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Reformulating Indonesia's Consumer Protection Law in the AI-Driven Digital Economy: A Gap Analysis and Regulatory Roadmap

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ABSTRACT

The exponential growth of the AI-driven digital economy in Indonesia has triggered a systemic regulatory failure, evidenced by a 275% surge in consumer disputes due to the inability of positive law to address algorithmic risks. This research aims to reformulate Indonesia's consumer protection legal architecture to resolve the structural obsolescence of Law Number 8 of 1999 and sectoral regulatory fragmentation. Employing a normative-juridical method integrated with a comparative analysis of the EU Digital Services Act and the EU AI Act, this study diagnoses the inadequacy of the fault-based liability regime in addressing algorithmic opacity. The findings indicate that consumer protection against systemic risks demands a paradigm shift from ex post redress to ex ante risk governance. As a concrete solution, this study constructs an adaptive legal model grounded in the Precautionary Principle, encompassing four main regulatory pillars: mandatory AIA, platform observability, tiered liability with presumption of causality, and digital rights codification. The primary originality of this research lies in the formulation of an implementation roadmap based on the Triple Helix model, which operationalizes these norms through concrete collaborative stages, ranging from establishing a regulatory sandbox to founding an independent digital supervisory authority. These policy implications provide a strategic blueprint for policymakers to transform the legal system into the foundation of a fair, trustworthy, and sustainable digital ecosystem.

Keywords: Algorithmic Liability; Artificial Intelligence; Consumer Protection; Policy Roadmap; Precautionary Principle.

ABSTRAK

Pertumbuhan eksponensial ekonomi digital yang digerakkan oleh kecerdasan buatan (AI) di Indonesia telah memicu kegagalan regulasi sistemik, yang terbukti dari lonjakan sengketa konsumen sebesar 275% akibat ketidakmampuan hukum positif dalam menangani risiko algoritma. Penelitian ini bertujuan untuk mereformulasi arsitektur hukum perlindungan konsumen Indonesia guna mengatasi keusangan struktural Undang-Undang Nomor 8 Tahun 1999 dan fragmentasi regulasi sektoral. Dengan menggunakan metode yuridis-normatif yang diintegrasikan dengan analisis perbandingan terhadap *EU Digital Services Act* dan *EU AI Act*, studi ini mendiagnosis ketidakcukupan rezim pertanggungjawaban berbasis kesalahan dalam menjangkau opasitas algoritma. Temuan penelitian menunjukkan bahwa perlindungan konsumen dari risiko sistemik menuntut pergeseran paradigma dari pemulihan pasca-insiden menjadi tata kelola risiko preventif. Sebagai solusi konkret, studi ini mengonstruksi model hukum adaptif yang berlandaskan Prinsip Kehati-hatian yang mencakup empat pilar regulasi utama, yaitu: analisis dampak algoritma wajib; observabilitas platform; pertanggungjawaban bertingkat dengan praduga kausalitas; dan kodifikasi hak digital. Orisinalitas utama penelitian terletak pada perumusan peta jalan implementasi berbasis model *Triple Helix* yang mengoperasionalkan norma-norma tersebut melalui tahapan kolaboratif konkret, mulai dari pembentukan ruang uji coba terbatas hingga pendirian otoritas pengawas digital independen. Implikasi kebijakan ini menyediakan cetak biru strategis bagi pembuat kebijakan untuk

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mentransformasi sistem hukum menjadi landasan ekosistem digital yang berkeadilan, tepercaya, dan berkelanjutan.

Kata kunci: Pertanggungjawaban Algoritma; Kecerdasan Buatan; Perlindungan Konsumen; Peta Jalan Kebijakan; Prinsip Kehati-hatian.

INTRODUCTION

Indonesia's economic transformation presents a fundamental paradox: the digital sector is projected to grow exponentially, yet consumer vulnerability is increasing at an unprecedented scale. Research by Pembayun and Gunawan (2025) revealed a 275% increase in consumer complaints about electronic transactions between 2022 and 2024. The majority of these cases were driven by algorithmic discrepancies, profiling fraud, and the failure of automated dispute-resolution mechanisms. This phenomenon confirms that consumers in the Artificial Intelligence (AI) era no longer merely face conventional information asymmetry but are trapped in what Helberger et al. (2022) termed "choice architectures" that systemically manipulate decision-making autonomy. In this Big Data-driven ecosystem, market interactions are no longer linear but are mediated by black-box algorithms that frequently discriminate against prices and predict behavior without meaningful consent from data subjects (Durovic & Watson, 2021; Chapdelaine, 2024). Consequently, the consumer protection regime, built upon the assumption of human rationality, becomes powerless against invisible technological manipulations (Fassiaux, 2023).

