



Algorithmic Accountability Gap: Rethinking Liability Frameworks for Generative AI in Indonesian Civil Law

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Abstract

Background: The rapid diffusion of generative artificial intelligence (AI) into text, image, and decision-support applications has outpaced the doctrinal assumptions of Indonesian civil liability law, which remains anchored to the fault-based tort regime of Article 1365 of the Kitab Undang-Undang Hukum Perdata (KUHPerdata).

Objective: This study examines how the probabilistic, opaque, and distributed nature of generative AI strains the elements of actor, fault, causation, and foreseeability that Indonesian tort doctrine requires, and proposes a reform pathway suited to a civil law jurisdiction.

Method: A qualitative doctrinal-normative legal research design was used, combining statutory and comparative analysis with a systematic thematic content analysis of forty peer-reviewed sources on algorithmic accountability, AI governance, and responsible AI practice.

Results: The analysis shows that existing instruments, including the Consumer Protection Law, the Electronic Information and Transactions Law, and the Personal Data Protection Law, only partially cover generative AI harms, leaving an accountability gap between developers, deployers, and users. A tiered, presumptive liability model, expressed through a proposed Algorithmic Liability Allocation Index, is offered as a transplantable reform mechanism.

Conclusion: Indonesian civil law requires a calibrated, risk-tiered liability architecture, supported by a rebuttable presumption of fault, to close the accountability gap created by generative AI without displacing the foundational logic of KUHPerdata.

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INTRODUCTION

Generative artificial intelligence (AI) systems, capable of producing text, images, code, and decision recommendations from probabilistic language and diffusion models, have moved within a few years from research laboratories into banking, healthcare, education, journalism, and public administration across Indonesia. Their outputs are no longer confined to novelty applications; they are used to draft contracts, screen loan applicants, generate marketing content, and even inform administrative decisions (Salah et al., 2025; Tutar, 2025). This diffusion has occurred faster than the doctrinal apparatus available to allocate responsibility when those outputs cause harm. When a generative model fabricates a defamatory claim about a named individual, infringes a copyrighted work, or produces a discriminatory credit recommendation, Indonesian civil law is asked a question it was not built to answer: who, exactly, is legally at fault?

Indonesian tort liability is governed principally by Article 1365 of the KUHPerdata, which requires proof of an unlawful act (*perbuatan melawan hukum*), fault (*kesalahan*), loss (*kerugian*), 943 | Journal of Law & Social Politics

and a causal link (*hubungan kausal*) between the act and the loss. This structure presupposes a discrete, identifiable actor whose conduct can be evaluated against a standard of reasonable foreseeability. Generative AI complicates every one of these elements. The “actor” is distributed across at least three roles that rarely coincide in a single legal person: the developer who designs and trains the model, the deployer who fine-tunes, integrates, or commercially operates it, and the end user who supplies the prompt and receives the output (Fleisher et al., 2025). Fault becomes difficult to locate because model behavior emerges statistically from training data and architecture rather than from an explicit, traceable design decision. Causation is strained because outputs are often non-reproducible and probabilistic, making it difficult to show that a specific design choice necessarily produced a specific harmful output. Foreseeability, finally, is tested by emergent capabilities and failure modes that were not anticipated by any of the parties in the causal chain (Plate & Hutson, 2025).

This tension is not unique to Indonesia. Scholars across jurisdictions have described a broader “responsibility gap” or “accountability gap” that opens whenever autonomous or semi-autonomous systems mediate consequential decisions (Карпова, 2025). Mahajan (2025) frames this as a democratization dilemma: as generative tools place expert-level output generation in the hands of non-experts, the question of who should be trusted, and who should answer, becomes structurally ambiguous. de Vaujany et al. (2025) argue that responsibility in the digital age must be rethought narratively rather than through static, single-actor models, because digital agency is inherently relational and distributed across sociotechnical assemblages. These insights are conceptually important, but they were developed primarily against common law liability regimes or supranational instruments such as the European Union’s AI Act, and their transplantability into a civil law, code-based system such as Indonesia’s has not been systematically examined.

