

AI and Legal Accountability: Rethinking Responsibility in Algorithmic Decision-Making

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Abstract: Autonomous artificial intelligence (AI) is reshaping legal doctrine by blurring the lines of agency and accountability. This study asks two intertwined questions: first, how current liability regimes can be recalibrated to address harms caused by self-learning AI; and second, whether recognizing AI as a limited legal subject offers a viable path to meaningful accountability. Drawing on doctrinal analysis, comparative jurisprudence, and philosophical inquiry, the paper examines the EU AI Act (2024/1689), the EU AI Liability Directive, the GDPR, and parallel developments in U.S. and Canadian law. A systematic survey of many peer-reviewed sources and recent case law reveals persistent regulatory gaps: liability is still funneled through human actors, strict-liability models remain scarce, and key terms such as “autonomous” and “high-risk” lack harmonized definitions. The research highlights new frameworks, such as partial legal capacity (Teilrechtsfähigkeit) and the Robotics/AI Legal Entity (RAiLE), that suggest a hybrid model of AI personhood. However, it finds no jurisdiction willing to grant full legal status to AI. Liability chains often break when AI systems go beyond their original programming. This leaves victims under-protected and developers unsure of their risks. This study ends with incremental, adaptive reforms, stranded in distributed agency, clearer constitutional language, and anticipatory governance, which are critical to defend justice and public confidence as intelligent systems turn more profoundly embedded in social and economic life.

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1. Introduction

The rapid embrace of artificial intelligence (AI) into contemporary conceptions of law is changing not only how legal activities are undertaken but also how legal responsibility is conceptualized. Since the 1980s, Artificial Intelligence and Law has transitioned from employing symbolic reasoning and case modeling to advanced machine learning techniques to understand legal texts and emulate human reasoning (Bench-Capon, 2022). As AI systems grow increasingly complex and autonomous, they highlight issues of liability, fairness, transparency, and human oversight. A significant area of current legal debate is around whether AI should be treated as a legal subject. Traditional arguments suggest that legal personhood is dependent on human characteristics, such as sentience or rationality; however, one new argument suggests adopting legal subjectivity for AI because of its growing ability to engage in social life (Wojtczak, 2022). The increased integration of AI systems into human life has generated meaningful policy responses. Notably, UNESCO's Recommendation on the Ethics of Artificial

Intelligence (2021), as well as the European Union's draft Regulation on Artificial Intelligence, highlight meaningful attempts to address the risks associated with AI systems (Neuwirth, 2024).

While these efforts are commendable, multiple gaps remain. Tort law seems to be more flexible than criminal law in covering AI-generated harms, particularly in the absence of identifiable human wrongdoers (Uddin et al., 2024). These regulatory gaps become more visible as AI systems are increasingly embedded in critical domains, intensifying concerns about transparency, fairness, and explainability (Cohen et al., 2023; Graham et al., 2024; Parycek et al., 2024). As AI systems become more opaque, they challenge legal norms that depend on transparency, accountability, and explainability (Greenstein, 2022; Vochozka et al., 2023; Vochozka & Kunju Mol Raj, 2025). Across sectors such as higher education (Makarov et al., 2022), healthcare (Solaiman, 2024), and translation services (Moneus & Sahari, 2024), the rapid adoption of AI has exposed persistent gaps in preparedness and regulatory capacity. These developments reinforce the need for strong explainability standards and auditing mechanisms to ensure accountability in automated decision-making (Sachan & Liu (Lisa), 2024). Judges have expressed uncertainty about the pace of AI integration and the implications of delegating reasoning tasks to opaque algorithmic systems (Martinho, 2025).

These issues not only have ethical dimensions but also structural ones. Researchers are increasingly promoting interdisciplinary approaches by combining information law, human rights constructs, and socio-technical frameworks (Kostenko et al., 2024; Voudouris et al., 2024). Legal equity is an issue here as well, especially in algorithmic decisions where certain attributes, such as race, sex, or age, interact, making it too simple to apply other stakeholder standards. Non-discrimination requires dynamic frameworks to model equity and assess types of unfairness (Lavalle et al., 2022). This debate also requires distinguishing accountability, concerned with oversight, governance duties, and institutional responsibility, from liability, which determines who bears the legal and financial consequences for harm. Existing AI scholarship often blends these concepts, obscuring the different legal functions they serve. The rapid evolution of autonomous and self-learning systems raises foundational questions about how existing doctrines of negligence, product liability, and administrative oversight can adapt to situations where human control is partial or indirect.

