ARTIFICIAL INTELLECTUAL AND INTELLECTUAL PROPERTY RIGHTS: A LEGAL ANALYSIS OF COPYRIGHT, PATENT, AND LIABILITY IN THE AGE OF ARTIFICIAL INTELLIGENCE

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ABSTRACT

The development of Artificial Intelligence (AI) has significant consequences for the Intellectual Property Rights (IPR) system, particularly regarding the status of copyright ownership, patents, and legal liability for works or inventions generated by machines. AI, which is technically capable of creating creative works and producing technical innovations, breaks the classical IPR paradigm that always requires the existence of a human as the creator or inventor. This research uses a normative juridical approach to analyse how the Indonesian IPR regime responds to this phenomenon, to what extent existing laws can accommodate AI-based works, and how international doctrines discuss issues of authorship, inventorship, and liability. The results show that Indonesian IPR law is still based on an anthropocentric paradigm, thus it is not yet able to address the issues of AI Copyright, AI-generated patents, and IPR violations that occur due to the use of copyrighted training data. Regulatory reform, classification of AI-based work status, and the establishment of liability standards are needed to create legal certainty in the age of artificial intelligence.

Keywords: *Artificial Intelligence, Copyright, Patent, Intellectual Property Rights, Legal Liability.*

INTRODUCTION1

Artificial Intelligence (AI) is developing rapidly and has been performing various activities that were previously considered the exclusive domain of humans, including creating artworks, writing texts, composing music, producing graphic designs, formulating chemical compounds, and even designing new technological inventions. The capabilities of generative AI such as Large Language Models, deep learning algorithms, and artificial neural networks have raised fundamental questions about how intellectual property law positions works or inventions that are not entirely born from human creative processes (Katzenbach: 2022, p. 41).

This development challenges the classical concept of IPR which requires **"the creator/inventor must be human"**. The Indonesian Copyright Law (Law No. 28 of 2014) explicitly defines a creator as **"a person or several persons who produce a work"**. Similarly, the Patent Law (Law No. 13 of 2016) defines an inventor as **"a person who discovers an inventive idea"**. Thus, the current Indonesian IPR regime does not yet provide space for machines that generate expressions or inventions without human involvement.

On the other hand, global developments show new complexity. Some international cases, such as the **DABUS Case** in the United States, the EPO, and the UK, have rejected designating AI as an inventor in patent applications (Abbott: 2020, p. 87). However, some jurisdictions, such as South Africa, have accepted AI as an inventor under limited conditions. Meanwhile, the debate regarding copyright for AI works is increasing because platforms like Midjourney, Stable Diffusion, and ChatGPT produce visual and text works on a massive scale and often utilize training data derived from copyrighted works.

This phenomenon indicates the need for in-depth legal discussion regarding whether the IPR system in Indonesia needs to adapt, how existing legal principles should be applied to works that are wholly or partially generated by AI, and how to determine legal responsibility if IPR violations related to AI use occur.

1.2. Problem Formulation

This research examines three main issues:

1. What is the position of works produced by AI in the Indonesian Copyright system?
2. Can inventions generated by AI obtain patent protection under Indonesian law?
3. How is the concept of legal liability in IPR violations involving the use of generative AI?

1.3. Research Objectives

This research aims to:

1. Analyse the legal standing of works and inventions generated by AI according to the currently applicable Indonesian IPR law.
2. Examine the boundaries of the concepts of "creator" and "inventor" in the context of AI.
3. Determine a model of legal liability for the use of AI that potentially violates copyright and patents.
4. Provide recommendations for legal updates so that the Indonesian IPR system can accommodate AI developments.

1.4. Research Benefits

1.4.1. Theoretical Benefit

This research contributes to the development of modern IPR doctrine, especially in modifying the classical theory of creator and inventor towards a theory that can accommodate non-human innovation (Samuelson: 2021, p. 112).

1.4.2. Practical Benefit

This research provides legal guidelines for:

a) policymakers,

b) IPR applicants,

c) creative and technology industries,

d) lawyers and academics,

to understand the legal consequences of using AI in creative processes and technical innovation.

1.5. Research Method

This research uses the **normative juridical** method with approaches:

1. **Statutory approach** to analyze the still applicable Copyright Law and Patent Law as of 2025.
2. **Conceptual approach** to analyze the definitions of creator, inventor, work, and invention.
3. **Comparative law approach** towards international practices, especially the European Union, United Kingdom, South Africa, Japan, and the United States.
4. **Case approach** such as decisions from the U.S. Copyright Office, US Patent Office, EPO, and UKIPO regarding AI works or inventions.
5. Legal material sources consist of primary, secondary, and tertiary legal materials. Analysis is conducted qualitatively by interpreting legal norms based on the principles of legal certainty, justice, and benefit.