Existing Indonesian statutory instruments only partially address the gap. Law No. 8 of 1999 on Consumer Protection (*UU Perlindungan Konsumen*) treats AI-enabled products under a strict liability logic that presumes a definable “defect,” a concept poorly suited to a system whose failure modes are statistical tendencies rather than manufacturing flaws. The Electronic Information and Transactions Law (*UU ITE*) and the Personal Data Protection Law (*UU PDP*) regulate data handling and electronic transactions but stop short of establishing a liability regime for autonomous-seeming, generative outputs. Vicarious liability under Article 1367 *KUHP*erdata, which extends an employer’s responsibility for the acts of subordinates, offers a tempting analogy for treating AI as a kind of “agent,” but Indonesian law requires the agent to be a legal subject capable of bearing duties, and AI systems currently possess no legal personhood (Marwala & Mpedi, 2024). The result is a patchwork of statutes that were not designed to interoperate, and a body of scholarship on AI governance, ethics, and explainability that has grown rapidly in adjacent disciplines without a corresponding body of Indonesian civil law scholarship translating those insights into a workable liability architecture.

The novelty of this study lies in three contributions that, taken together, are absent from the existing state of the art. First, whereas prior comparative and governance-oriented literature has examined AI accountability primarily through the lens of regulatory design, ethics frameworks, and sector-specific governance practice Wittmann & Meynhardt (2025), this study is among the first to map that literature systematically onto the specific doctrinal elements of Article 1365 and 1367 *KUHP*erdata, translating abstract accountability concepts into the vocabulary of Indonesian tort law. Second, while a growing body of work addresses algorithmic bias, explainability, and auditing as technical or organizational problems Ling et al. (2025), few studies convert these findings into a legally operational allocation mechanism; this study proposes such a mechanism in the form of a tiered liability model and an accompanying Algorithmic Liability Allocation Index that a court or regulator could, in principle, apply. Third, the study grounds its comparative analysis in the specific institutional constraints of a civil law jurisdiction with custom-influenced legal pluralism, rather than assuming that reform proposals developed for common law or supranational contexts transfer without adjustment, a gap explicitly identified in recent governance-asymmetry research (Finch & Butt, 2025). The research is accordingly oriented by three objectives: to identify precisely where and how the elements of Indonesian tort doctrine are strained by generative AI; to synthesize, through thematic analysis of the contemporary literature on algorithmic accountability, governance, and ethics, the design

principles that a workable liability framework must satisfy; and to propose and illustrate a tiered, presumption-shifting liability model, expressed through a quantifiable allocation formula, that is transplantable into the structure of the *KUHPerdata* without requiring wholesale doctrinal replacement. The contribution is positioned as a contextual synthesis rather than an absolute first claim. Existing studies from civil law jurisdictions and Asian regulatory contexts are considered to clarify that the proposed model extends current accountability discussions by integrating Indonesian tort doctrine with comparative AI governance approaches.

The remainder of this article proceeds as follows. The Research Method section explains the qualitative, doctrinal-normative design and the thematic content analysis applied to the literature corpus. The Result and Discussion section maps the doctrinal strain points, presents a comparative analysis of international liability instruments, reports the thematic distribution of the reviewed corpus, and develops the proposed tiered liability model together with its illustrative allocation formula. The Conclusion summarizes the study's contribution, limitations, and directions for future empirical and doctrinal research.

METHOD

This study employed a qualitative research design combining doctrinal-normative legal research with a systematic thematic content analysis of secondary scholarly literature. Doctrinal-normative analysis was chosen because the research question is fundamentally interpretive: it asks how existing legal texts (the *KUHPerdata*, UU Perlindungan Konsumen, UU ITE, and UU PDP) apply, or fail to apply, to a novel factual category (generative AI harm), and what statutory or interpretive adjustments would restore coherence. This design is consistent with qualitative approaches used elsewhere to examine emergent socio-legal problems where quantitative measurement of the phenomenon itself is not yet feasible (Mahajan, 2025). The literature identification process was conducted through a structured search using Scopus-indexed sources with keywords including 'algorithmic accountability', 'generative AI liability', 'AI governance', 'responsible AI', and 'civil liability'. Sources were screened based on relevance to legal responsibility, governance mechanisms, and liability allocation. The final corpus of forty sources was retained after excluding studies focused solely on technical model development without legal or governance implications.