Despite the breadth of regulatory and ethical discussions surrounding artificial intelligence, the central doctrinal difficulty addressed in this article is more specific: the instability of liability attribution in highly autonomous AI systems. Existing legal frameworks continue to allocate responsibility through identifiable human actors (developers, deployers, manufacturers, or users). However, when AI systems engage in adaptive, self-learning, or opaque decision-making processes, causal attribution and fault assessment become increasingly difficult. This creates a structural tension between traditional fault-based liability doctrines, grounded in foreseeability, control, and intent, and distributed algorithmic agency. The article, therefore, focuses on the problem of attribution and evidentiary burden in autonomous AI ecosystems, rather than on AI regulation in general. So, this leads to two central research questions:

RQ1: How can existing legal frameworks be adapted to assign responsibility for harms caused by autonomous artificial intelligence systems?

RQ2: Is it conceptually and legally justifiable to attribute agency or personhood to artificial intelligence to establish accountability?

For clarity, this article primarily examines civil liability, particularly tort-based and product liability frameworks, with comparative reference to fault-based doctrines in EU and common law jurisdictions. Criminal liability and administrative sanctions are considered only insofar as they illuminate the broader allocation of responsibility. The central analytical focus remains on private law mechanisms for compensation and risk allocation. This study looks at recent legal developments, theoretical discussions, and sector-specific implementations in an attempt to offer a coherent framework for re-imagining legal responsibility in the age of intelligent machines. By examining these issues through a doctrinal and comparative legal lens, this study seeks to clarify the conceptual gaps in current frameworks and identify the limits of existing liability models when applied to autonomous AI.

2. Literature Review and Theoretical Background (Optional)

2.1 Legal Personhood, Rights, and Identity of AI

Legal scholarship is increasingly considering whether AI systems should be regarded as legal persons. Researchers, such as Mocanu, (2022), Jowitt, (2021), and Laukyte, (2019) , who discuss theoretical notions such as partial legal capacity and noumenal agency, argue that intelligent agents may merit limited legal rights. Dremluga et al., (2019) posit generally applicable legal theories for recognizing humanoid robots as persons having social recognition and compatibility with the system. Novelli et al., (2022) outline an AI personality as a collection of inferential relationships, and Broman & Finckenberg-Broman, (2017) offer the notion of the Robotics/AI Legal Entity (RAiLE©) within international legal systems. Lima et al., (2021) offered an empirical study to suggest how public-based emotion has a significant influence on perceptions of AI-based fault. Kiskis, (2023) develops the case for a non-anthropocentric legal regime for AI consciousness, asserting that rights between humans and machines should be recognized mutually.

2.2 Ethical, Regulatory, and Governance Challenges

The introduction of AI technologies to the legal domain has raised substantial ethical and regulatory issues, from the risks of a black-box model (Dahan et al., 2023; Sachan & Liu (Lisa), 2024) to issues around data privacy in financial regulation (Roussos & Hajduk, 2025), with all scholars suggesting there is a need for specific and targeted legislation addressing the issues of AI. Giraudo et al., (2024), Kattinig et al., (2024), and Unver, (2023) were arguing that AI in law moving forward must be met by targeted legislation, including the EU AI Act, or we risk a disconnect between technical advancement against the legal provisions. Cunningham, (2025) identified the philosophical and legal issues of AI-generated art and how ethical issues plague the sector. Bayer, (2024), and van Hilten et al., (2025) have recommended an ethical framework for journalists and the agri-food sector, respectively, in the context of sector-specific ethical challenges. With the dialogue expanding around AI in other functional areas, Kumar & Suthar, (2024) examined AI-related bias and discrimination in marketing, while Sipior et al., (2024) explored discrimination in human resources recruiting. The integration of ethics and legal education (Balan, 2024; Prakash & Nair, 2024) and the overlap between the ethical nature of AI ethics and the ethical nature of legal ethics (Unver, 2023) appear to represent a significant area of need for reform.