This vulnerability crisis is exacerbated by Indonesia's positive law, which suffers from a structural regulatory lag. Law Number 8 of 1999[1] was drafted in the era of analog transactions, thereby failing to account for the complexities of algorithmic liability. Although Indonesia has enacted Law Number 27 of 2022[2] and Law Number 1 of 2024 on the Second Amendment to Law Number 11 of 2008[3], these regulations operate in a sectoral and partial manner. This situation reflects what Elizalde (2025) observed as consumer law fragmentation resulting from overlapping digital regulatory interventions. In Indonesia, normative disharmony creates legal loopholes that digital platforms exploit to claim "user negligence" or "mere conduit" status, thereby escaping responsibility for systemic harms caused by automated recommendations (Hacker, 2023; Safitri et al., 2025). The absence of a strict liability regime for AI developers places the burden of proof on consumers, a burden they are unable to satisfy in algorithmic disputes (Soyer & Tettenborn, 2022).

Despite the pressing urgency for legal reform, the currently available legal literature tends to be partial and compartmentalized. Based on comprehensive literature mapping, previous studies can be categorized into three main clusters. The first cluster focuses exclusively on consumer protection within contractual aspects and conventional e-commerce transactions, without addressing the specific risks posed by autonomous AI agents (Setiantoro et al., 2018; Poernomo, 2020; Gadjong, 2023; Dzuhriyan et al., 2024). The second cluster explores the ethical and human rights aspects of AI usage but tends to be normative-philosophical without offering concrete law enforcement instruments (Bakiner, 2023; Aloamaka & Omozue, 2024). The third cluster provides in-depth analysis of global regulations such as the

[1]Law of the Republic of Indonesia Number 8 of 1999 on Consumer Protection.
[2]Law of the Republic of Indonesia Number 27 of 2022 on Personal Data Protection.
[3]Law of the Republic of Indonesia Number 11 of 2008 on Electronic Information and Transactions, as amended several times, lastly by Law Number 1 of 2024.

EU Digital Services Act[4] (Filip, 2025; Lunca, 2025). Nevertheless, this academic discourse leaves a gap regarding how to effectively transplant global norms into the legal structure of a developing country like Indonesia, which possesses distinct institutional characteristics. To date, no research has synthesized technological risk analysis, national legal norm evaluation, and global legal comparison into an integrated policy roadmap.

This study aims to bridge the identified academic gap by offering a holistic and integrative approach. Unlike previous fragmentary approaches, this study argues that applying the Precautionary Principle, in combination with the Triple Helix implementation model, provides the most coherent foundation for building an adaptive consumer protection framework in the AI era (Schuett, 2024; Androniceanu & Colesca, 2025). This argument is based on the premise that systemic and cross-border AI risks cannot be addressed solely through partial amendments to articles. This issue requires reformulating the legal architecture to enable dynamic collaboration among government, industry, and academia (Zadegan et al., 2025). Such synergy is necessary to ensure that technological innovation is not stifled by rigid regulations while fundamental consumer rights remain protected from algorithmic exploitation (Ranchordas, 2021).

Consequently, this study aims to formulate a strategic, implementable roadmap to reformulate Indonesia's consumer protection law to address AI-based disruptions. The primary objective is to establish an adaptive legal architecture that integrates technological analysis, normative evaluation, and comparative regulatory models. Through this reformulation, it is expected to create legal certainty that not only restores eroded consumer rights but also builds a trustworthy, fair, and sustainable digital economy ecosystem for all stakeholders in Indonesia.

RESEARCH METHOD

This research design is constructed using a normative-juridical approach to address doctrinal and regulatory legal issues, rather than empirical social-behavioral problems (Qamar & Rezah, 2020). The selection of this design is based on the urgency to dissect the regulatory disorder and legal vacuum in Indonesia's consumer protection regime amid AI disruptions. Therefore, the primary unit of analysis in this study comprises positive legal norms, liability principles, and the institutional structures governing the relationship between consumers, business actors, and autonomous intelligent systems. From a legal-dogmatic perspective, this research traces the logical coherence between existing laws and the characteristics of cross-border, black-box technological risks.

To ensure the validity of the analysis, this study uses authoritative, up-to-date primary legal materials (Sampara & Husen, 2016). The national legal instruments serving as the main objects of scrutiny include Law Number 8 of 1999 as the *lex generalis*, alongside fragmented sectoral regulations, namely Law Number 11 of 2008 and its amendments, and Law Number 27 of 2022. To strengthen the analysis on platform governance aspects, this study also integrates Law Number 7 of 2014[5], Government Regulation Number 71 of 2019[6], Government Regulation Number 80 of 2019[7], and Minister of Trade Regulation

[4]Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act) [OJ L 277, 27.10.2022].

[5]Law of the Republic of Indonesia Number 7 of 2014 on Trade, as amended by Article 46 of Government Regulation in Lieu of Law Number 2 of 2022.

[6]Government Regulation of the Republic of Indonesia Number 71 of 2019 on Organization of Electronic Systems and Transactions.