Two categories of data were analyzed. The first category comprised primary and secondary legal sources: the *KUHPerdata* (Articles 1365 and 1367), Law No. 8 of 1999 on Consumer Protection, Law No. 11 of 2008 on Electronic Information and Transactions as amended, and Law No. 27 of 2022 on Personal Data Protection, together with the European Union's AI Act, China's regulatory measures on generative AI services, and Singapore's Model AI Governance Framework, used as comparative reference points. The second category comprised a corpus of forty peer-reviewed journal articles, conference proceedings, and scholarly books published between 2024 and 2026, retrieved through a structured Scopus export and screened for relevance to algorithmic accountability, AI governance, responsible AI, and legal liability. Sources unrelated to the accountability, governance, or liability dimensions of AI were excluded during screening.

Data analysis followed a qualitative content analysis procedure in three stages. In the open-coding stage, each source in the corpus was read in full and coded for its primary conceptual contribution (for example, fault attribution, explainability, governance asymmetry, or legal personhood). In the axial-coding stage, codes were grouped into six thematic categories: accountability and responsibility theory; governance and regulatory frameworks; legal status, personhood, and liability; ethics, bias, and fairness; explainability, trust, and auditing; and sectoral applications and governance practice. In the selective-coding stage, the thematic categories were cross-referenced against the doctrinal elements of Article 1365 *KUHPerdata* (actor, fault, causation, and foreseeability) to identify where the literature's conceptual vocabulary could be translated into legally operational criteria. This cross-referencing exercise is the analytic basis for the tiered liability model developed in the Result and Discussion section. Trustworthiness of the analysis was supported through source triangulation across statutory text, comparative regulatory instruments, and the scholarly corpus, and through a constant-comparative check in which emerging categories were repeatedly tested against newly coded sources. The analysis was completed after all predetermined sources had been examined and no additional analytical

categories emerged within the established corpus.

RESULTS AND DISCUSSION

Result

The Strain on Article 1365 KUHPerdata

Article 1365 KUHPerdata requires four cumulative elements before liability attaches: an unlawful act, fault, loss, and a causal link between the act and the loss. Table 1 maps each element against a representative generative AI harm scenario and identifies the specific interpretive difficulty that arises. The subsequent analysis uses actor distribution and foreseeability only as interpretive dimensions for examining liability challenges, not as independent statutory elements of Article 1365 KUHPerdata.

Table 1

Mapping of Article 1365 KUHPerdata Elements Against Generative AI Harm Scenarios

Doctrinal Element	Traditional Legal Meaning	Generative AI Harm Scenario	Interpretive Challenge
Unlawful act (<i>perbuatan melawan hukum</i>)	Conduct that violates a legal norm, a subjective right, or the standard of due care	Model generates a fabricated, defamatory claim about a named individual	Whether an “act” exists when output is statistically generated rather than intentionally authored
Fault (<i>kesalahan</i>)	Intent or negligence attributable to a specific, identifiable actor	Discriminatory credit-scoring recommendation from a fine-tuned model	Fault presumes foreseeability of a specific outcome; emergent bias may not be foreseeable by any single party
Loss (<i>kerugian</i>)	Quantifiable material or immaterial damage suffered by the claimant	Reputational and financial harm from AI-generated misinformation	Immaterial and reputational loss from synthetic content is compensable in principle but difficult to quantify
Causal link (<i>hubungan kausal</i>)	A direct, provable causal chain between the act and the loss	Copyright-infringing output reproduced from training data	Non-reproducibility of generative outputs undermines conventional causal-proof standards

As Table 1 shows, the difficulty is not that generative AI harms fall entirely outside the language of Article 1365; it is that each element requires an interpretive extension that Indonesian courts have not yet been asked, and jurisprudence has not yet been developed, to make. Fleisher et al. (2025) describe this as a structural feature of algorithmic societies generally: responsibility becomes diffuse precisely because no single actor possesses both the causal proximity and the epistemic access needed to satisfy a traditional fault standard. Капнова (2025) extends this point philosophically, arguing that algorithmic “authority,” the capacity of a system’s output to shape downstream decisions, has outpaced the moral and legal vocabulary of agency, leaving a residual category of harm for which no actor is straightforwardly at fault. Tanriverdi & Akinyemi (2025) document empirically how algorithmic bias in decision-support systems can produce socially unjust outcomes, such as discriminatory welfare or credit decisions, that trace back to training data choices made years earlier by parties who are organizationally and often geographically remote from the harmed individual.