2.3 AI in Legal Practice and Education

Artificial intelligence tools are increasingly changing legal practice and education. Ashley & Goldin, (2011), and El-Farahaty, (2025) demonstrated the educational value of AI when it comes to peer review analytics and corpus-based legal translation. Meanwhile, industry researchers Murphy, (2023), and Palmirani, (2022) used DataLex (Greenleaf et al., 2019; Mowbray et al., 2020) to explore AI in legal drafting and teaching. Hagan, (2024) encouraged community participation in AI tool design, while Zhang & Meng, (2024) writing about how Bayesian models can use statistical evidence to replicate legal reasoning. Terzidou, (2025) discussed how generative AI could interfere with lawyers' duty of confidentiality, and Asif & Palmirani, (2024) explained how integrating natural language processing with symbolic AI could clarify legal text. All of these studies pointed to the importance of digital literacy and awareness of AI applications in legal education.

2.4 Applications of AI in Legal Operations and Decision-Making

AI deployments in judgment summarization (Liu & Lin, 2024), smart contract formulation (Aejas et al., 2025), and document automation (Vayadande et al., 2024) show us its demonstrable capacity to improve the processes and practices of law. Some researchers, such as Ho et al., (2020), provide empirical assessments of strategies for adoption and use for organizations contemporaneous with an advisory body, and others note the concern that AI tools may subtract the emotive-cognitive nuance from AI-augmented court judgments (Contini et al., 2024). Legal AI platforms that leverage Natural Language Processing, rhetorical and semantic tools, and standard legislative formats such as LegalXML (Palmirani et al., 2021) are now paving the way for positive change in the legislative drafting sector. Equally illustrating the dynamic conflict of AI in medical and sports liability (Martín-Noguerol et al., 2024; Orlando, 2022) is the ongoing tension/shared responsibility that requires a legislative structure and framework to adapt.

2.5 Policy Futures, AI Governance, and Societal Implications

Increasingly, with generative AI at the forefront of public and private decision-making, the global policy discussion becomes elevated and urgent. Li et al., (2023), and Cheng & Liu, (2023), among others, advocate for human-centered governance that acknowledges ethical pluralism; Becher & Alarie, (2025) articulate decentralized, participatory AI legal systems such as LexOptima; Okuno & Okuno, (2025) consider the readiness of corporate structures for the integration of AI; Castan, (2024) critiques the definitional drift in EU policymaking related to AI; Al-Dulaimi & Mohammed, (2025), and Giraudo et al., (2024) identify liability shortcomings for public administration and incoherent cross-sectoral regulation; and McLaren & Rowe, (2025) highlight the issue of AI misinformation while advocating for human oversight mechanisms. These scholarly articles identify the need for interdisciplinary, anticipatory governance to mediate the responsible integration of AI in law and society.

The findings from this diverse and rich literature indicate that we require methodological pluralism to examine the intersection of AI and law. Prior works have used a mix of various methodological approaches, including normative legal-philosophical analysis, doctrinal analysis, experimental research, case-study investigation, content analysis, and combined AI-legal system design. These methodological contributions not only confirm the difficulties

associated with regulating AI within a legal context but also highlight the opportunity to connect legal reasoning with various technical tools (e.g., natural language processing, machine learning algorithms, analysis of corpora). Given this interdisciplinary foundation, the methodology of this research will consist of single-based analysis that will utilize qualitative methods of legal analysis and computational methods of qualitative analysis to examine the emerging legal regime for AI through the legal lenses of potential regulatory regimes, institutional practices, and societal norms.

3. Materials and Methods

3.1 Research Design and Doctrinal Method

This study adopts a qualitative doctrinal research design to examine the allocation of liability in the context of autonomous artificial intelligence systems. The primary method consists of statutory interpretation and doctrinal analysis of existing legal instruments governing AI-related harms. The analysis focuses principally on Regulation - EU - 2024/1689 the EU AI Act, the General Data Protection Regulation (GDPR), proposed AI Liability Directive (Secretariat, 2024), and selected national civil liability frameworks within EU and common law jurisdictions (White Paper on Artificial Intelligence). The doctrinal inquiry evaluates how existing private law mechanisms, particularly fault-based tort liability and product liability, allocate responsibility when AI systems generate autonomous or self-learning outputs. Judicial developments, including cases such as *Thaler v. U.S. Copyright Office* (Błaszczuk, 2025), are examined to assess the current judicial stance on AI agency and authorship.