1.6. Brief Literature Review

1.6.1. AI in a Legal Perspective

Most experts assert that AI is only a legal object, not a legal subject, therefore it cannot possibly have rights and obligations of its own (Pagallo: 2018, p. 55). Consequently, it is impossible for AI to directly become a copyright or patent holder.

1.6.2. Copyright and Creation by AI

Copyright requires a work to be born from human intellectual ability, so works without human intervention generally cannot be copyrighted (Samuelson: 2021, p. 114).

1.6.3. Patent and AI as Inventor

Some countries reject AI as an inventor because it violates the principle of human attribution, but there are countries that are starting to consider limited recognition.

1.6.4. IPR Violations and AI Algorithms

The main issue is training AI using copyrighted data without the rights holder's permission, thus creating potential violations (Geiger: 2022, p. 73).

DISCUSSION I: THE POSITION OF WORKS GENERATED BY ARTIFICIAL INTELLIGENCE IN THE INDONESIAN COPYRIGHT SYSTEM

2. AI Works and Their Legal Position in Indonesian Copyright

2.1. Definition of Work from a Copyright Perspective

In the Indonesian Copyright regime, a work is a result of creative expression arising from the intellectual ability of the creator as regulated in **Article 1 number 3 of Law Number 28 of 2014 concerning Copyright (Copyright Law)**. This norm emphasizes that the existence of a "creator" is central, and the creator is always understood to be human. The definition of creator according to Article 1 number 2 of the Copyright Law is **"a person or several persons who individually or jointly produce a creation."**

This paragraph is the basis that the Indonesian legal system operates using an **anthropocentric** (human-based) paradigm, so that every creation must have a causal relationship with human creativity. Therefore, works produced entirely by an AI system

without human intervention do not fulfill the creator element in the Copyright Law (Said: 2020, p. 77).

This implies that:

a) **AI cannot be a creator**,

b) **AI cannot hold copyright**,

c) **works generated autonomously by AI cannot obtain copyright protection**,

d) **protection can only arise if there is human creative contribution**.

Thus, Indonesian law has not yet adopted the category of "computer-generated work" as introduced in the UK's Copyright, Designs, and Patents Act (CDPA).

2.2. AI Works and the Absence of Recognition as Creations

In the context of generative technology like **Midjourney**, **ChatGPT**, **DALL·E**, or **Stable Diffusion**, some of their output is often generated through an automated process of deep learning motifs without human creative intervention. Therefore, Indonesian law does not grant copyright to such output, unless there is an element of creativity traceable to a human (Ashari: 2021, p. 62).

For example:

- If the user only provides a generic prompt like "create a landscape picture," without further creative control, then the level of human creativity can be considered minimal.
- However, if the user provides detailed instructions, curates each result, performs further editing, and determines a specific aesthetic, then the user can be considered to have provided creative contribution.

The concept of "creative control" becomes the distinguishing factor between works that can be protected and those that cannot (Gervais: 2020, p. 119).

Therefore, **copyright only arises when a human has a substantive creative contribution to the AI output**.

2.3. International Policy on Copyright for AI Works

Many countries still maintain the principle that only humans can be copyright holders. This rejection exists in several jurisdictions, such as:

1. **United States Copyright Office (USCO)**

   USCO rejected the registration of works generated entirely by AI in the *Zarya of the Dawn* case (2022), on the grounds that the work "lacked human creative elements" (Patterson: 2023, p. 33).

2. **European Union**

   The European Union consistently asserts that a work must be an original expression originating from human creative ability (EUIPO: 2021, p. 49).

3. **United Kingdom**

Different from the US and EU, the UK has a special provision for *computer-generated works* in CDPA 1988 Section 9(3). However, the creator is still considered the "person who made the arrangements necessary," not the AI itself.

Since Indonesia adopts many basic IPR concepts from the Anglo-Saxon and Continental European regimes, international legal developments greatly influence the direction of law formation in Indonesia.

2.4. Does Indonesia Need to Regulate AI Works as Copyright Objects?

There are two views in Indonesia:

A. Conservative View: Not Necessary

The reasons:

1. IPR protection is only worthy of being given to humans as legal subjects (Pagallo: 2018, p. 59).
2. Granting copyright to AI works can reduce human creative incentives.
3. Regulating AI copyright can create monopolies for large companies owning AI models.