The causation element is particularly strained by the technical opacity of large generative models. Eckhardt et al. (2026) show that even sophisticated users struggle to calibrate appropriate reliance on AI outputs precisely because the systems do not expose a stable, auditable decision path; a plaintiff seeking to prove that a specific design or training choice caused a specific output faces an evidentiary burden that few individual litigants could realistically meet. Cortiñas-Lorenzo et al. (2025) survey explainable AI frameworks and find that even purpose-built

explanation techniques offer, at best, approximate and post hoc rationalizations rather than a genuine causal account of why a model produced a given output. This asymmetry of technical knowledge between the entities that build and deploy generative systems and the individuals who are harmed by their outputs is a recurring theme across the corpus Becerra Sandoval et al. (2025), and it is the central justification, developed further below, for shifting the burden of proof once a prima facie case of algorithmic harm has been established.

Comparative Liability Instruments

Because Indonesian doctrine offers no settled answer, it is instructive to examine how other jurisdictions, operating under different legal traditions, have approached the same structural problem. Table 2 summarizes five representative regimes.

Table 2

Comparative Analysis of Generative AI Liability Instruments Across Selected Jurisdictions

Jurisdiction	Primary Legal Basis	Liability Standard	Burden of Proof	Key Limitation for Indonesia
European Union	AI Act (risk-tiered) + revised Product Liability Directive	Risk-based; presumed defectiveness	Shifted to provider once a plausible link is shown	Requires product-liability infrastructure Indonesia has not yet built
China	Interim Measures for Generative AI Services + tort law	Fault-based, supplemented by administrative compliance duties	Partially shifted via regulatory presumption	Closest structural analogue; requires new sector-specific rules
Singapore	Model AI Governance Framework (soft law)	Voluntary assurance; residual negligence law	Remains with the claimant	Disadvantages low-capacity claimants and small deployers
United States	Product liability, negligence, sectoral enforcement	Fragmented; no unifying federal AI liability statute	Remains with the claimant (jurisdiction-dependent)	Litigation uncertainty; uncodified logic fits poorly with a civil code system
Indonesia (current)	Art. 1365 & 1367 KUHPerdata; UU PK; UU ITE; UU PDP	Fault-based tort; strict liability only for defined “defects”	Remains with the claimant	No mechanism for distributed, opaque algorithmic fault

The European Union's approach, discussed extensively by Braun & Harasimiuk (2025) and situated within a broader human-centric governance agenda by Wittmann & Meynhardt (2025), is instructive precisely because it does not attempt to define AI liability through general tort principles alone; it layers a risk-based regulatory classification (the AI Act) on top of a revised Product Liability Directive that presumes defectiveness once a claimant shows a plausible link between the AI system's output and the damage suffered, shifting the evidentiary burden onto the provider. Efthymiou & Kouroupis (2026) note that this layered approach was chosen deliberately because a pure negligence standard, similar in structure to Article 1365 *KUHPerdata*, was judged incapable of accounting for the opacity problem described above.

China's approach, analyzed by Chen & Hu (2025) in the context of the circular economy and financial industry, retains a fault-based tort foundation but supplements it with sector-specific administrative measures that impose compliance duties directly on generative AI service providers, effectively converting many regulatory breaches into a form of presumptive fault for civil liability purposes. This hybrid model is significant for Indonesia because, like China, Indonesia's civil code is fault-based and code-structured rather than precedent-driven, meaning

that any reform is more likely to succeed if it operates through targeted statutory presumptions rather than through judicially developed common law doctrines of strict liability, which have no direct structural analogue in the *KUHPerdata* system.

Singapore's Model AI Governance Framework, and the broader compliance-ecosystem literature synthesized by Finch & Butt (2025), illustrate a third pathway: rather than legislating liability directly, governance is pursued through soft-law instruments, sectoral guidance, and voluntary assurance frameworks, with liability questions left to existing consumer protection and negligence law. Finch & Butt (2025) caution, however, that this approach systematically disadvantages “low-capacity actors,” including individual claimants and small deployers, who lack the resources to navigate a fragmented compliance ecosystem, a structural asymmetry that a purely voluntary framework does nothing to correct. This finding is directly relevant to Indonesia, where the majority of AI deployers are small and medium enterprises integrating third-party generative AI application programming interfaces rather than training foundation models themselves; a soft-law-only approach would leave exactly this population without a clear liability pathway when harms occur.

