

The Tripartite Statutory Framework for AI in Economic Law: Harmonizing Intellectual Property, Cyber, and Data Laws for Legal Certainty and Commercial Justice

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artificial intelligence; economic law; smart contracts; intellectual property; data protection; co-regulation.

ABSTRACT

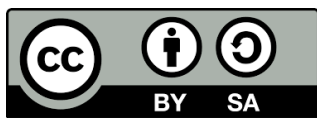
Background: The integration of artificial intelligence (AI) into the digital economy has exposed the limits of a siloed regulatory approach in which intellectual property (IP), electronic transaction, and personal data protection laws operate in isolation, producing legal uncertainty and commercial injustice.

Objective: This study aims to formulate a Tripartite Legislative Framework that harmonizes these three regimes within Indonesian economic law.

Methods: Doctrinal legal research was conducted using statute, conceptual, case, and comparative approaches, analyzing Indonesian legislation alongside the law of the European Union, Japan, South Korea, and Nigeria, together with leading judicial decisions on AI.

Results: In the IP pillar, the study proposes a limited sui generis right for AI-generated works, an opt-out or statutory licensing model for training data, and a “Human-Directed Adaptive Patent” doctrine. In the electronic transaction pillar, AI is treated as an electronic agent whose acts are attributed to its operator under strict liability. In the data protection pillar, ex ante algorithmic auditing and the right to object to automated decisions prevent discriminatory profiling.

Conclusion: Harmonizing the three pillars through shared transparency duties, a single accountable business actor, and co-regulation offers legislators a coherent blueprint for an AI-resilient economic law balancing innovation with certainty, protection, justice, and utility.



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INTRODUCTION

The 21st century marks a fundamental ontological shift in the global economic legal landscape: a transition from the conventional digital economy to an algorithmic economy driven by Artificial Intelligence (AI). AI no longer serves merely as a passive instrument or tool; it has evolved into an increasingly autonomous agent capable of making commercial decisions, generating works of economic value, and executing legal acts without direct human intervention.

This disruption radically challenges classical doctrines of civil and commercial law doctrines that have been anthropocentrically designed for centuries, centering on human beings as the sole legal subjects capable of forming and declaring a will (Chesterman, 2020). In Indonesian civil law, for example, a valid agreement presupposes the consent (*kesepakatan*) of

the parties under Article 1320 of the Indonesian Civil Code, a requirement that the civil-law tradition construes as a declaration of will (*wilsverklaring*) by a legal subject.

In the modern business ecosystem, AI disruption manifests tangibly through two key innovations: Generative AI and Autonomous Execution Agents. In the realm of commercial transactions, the integration of AI with blockchain-based smart contracts enables the automatic execution of agreements (self-executing agreements). However, when algorithms experience failures (algorithmic failure) or operate outside their initial parameters, conventional contract law frameworks may fail to allocate civil liability proportionately (Wendehorst, 2020). Furthermore, in the context of business competition, algorithmic pricing systems designed to optimize corporate profits may facilitate price coordination and the formation of tacit cartels (tacit collusion).

Algorithms used by competing companies can “learn” to raise prices collectively without an explicit agreement (Calvano et al., 2020), thereby creating challenges for the application of traditional antitrust laws (Stucke & Ezrachi, 2016). Amid this exponential technological acceleration, the status quo of global positive law exhibits a severe lag (regulatory lag). Current regulations remain trapped in a highly fragmented (siloed) approach. Legislators across various jurisdictions respond to AI disruption reactively and sectorally, resulting in laws that operate in isolation without cohesive orchestration. For instance, Intellectual Property Rights (IPR) regimes struggle, when considered in isolation, to define authorship with respect to works generated by generative AI and to address disputes concerning the unauthorized use or misappropriation of training data often in the context of the “fair use” doctrine (Samuelson, 2023).

Elsewhere, cyber and electronic transaction laws struggle to provide legal certainty regarding the status and legal capacity of AI systems as electronic agents in the execution of commercial contracts. Meanwhile, personal data protection laws, such as the GDPR in Europe, focus heavily on regulating the collection, processing, and extraction of personal data without adequately addressing the implications of such restrictions for innovation and commercial utility within the digital marketplace.

This regulatory fragmentation creates a substantial regulatory gap. The lack of harmonization among IPR, cyber, and data laws fosters legal uncertainty for investors and technology companies while simultaneously threatening commercial fairness for original creators and consumers. Regulatory experiments such as the European Union Artificial Intelligence Act (EU AI Act) have indeed introduced a risk-based approach (Laux et al., 2024); however, this regulatory framework also raises concerns regarding compliance costs for business entities, particularly micro, small, and medium-sized enterprises (MSMEs), and its effectiveness and adaptability may vary when considered for adoption in developing nations (Smuha, 2021).