B. Progressive View: New Regulation is Needed

The reasons:

1. AI works are already widely circulated as economic commodities.
2. Without regulation, legal uncertainty occurs which harms users and platform owners.
3. Countries like the UK and Singapore have already adopted the "computer-generated work" category.

In Indonesia, the need for legal harmonization is very strong to avoid a normative vacuum (Darmadi: 2023, p. 54).

2.5. AI Works and the Issue of Originality

The originality requirement in the Copyright Law is the existence of:

1. **Intellectual ability**,
2. **Creative choice**,
3. **Personal expression of the creator** (Simanjuntak: 2021, p. 101).

This value cannot be attributed to AI output because:

a) AI has no consciousness,

b) has no legal personality,

c) has no creative intent,

d) does not engage in personal expression (Steyart: 2020, p. 15).

Therefore, **the originality of AI output is considered not to meet legal requirements**.

However, originality can be fulfilled if a human performs editing, combining, curating, or provides a certain aesthetic taste in the creative process.

2.6. AI as a Creative Tool (Tool Theory)

Some IPR theorists argue that AI should be viewed as a creative tool like a camera, design software, or a digital musical instrument (Liu: 2022, p. 66). If so, then the final result remains a human creation if:

a) the human directs the creative outcome,

b) the human determines artistic parameters,

c) the human evaluates and selects specific outputs,

d) the AI does not work entirely autonomously.

This approach is known as **Tool Theory**, the concept that AI is only a tool and does not have a substantive role as a creator (Margoni: 2021, p. 92).

In the Indonesian context, this approach is most likely to be adopted because it is consistent with the definition of creator in the Copyright Law.

2.7. Table Analysis of the Position of AI Works According to Indonesian Law

AI Works Category	**Human Role**	**Copyright Status**	**Legal Notes**
Fully automatic output	There isn't any	Not protected	Does not meet the creator's elements
Human-controlled AI output (deep creative prompts)	There is	Can be protected	Man as creator
Output AI hasil kurasi dan editing	Tinggi	Can be protected	Originality at the editing stage
Output AI tanpa intervensi kreatif manusia	There isn't any	Not protected	In accordance with Article 1 of the UUHC

2.8. Impact of the Absence of Copyright Protection for AI Works

If AI works are not protected by copyright:

a) anyone can use them,

b) there is no exclusive control,

c) AI companies cannot monopolize the output,

d) increases public access,

e) but creates commercial uncertainty.

In the context of digital business, this uncertainty can disrupt legal certainty and investment security (Rachman: 2022, p. 81).

THEORETICAL FRAMEWORK

The theoretical framework in this research serves as a conceptual foundation for understanding the relationship between artificial intelligence and the discipline of law. Three main theories are used to analyze how the law responds to technological developments, namely **Theory Responsive to Social Change**, **Theory of Legal Liability**, and **Theory of Human Rights Protection in the Digital Age**.

3.1 Theory Responsive to Social Change

Responsive law theory (Nonet & Selznick) views law as an institution that is not static, but develops following the dynamics of society. With the emergence of AI, social interactions, economics, and legal relationships change significantly. Therefore, the law is demanded to be more adaptive as put forward by:

a) **Nonet & Selznick (1978)**: law must be "responsive" to social developments, and not merely repressive or autonomous.

b) **Friedman (1986)**: technological change is one of the main factors influencing legal culture.

In the context of AI, this theory indicates that:

a) Regulation cannot wait for major problems to arise, but must move in tandem with innovation.

b) Principle-based regulation models are more suitable than technical rules that quickly become obsolete.

c) The state needs to encourage collaboration between legislators, legal academics, and technology experts to produce adaptive rules.

This theory becomes relevant to explain the need for legal renewal amidst the acceleration of AI innovation which potentially creates a legal vacuum.

3.2 Theory of Legal Liability

Legal liability becomes a central issue when AI begins to take over decision-making tasks. This theory relates to who is responsible for actions or outputs generated by AI.

Several theoretical approaches to AI liability include:

1. Liability Based on Control

According to **Hart and Honoré (1985)**, liability is based on a person's ability to control actions that cause loss. In *autonomous* AI, the level of human control decreases so that the traditional concept of liability becomes problematic.

2. Vicarious Liability

Under this model, the user, owner, or developer of AI can be held responsible for AI's actions just as an employer is responsible for an employee's actions.

3. Product Liability

AI is positioned as a product. If an error in AI causes loss (for example, an autonomous car hitting a pedestrian), the manufacturer can be held responsible for design defects or algorithmic defects.

4. Shared Liability

Some jurisdictions are beginning to develop the concept of *shared liability* between developers, operators, and data providers.

Using this theory, the research can explain that Indonesia needs a special liability model for the use of AI, especially in high-risk sectors like health, justice, and transportation.