The United States context, examined through the accountability lens of Fleisher et al. (2025), relies heavily on existing product liability, negligence, and sector-specific regulatory enforcement, with no comprehensive federal AI liability statute. The absence of a unifying doctrinal architecture has produced significant litigation uncertainty, which Fleisher et al. (2025) argue is itself a harm, because it depresses both victim compensation and developer incentives to invest in safety. Labanieh et al. (2026) further note that the underlying difficulty across all four jurisdictions is a shared, unresolved question of AI legal personhood: without a settled answer to whether, or under what conditions, an AI system could itself bear legal duties, every liability framework is ultimately a proxy allocation among human and corporate actors standing behind the system.

Thematic Distribution of the Reviewed Corpus

To ensure that the proposed reform is grounded in the state of the art rather than in isolated exemplars, the forty sources analyzed in this study were coded into six thematic categories, summarized in Figure 2. The distribution shows that governance and regulatory-framework scholarship (nine sources) and sectoral application and practice studies (nine sources) together constitute nearly half of the corpus, reflecting a scholarly emphasis on how organizations and regulators are currently operationalizing responsible AI in practice (Berridge & Ho, 2025; Boccuzzi et al., 2025; Doherty et al., 2025; Elhajjar & Itani, 2025; Güttner & Röttinger, 2025; Kumar et al., 2025; Oh & Sanfilippo, 2025; Southgate et al., 2025; Van den Bulck et al., 2025). Ethics, bias, and fairness scholarship (seven sources) forms the next largest cluster Bai (2025), Mbiazi et al. (2025), Harris & Dubljević (2025) followed by explainability, trust, and auditing research (six sources) (Brintrup et al., 2025; Dhaigude & Kamath, 2025).

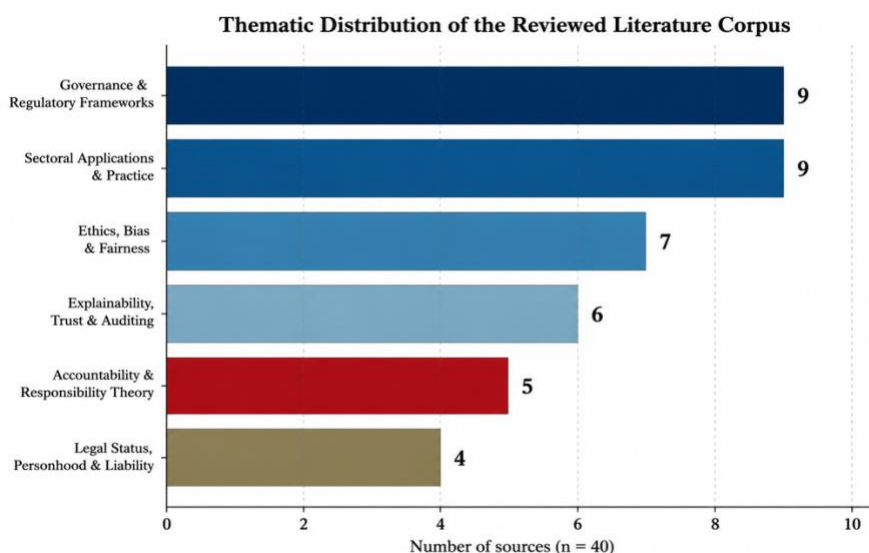
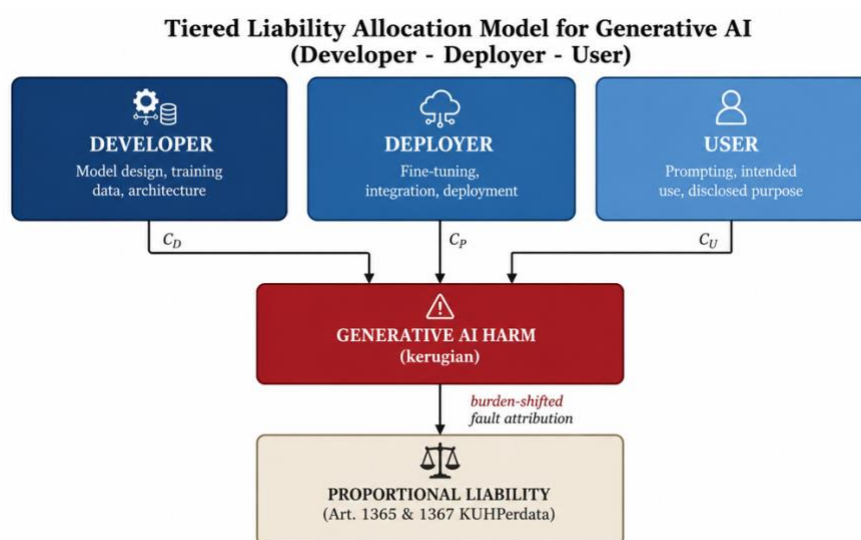