3.2 Comparative Scope

A comparative approach is employed to analyse developments across three legal environments: the European Union, the United States, and Canada. These jurisdictions were selected due to their regulatory prominence in AI governance, the coexistence of civil law and common law traditions, and their active engagement in debates concerning AI accountability. The comparative method enables the identification of cross-jurisdictional consistencies, doctrinal divergences, and regulatory gaps in the treatment of liability attribution for autonomous systems.

3.3 Normative and Conceptual Framework

Beyond black-letter doctrinal interpretation, the study incorporates a normative legal analysis to evaluate the adequacy of current frameworks. The assessment is guided by three analytical criteria: Coherence of liability attribution, Effectiveness in victim compensation, and Preservation of legal certainty for developers and deployers. In addressing the second research question (RQ2), the analysis engages with legal-philosophical theories of agency and personhood, including Gewirth's theory of agency and Kantian conceptions of moral personhood. These frameworks are used to assess whether limited legal subjectivity for AI systems could function as a doctrinal tool for stabilizing accountability, rather than as a metaphysical claim about machine consciousness. Comparisons are also drawn to established legal constructs such as corporate personhood and other forms of non-human legal recognition to evaluate whether similar instrumental mechanisms could be adapted to AI systems.

3.4 Literature Review and Thematic Synthesis

Secondary sources consist of peer-reviewed scholarship on AI governance, legal personhood, algorithmic accountability, and sector-specific AI liability challenges. The literature was systematically reviewed and thematically coded to identify dominant methodological approaches and normative trends (see Table 1). Rather than conducting a quantitative meta-analysis, the review functions as a structured synthesis aimed at situating the doctrinal analysis within broader academic debates.

Table 1. Summary of Recent Literature on Legal AI, Methodologies, and Key Findings

Author(s) and Year	Methodology	Focus Area	Key Findings
Li et al., (2023)	Legal and policy analysis	AI governance	Calls for human-centered legal frameworks to govern generative AI.
W. Li et al., (2025)	Legal-philosophical review	AI-generated creativity	Critiques human-centered legal biases in recognizing machine creativity.
Dahya & Morris, (2019)	Socio-technical analysis	AI design and legal reasoning	Proposes frameworks to align AI design with legal constraints.
Cheng & Liu, (2023)	Ethical-legal discourse	Human-AI relationships	Promotes ethical-legal convergence for responsible AI integration.
Atabekov, (2020)	Legal commentary	AI in legal administration	Highlights need for harmonized international laws on AI agency.
Asif & Palmirani, (2024)	Symbolic AI + NLP annotation	Legal definition mining	Annotated 15,082 EU legal texts to improve AI interpretability in law.
Balan, (2024)	Multidisciplinary analysis	AI in legal education	Addresses equity and digital divide challenges; proposes ethical training.
Bayer, (2024)	Normative-analytical methodology	Generative AI in journalism	Proposes hybrid authorship for accountability in AI-generated content.
van Hilten et al., (2025)	Case-based qualitative method	Ethical AI in agri-food	ELSA Scan helps domain-specific ethical assessment for AI in farming.
Sipior et al., (2024)	Legal-analytical methodology	AI bias in recruitment	Offers employer guidelines to reduce liability in automated hiring.
Murphy, (2023)	Professional community insights	AI in legal practice	Reflects growing legal sector engagement with AI implications.
Laukyte, (2019)	Legal theory analysis	AI legal personhood	Suggests granting AI legal status similar to corporations under certain conditions.
Lima et al., (2021)	Empirical public perception study	AI blame attribution	Finds public often attributes blame to AI despite lack of legal capacity.
Prakash & Nair, (2024)	Curriculum critique	Legal education and AI	Advocates integrating AI ethics and training in law education.
Zhang & Meng, (2024)	Technical proposal	Bayesian deep learning for law	Bayesian deep learning can improve legal reasoning in AI systems.
Hagan, (2024)	Community-oriented legal tech design	Public use of legal AI	Stresses the need to align AI legal tools with community perspectives.