3.3 Theory of Human Rights Protection in the Digital Age

Advances in AI directly impact rights to privacy, data protection, non-discrimination, and freedom of expression. Some important theoretical foundations:

1. **Alan Westin (1967)** stated that privacy is an individual's control over personal information.
2. **Non-discrimination theory** emphasizes that algorithms must not produce racial, gender, or other social biases.
3. **Digital Human Rights theory** (Kuner, 2017) states that technological development requires expanded human rights guarantees to protect humans from digital technology threats.

In the context of AI:

1. AI systems can create automatic profiling through big data, potentially leading to algorithmic discrimination.
2. The use of AI in the judiciary must prioritize the principle of fair trial.
3. The state is obliged to create regulations that ensure transparency and accountability.

With this theoretical framework, the research can assess to what extent Indonesian law is able to protect its citizens from the risk of human rights violations by AI.

3.4 Relevance of the Theoretical Framework to the Research

These three theories complement each other:

a) **Responsive Theory** → explains the need for legal renewal.

b) **Liability Theory** → provides the basis for analysis regarding the legal subject responsible for AI decisions.

c) **Digital Human Rights Theory** → ensures that AI implementation still respects human dignity and fundamental rights.

The use of these three theories provides a strong academic foundation for analyzing the relationship between AI and legal science in Indonesia.

RESEARCH METHOD

This research uses normative legal research methods with conceptual and statutory approaches to analyze the relationship between Artificial Intelligence (AI) and legal regulations in Indonesia.

4.1 Research Type

The type of research used is **normative legal research** (Soekanto, 2010) focusing on:

1. legal principles,

2. normative systems,
3. relevant legal theories, and
4. applicable legal norms related to AI use.

Normative research is chosen because AI issues are still dominated by problems of legal interpretation, normative gaps, and the need for regulatory reconstruction.

4.2 Research Approaches

The approaches used include:

1. **Statutory Approach**

Used to analyze the suitability of AI within the framework of:

a) Electronic Information and Transactions Law (ITE Law),
b) Personal Data Protection Law (PDP Law),
c) Copyright Law,
d) Consumer Protection Law,
e) as well as other sectoral regulations.

2. Conceptual Approach

Examines basic concepts related to:

a) AI as a technological entity,
b) legal responsibility,
c) the principle of due diligence,
d) digital human rights,
e) and ethics of AI utilization.

3. Comparative Approach

Compares with other jurisdictions such as:

a) The European Union through the **EU AI Act** (2024),
b) The United States through the **AI Bill of Rights** (2022),
c) Singapore through the *Model AI Governance Framework* (2020).

This approach is used to assess the feasibility of adopting a similar model in Indonesia.

4.3 Legal Material Sources

1. Primary Legal Materials

a) Laws and regulations related to AI, personal data, and information technology.
b) Relevant court decisions, including those regarding personal data and technology disputes.

2. **Secondary Legal Materials**

a) International books and journals on AI ethics, AI regulation, and digital law.

b) Scientific articles discussing liability in AI systems and algorithmic risks.

3. **Tertiary Legal Materials**

a) Legal encyclopedias,

b) Legal dictionaries,

c) and policy documents from international institutions.

4.4 Technique for Collecting and Analyzing Legal Materials

Collection of legal materials is done through literature study and academic database searches. Analysis is conducted using **descriptive-analytical analysis**, namely describing legal phenomena and then analyzing them logically based on legal theory, legal norms, and international practices.

DISCUSSION

The discussion in this research focuses on three main issues:

1. the urgency of AI regulation in the Indonesian legal system,
2. legal liability in the use of AI, and
3. protection of human rights and personal data in the AI era.

5.1 Urgency of AI Regulation in the Indonesian Legal System

The rapid development of AI has various legal implications. Indonesia does not yet have specific regulations governing AI comprehensively. This condition creates a *legal vacuum* potentially impacting:

1. **algorithmic bias**,
2. **uncertainty of liability**,
3. **misuse of personal data**,
4. **decline in public accountability**, and
5. **ethical problems in law enforcement**.

Meanwhile, AI has been used in various sectors such as:

1. banking (credit risk analysis),
2. healthcare (automatic diagnosis),
3. e-commerce (consumer profiling),
4. law enforcement (face recognition-based CCTV),
5. education, and
6. digital government.

Legal unpreparedness will create the risk of losing public trust in technology.

Example Risks

a) *Deepfake* can damage reputation and disrupt legal processes.

b) AI in job recruitment can produce gender discrimination.

c) Automatic credit scoring systems can harm consumers.