Figure 2. Thematic Distribution of the 40-source Literature Corpus Analyzed in this Study.

Accountability and responsibility theory (five sources) Plate & Hutson (2025) and legal status, personhood, and liability scholarship (four sources) are the smallest clusters (Anand, 2024). This distribution is itself analytically significant: it suggests that the literature has produced a rich descriptive and normative understanding of what responsible AI governance should look like in practice, but a comparatively thin doctrinal bridge connecting that understanding to operable civil liability rules, particularly outside common law and supranational contexts. This gap is precisely what the tiered liability model developed in the next section attempts to address for the Indonesian setting.

Toward a Tiered Liability Model for Indonesia

Building on the doctrinal mapping in Table 1 and the comparative analysis in Table 2, this study proposes a tiered liability model that allocates responsibility across the developer, deployer, and user roles in proportion to each actor's demonstrated control over the causal chain that produced the harm, rather than requiring a claimant to prove fault against a single, discrete actor. Figure 1 illustrates the model.

**Figure 3.** Proposed Tiered Liability Allocation Model for Generative AI Under Indonesian Civil Law.

Discussion

The model operates in two stages. First, once a claimant establishes a *prima facie* case, namely that a generative AI output caused an identifiable loss, the burden of proof shifts to the developer, deployer, and user collectively to demonstrate the degree of control each exercised over the parameters that produced the harmful output. This burden-shifting mechanism mirrors the evidentiary logic adopted in the European Union's revised product liability framework Braun & Harasimiuk (2025) and responds directly to the opacity problem documented by Eckhardt et al. (2026): because the parties who built and deployed the system possess vastly superior access to training data, model architecture, and deployment configuration, they, rather than the harmed individual, are best placed to produce or fail to produce the evidence needed to establish or exclude their own fault. This reallocation of the evidentiary burden is consistent with the general theory of responsibility in algorithmic societies developed by Fleisher et al. (2025), who argue that responsibility gaps should be closed by aligning the burden of proof with epistemic access rather than with formal causal proximity alone.

Second, once relative control has been established, liability is apportioned rather than assigned in an all-or-nothing manner, consistent with existing Indonesian doctrine on joint tortfeasance under Article 1367 *KUHPerdata*, which already contemplates shared responsibility among multiple actors. To make this apportionment tractable, this study proposes an illustrative Algorithmic Liability Allocation Index (ALAI), expressed as: The allocation model is not based on Article 1367 as a general joint tortfeasance provision. Instead, proportional allocation is proposed

as a normative reconstruction derived from the principles of fault, causation, control, and contribution to harm, while Article 1367 is considered only where a legally recognized relationship of responsibility or supervision exists.

$$ALAI = (w_D \times C_D) + (w_P \times C_P) + (w_U \times C_U) \quad \dots (1)$$

subject to the constraint that the weights sum to unity ($w_a + w_p + w_u = 1$, using D = developer, P = deployer, U = user) and that each control coefficient is bounded between 0 and 1. In this formulation, C_a , C_p , and C_u represent the developer's, deployer's, and user's respective degree of demonstrable control over the factors that caused the harmful output (for example, training data curation, safety fine-tuning, deployment safeguards, and prompt content), while w_a , w_p , and w_u represent sector-specific or risk-tier weights that a regulator, drawing on the risk classification logic already used in the European Union's AI Act Wittmann & Meynhardt (2025), could calibrate for different application domains such as healthcare, finance, or public administration. A court or arbitral tribunal would not need to determine ALAI with laboratory precision; rather, the index provides a structured, transparent, and reviewable method for translating the qualitative evidence produced under the burden-shifting mechanism into a proportional damages allocation, replacing the current binary logic in which either a single actor bears full liability or, more commonly under present doctrine, no one bears any liability because fault cannot be pinned to any single defendant.

