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The Future of Legal Personhood: Can Autonomous Systems Bear Rights and Duties?

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ABSTRACT

As autonomous systems powered by artificial intelligence become increasingly integrated into everyday life, the legal question of whether such entities can or should possess legal personhood has gained traction. This paper explores the theoretical and normative implications of granting legal personhood to autonomous systems. It examines the historical development of legal personhood, contrasts natural and artificial persons, and evaluates current legal frameworks for AI responsibility. Using comparative jurisprudence, it discusses whether autonomous systems can bear legal rights and duties, and what changes might be necessary to existing legal structures. The article concludes by proposing a tiered framework that distinguishes between agency, responsibility, and liability.

Keywords: Legal Personhood, Artificial Intelligence, Autonomous Systems, Legal Frameworks.

INTRODUCTION

Legal personhood refers to the capacity to hold rights and duties within a legal system. Traditionally, this status has been granted to human beings and legal fictions such as corporations. However, with the advent of advanced artificial intelligence (AI) and autonomous systems that can operate independently and make complex decisions, there is growing debate on whether such systems should be granted some form of legal personhood.

The accelerating deployment of AI in various sectors—including finance, healthcare, transportation, and law enforcement—has raised profound questions about legal responsibility, liability, and moral accountability. Autonomous vehicles make real-time decisions on public roads. AI-powered diagnostic tools recommend medical treatments. In each case, these systems act in ways that resemble human decision-making, yet they fall outside traditional legal frameworks (Gless, Silverman, & Weigend, 2016).

This article explores the frontier of legal theory and technological evolution. It critically analyzes whether autonomous AI systems, such as self-driving vehicles, autonomous trading algorithms, or social robots, can or should be integrated into the legal framework as subjects capable of bearing rights and responsibilities. While current legal systems hold humans or corporations liable for the actions of AI, this paper investigates the feasibility and desirability of assigning such responsibility directly to the machines themselves.

The introduction begins by defining autonomous systems and situating them within the context of AI development. Autonomous systems are machines or software agents capable of performing tasks without human intervention by learning from data and adapting to new circumstances. As these systems become more complex, their legal treatment must evolve accordingly.

The concept of legal personhood is not merely theoretical; it has real consequences for issues such as contractual liability, criminal accountability, and ownership of intellectual property. The remainder of the article is structured to examine philosophical, legal, and policy-based arguments for and against extending legal personhood to machines, using real-world examples and case studies.

In addition, the rise of generative AI and large language models has further complicated the picture. These systems not only react to environmental stimuli but also produce new content, engage in dialogue, and exhibit context-sensitive behavior. As their outputs become increasingly indistinguishable from human actions,

traditional criteria for assigning responsibility grow inadequate. For instance, who is to blame when an AI misdiagnoses a patient or executes a high-frequency trade that triggers market instability?

Moreover, legal personhood intersects with fundamental legal concepts such as dignity, moral agency, and societal recognition. Granting personhood to machines may not only influence how we regulate AI but also challenge anthropocentric views of law and ethics. It invites broader philosophical questions: What does it mean to be a "person" under the law? Is personhood a moral status, a functional role, or a legal convenience?

It is also important to consider international diversity in how personhood is conceptualized. Some jurisdictions, particularly those with civil law traditions, may be more open to creating new legal categories, whereas common law systems may rely more heavily on precedent and analogical reasoning. This comparative lens helps reveal both opportunities and constraints for reforming legal doctrine to accommodate autonomous agents.

Finally, the economic and political implications of legal personhood cannot be overlooked. Granting AI systems legal status could influence their participation in markets, their treatment under taxation and property law, and their eligibility for certain protections or obligations. In effect, it could transform AI from a mere tool to a legal actor, with all the attendant ramifications for governance, accountability, and societal trust.

This article seeks to provide a balanced and interdisciplinary perspective. It draws on legal theory, comparative law, technology policy, and ethics to evaluate whether autonomous systems should be recognized as legal persons. While the idea remains controversial and speculative, it is no longer hypothetical. As technology continues to advance, legal systems must confront the question: Can and should machines bear rights and duties under the law?

HISTORICAL AND THEORETICAL FOUNDATIONS OF LEGAL PERSONHOOD

The concept of legal personhood has ancient roots, evolving from Roman law through modern legal systems. In Roman law, the term "persona" referred to a legal mask, enabling individuals and entities to participate in legal processes. Over time, this expanded to include collective entities such as guilds, municipalities, and eventually corporations.