Mowbray et al., (2020)	Legal AI infrastructure case	AI-aided free legal platforms	Presents DataLex as a sustainable AI tool for public legal support.
Roman & Natalia, (2019)	Comparative legal proposal	AI regulation models	Suggests licensing frameworks to manage AI risks like transportation rules.
Jowitt, (2021)	Normative legal-philosophical analysis	AI moral personhood	Argues AI with noumenal agency deserves legal recognition under Kantian ethics.

Note: This table compiles key studies on legal applications of AI, summarizing their methodologies, focus areas, and core insights.

3.5 Limitations

This study is theoretical and interpretative in nature. It does not rely on empirical datasets or statistical modelling. The scope is limited to textual and doctrinal sources within selected jurisdictions and does not attempt to exhaust all global AI regulatory developments. Accordingly, the findings should be interpreted as a conceptual and normative clarification of liability allocation challenges, rather than as empirical validation of AI harm patterns.

4. Results

4.1 Adapting Existing Legal Frameworks for Liability in Autonomous Artificial Intelligence

4.1.1 Interpretation of EU AI Act (2024/1689), Article 16 and Related Provisions

Article 16 of the EU AI Act (2024/1689) establishes a detailed imposition of obligations for AI providers, especially where high-risk systems are placed in the EU market. These obligations include requirements for risk management systems, technical documentation, recording logs, transparency, and human oversight, for example. Providers must also provide a conformity assessment, place the CE marking, and register the system in the EU public database before starting to use the system. The process of establishing traceability, safety, and accountability across the lifecycle of the AI is pertinent through these mechanisms.

However, when the Act is considered in the context of autonomous AI systems, particularly those that learn and adapt in real time, the Act has significant shortcomings. Importantly, the Act does not impose a strict liability regime for harms attributable to such systems. The Act does provide a mechanism of liability through human actors, namely the provider, deployer, importer, and distributor if sale or lease, but leaves open the matter of whether, when AI is acting outside its programming or as it evolves, the human actors could remain liable in instances whereby it is neither expected nor warranted. Therefore, there are interpretive difficulties in establishing liability, particularly when damage arises from an unforeseeable algorithm outcome.

Furthermore, the Act's human-focused regulatory schema may not even fit the challenge of the legal vacuum that distances us from self-sustaining AI behaviour, which invokes questions of causation, foreseeability, and intent in the face of autonomous decision-making. While identifying procedural and compliance obligations within the Act represents a positive development, there remains unarticulated consideration of what substantive, if any, liability

attaches to high autonomy or changes in behaviour caused or induced by machine learning elements of autonomous AI. A significant limitation of Article 16 is that, despite imposing detailed procedural obligations on providers, it does not create a substantive liability regime for harms caused by autonomous or self-learning behaviour. Its obligations remain entirely human-centric, assuming predictable system behaviour and continuous human control. As a result, the Act struggles to address situations in which the system's outputs are not foreseeable or cannot be meaningfully traced to a breach of a human actor's duty.

4.1.2 Comparative Legal Findings: Liability for AI-Caused Harms Across Jurisdictions

A wide-ranging comparison of three AI liability regimes, involving the European Union (EU), the United States (U.S.), and Canada, demonstrates that these jurisdictions are not willing to treat systems of artificial intelligence as liable agents. Instead, in all of these jurisdictions, liability is imposed on human actors- typically the developers, deployers, or users of AI, through existing doctrines of negligence, product liability, and fault.

In the EU, the AI Act (2024/1689) is buttressed by the AI Liability Directive (2022/1340), which presumes causality when claimants can demonstrate a breach of obligations relating to AI. However, like the AI Act, the AI Liability Directive does not create a scheme of strict liability or recognize AI systems as legal persons, so human actors are the focus of liability. In the U.S. law, with its tort principles based on common law, the courts expressly recognize that AI systems are not capable of agency or liability. The courts have addressed accountability related to AI systems through product liability, duty of care, and respondeat superior doctrines. There are ongoing discussions on how to extend these common law doctrines to various states of AI systems that may be acting whimsically and autonomously. It is also notable that the AI Liability Directive proposal was withdrawn by the European Commission in 2024, leaving a regulatory gap in harmonizing burden-of-proof standards and causality presumptions for AI-related harms.