These tensions have already materialized in concrete legal disputes and regulatory interventions. In *Thaler v. Perlmutter*, the U.S. courts upheld the refusal of the U.S. Copyright Office to register a work generated autonomously by an AI system because it lacked a human author, while the DABUS patent applications were rejected in the United States. In 2023, the Italian data protection authority temporarily restricted ChatGPT on the basis of data protection principles that were not designed for generative AI (Cordella et al., 2024).

The problem is particularly acute in Indonesia. Article 1 point 2 of Law No. 28 of 2014 on Copyright defines an author (*Pencipta*) as “one or more persons” who individually or jointly produce a work that is distinctive and personal, and Article 1 point 3 of Law No. 13 of 2016 on Patents, as last amended by Law No. 65 of 2024, likewise defines an inventor as one or more persons. Law No. 11 of 2008 on Electronic Information and Transactions (the ITE Law), as amended by Law No. 19 of 2016 and Law No. 1 of 2024, recognizes the electronic agent (*Agen Elektronik*) in Article 1 point 8 and allocates liability for transactions conducted through it in Article 21, while Government Regulation No. 71 of 2019 elaborates the operation of electronic systems and agents.

Law No. 27 of 2022 on Personal Data Protection (the PDP Law) grants data subjects the right to object to decisions based solely on automated processing, including profiling (Article 10), and Law No. 5 of 1999 on the Prohibition of Monopolistic Practices and Unfair Business Competition prohibits price-fixing agreements (Article 5). The only AI-specific instrument, Minister of Communication and Informatics Circular Letter No. 9 of 2023 on Artificial Intelligence Ethics, is not legally binding. None of these instruments refers to the others: copyright law does not determine whether AI-assisted outputs transacted through electronic agents are protectable, the ITE Law is silent on the provenance of the works and data that AI agents process, and the PDP Law does not specifically address the use of personal data as AI training material.

The result is a normative vacuum (*rechtsvacuum*) precisely where the three regimes intersect. Therefore, there is an urgent need both academic and practical to move beyond such sectoral approaches. The urgency is concrete rather than rhetorical: Indonesian business actors currently cannot ascertain whether AI-assisted outputs are protectable under Law No. 28 of 2014, who bears liability when an AI agent concludes a defective transaction under Article 21 of the ITE Law, or whether training an AI model on personal data complies with the PDP Law, whose two-year transitional period ended in October 2024. The AI-driven economic ecosystem cannot be regulated merely by patching together existing legal regimes.

A new legislative paradigm is required, one that integrates intellectual property rights, electronic transactions, and data protection into a single, holistic framework. Without the convergence of these three legal instruments, the economic-law objectives of certainty, protection, justice, and utility cannot be fully realized in the digital economy. Although discourse regarding the governance and regulation of Artificial Intelligence (AI) has dominated contemporary legal literature over the past decade, a systematic review of the state of the art reveals a structured academic myopia. Most of the existing literature suffers from methodological weaknesses, as it examines AI regulation in a compartmentalized manner through a single-sector lens (a “siloe approach”).

This fragmented approach fails to capture the operational complexities of AI, which are inherently cross-jurisdictional within the architecture of economic law. Broadly speaking, the current literature is divided into three mutually isolated poles: First, a body of literature focuses exclusively on the Intellectual Property Rights (IPR) regime. Studies in this group, such as those found in international legal discourse concerning Generative AI, concentrate on ontological debates regarding authorship of AI-generated works and the use of training data vis-à-vis the doctrine of fair use. However, this purely IPR-focused literature fails to explain how intangible assets resulting from machine learning are structured and commercialized

through contractual arrangements. Holding copyright in an AI-generated output does not automatically confer legal authority upon the AI system itself to autonomously commercialize or transact in that output within the digital marketplace.

Second, there is a body of literature oriented strictly toward cyber law, electronic transactions, and civil or criminal liability. Normative studies in this cluster rigorously examine issues ranging from the validity and enforceability of smart contracts to the application of strict liability and debates regarding the attribution of legal personality or legal agency to AI systems. Pagallo, (2013), for example, analyzes how autonomous machines challenge the law of crimes, contracts, and torts and discusses forms of agency and limited liability for robots; however, his analysis does not examine how the intellectual property status or the data basis of the transacted subject matter affects contractual validity.

Similarly, Stucke & Ezrachi, (2016) demonstrate how pricing algorithms can facilitate collusion that escapes traditional antitrust concepts, but their analysis remains within competition law. Ironically, studies on electronic transaction law often overlook the origins and legal status of the subject matter being transacted. Regulating the validity of algorithmic contracts without regard to whether the underlying algorithms process data in ways that infringe copyright or violate consumer privacy rights represents a significant flaw in the construction of economic law.