AI regulation is not just about restriction, but also ensuring that innovation runs ethically and responsibly.

5.2 Legal Liability in the Use of AI

Liability for AI is very complex because AI can work autonomously. There are several liability models:

1. **Developer Liability**

   The developer is liable if there are:

a) code errors,

b) algorithmic defects,

c) or structural bias that harms users.

2. **User Liability**

   The user can be held liable if they:

a) operate AI carelessly,

b) misuse AI,

c) or ignore usage guidelines.

3. **Producer Liability (Product Liability)**

   AI as a product is subject to the consumer protection regime. If AI is defective, then the producer is obliged to compensate for losses.

4. **Shared Liability**

   Modern regulatory models like the EU AI Act regulate that liability can be shared between:

a) developers,

b) data providers,

c) operators,

d) and digital infrastructure providers.

In the Indonesian legal system, the shared liability model can be adopted for high-risk AI systems such as:

a) medical diagnosis,

b) autonomous vehicles,

c) judicial analysis,

d) and biometric systems.

5.3 Implications of AI on Human Rights

AI poses serious risks to human rights, particularly:

1. **Right to Privacy**

   AI relies on big data. In this context, privacy violations can occur through:

a) data collection without consent,

b) data leaks,

c) unlimited profiling.

   The PDP Law plays an important role, but does not specifically regulate AI yet.

2. **Non-Discrimination**

   AI often contains bias because it is trained with biased data. For example:

a) predictive policing algorithms tend to be discriminatory against certain groups,

b) job recruitment algorithms can discriminate against women.

3. **Right to Justice (Fair Trial)**

   AI in legal processes, such as *sentencing algorithms*, risks being non-transparent (*black box system*). This poses a threat to:

a) judicial independence,

b) the defendant's right to know the basis of a decision,

c) and the accountability of the judicial process.

4. **Freedom of Expression**

   Content filtering algorithms can remove legitimate content (*over-blocking*).

5.4 Challenges and Opportunities for Implementing AI Regulations in Indonesia

Challenges

1. Lack of AI experts in legislative institutions.
2. Lack of digital infrastructure.
3. Uneven public understanding regarding the use of personal data.
4. Weak enforcement of digital law.
5. Different standards across sectors.

Opportunities

1. Indonesia can adopt *best practices* from the EU AI Act.
2. Encourage government-academia-industry collaboration.

3. Improve the quality of data protection.
4. Strengthen the digital economy ecosystem.
5. Make AI part of bureaucratic and judicial system reforms.

CONCLUSION

6.1 Conclusion

This research shows that the development of Artificial Intelligence (AI) offers great opportunities for accelerating digital transformation in Indonesia, but also brings legal risks that cannot be ignored. First, the absence of specific regulations related to AI creates a legal vacuum that impacts liability uncertainty. In practice, AI can cause losses through algorithmic bias, automated decision-making, and misuse of personal data, while the Indonesian legal system has not yet provided a comprehensive mechanism to handle these issues.

Second, legal liability in the use of AI should refer to a tiered model involving developers, operators, and users, as applied in international law. A *shared liability* model is needed considering AI works autonomously and is not always under the control of a single party.

Third, the use of AI has serious impacts on Human Rights (HR), especially regarding privacy, discrimination, freedom of expression, and the right to justice. The Personal Data Protection Law (PDP Law) is an initial step, but is not yet sufficient to answer the complexity of problems arising from AI utilization.

Fourth, Indonesia needs specific legal policies regarding AI, either in the form of a special law or the strengthening of sectoral regulations. The establishment of a risk-based AI regulation like the EU AI Act can be an ideal model to be applied in Indonesia to guarantee human rights protection and legal certainty.

6.2 Suggestions

1. **The government needs to draft a Law on the Protection and Utilization of Artificial Intelligence.** Regulations must govern security standards, algorithmic transparency, accountability, and ethical oversight. This law must be comprehensive and include risk classification for AI systems.
2. **Strengthening legal liability standards in the use of AI.** Indonesia needs to adopt a *shared liability* model that divides responsibility between developers, system operators, and users to ensure legal certainty.
3. **Integration of an AI Governance Framework into public sector policy.** The government must regulate the use of AI in public services such as health, education, law enforcement, and government administration with standards of *transparency*, *fairness*, and *auditability*.
4. **Optimization of personal data protection.** The implementation of the PDP Law must be expanded to include AI ethics principles such as data minimization, purpose limitation, and informed consent.
5. **Collaboration between academics, industry, and government.** The formation of AI regulations must involve legal academics, computer experts, and industry stakeholders so that the resulting policies are adaptive and applicable.

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