[7]Government Regulation of the Republic of Indonesia Number 80 of 2019 on Trade through Electronic Systems.

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Number 31 of 2023[8] as material legal foundations. As a global comparison material (legal transplant benchmark), this research refers to the EU Digital Services Act and the EU AI Act[9] to adopt algorithmic transparency and risk management standards. These legal materials are supported by secondary literature, including reputable international journal articles that dissect the doctrines of algorithmic liability and technology ethics.

Operationally, the research analysis framework is executed through three systematic stages to generate a precise policy roadmap (Irwansyah, 2020). The first stage is Norm Identification, where the statute approach is used to map the current legal architecture and identify articles of Law Number 8 of 1999 that are conceptually obsolete. The second stage is Gap Analysis, which uses a comparative approach to assess how Indonesia's legal framework aligns with the EU Digital Services Act. In this stage, the analysis focuses on identifying specific lags related to notice-and-action mechanisms, recommender system transparency, and the burden of proof. The third stage is Legal Prescription, in which the conceptual and futuristic approaches are synergized to formulate a new legal model. In this final stage, data is processed to construct an implementation roadmap based on the Triple Helix model, necessitating collaboration between the Government (regulator), Industry (AI developers), and Academia (algorithmic auditors) within the Precautionary Principle framework. The entire analysis is conducted qualitatively and prescriptively, using deductive logic, to produce concrete, implementable recommendations for legal reformulation.

RESULTS

Structural Gaps and Regulatory Fragmentation of Indonesia's Consumer Protection in the Artificial Intelligence Ecosystem

In-depth analysis of Indonesia's positive legal architecture reveals an acute structural gap when conventional legal norms are forced to operate within the AI-driven digital economy ecosystem. The urgency of this gap is confirmed by statistical data in the research by Pembayun and Gunawan (2025), which indicates a 275% surge in digital consumer disputes throughout the 2022 to 2024 period. This surge is not merely a statistical anomaly but an indicator of systemic legal failure to protect consumers from novel risks. The case study highlighted by Safitri et al. (2025) regarding AI chatbot disputes on the Shopee e-commerce platform exposes the bitter reality that consumers harmed by automated misinformation frequently encounter an impasse because platforms hide behind the lack of rules specifically imposing liability for non-human-agent errors. This risk is further exacerbated by the findings of Lata and Kumar (2025), which identified security and privacy vulnerabilities in AI chatbot systems that often serve as loopholes for the exploitation of consumer data in the absence of adequate protection mechanisms.

The first and most fundamental legal powerlessness lies in the product liability regime within Law Number 8 of 1999. Article 19 section (1) of this Law indeed mandates business actors to be responsible for providing compensation for damage, pollution, and/or consumer losses resulting from consuming goods and/or services. However, this article was historically built on the paradigm of static physical

[8]Regulation of Minister of Trade of the Republic of Indonesia Number 31 of 2023 on Business Licensing, Advertising, Guidance, and Supervision of Business Actors in Trading through Electronic Systems.

[9]Regulation (EU) 2024/1689 of the European Parliament and of the Council on Laying Down Harmonised Rules on Artificial Intelligence and Amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) [OJ L, 2024/1689, 12.7.2024].

products. In the context of the algorithmic economy, the definition of "product" has metamorphosed into dynamic services that undergo continuous updates and are autonomous. When AI commits errors such as recommendation bias or transaction errors, it is difficult to categorize them as "hidden defects" under conventional civil law. Consequently, the strict liability principle that serves as the soul of Law Number 8 of 1999 becomes blunt. This aligns with the statement by Soyer and Tettenborn (2022) that proving causality in complex (opaque) algorithmic systems is nearly impossible for lay consumers to perform.

Furthermore, Article 4 letter c of Law Number 8 of 1999, which guarantees consumer rights to "correct, clear, and honest information," suffers from semantic degradation in the face of practices based on algorithmic price discrimination. Chapdelaine (2024) highlights that AI-driven price personalization frequently exploits consumer behavioral data to maximize producer surplus without consumer knowledge. In the context of Indonesian law, the transparency regulated by Law Number 8 of 1999 and even Article 13 of Government Regulation Number 80 of 2019 only addresses aspects of physical labels, business actor identities, and output technical specifications. The law fails to reach the logic behind pricing or search rankings. Consumers are never informed why they receive a specific price or why a specific product is recommended to them, rendering the right to information an illusion in the face of "black box" algorithms.