Third, there is a body of literature dominated by proponents of personal data protection regulations and human rights instruments. Heavily influenced by the advent of the General Data Protection Regulation (GDPR) and situated within the context of technology-neutral AI policy analysis, this literature focuses on preventing mass surveillance and algorithmic bias, as well as ensuring consumer data protection. Zuboff, (2019) exposes the extraction of behavioral data as the foundation of “surveillance capitalism,” and Cordella et al., (2024), analyzing the Italian intervention against ChatGPT, demonstrates the limits of technology-neutral regulatory frameworks in governing generative AI; neither, however, addresses how data protection obligations interact with copyright in training data or with the validity of AI-concluded transactions.

Cors & Thiébaud, (2025) examine the implications of the EU AI Act for business organizations. However, an overly restrictive approach to privacy law may create tensions with market efficiency and innovation. Empirical and policy-oriented studies indicate that compliance with stringent data protection requirements, together with emerging AI-specific regulatory obligations such as those under the EU Artificial Intelligence Act (EU AI Act), can impose substantial compliance costs, thereby potentially constraining innovation among Micro, Small, and Medium Enterprises (MSMEs) and technology startups.

A fundamental flaw in the siloed (fragmented) approach found in the aforementioned literature is its disregard for the ontological reality of the modern economic-legal ecosystem, which is inherently interdependent. In contemporary business practice, algorithmic economic transactions do not operate in a sectoral vacuum. When a business entity implements AI for dynamic pricing (algorithmic pricing), it may simultaneously implicate third-party algorithmic extraction and use of protected works (Intellectual Property Rights), the processing of consumer profiles and personal data (Data Law), and the automated execution or authorization of transactions (Cyber Law/Electronic Transaction Law).

Consequently, a research gap remains in the current literature: the absence of a theoretical construct that integrates these three regimes within economic law. Integrated approaches do exist, but they are partial. In the European Union, Article 53(1)(c) and (d) of the AI Act require providers of general-purpose AI models to put in place a policy to comply with Union copyright law, including the reservation of rights (opt-out) under Article 4(3) of Directive (EU) 2019/790, and to publish a sufficiently detailed summary of the content used for training, while the GDPR continues to govern personal data contained in the same datasets.

Section 9(3) of the UK Copyright, Designs and Patents Act 1988 allocates authorship of computer-generated works, and the USPTO's 2024 Inventorship Guidance for AI-Assisted Inventions addresses human contributions to AI-assisted inventions. However, each of these instruments links only two regimes or addresses a single issue, and none was designed for the economic-law system of a developing country. To the best of the author's knowledge, few studies have formulated a Tripartite Legislative Framework that unifies IP laws, electronic transaction laws, and personal data protection laws as an integrated whole within the discipline of economic law, particularly from the perspective of Indonesian law.

This paper aims to bridge that gap by addressing three research questions: (1) How should IP law allocate rights in AI-generated and AI-assisted works and inventions and govern the use of protected works as training data? (2) How should electronic transaction law provide legal certainty and allocate liability for transactions executed by AI as an electronic agent? (3) How can these two regimes and personal data protection law be harmonized into a tripartite framework for Indonesia, drawing on comparative lessons from the EU, Japan, South Korea, and Nigeria? By deconstructing the barriers between these sectors, this research proposes a new paradigm: these three bodies of law should not be understood as mutually exclusive regimes, but rather as tripartite instruments that must be harmonized to achieve four essential objectives of economic law certainty, protection, justice, and commercial utility.

Theoretically, this study contributes to economic-law scholarship by offering an integrative construct that treats IP, electronic transaction, and personal data protection laws as interdependent instruments serving the same economic-law objectives rather than as separate sectoral regimes. Practically, the proposed framework is intended to inform the House of Representatives and the Government in amending Law No. 28 of 2014, the ITE Law, and the PDP Law; to assist the Ministry of Communication and Digital Affairs, the Directorate General of Intellectual Property (DJKI), the Business Competition Supervisory Commission (KPPU), and the personal data protection supervisory agency in coordinating their supervisory roles; and to provide business actors, particularly MSMEs, with clearer compliance parameters for developing and deploying AI.

METHODS

To construct a comprehensive Tripartite Legislative Framework, this study adopted a doctrinal (normative) legal research method synergistically combined with a macro-comparative approach (Marzuki, 2017). This methodological choice was grounded in the ontological characteristics of Artificial Intelligence (AI), which not only disrupted domestic positive law but also triggered jurisdictional conflicts within the global digital economic landscape. Specifically, this doctrinal research was operationalized through four primary approaches:

Statute Approach

This approach was employed to dissect the points of intersection and normative contradictions among three positive legal regimes: Intellectual Property Rights laws, Electronic Information and Transactions laws, and Personal Data Protection laws, together with the competition law provisions relevant to algorithmic pricing.