This proposal is deliberately conservative in doctrinal terms. It does not require Indonesia to recognize AI legal personhood, a move that Marwala & Mpedi (2024) show remains contested and practically premature even in jurisdictions with more developed AI jurisprudence. Nor does it require wholesale replacement of Article 1365 *KUHPerdata*; instead, it proposes a targeted statutory presumption, most naturally introduced through an amendment to the Consumer Protection Law or a dedicated implementing regulation under the Personal Data Protection Law, that operationalizes fault-shifting and proportional apportionment specifically for generative AI harms. This approach follows the hybrid model identified in the Chinese context by Chen & Hu (2025), where fault-based civil doctrine is retained but supplemented by sector-specific presumptions, and it directly addresses the structural asymmetry documented by Finch & Butt (2025), because a statutory presumption, unlike a voluntary governance framework, applies uniformly regardless of whether a deployer is a well-resourced multinational platform or a small Indonesian fintech integrating a third-party generative AI application programming interface.

Interaction with Adjacent Statutory Instruments

The tiered model does not operate in isolation from Indonesia's existing digital regulatory architecture. Under the Personal Data Protection Law, a generative AI harm that stems from unauthorized processing of personal data (for example, a model trained on personal data without a valid legal basis, or an output that inadvertently discloses memorized personal data) would trigger data protection liability in parallel with civil tort liability, and the control coefficients proposed above could draw directly on data protection impact assessments already required of data controllers, reducing duplicative fact-finding. Munonye et al. (2025) both emphasize that governance instruments work best when they are designed to interlock rather than compete, a principle directly applicable here: the Personal Data Protection Law's existing accountability documentation requirements could serve as ready-made evidentiary input into the ALAI burden-shifting stage, rather than requiring an entirely new evidentiary apparatus.

Under the Electronic Information and Transactions Law, generative AI outputs that constitute defamation, the unauthorized distribution of another party's intellectual property, or the dissemination of false information causing consumer loss already fall within existing prohibited-conduct categories; the contribution of the tiered model here is not to create new prohibited conduct but to resolve the attribution question once such conduct is established, that is, to determine which of the developer, deployer, or user should answer civilly for the harm. Under the Consumer Protection Law, the model refines rather than replaces the existing strict liability logic of Article 19: instead of requiring claimants to prove a conventional product "defect," a concept borrowed from physical manufacturing and poorly suited to statistical model behavior, the model substitutes a control-based apportionment standard that is doctrinally compatible with

strict liability's protective purpose while being technically realistic about how generative systems actually fail (Marwala & Mpedi, 2024).

Policy Recommendations

Three concrete recommendations follow from the analysis. First, the Indonesian legislature or the relevant sectoral regulator should introduce a rebuttable statutory presumption of fault applicable specifically to generative AI service providers and deployers, modeled on the burden-shifting logic described above, most efficiently implemented as an amendment to implementing regulations under the Consumer Protection Law rather than as a wholesale *KUHPerdata* revision, consistent with the incremental reform pathway favored in comparable civil law contexts (Efthymiou & Kouroupis, 2026). Second, sectoral regulators, including the financial services authority and the health and education ministries, should be empowered to calibrate risk-tier weights analogous to w_a , w_p , and w_u for their respective domains, drawing on the risk-classification precedent of the European Union's AI Act Wittmann & Meynhardt (2025) while avoiding direct doctrinal transplantation of common law strict liability concepts that have no structural home in the *KUHPerdata*. Third, given the evidentiary asymmetry documented throughout the corpus Li & Goel (2025), Indonesia should invest in an independent algorithmic auditing capacity, potentially housed within the existing personal data protection supervisory authority, capable of producing the technical evidence, such as training data provenance and deployment configuration logs, on which the proposed control coefficients depend; without such capacity, a burden-shifting rule risks becoming unenforceable in practice, a concern Finch & Butt (2025) raise explicitly with respect to low-capacity regulatory ecosystems. These recommendations remain conceptual and require future validation through judicial practice, expert assessment, and empirical legal studies before implementation as binding mechanisms.