The second weakness, which is systemic, is regulatory fragmentation. As Elizalde (2025) analyzed in the European legal context, which is also relevant to Indonesia, unintegrated digital regulatory interventions actually fracture the consumer protection regime. Indonesia has enacted Law Number 27 of 2022, containing progressive norms. In this regard, Article 10 of this Law grants data subjects the right to object to decision-making actions based solely on automated processing, including profiling. Theoretically, this article is the primary shield against AI dominance. However, at the implementation level, a fatal disconnection occurs between Law Number 27 of 2022 and Law Number 8 of 1999. The Consumer Dispute Settlement Body, as the spearhead of consumer law enforcement, lacks the jurisdictional mandate to adjudicate automated data processing violations under Law Number 27 of 2022. This fragmentation creates legal uncertainty about whether losses arising from algorithmic manipulation constitute a consumer dispute or a data privacy dispute. This ambiguity is frequently utilized by business actors to evade legal obligations and leave consumers drifting between different authority institutions (Setiantoro et al., 2018).

The third and most critical weakness lies in the platform liability regime set out in Government Regulation Number 71 of 2019. Article 3 section (2) of this Government Regulation establishes the principle that Electronic System Operators are responsible for the reliable, safe, and responsible operation of their systems. However, this norm is immediately negated by Article 3 section (3) of the same Regulation, which governs exculpation clauses (liability exemptions). The article states that the liability provisions for Electronic System Operators do not apply when force majeure, error, or the Electronic System User's negligence can be proven. The phrase "error and/or negligence of the User" in Article 3 section (3) of Government Regulation Number 71 of 2019 represents a highly dangerous legal loophole in the context of AI interaction. Durovic and Watson (2021) argue that in a manipulative digital environment, consumer emotions and decisions are often "steered" by manipulative interface designs (dark patterns). Accusing consumers of being "negligent" for pressing the wrong button or giving the wrong command to a chatbot is an epistemic injustice considering the extreme information asymmetry between users and intelligent systems. By maintaining this fault-based liability regime, Indonesian law indirectly grants immunity to AI developers. Meanwhile, Hacker (2023) has warned that the greatest risk of fault-based liability stems precisely from the algorithm design itself, not user behavior.

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The absence of adequate protection at the umbrella law level forces sectoral regulators to take partial, tactical steps within their mandates to implement the regulations of Law Number 7 of 2014. Minister of Trade Regulation Number 31 of 2023 is a concrete example of such patchwork efforts. Article 13 section (3) letter a of this Ministerial Regulation progressively obligates PMSE (E-Commerce) Organizers to ensure no interconnection between the PMSE Electronic System and Electronic Systems outside of PMSE. This provision implicitly prohibits cross-platform data monopoly practices that have been the *modus operandi* of Social Commerce. Additionally, Article 13 section (1) letter a of the same Ministerial Regulation mandates the provision of equal business opportunities for merchants, indirectly demanding algorithmic neutrality. Although the Ministerial Regulation offers specific breakthroughs, its scope is limited to the trade realm under the Ministry of Trade. This norm does not extend to other sectors, such as financial technology, health, or digital transportation, which are also heavily reliant on AI. Lagioia et al. (2022) warn that without a national legal umbrella prohibiting unfair algorithmic terms, sectoral protection will only shift exploitation risks to other unregulated sectors.

This fragmented, user-fault centric, and technologically lagging national legal condition confirms that partial amendments are no longer adequate. Indonesia faces a legal architecture crisis. Therefore, to escape this trap of backwardness, Indonesia needs to look outward and evaluate how global legal regimes have evolved to respond to similar challenges. A review of universal principles applied in advanced jurisdictions is the crucial next step toward discovering a more adaptive regulatory model.

Extracting Global Regulatory Principles: Paradigm Shift towards Systemic Risk Governance and Platform Observability

The failure of conventional legal regimes to contain AI negative externalities has triggered a tectonic shift in the global regulatory landscape. Advanced jurisdictions, particularly the European Union, are now abandoning the reactive ex post redress approach in favor of preventive ex ante risk governance. This transformation is tangibly manifested in the EU Digital Services Act and the EU AI Act. As analyzed by Cauffman and Goanta (2021), the EU Digital Services Act is not merely a content moderation rule but a "new order" shifting the consumer protection burden from individual shoulders to platform systems through due diligence obligations. Twigg-Flesner and Howells (2025) assert that this legal adaptation is not a mere technical amendment but a reformulation of the fundamental concept of legal duty, balancing innovation with fundamental rights. Within this framework, the following comparative analysis extracts four universal principles crucial for patching Indonesia's structural legal deficit.

The first extracted fundamental principle is the transition from static transparency to platform observability. The old transparency regime requiring static information disclosure in "Terms and Conditions" has proven to be a total failure in the era of dynamic algorithms. Leerssen (2024), in his sharp critique, argues that merely opening the "black box" algorithms to the public is a pseudo-solution because the technical complexity of machine learning transcends the cognitive capacity of average consumers and even regulators. Responding to the failure of the old paradigm, Article 40 of the EU Digital Services Act introduces the radical concept of "Observability." This norm mandates that Very Large Online Platforms (VLOPs) provide real operational data access to "vetted researchers." This principle is vital for adoption in Indonesia because, as found by Chapdelaine (2024), algorithmic price discrimination practices often operate outside the conventional transparency radar and can only be detected through independent, data-driven external audits.