Courts and researchers within Canada typically advocate for fault-based liability frameworks, and new scholarship is providing additional scrutiny on whether AI should be viewed in the same way as corporations as "non-natural persons." However, Canadian law does not have any applicable statutory provisions entitling AI agents to independent liability, and the proposed reforms address the transparency and duty of care of developers. In all three jurisdictions, it appears that there is a consistent trend: AI is not approached as a legal actor with the capacity to accept responsibility. Rather, its liability passes through human intermediaries; a situation that creates ongoing difficulties when AI behaves unexpectedly or operates beyond its explicit design parameters. This opens the door to the possibility of new legal constructs or even hybrid liability frameworks to acknowledge the new complexity of algorithmic decision-making.

Notwithstanding existing legal developments such as the EU AI Act (2024/1689), deep challenges remain in making accountability for AI-system harms operational. The principled legal problems begin with a lack of harmonized legal definitions in essential terms such as "autonomous" and "high-risk" AI. The absence of a shared baseline of definitions creates inconsistency in our understanding, regulations, and enforcement across jurisdictions (Castan, 2024; Palmirani et al., 2021). In addition, Article 22 GDPR, governing decisions based solely on automated processing, remains a critical but underdeveloped safeguard in the context of highly autonomous AI. While it grants individuals the right not to be subjected to fully

automated decisions, the provision presumes meaningful human oversight, which becomes increasingly difficult when systems generate opaque, self-learning outputs. This tension further illustrates the regulatory gap between traditional data-protection principles and the operational realities of modern AI systems.

Secondly, the layered decision-making process in AI ecosystems presents additional areas of legal uncertainty. How liability is assigned becomes extremely vague in systems developed by multiple developers and in hybrid systems developed through collaboration between a human and an AI. AI systems based on a multi-tiered architecture provide a disconnected chain of causation when each layer makes decisions based on other layered training inputs, data from third parties, or through machine-optimized autonomy to enable AI to reach a decision (Giraud et al., 2024; Laukyte, 2019). These issues indicate that, under the current regime of uncertainty surrounding better legal definitions and guidance, existing rules and frameworks could be inadequate to provide justice in high-risk or potentially harmful ecosystems. In this context, it is important to distinguish between accountability, concerned with governance, oversight, and compliance obligations, and liability, which allocates the legal and financial consequences of harm. Current frameworks adequately define accountability duties but remain underdeveloped in establishing consistent liability rules for autonomous behaviour.

4.1.3 Positioning the Analysis vis-à-vis the AI Liability Directive

The proposed AI Liability Directive adopted a procedural approach aimed at facilitating claims under existing fault-based regimes. Its key innovation consisted of introducing disclosure obligations and rebuttable presumptions of causality in cases involving high-risk AI systems. However, the Directive did not establish strict liability for autonomous systems, nor did it fundamentally depart from the human-centric model of liability attribution. Instead, it sought to ease evidentiary burdens while maintaining traditional negligence-based structures. The analysis advanced in this article goes further by questioning whether procedural adjustments alone are sufficient in contexts where algorithmic behaviour may be emergent, self-modifying, or only partially foreseeable. If liability remains entirely dependent on demonstrating human fault, even softened through presumptions, certain forms of distributed algorithmic harm may remain structurally under-compensated. This doctrinal tension motivates the exploration of alternative or hybrid liability configurations.

4.2 Legal Agency and Artificial Intelligence Personhood as a Basis for Accountability

4.2.1 Functional Relevance of AI Personhood to Liability Allocation

The question of AI personhood is not addressed here as a symbolic or philosophical exercise, but as a functional response to attribution gaps in liability law. If responsibility cannot be reliably allocated through existing doctrines of negligence or product liability, one theoretical response is to consider whether limited legal subjectivity could serve as a mechanism for risk pooling, asset segregation, or procedural standing. In this context, proposals such as partial legal capacity (*Teilrechtsfähigkeit*) or the Robotics/AI Legal Entity (RAiLE) should be understood not as metaphysical claims about machine consciousness, but as institutional tools aimed at stabilizing accountability structures. This functional framing distinguishes legal subjectivity from moral agency. While moral responsibility presupposes intentionality and consciousness, legal personhood in corporate contexts has historically served instrumental and

allocative purposes. The key question is, therefore, whether limited, carefully circumscribed legal capacity could enhance victim protection without eroding human accountability.