Conceptual Approach

This approach was applied to establish a theoretical justification—by examining legal principles and civil law doctrines for recognizing AI as an electronic agent capable of balancing commercial rights and legal obligations.

Comparative Approach

This approach served as an analytical tool to assess the feasibility of implementing the constructed theoretical framework, using the functional comparative method, which compares how each jurisdiction resolves the same legal problem.

Case Approach

This approach was used to examine judicial decisions on AI authorship, AI inventorship, and algorithmic collusion, namely *Thaler v. Perlmutter* (D.D.C. 2023; D.C. Cir. 2025), *Thaler v. Vidal*, *Thaler v. Comptroller-General of Patents, Designs and Trade Marks* UKSC 49, *Feist Publications, Inc. v. Rural Telephone Service Co.* (1991), *United States v. Topkins*, and *Eturas*. Employing a comparative approach, this paper juxtaposed two poles of global regulatory paradigms. On the one hand, the study analyzed the European Union Artificial Intelligence Act (EU AI Act) and the General Data Protection Regulation (GDPR) as representatives of a strict, risk-based hard-law legislative approach.

On the other hand, this European regulatory regime was compared with the AI governance landscapes of developing nations such as Indonesia and Nigeria and jurisdictions in East Asia, such as Japan and South Korea, that favored soft-law or innovation-oriented instruments. The jurisdictions were selected on three criteria: (a) they represent distinct regulatory models, namely the comprehensive hard-law model of the EU, the innovation-oriented models of Japan and South Korea, and the developing-economy model of Nigeria; (b) each has positive-law provisions directly relevant to at least one of the three pillars; and (c) Indonesia, as the focal jurisdiction, shares with Nigeria the position of a developing economy exposed to the diffusion of EU regulatory standards.

This comparative step was crucial, given that critical literature has argued that the uncritical transplantation of technology governance standards from the Global North to developing countries risks fostering a new form of “digital colonialism” (Kwet, 2019). Excessive compliance costs resulting from the adoption of such standards threatened to distort commercial equity, stifle innovation among Micro, Small, and Medium Enterprises (MSMEs), and widen the governance gap. Consequently, this comparison aimed not to identify a superior system, but rather to find a regulatory “middle ground” that was economically equitable.

The legal materials analyzed in this study comprised primary and secondary sources. Primary legal materials consisted of: (a) international instruments, namely the Berne Convention for the Protection of Literary and Artistic Works and the WIPO Copyright Treaty,

as well as the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS); (b) EU law, namely Regulation (EU) 2024/1689 (AI Act), Regulation (EU) 2016/679 (GDPR), Directive (EU) 2019/790 (DSM Directive), and Directive (EU) 2024/2853 on liability for defective products;

(c) Indonesian law, namely Article 1320 of the Civil Code, Law No. 5 of 1999, Law No. 28 of 2014, Law No. 13 of 2016 as last amended by Law No. 65 of 2024, Law No. 11 of 2008 as amended by Law No. 19 of 2016 and Law No. 1 of 2024, Government Regulation No. 71 of 2019, Law No. 27 of 2022, and Circular Letter No. 9 of 2023; (d) comparative statutes, namely Article 30-4 of the Japanese Copyright Act, Article 35-5 of the Korean Copyright Act, Article 37-2 of the Korean Personal Information Protection Act, the Korean Framework Act on the Development of Artificial Intelligence and the Establishment of Trust, the Nigeria Data Protection Act 2023, and section 9(3) of the UK Copyright, Designs and Patents Act 1988;

(e) the judicial decisions listed under the case approach. Secondary materials consisted of the books and journal articles listed in the References. Materials were collected through library research (document study): legislation was retrieved from official repositories (JDIH/peraturan.go.id and EUR-Lex), and secondary literature from Scopus-indexed journals, Google Scholar, and publisher databases. As a research instrument, the materials were organized in a legal-material inventory matrix that mapped each statute and article against four issues: authorship and inventorship, electronic-agent liability, personal data processing, and competition.

The materials were analyzed qualitatively and prescriptively through grammatical, systematic, and teleological interpretation; the functional comparative method; and the conflict-resolution principles of *lex superior*, *lex specialis*, and *lex posterior*. On this basis, the researcher not only described existing legal lacunae but also prescribed a new formulation a Tripartite Legislative Framework as *ius constituendum* (law as it ought to be) within the architecture of economic law. Legal certainty was assessed by the clarity, consistency, and predictability of the allocation of rights and liabilities across the three regimes, whereas commercial justice was assessed by the proportionality of the distribution of benefits and risks among developers, users, creators, and consumers, consistent with Radbruch's triad of legal values.