The second principle is the institutionalization of the mandatory algorithmic impact assessment (AIA) as a pre-market control mechanism. Unlike Indonesia's reactive approach that waits for victims to fall, Article 34 of the EU Digital Services Act and Article 9 of the EU AI Act mandate high-risk system providers to mitigate systemic risks, including discrimination and manipulation risks, from the design phase (safety by design). Schuett (2024) emphasizes that risk management under the EU AI Act is not merely a voluntary administrative compliance standard like ISO, but a legal instrument that requires developers to rigidly document the algorithmic lifecycle. In the financial services sector, Nizioł (2021) shows that without strict AIA, AI tends to replicate historical biases in credit decisions. For Indonesia, adopting the AIA principle is the only way to break the chain of predatory algorithmic systems that systematically exploit consumer vulnerabilities before products are released to the market.

The third principle pertains to the right to meaningful explanation and the preservation of human autonomy. Fassiaux (2023) warns that the greatest latent danger of AI is not physical but the long-term erosion of consumer autonomy through subtle yet persistent manipulation of choice architectures (dark patterns). In response to such manipulation threats, Article 50 of the EU AI Act introduces proactive transparency obligations for systems that interact with humans, such as chatbots and emotion recognition systems. Users must be explicitly informed that they are interacting with a machine. This provision validates the argument by Durovic and Watson (2021) that the law must protect consumers from emotional manipulation by machines. This right to explanation empowers consumers to demand rationality behind automated decisions (such as shadow banning or service denial), thereby transforming their position from passive data objects into legal subjects with bargaining power.

The fourth principle, which constitutes the fiercest doctrinal debate battleground in global literature, is the reformulation of the burden of proof through the Presumption of Causality. Lunca (2025) notes that although the EU Digital Services Act strengthens content moderation, the civil liability regime in Europe is still seeking balance through the AI Liability Directive. On one hand, Soyer and Tettenborn (2022) argue skeptically that the existing tort law regime is adequate and specific AI rules actually hinder innovation. However, such skeptical views are strongly refuted by Hacker (2023), who criticizes the status quo approach as a "half-hearted" measure. Hacker postulates that the black-box characteristics of AI render traditional causal proof impossible for victims. Therefore, he proposes that the law presume AI caused the damage if the developer fails to comply with transparency standards. For Indonesia, which is still locked in the fault-based liability regime, Hacker's radical idea is an imperative solution to address the extreme evidentiary power inequality between individual consumers and tech giants.

The synthesis of the four principles above (Platform Observability, Mandatory AIA, Right to Explanation, and Presumption of Causality) provides a solid substantive framework for amending Law Number 8 of 1999. However, Gregorio (2021) warns that, in the context of "digital constitutionalism," these principles must not merely become paper tigers in legal documents. Their effectiveness relies heavily on the institutional capacity of the receiving state. Given the technical complexity and dynamic nature of AI, applying these principles in Indonesia requires an implementation vehicle that transcends traditional bureaucracy. As suggested by Androniceanu and Colesca (2025), a Triple Helix collaboration model synergizing the strengths of regulators, industry, and academia is required to translate these abstract norms into concrete law enforcement.

Construction of an Adaptive Legal Model and Implementation Roadmap Based on Triple Helix Synergy

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Bridging the structural gaps with global principles demands a total reconstruction of the consumer protection legal architecture rather than mere piecemeal adoption. This study prescribes an adaptive legal model fundamentally rooted in the Precautionary Principle as its main philosophical basis (*grundnorm*). Unlike the "permissionless innovation" approach that allows technology to develop unchecked until harm occurs, Ranchordas (2021) and Schuett (2024) critically argue that when facing technologies with systemic and irreversible risks like AI, the law must intervene upstream. The application of this principle in Indonesia is not intended to stifle innovation but to steer it toward an ethical and safe trajectory (responsible innovation) and to shift the paradigm from ex-post liability to ex-ante responsibility.

Within the philosophical framework of the Precautionary Principle, the proposed legal model stands upon four systematically interlocking regulatory pillars. The first pillar is mandatory AIA as an absolute condition for market access. Adopting the risk analysis framework by Schuett (2024), this pillar mandates that high-risk AI developers document risk mitigation measures for bias, discrimination, and cognitive manipulation before the product is launched. AIA functions as a procedural transparency instrument that forces the internalization of negative externalities into production costs and prevents the circulation of predatory algorithms preying on Indonesian consumer vulnerabilities identified in the data by Pembayun and Gunawan (2025). The second pillar is the transformation from static transparency to meaningful observability. Leerssen (2024) warns that transparency without auditability is an illusion. Therefore, this model mandates the disclosure of key automated decision parameters to consumers and the opening of operational data to independent researchers for forensic audits of the system.