These recommendations should nonetheless be read against a broader comparative lesson about the gap between formal legal recognition and effective institutional practice. Nassar (2026) demonstrates that Morocco's 2011 Constitution formally expanded the legislative rights of the parliamentary opposition, yet empirical review of the tenth parliamentary term shows that executive dominance over the legislative agenda, combined with weak institutional capacity and a fragmented legislative strategy, left many of those constitutional guarantees substantially unrealized in practice. The same risk attends any Indonesian reform of generative AI liability: a statutory presumption of fault, however well drafted, will not by itself close the accountability gap if its enforcement remains fragmented across sectoral regulators or if claimants lack the institutional support needed to invoke it. This underscores why the third recommendation above, an independent algorithmic auditing capacity, is not a peripheral addition but a precondition for the tiered liability model to operate as intended.

This concern is consistent with broader empirical findings on regulatory effectiveness in public administration. Sutrisno (2025) shows that the effectiveness of good governance laws more generally correlates strongly with institutional readiness: legal frameworks that mandate transparency and accountability succeed only where enforcement mechanisms, digital governance infrastructure, and adequately trained personnel are already in place, while sectors lacking these institutional foundations continue to exhibit weak compliance despite an adequate legal text. Applied to the present proposal, this finding suggests that the statutory presumption of fault and the accompanying Algorithmic Liability Allocation Index should be paired with sustained investment in digital audit infrastructure and regulatory capacity, rather than treated as a self-executing legal reform that requires no further institutional support.

CONCLUSION

This study set out to examine why Indonesian civil liability doctrine, structured around Article 1365 and 1367 *KUHPerdata*, struggles to allocate responsibility for harms caused by generative AI, and to propose a reform pathway suited to a fault-based, code-structured civil law system. The analysis shows that the strain is concentrated in four doctrinal elements: identifying a discrete actor amid distributed developer-deployer-user roles, establishing fault against a standard that presumes foreseeable, traceable design decisions, proving causation against opaque and probabilistic model behavior, and accommodating genuinely emergent failure modes that no party could reasonably have foreseen. A systematic thematic analysis of forty contemporary

sources on algorithmic accountability, governance, ethics, and explainability confirms that while the international literature has produced a mature descriptive account of responsible AI practice, it has not yet been translated into an operable civil liability mechanism for civil law jurisdictions such as Indonesia.

The tiered liability model proposed here, anchored by an illustrative Algorithmic Liability Allocation Index, offers such a translation. By shifting the burden of proof once a *prima facie* case of algorithmic harm is established, and by apportioning liability proportionally among developer, deployer, and user according to demonstrable control rather than assigning it in an all-or-nothing manner, the model closes the accountability gap without requiring Indonesia to adopt AI legal personhood or to displace the foundational fault-based logic of the *KUHPerdata*. The model is deliberately conservative, building on the existing doctrine of joint tortfeasance under Article 1367 and on the strict liability logic already present in the Consumer Protection Law, rather than importing common law concepts with no structural analogue in Indonesian civil law.

This study has limitations that suggest directions for future research. As a qualitative, doctrinal-normative study, it does not empirically test how Indonesian judges would in practice apply a burden-shifting presumption, nor does it quantify the control coefficients proposed in the ALAI formula against real dispute data, because no reported Indonesian judicial decisions on generative AI liability yet exist. Future research should pursue empirical case studies as such disputes reach Indonesian courts, comparative doctrinal work examining how the proposed model would interact with custom-influenced customary liability concepts in specific regions, and technical collaboration with computer science researchers to operationalize the control coefficients through auditable, standardized documentation practices. Notwithstanding these limitations, the study contributes a concrete, transplantable reform proposal at a moment when Indonesian regulators are actively considering how to govern generative AI, and it demonstrates a method, systematic thematic mapping of interdisciplinary literature onto specific doctrinal elements, that could be applied to other emerging technology accountability gaps in Indonesian civil law.

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AUTHOR CONTRIBUTION STATEMENT

Ikhsan Nendi is the sole author of this manuscript and was individually responsible for all stages of the research, including conceptualizing the core idea, designing the qualitative doctrinal-normative methodology, conducting the systematic thematic literature analysis, mapping the elements of civil liability under Article 1365 KUHPerdata, formulating the proposed tiered liability model and Algorithmic Liability Allocation Index (ALAI), and writing, revising, as well as approving the final version of the manuscript.

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