RESULT AND DISCUSSION

The results are presented in four parts that correspond to the research questions: Pillar One (intellectual property law), Pillar Two (electronic transaction law), Pillar Three (personal data protection law), and the harmonization model that integrates them, followed by a comparative synthesis (Figure 1 and Table 1).

Pillar One: Intellectual Property (IP) Law Ensuring Protection and Economic Benefit

The tripartite legislative framework positions the Intellectual Property (IP) regime specifically, copyright and patent instruments as the first pillar responsible for the equitable distribution of economic incentives. However, the integration of Artificial Intelligence into the creative economy ecosystem has triggered a fundamental disruption of the classical IP legal architecture, which has been anthropocentric (human-centered) for centuries. The most acute

crisis currently threatening legal certainty and commercial utility is the ontological problem concerning ownership and authorship.

The Crisis of Authorship in Generative AI: Allocation of Economic Rights and Royalties

Copyright law has traditionally protected intellectual works on the basis of human originality and intellectual input (the human authorship requirement), a premise reinforced by the concept of the “Romantic author.” Originality, rather than mere labor, is decisive: in *Feist Publications, Inc. v. Rural Telephone Service Co.*, the U.S. Supreme Court expressly rejected the “sweat of the brow” doctrine, which protects effort and investment, in favor of an originality standard requiring a minimal degree of creativity.

Indonesian law adopts a comparable human-centered premise, as Article 1 point 2 of Law No. 28 of 2014 defines an author as one or more persons who produce a work that is distinctive and personal. The advent of Generative AI capable of autonomously producing everything from academic texts and software code to high-value artworks challenges this fundamental premise. When an economically valuable work is produced by an algorithm, positive law faces a normative vacuum (*rechtsvacuum*) in determining which entity, if any, is entitled to claim exclusive rights and reap the resulting economic benefits. From a doctrinal perspective, three entities have been proposed as potential creative subjects within the Intellectual Property Rights (IPR) regime:

Developer Corporations or Programmers

The first argument posits that AI development entities (such as OpenAI, Google, or independent programmers) are the parties most entitled to economic royalties, given that they design artificial neural network architectures and implement machine-learning algorithms. However, this claim encounters the “tool doctrine” found in copyright law. Traditionally, software creators (e.g., Adobe, the developer of Adobe Photoshop) do not hold copyright over paintings created by users employing that software. Furthermore, the fundamental “black box” nature of many machine-learning operations prevents programmers from precisely predicting the specific output that an AI system will generate, thereby weakening the element of direct causal connection between the developer’s intent and the final work.

Users or Promoters

The second claim is advanced by users (or “promoters”) who provide textual instructions (prompts) to AI systems. These users argue that without the specific instructions, creativity, and iterative refinements they provide, the AI would remain in a state of inertia and would not produce a commercially valuable work. However, from a jurisprudential standpoint, such claims may be limited by the “idea-expression dichotomy.” Issuing an instruction (e.g., “create a commercial contract draft in a corporate style”) is generally the communication of an idea or desired result, rather than the protectable expression of that idea itself. Under copyright law, ideas are not protected; copyright generally protects the original expression of ideas. Instructing an AI system may be analogized to directing an artist or ghostwriter to create a work, although the legal significance of the user’s contribution depends on the degree of creative control and human authorship involved.

The Artificial Intelligence Entity Itself

Amid the impasse between programmers and users, a radical discourse has emerged within some legal scholarship advocating the possibility of granting direct legal rights to AI through recognition of “electronic personhood.” If an AI system were recognized as an autonomous legal entity, it could theoretically “hold” intellectual property rights. However, this concept faces significant obstacles regarding commercial and legal implementation. AI systems do not currently possess independent legal personhood, cannot independently hold or exercise property rights in the ordinary legal sense, and cannot ordinarily bear legal liability as autonomous persons.

Consequently, major jurisdictions, including the United States, have consistently rejected copyright claims in works generated solely by machines without sufficient human authorship. The U.S. Copyright Office has maintained that copyright protection requires human authorship and has rejected registration of works lacking the requisite human contribution, a position upheld in *Thaler v. Perlmutter*, in which the D.C. Circuit affirmed in 2025 that the Copyright Act requires a human author.

This ownership crisis poses a dual threat to the economic legal landscape. On the one hand, if automatically generated AI works fall into the public domain due to the absence of a qualifying human author (Gervais, 2015), business entities may lose economic incentives to invest in the utilization of this technology. Conversely, granting exclusive rights (monopolies) too liberally to technology corporations that provide AI systems could stifle downstream innovation and undermine principles of commercial fairness.