The third pillar is the reformulation of the tiered liability regime. Responding to the critique by Hacker (2023) of the weaknesses in fault-based systems, this model proposes the application of the presumption of causality. If a system failure causes consumer harm, the burden of proof automatically shifts to the business actor unless the business actor can prove full compliance with AIA standards. The fourth pillar is the explicit codification of digital rights. Referring to the analysis by Fassiaux (2023) on autonomy, the new law must recognize the right to explanation and freedom from emotional manipulation as material consumer rights. This recognition is crucial to close legal loopholes that platforms have historically exploited through manipulative interface designs (dark patterns). These four pillars are designed to transform the consumer position from a vulnerable data object into a sovereign legal subject and create a new equilibrium in a highly asymmetric legal relationship.

The greatest challenge for a developing country like Indonesia in realizing this model lies not merely in formulating material norms but in the often weak enforcement capacity. Therefore, the primary novelty offered in this study is the integration of the legal model into an implementation roadmap driven by the Triple Helix synergy model. As elaborated by Androniceanu and Colesca (2025) in the context of modern public administration, the Triple Helix model requires dynamic, equal collaboration among Government (as regulator), Industry (as innovator), and Academia (as independent auditor) to create a responsive governance ecosystem. Zadegan et al. (2025) add that the interaction among these three actors must be reciprocal to prevent bureaucratic rigidity and ensure the sustainability of development goals.

Based on this collaborative framework, the implementation roadmap is structured into three progressively flowing strategic phases. The Initiation Phase or Short-Term Phase (1–2 years) focuses on rapid responses to patch regulatory leaks without waiting for lengthy legislative processes. The main priority is harmonizing overlapping implementing regulations between the Ministry of Trade and the Ministry of Communication and Digital. The most tactical legal instrument is the issuance of a cross-ministerial Joint Decree that firmly integrates personal data protection standards (Law Number 27 of 2022) into the digital consumer dispute resolution mechanism. The Key Performance Indicator in this

phase is measured by the mapping of specific conflict norms between Law Number 8 of 1999 and Law Number 11 of 2008, as well as by the issuance of technical guidelines by the Consumer Disputes Settlement Body for handling AI disputes to fill the temporary legal vacuum.

Simultaneously in the short-term phase, the Government needs to adopt the Regulatory Sandbox approach as suggested by Ranchordas (2021). The sandbox functions as a limited testbed where AI start-ups can operate under intensive supervision from regulators and academia, without the burden of full compliance, but with strict consumer protection obligations. This mechanism allows regulators to learn algorithmic operations empirically before drafting rigid rules. Concrete success indicators at this stage include establishing at least two thematic sandbox clusters (e.g., for the fintech and e-commerce sectors) and the active participation of universities as independent evaluator partners in assessing sandbox participants' algorithmic safety, thereby realizing the Triple Helix function in practice.

Moving to the Medium-Term Phase (3–5 years), the focus shifts to the core of hard law reform and norm institutionalization. Based on empirical data collected during the sandbox phase, the Government and the House of Representatives (DPR) must prioritize either amending Law Number 8 of 1999 or drafting a new Digital Consumer Protection Law. The main agenda is to insert the four regulatory pillars (AIA, Transparency, Tiered Liability, and Digital Rights) into the body of the law. At this stage, the role of academia is crucial in drafting the Academic Manuscript based on evidence-based policy adhering to the principles of good legislation formation as explained by Busthami (2022). Meanwhile, the industry is obliged to formulate professional ethical standards aligned with the new Law. The success of this phase is marked by the enactment of a new law explicitly adopting "right to explanation" and "presumption of causality" clauses, as well as the establishment of a national algorithm certification scheme recognized by the industry as a compliance standard.

As the peak of transformation, the Long-Term Phase (>5 years) aims to ensure ecosystem sustainability through institutional reform. The main focus is the establishment or strengthening of an Independent Digital Supervisory Authority possessing cross-sectoral authority and combining the functions of business competition supervision, consumer protection, and personal data privacy. This institution must be staffed by human resources possessing technical algorithmic audit competence to address the knowledge asymmetry challenge. These long-term success indicators are outcome-oriented, measured by the decrease in the percentage of unresolved digital consumer disputes, the increase in consumer trust indices regarding digital transactions, and the effectiveness of administrative sanction enforcement against algorithmic violations.

Ultimately, the vision for this long-term phase is to create a compliance culture in which the safety-by-design principle is internalized within industrial business processes. This compliance no longer arises solely from regulatory coercion but is an inevitable business ethical standard within the Triple Helix model. Through this tiered roadmap integrating progressive legal theory with pragmatic implementation strategies, Indonesia will not only catch up on its legal lag but potentially serve as a reference model for other developing nations in fair and sustainable AI governance.