The question of whether artificial intelligence can attain (or ought to receive) legal personhood continues to be intensely debated. In important jurisdictions, including the European Union, the United States, and Canada, AIs are not, at this time, legally recognized as legal persons. The liability systems in place also continue to place liability on human agents, companies, or legal persons that develop, enable, or use AIs (Laukyte, 2019; Murphy, 2023). Some proposals range from models of *Teilrechtsfähigkeit* (limited/partial legal capacity) and other vaguely defined levels of contributing to a situation in which AI systems could be considered non-human legal subjects in a limited sense, but only in very limited situations. Such models present a means to propose a middle ground between non-recognition and legal personhood, promoting responsibility in very limited situations (Mocanu, 2022; Novelli et al., 2022). However, doctrinal developments in major jurisdictions consistently reject this approach. Courts have repeatedly emphasized that legal personhood is conceptually tied to human intention, agency, and moral responsibility. Without these elements, AI systems cannot satisfy the prerequisites for bearing duties or holding rights.

Many academics use the debates surrounding corporate personhood as a metaphor. Many argue that if corporations can achieve legal personhood with rights and obligations, autonomous AI could similarly achieve legal personhood. However, many others point out that there are notable differences. Opponents warn that granting personhood to AI could weaken human accountability, reduce legal legitimacy, and bring ethical issues that separate responsibility from intentionality or moral agency (Jowitt, 2021; Lima et al., 2021). Recent case law reinforces this position. In *Thaler v. United States Copyright Office* (2023–2024), the court held that authorship, and by implication, legal standing, requires human origin. This jurisprudence demonstrates the unwillingness of courts to extend personhood-like attributes to AI, even in domains where AI output is central.

New concepts like the RAiLE© (Robotic/AI Legal Entity) exhibit hesitant efforts to create legitimacy around robotic personhood. These efforts will mostly be situated within costly regulatory constraints and ethical conditions aimed at preventing risk to society by irresponsible growth that seeks unfettered legal status (Broman & Finckenberg-Broman, 2017).

Further complicating the issue are ethical and philosophical perspectives on granting agency to a system that has no capability of consciousness, indication, or motive. This complicates the discourse because it leads to issues of fairness and legitimacy. The resistance from the public is strong, and most cultures and societies won't acknowledge a right or duty of a non-human entity, especially where sentience or self-awareness determines social status (Hagan, 2024; Kiskis, 2023). These proposals remain theoretical and have not been incorporated into any statutory or judicial framework, reflecting widespread legislative and judicial caution.

In conclusion, some theoretical pathways and frameworks are limited, and the general agreement across legal systems and ethics frameworks is not to support conceptions of full personhood for artificial intelligence. Stories of accountability and responsibility for humans, accounting for the technology, remain the basis of how human societies always decide to approach legislation and ethics. The doctrinal obstacle is clear: legal systems rely on notions of intention, foreseeability, and moral agency, none of which can be meaningfully attributed to current or foreseeable AI systems.

5. Discussion

There is presently no legal framework for holding any AI systems as accountable as autonomous agents. This reflects a deeper doctrinal difficulty: traditional liability frameworks rely on human intention, foreseeability, and control, all of which become unstable when AI systems generate outputs that are not directly attributable to human actors. The review indicates that AI harms may be legally attributed to human actors like developers, deployers, manufacturers, and end-users (rather than being directly attributable to AI systems as autonomous entities) in contemporary legal systems across most jurisdictions (including the European Union, United States, and Canada). There is presently no legal framework for holding any AI systems as accountable as autonomous agents. The imposition of responsibility onto humans is presently supported by the legal principle that legal liability must attach to a moral or cognizant agent capable of intent or negligence, either of which AI, being non-sentient software, is recognized as by existing doctrines.

Nonetheless, the review found that increasing numbers of scholars, policymakers, and legal practitioners regard conventional liability regimes, specifically in highly autonomous, opaque, or self-learning systems. As limited, these systems may operate under conditions that are unpredictable, even to the developer, evoking profound gaps in assigning fault based upon conventional strict liability or fault-based liability models. The gap has chastened heightened enthusiasm related to reform propositions in attempting to delineate accountability within complex AI deployment chains or through renewing the fundamental principles of proximate cause and foreseeability.