Therefore, the Tripartite Framework proposes reforming intellectual property laws by establishing a *sui generis* right or adapting existing doctrines concerning commissioned works and employment whereby economic rights are allocated, where legally permissible, to the party that initiates the project and bears the financial risk of creation (such as the user or the company employing the AI) thereby ensuring practical utility without compromising the underlying principle of human authorship.

This proposal resembles the model for computer-generated works under section 9(3) of the UK Copyright, Designs and Patents Act 1988, which deems the author to be “the person by whom the arrangements necessary for the creation of the work are undertaken” and limits protection to fifty years (section 12(7)). The UK model has been criticized because the “arrangements” test is indeterminate when developers, prompters, and deploying companies all contribute to an output, and because it confers full copyright on works that lack human originality; the UK Government has accordingly consulted on whether to retain it.

The proposed framework therefore departs from the UK model in four respects. First, the right is a *sui generis* neighboring right rather than copyright, so that the human-author requirement in Article 1 point 2 of Law No. 28 of 2014 remains intact. Second, the right holder is the person who initiates the creation and bears its financial risk, presumed to be the user or the deploying company unless otherwise agreed with the developer, analogous to the allocation for works made under employment or commission in Article 36 of Law No. 28 of 2014.

Third, the scope of the right is limited to economic rights against the reproduction and distribution of the output, without moral rights, for a short term (for example, ten years from first publication), and subject to the limitations in Articles 43 and 44 of Law No. 28 of 2014. Fourth, protection is conditional on disclosure of the AI-generated nature of the output. This

design preserves investment incentives while preventing over-broad monopolies, thereby serving both legal certainty and commercial justice.

Training Data Protection vs. the Fair Use Doctrine: Addressing the Clash Between Algorithmic Exploitation and Creators' Economic Rights

While the crisis of authorship centers on AI-generated output, an upstream crisis arises at the input phase specifically, the process of extracting training data. Generative Artificial Intelligence models (such as Large Language Models and image-generation models based on diffusion architectures) do not possess inherent intelligence; rather, they are trained on vast quantities of data, including billions of data points collected from numerous sources. Much of this training corpus may consist of third-party, copyright-protected intellectual works ranging from articles, books, and digital paintings to source code extracted or ingested without individual consent, attribution, or financial compensation. This practice has sparked direct legal and commercial conflicts between technology companies and original creators, culminating in concerns regarding commercial fairness within economic law (Lucchi, 2024).

AI-developing corporations invoke the Fair Use Doctrine in common-law jurisdictions (such as the United States) or the Text and Data Mining (TDM) exceptions within European legal frameworks (Guadamuz, 2024). Their primary argument is that the extraction and processing of training data may constitute a “highly transformative” use. They contend that AI systems do not necessarily reproduce or distribute identical copies of original works but instead analyze patterns, syntax, statistical correlations, and other features. Consequently, from the corporate perspective, the machine-learning process may not infringe upon creators' exclusive rights but instead constitute a form of technological innovation that warrants legal protection in the interest of technological advancement.

Jurisdictions differ markedly in their treatment of training data. Articles 3 and 4 of the EU DSM Directive permit text and data mining for scientific research and, for other purposes, only where rightsholders have not expressly reserved their rights in an appropriate manner, such as by machine-readable means. Article 30-4 of the Japanese Copyright Act permits the exploitation of works for data analysis that is not aimed at enjoying the thoughts or sentiments expressed in them, unless it unreasonably prejudices the interests of the copyright owner.

South Korea relies on the general fair use clause in Article 35-5 of its Copyright Act, and Nigeria's Copyright Act 2022 contains no AI-specific rule on training data. Indonesia's Law No. 28 of 2014 contains no specific text and data mining exception; AI training must therefore be assessed under the limitations in Article 44, which were designed for purposes such as education and research rather than large-scale commercial machine learning. Indonesian law is thus more restrictive than Japanese law in theory but, in practice, provides creators with few effective remedies.

Conversely, from the perspective of economic law and creator protection, the “fair use” argument raises concerns regarding potential market displacement. Historically, the fair use doctrine has considered whether a use undermines the commercial value of, or displaces the market for, the original work. Generative AI may directly compete with markets traditionally served by human creators. When an AI system is trained on an illustrator's portfolio and subsequently becomes capable of generating large quantities of images exhibiting characteristics associated with that illustrator's style within seconds at a marginal cost

approaching zero it may reduce the creator's economic opportunities (Senftleben, 2023). This raises concerns beyond merely transformative innovation, including the potential commodification and industrial-scale algorithmic "free-riding" that could weaken incentives to create and commercially exploit human intellectual works.