Discussion

This research has successfully revealed the anatomy of the consumer protection regulatory crisis in Indonesia and formulated a precise architectural solution. The synthesis of findings from the three results sub-chapters confirms that the problem faced is not merely a shortage of articles but a systemic failure of legal architecture. First, as elaborated in the gap analysis, Law Number 8 of 1999 and Government Regulation Number 71 of 2019 are proven to suffer from structural obsolescence in

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addressing AI algorithmic risks, primarily due to "user negligence"- based exculpation loopholes and the absence of evidentiary instruments for black-box systems. Second, the extraction of global principles shows that advanced jurisdictions, such as the European Union, have radically shifted toward a preventive risk governance paradigm through observability and burden-of-proof reversal principles. Third, the legal model construction demonstrates that transplanting these global principles into the Indonesian context will be effective only if framed within the Triple Helix implementation model, necessitating cross-sectoral collaboration rather than mere legal text adoption.

The legal lag identified in this study is not a historical coincidence but a logical consequence of what Twigg-Flesner and Howells (2025) term a "temporal disconnect." Indonesian law was designed in the analog era for static, linear, and predictable transactions, while AI technology operates dynamically, autonomously, and evolves continuously (self-learning). Within the paradigm of Law Number 8 of 1999, as discussed in the first sub-chapter, the consumer-business actor relationship is assumed to be bilateral and transparent, with relatively equal standing. However, findings from the Shopee chatbot study indicate that, in the AI ecosystem, this relationship has been disrupted by algorithmic intermediaries, creating extreme knowledge asymmetry (Safitri et al., 2025). The failure of legislators to recognize "autonomous agents" as new legal subjects or objects of liability creates a law-enforcement vacuum when harm arises not from human malicious intent (*mens rea*) but from system design errors undetected by conventional transparency.

Furthermore, this paralysis is exacerbated by acute institutional fragmentation as confirmed by Elizalde (2025) in an analysis regarding the impact of digital regulation on consumer law. Findings in the first sub-chapter indicate that divided authority between the Ministry of Trade (supervisor of Minister of Trade Regulation Number 31 of 2023), the Ministry of Communication and Digital (system supervisor), and the personal data authority (Law Number 27 of 2022) creates a jurisdictional uncertainty zone. Platform business actors exploit this fragmentation loophole to engage in regulatory arbitrage, choosing compliance with the least stringent rules to evade strict legal obligations. Consequently, consumers victimized by price discrimination or algorithmic manipulation often lack clear redress mechanisms, as such disputes do not fully fall within the Consumer Disputes Settlement Body's purview yet are not addressed by the unintegrated operational enforcement mechanism of Law Number 27 of 2022.

The scientific contribution of this research becomes significant and distinctive when placed within the global and national literature battleground. Compared to previous national studies such as Setiantoro et al. (2018) or Dzuhriyan et al. (2024), this research performs a substantial analytical leap. Those previous studies remained fixated on conventional e-commerce dispute resolution (such as default in goods delivery), whereas this research has shifted to the specific risks posed by autonomous agents, which are untouched by the national legal literature. This research shows that the Consumer Disputes Redressal Mechanism, as praised in earlier studies, is irrelevant for handling algorithmic disputes that require digital forensic audits rather than simple mediation.

Conversely, in the context of global literature, this research fills the void left by normative ethical studies. Works like Aloamaka and Omozue (2024) or Filip (2025) are robust in diagnosing ethical and human rights issues in AI usage but tend to stop at abstract recommendations. In contrast, this research offers a novel roadmap for technocratic implementation. By integrating global material principles (AIA and Tiered Liability) into the national institutional structure through the Triple Helix model, this study answers the "how" question of operationalizing legal theory within the constraints of developing-country capacity. This is the value of originality that distinguishes this manuscript from mere literature reviews or standard normative analyses.

Theoretically, findings regarding "choice architectures" imply the necessity of a fundamental deconstruction of the transparency and consent doctrines embraced by Law Number 8 of 1999. As Fassiaux (2023) and Leerssen (2024) have criticized, in a digital environment saturated with manipulative designs, static information transparency (such as the obligation to include Standard Clauses or lengthy Terms and Conditions) is no longer adequate to guarantee consumer autonomy. Helberger et al. (2022) and Bakiner (2023) provide the argumentative foundation that under such conditions, consumer consent is frequently the result of cognitive engineering rather than autonomous free will. The importance of protecting fundamental consumer values in the fourth industrial revolution era is also emphasized by Howells (2020), who warns that the law must not be subordinated to technological agendas that ignore human rights.

Therefore, this research proposal to shift the paradigm from "static transparency" to "platform observability" and "right to explanation" constitutes a concrete manifestation of "Digital Constitutionalism" as conceived by Gregorio (2021). From this perspective, protection against algorithmic manipulation is not merely an issue of economic loss but the protection of human dignity and autonomy as constitutional rights. The state must be present not merely to mandate information inclusion but also to guarantee audit access to data for researchers to dismantle the tightly closed black-box algorithms and restore sovereignty to consumers as legal subjects.