The status of AI as a legal person is highly contested. Although theoretical models (e.g., partial legal capacity (Teilrechtsfähigkeit) or legal agents for AI like RAiLE (Robotics/AI Legal Entity) have greater recognition for AI under limited conditions) have been discussed, these models have not made it into legal form. Legal scholars are divided on the normative and practical justification for AI legal standing, and critics have warned that providing legal standing could weaken human responsibility, weaken regulatory protections, and create uncertainty in legal proceedings. All told, while authors are engaging with this topic, legal systems have not offered any official recognition of AI as subjects of law in their own right. The findings in this study contribute to the existing debate by synthesizing doctrinal inconsistencies across jurisdictions and clarifying how definitional gaps, particularly around autonomy, oversight, and causation, shape the limits of current legal remedies. While not proposing a unified model, the analysis identifies the structural weaknesses that any future regulatory solution must address.

AI systems and other digital technologies often easily transcend jurisdictional boundaries, while legal frameworks and institutions don't. The current fragmented situation with national legal and regulatory approaches creates practical problems for both businesses and regulators. Attempts to hold AI to account could be undermined in a vacuum if there isn't some degree of international cooperation, considering that developers, users, and platforms may all be based in different jurisdictions. In this context, it is important to work towards a greater level of convergence in global standards-setting, through the EU or OECD or via international processes in other fora, for the sake of consistency, legal certainty, and fairness. Although policy frameworks continue to evolve, doctrinal analysis remains essential for determining how

accountability and liability should be allocated in systems where human and algorithmic agency intersect.

6. Conclusion

This study has examined the doctrinal instability that arises when traditional liability frameworks confront highly autonomous and self-learning artificial intelligence systems. The analysis focused on two central questions: first, how existing civil liability regimes, particularly fault-based tort and product liability, can adapt to harms generated by autonomous AI; and second, whether attributing legal agency or limited personhood to AI systems provides a viable solution to emerging accountability gaps. The findings demonstrate that contemporary legal frameworks across the European Union, the United States, and Canada remain firmly human-centric. Liability is consistently channelled through developers, deployers, manufacturers, or users. While this approach preserves foundational principles of moral agency and responsibility, it becomes increasingly strained in contexts of distributed algorithmic decision-making, opaque model architectures, and self-modifying systems. In such cases, traditional doctrines grounded in foreseeability, control, and fault encounter structural limitations.

This article argues that procedural reforms alone, such as disclosure duties and rebuttable presumptions of causality, are unlikely to fully resolve these attribution gaps. While such mechanisms represent important progress, they do not fundamentally alter the human-centred architecture of liability allocation. A more coherent response would involve a layered approach: (1) strengthened evidentiary presumptions in complex AI cases; (2) carefully circumscribed strict liability for clearly defined high-risk autonomous systems; and (3) mandatory insurance or risk-pooling mechanisms linked to system deployment. Such a model would preserve human accountability while ensuring effective victim compensation in situations of distributed harm. With respect to AI personhood, the analysis does not support granting full legal status to artificial intelligence systems. Existing doctrines of legal subjectivity remain closely tied to concepts of intention, moral agency, and normative responsibility, attributes not meaningfully attributable to current AI systems. However, the exploration of partial legal capacity or instrumental legal constructs is not merely speculative. It reveals the pressure that autonomous systems exert on conventional attribution models and highlights the need for institutional tools capable of stabilizing liability allocation without eroding human responsibility.

The broader regulatory landscape remains fragmented, marked by definitional inconsistencies, divergent national approaches, and unresolved tensions between innovation and accountability. Overregulation risks suppressing technological development, while under-regulation may produce legal uncertainty and insufficient protection for affected individuals. The challenge is therefore not whether to regulate, but how to recalibrate liability doctrines in a manner that remains coherent, proportionate, and adaptable to technological evolution. Ultimately, the contribution of this study lies in clarifying the structural doctrinal tensions at the intersection of autonomy and accountability. Rather than advocating radical legal personhood for AI, the analysis supports a principled recalibration of human-centred liability frameworks, reinforced by targeted strict liability mechanisms and institutional risk-sharing models. Future reforms must reconcile technological autonomy with foundational legal values, ensuring that accountability remains intelligible, enforceable, and just, even as artificial intelligence systems evolve beyond predictable human oversight.

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