Information asymmetry between opaque ("black box") AI corporations and creators further exacerbates this inequity. Creators often lack the technical and evidentiary means to establish whether their works have been ingested into a particular corporate AI training system. Under the status quo, existing intellectual property laws may provide limited practical remedies against large-scale data-extraction and model-training practices. To resolve this impasse, a tripartite framework requires a legal approach that does not rely solely on intellectual property laws but integrates them with electronic transaction laws and data protection regulations. First, revisions to intellectual property laws should require greater transparency regarding training datasets, consistent with Article 53(1)(d) of the EU AI Act, which obliges providers of general-purpose AI models to publish a sufficiently detailed summary of the content used for training. Second, the fair use doctrine should not be treated as a blanket exception for commercial AI development; instead, a statutory licensing mechanism or a legally binding opt-out mechanism could be established (Geiger & Iaia, 2024).

In Indonesia, such an opt-out could be introduced by amending Law No. 28 of 2014 to add a text and data mining exception modeled on Article 4 of the DSM Directive, under which mining is permitted unless the rightsholder has reserved its rights in machine-readable form, with reservations recorded with DJKI and their observance enforced through the obligations of electronic system operators under the ITE Law. Third, to facilitate compliance with royalty obligations, laws governing electronic transactions could support the use of blockchain-based smart contracts integrated into AI systems. Thus, where legally and technically feasible, when AI generates commercial output that incorporates or is materially derived from third-party works, an automated licensing mechanism could distribute "micro-royalties" to original creators whose works were lawfully included in the relevant licensing framework. This mechanism could strengthen economic protection for creators without unnecessarily stifling the pace of technology adoption by businesses.

This mechanism, however, faces a significant technical limitation. Attributing a specific generative output to the individual training works that shaped it remains an unresolved problem in machine learning; influence-function techniques can only approximate the effect of individual training examples on a model's predictions, and scaling them to large generative models remains computationally demanding (Koh et al., 2017). Consequently, in the short term, micro-royalties are more realistically distributed on the basis of verifiable inclusion of works in a licensed training corpus, administered collectively through the collective management organizations recognized by Law No. 28 of 2014, rather than on the basis of output-level attribution, with blockchain serving as an auditable registry of licenses and payments.

Commercial Utility: Adaptive Patent and Copyright Regimes as Catalysts for Business Innovation

The Intellectual Property Rights (IPR) pillar within the tripartite framework must not be reduced to a merely restrictive instrument that stifles technology. Drawing on the teleological

principle of utility (*Zweckmäßigkeit*) in economic law, IPR should function as a catalyst—or enabler that stimulates digital economic growth. If IPR doctrines are applied rigidly and puritanically for instance, by completely prohibiting the commercialization of works involving Artificial Intelligence (AI) the law could distort the technological innovation climate, burden Micro, Small, and Medium Enterprises (MSMEs), and hinder business entities from achieving operational efficiency. Therefore, an adaptive patent and copyright regime is required to strike a balance between corporate utility in leveraging AI and the preservation of economic incentives for human creators.

In the realm of patent law, the use of AI has accelerated innovation in corporate Research and Development (R&D) processes. Algorithms are now capable of identifying potential new drug molecules and formulations in the pharmaceutical and health sectors considerably faster than conventional methods, a process that traditionally could take human scientists years to complete. However, current patent doctrines in many jurisdictions do not recognize AI systems as inventors of patentable inventions, as illustrated by the DABUS litigation: courts in the United States and the United Kingdom held that an inventor must be a natural person, although practice is not uniform, as South Africa granted a patent naming DABUS as the inventor in 2021 under a formality-based examination system.

Indonesian law leads to the same result as the United States and the United Kingdom, because Article 1 point 3 of Law No. 13 of 2016 defines an inventor as one or more persons. This position carries a potential economic risk: if AI-assisted or AI-generated inventions cannot obtain patent protection because no qualifying human inventor can be identified, corporations and investors may perceive reduced financial incentives to fund such AI research. Consequently, uncertainty regarding patent protection could create a “chilling effect” on technological innovation. To maintain commercial viability, the Tripartite Framework proposes a doctrinal shift toward “Human-Directed Adaptive Patents.”

Rather than focusing exclusively on whether AI qualifies as an inventor, patent law should recognize the contribution of the human individuals or entities that define the problem parameters, design or direct the inventive process, train or configure the relevant models, and validate the AI-assisted output, provided that the applicable jurisdiction’s patentability requirements are satisfied. This approach treats AI not as an autonomous inventor but as a technological tool serving as an extension of human intellectual activity (Kim, 2020). Consequently, business entities can obtain greater investment certainty and, where patentability requirements are satisfied, secure patent protection that may support continued capital investment in technological innovation.