Although the proposed model offers progressive solutions, critical reflection is required to balance protection and innovation. The debate between Soyer and Tettenborn (2022) and Hacker (2023) regarding liability regimes highlights the risk that overly strict rules may create a chilling effect hindering technological pace. Soyer argues that a strict liability regime for nascent technologies risks killing innovators' incentives. In the Indonesian context, the immediate application of complex AIA obligations potentially becomes a significant barrier to entry for the limited-resource tech start-up ecosystem, ultimately reducing market competition.

However, this research answers such concerns through synthesis with the view of Ranchordas (2021). Leaving innovation without ethical oversight will precisely lead to far greater long-term social costs in the form of erosion of public trust. Therefore, the Regulatory Sandbox approach integrated into the Short-Term Phase of this research roadmap functions as a safety valve. The sandbox allows innovation to proceed within a limited test space under Triple Helix supervision while regulators collect empirical data to draft precise rules. This is a middle ground that rejects the false dichotomy between killing innovation and allowing consumer exploitation.

The policy implications of this study require concrete, measurable action from stakeholders. For the Government, the sectoral regulatory status quo (such as Minister of Trade Regulation Number 31 of 2023) is no longer adequate as a long-term solution. Cross-sectoral harmonization through a Joint Decree or a new umbrella regulation adopting the four regulatory pillars formulated is required. The Consumer Disputes Settlement Body must immediately transform from a conventional mediation institution into a hybrid tribunal with digital forensic capacity, or at least build strategic partnerships with university algorithmic auditors. Without this capacity, law enforcement will be paralyzed in the face of future disputes.

For the industry sector, these findings imply that compliance with AI ethical standards will transform into an auditable legal obligation. As emphasized by Irwanto et al. (2025) and Zadegan et al. (2025), the industry must now invest in safety-by-design compliance or face future mass litigation risks. Cross-sectoral synergy (including priority on sensitive sectors like health data) is key to this reform

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success. Without solid Triple Helix collaboration, legal norms, no matter how sophisticated, will become paper tigers in the face of exponential technological acceleration.

CONCLUSION

This study concludes that Indonesia's current consumer protection legal architecture suffers from systemic failure in responding to AI disruption. The synthesis of findings confirms the existence of structural gaps, as Law Number 8 of 1999 and Government Regulation Number 71 of 2019 still maintain a fault-based liability paradigm. This paradigm has been proven to create loopholes that allow digital platforms to evade responsibility for damages caused by algorithmic autonomy, shifting the blame to users with cognitive limitations. This condition is exacerbated by acute sectoral regulatory fragmentation between trade authorities and personal data authorities, creating a zone of legal uncertainty detrimental to consumers. To address this legal paralysis, this research prescribes an adaptive legal model based on the Precautionary Principle, integrating four universal regulatory pillars: mandatory AIA, platform observability, a tiered liability regime with a presumption of causality, and the codification of consumer digital rights.

The scientific contribution of this study transcends conventional normative analysis by offering an original synthesis of global legal doctrines and local implementation strategies. Unlike previous literature, which tends to stop at normative ethical recommendations, this research develops a concrete, phased implementation roadmap. Its primary novelty lies in operationalizing the Triple Helix synergy model (dynamic collaboration among Government, Industry, and Academia) as the driving force of reform. This approach fills the literature gap regarding the mechanism of transplanting global consumer protection standards (such as the EU Digital Services Act) into the institutional structure of a developing country. Thus, this research demonstrates that consumer protection in the AI era does not require a choice between stifling innovation and allowing exploitation, but can be achieved through collaborative risk governance.

As a concrete follow-up to these conclusions, this research recommends a series of strategic policy implications. For the Government, the partial regulatory status quo is no longer adequate. Relevant ministries are urged to immediately issue a Joint Decree as a tactical short-term harmonization step while preparing the Academic Manuscript for the Digital Consumer Protection Law. Specifically, the establishment of a Regulatory Sandbox must be prioritized as a policy incubator to test start-up algorithmic safety without killing the competitive climate. For the Consumer Dispute Settlement Body, institutional transformation is an absolute imperative; this institution must be equipped with digital forensic audit partnership capacity so that its decisions possess executive authority in complex algorithmic disputes. For industry players, compliance with safety-by-design standards must be internalized immediately as a long-term legal risk-mitigation strategy rather than a mere administrative burden.

Despite the substantial findings produced, this research has limitations due to its normative-juridical nature. This study has not yet examined the real economic impact of applying strict AIA standards on compliance costs for digital-based business actors in Indonesia. Therefore, future research is suggested to conduct empirical studies or Regulatory Impact Analysis (RIA) to measure the equilibrium between compliance costs and consumer protection benefits. Furthermore, future research should expand the comparative scope to include other Asian jurisdictions to enrich the legal transplant perspective. With this foundation, it is expected to create a digital economy ecosystem that is not only technologically efficient but also fair and that upholds consumer sovereignty.

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