the use of their works.

In the publishing sector, blockchain technology can be used to create a more effective and efficient copyright management system. Smart contracts can be used to enforce license terms and ensure that royalties are awarded in a timely manner.

With blockchain technology, copyright owners can benefit from the transparency and traceability that the technology provides. Therefore, blockchain technology has great potential to transform the way creative industries operate, benefit creators and consumers, and drive innovation growth in the era of the industrial revolution.

Digital business models have a significant impact on intellectual property rights (IPR) in the era of the industrial revolution. In the digital age, works of art, music, and other information may now be quickly spread and utilized by millions of people around the world. This creates new challenges in copyright protection and securing intellectual property.

However, digital business models can also provide benefits to copyright owners and the creative industries as a whole. One example is the subscription business model, where users pay a monthly or annual fee to access digital content, such as music, movies, or e-books. This business model can help reduce copyright infringement, as users pay to legally access the content.

In addition, digital business models can also provide more opportunities for creators to earn income from their works. In a digital environment, creators can use platforms like YouTube, Spotify, or Patreon to monetize their works and earn directly from their fans. This can help reduce reliance on third parties and give creators more control over their copyrights.

However, digital business models can also create new challenges in securing intellectual property. For example, unauthorized acts of hijacking and dissemination of works are still a major problem in the digital environment. Therefore, copyright owners and creative industries must continuously adapt to the changing digital environment and create new strategies to protect their intellectual property. Digital business models have a significant influence on intellectual property rights in the era of the industrial revolution. While digital business models can provide benefits to copyright owners and the creative industries as a whole, new challenges in securing intellectual property must also be addressed effectively.

A knowledge-based economy can have a positive impact on intellectual property rights (IPR) policies during the industrial revolution. Basically, a knowledge-based economy is an economic system in which knowledge, information, and technology are the main factors in creating added value and economic growth.

In the current era of industrial revolution, technology and innovation are very important to create competitiveness and business success. This has led to the importance of protecting intellectual property rights, that involve copyrights, patents, trademarks, and industrial designs.

In a knowledge-based economy, innovation and creativity are highly valuable and important assets. Therefore, intellectual property rights protection has become more vital in ensuring that creators and owners of intellectual property rights are properly rewarded for their work. It can also encourage the creation of new innovations and more advanced technological inventions, which in turn can accelerate economic growth.

On the other hand, IPR protection can also help encourage investment in the research and development sector, and create a stable and orderly business environment. In a knowledge-based economy, where technology and innovation are crucial, protection of intellectual property rights can help avoid unfair competition and protect rights holders from acts of piracy and infringement of intellectual property rights. A knowledge-based economy can have a positive influence on intellectual property rights protection in the era of the industrial revolution, as knowledge, information, and technology become major factors in creating added value and economic growth.

V. CONSLUSION

In the Industrial Revolution era, the protection of Intellectual Property Rights (IPR) is becoming increasingly important to prevent the use and dissemination of works without the authorization of the creator of the work. In this context, the Copyright Law

(Copyright Law) has a very important role in providing sufficient legal protection for copyright owners for the works produced, as well as encouraging innovation and creativity in the industrial sector. One of the positive impacts of the legal protection of IPR is to encourage innovation and creativity. With legal guarantees that their works are protected and will not be misused, copyright owners feel more secure and encouraged to continue creating new works. This can increase industrial competitiveness, as well as advance technology and science. In addition, IPR protection through the Copyright Law also provides legal certainty for investors and creators, thereby encouraging investment in the creative and industrial sectors. In this case, the Copyright Law can be the key to encouraging economic growth based on creativity and innovation in the Industrial Revolution Era.

However, the challenges of protecting IPR in the digital age are also increasing. The use of technology and the internet allows easy access to the works of others, but often without the consent of the person who owns the rights. Therefore, the Copyright Law must be improved and updated in accordance with technological and industrial developments in the Industrial Revolution Era. On the other hand, IPR protection through Copyright Law also plays a vital role in maintaining fairness for copyright owners, promoting fair and balanced international trade, and encouraging the dissemination of information and knowledge. International cooperation in protecting IPR is also necessary to ensure that copyright owners from weaker countries are not disadvantaged by stronger countries in terms of IPR protection.

Overall, Copyright Law has an important role to play in the protection of IPR in the Industrial Revolution Era and should be improved to ensure adequate protection for copyright owners, encourage innovation and creativity, and maintain fairness for all parties involved.

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