This proposal builds upon, but differs from, the USPTO’s Inventorship Guidance for AI-Assisted Inventions, which applies the *Pannu* factors to determine whether a natural person made a “significant contribution” to each claim. The USPTO guidance is an administrative interpretation of existing inventorship law that operates claim by claim. The Human-Directed Adaptive Patent, by contrast, is proposed as a legislative norm for Indonesia’s Patent Law that (a) expressly recognizes problem formulation, model configuration, and validation of AI-assisted output as qualifying inventive contributions; (b) requires applicants to disclose the role of AI in the description of the invention; and (c) links that disclosure to the transparency and data-governance obligations of the second and third pillars. It thus provides legal certainty for investors while preserving the human-inventor requirement.

Meanwhile, in the realm of copyright, legal adaptability is essential to protect business creative assets such as source code, industrial designs, and marketing materials—created with AI assistance (AI-assisted works). Adaptive copyright protection must clearly distinguish between works generated entirely by machines (AI-generated works) and those created with meaningful human assistance (AI-assisted works). If a corporate designer or programmer uses AI merely as an initial drafting tool but subsequently performs substantial intervention, modification, selection, arrangement, and creative refinement, the resulting work may qualify for copyright protection to the extent that the final expression reflects sufficient human authorship and satisfies the applicable jurisdiction’s legal requirements (Hugenholtz & Quintais, 2021).

This adaptive approach realizes economic benefits in a highly practical manner. First, business entities (particularly MSMEs in developing nations) can safely utilize AI to reduce production costs without unnecessarily risking the loss of copyright protection for the human-authored portions of their commercial assets. Second, this approach may help avert cultural and economic self-destruction. If AI-generated works are allowed to flood the market and displace human creators, AI systems may eventually face a shortage of high-quality, original human-generated training data, potentially contributing to degradation in model performance and the phenomenon known as model collapse, in which models trained recursively on AI-generated content progressively lose information about the original data distribution (Shumailov et al., 2024).

From the perspective of economic-law theory, this argument does not claim that IP law exists to guarantee training data for AI developers. Rather, it rests on the utility objective of economic law, under which legal rules should preserve the incentive structure that sustains the production of original human works, a resource whose depletion would harm creators, consumers, and AI developers alike. By upholding a standard of “substantial human intervention” for obtaining IPR protection, the law can incentivize corporations to continue employing and providing financial incentives to human creators who serve as the “pilots” of these AI systems.

Harmonization within this first pillar (IPR) demonstrates that the law need not be at odds with algorithms, and it answers the first research question: human authorship and inventorship are retained to protect creators and secure justice, while the *sui generis* right, the training-data licensing model, and Human-Directed Adaptive Patents provide certainty and utility for business actors. However, the economic monopoly rights granted by IPR laws cannot be effectively enforced in the digital marketplace without instruments governing the validity of AI-assisted transactions and the legal effects of AI systems’ actions. Consequently, the utility established within this IPR regime requires legal certainty and thus legitimation through the Second Pillar: the law governing electronic transactions.

CONCLUSION

This study concludes that legal uncertainty and commercial injustice in the AI-driven economy stem from the siloed regulation of IP, electronic transaction, and personal data protection law. First, IP law should retain human authorship while granting a limited *sui generis* right to the party that arranges and finances AI-generated works, with opt-out training-data licensing and Human-Directed Adaptive Patents.

Second, AI should be recognized as an electronic agent whose acts are attributed to its operator under strict liability. Third, harmonization requires a shared transparency duty, a single accountable business actor, and ex ante algorithmic auditing under co-regulation. Legislators should amend Law No. 28 of 2014, the ITE Law, and the PDP Law, while KPPU and DJKI should coordinate supervision. Being doctrinal, this study invites empirical research on implementation and compliance costs.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this article. The author has no financial, professional, or personal relationship with any technology company, artificial intelligence developer, collective management organization, or government institution discussed in this study that could have inappropriately influenced the analysis, findings, or recommendations presented in this manuscript.

AUTHOR CONTRIBUTIONS

Bahori Ahoen is the sole author of this article and was responsible for all stages of the research, including conceptualization, methodology (doctrinal research design using the statute, conceptual, case, and comparative approaches), investigation and collection of legal materials, formal analysis of primary and secondary legal materials, writing original draft, writing review and editing, and visualization. The author has read and approved the final version of the manuscript and takes full responsibility for its content.

GENERATIVE AI STATEMENT

During the revision of this manuscript, the author used Claude (Anthropic), a generative artificial intelligence tool, to assist in identifying and checking the bibliographic details of supplementary literature published between 2020 and 2024, and to help insert the corresponding in-text citations and reference entries. The tool was not used to generate the research ideas, the legal analysis, the arguments, or the conclusions of this study. The author reviewed and confirmed the accuracy and relevance of every source, edited the content as necessary, and takes full responsibility for the content of the publication.

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