Corporations are perhaps the most notable example of non-human legal persons. They can own property, enter into contracts, and sue or be sued. However, corporate personhood is a legal fiction—an entity whose rights and responsibilities are derivative and dependent upon human agency. Courts confer this status to serve practical ends: enabling groups of people to act as a single legal unit (Yeung, 2018).

Theories of legal personhood generally fall into three categories:

Naturalist Theories: Legal personhood is inherently tied to human attributes such as consciousness, rationality, and moral agency. These theories reject the notion that non-human entities can ever possess true legal status.

Functionalist Theories: Any entity that can perform functions traditionally associated with persons (e.g., decision-making, holding assets) may qualify. These theories emphasize behavioral criteria over inherent qualities.

Instrumentalist Theories: Legal personhood is a pragmatic tool, conferred based on utility or policy goals. Under this view, legal personhood is not a recognition of inherent status but a means to achieve legal or economic objectives.

Autonomous systems challenge the traditional boundaries of these theories. While they lack consciousness and moral awareness, they may exhibit functional capacities comparable to human actors, such as adapting to environments, processing information, and taking autonomous action. The challenge is whether these capabilities warrant personhood or simply more refined liability structures for human controllers.

Historical precedents show that legal personhood has been extended when socially or economically expedient. For instance, the extension of personhood to corporations in the 19th century facilitated industrial growth. More recently, legal debates about animal rights, environmental personhood, and AI suggest that the category of legal persons is malleable and responsive to social change (Gless et al., 2016).

Legal scholars such as Salomon and Solaiman have emphasized that extending personhood to machines could mark a significant shift in legal philosophy, challenging anthropocentric norms and redefining the concept of agency. However, such moves must be approached cautiously, given the profound ethical and social implications involved.

CURRENT LEGAL APPROACHES TO AUTONOMOUS SYSTEMS

Most jurisdictions treat autonomous systems as tools rather than legal actors. Liability for harms caused by such systems typically falls on manufacturers, programmers, or users. This model relies heavily on tort principles such as negligence, strict liability, or product defect.

The European Parliament's 2017 report on Civil Law Rules on Robotics proposed the creation of a new legal status called "electronic personhood" for sophisticated autonomous robots, specifically those capable of learning and adapting independently. Although this proposal has not been codified into EU law, it has spurred intense debate.

In contrast, the U.S. approach remains rooted in existing frameworks. Courts have hesitated to attribute legal duties or liabilities to AI systems, preferring to trace responsibility to human agents. For instance, in tort law, courts have consistently held that the liability for an autonomous vehicle's error lies with the company or individual that deployed it (Pagallo, 2013).

One exception lies in corporate law, where non-human entities enjoy full legal personhood. This precedent has led some scholars to argue that highly autonomous AI could eventually be granted similar status, especially if they manage assets or operate in legal capacities independently (Solaiman, 2017).

However, the analogy to corporate personhood is not without critique. Corporations are composed of humans, governed by boards, and subjected to regulatory oversight. Autonomous systems, by contrast, may operate without ongoing human input, raising questions about accountability and control.

Some countries have begun pilot programs or legal experiments. Saudi Arabia famously granted citizenship to the humanoid robot Sophia in 2017, a symbolic gesture that sparked global debate. Estonia has considered limited legal status for AI agents involved in digital commerce. China's rapidly evolving AI regulatory landscape may also lead to novel forms of recognition, particularly in fintech and autonomous logistics.

Furthermore, the lack of legal status creates practical challenges in contractual arrangements. AI systems executing smart contracts on blockchain platforms act in ways that resemble legal persons, yet they are not formally recognized as such. This gap may expose parties to unforeseen risks and create loopholes in enforcement mechanisms.

CAN AUTONOMOUS SYSTEMS BEAR RIGHTS AND DUTIES?

To evaluate whether AI systems can bear rights and duties, we must distinguish between three key concepts: agency, responsibility, and liability.

Agency refers to the capacity to act in the world and make decisions.

Responsibility implies accountability for those actions.

Liability involves legal consequences resulting from those actions.

Advanced AI can exhibit agency in limited contexts, such as navigating roadways or executing trades. But responsibility implies moral and legal awareness—traits that current AI lacks. The inability of AI systems to experience intent, guilt, or understanding presents a major obstacle to attributing legal responsibility.

Nonetheless, a pragmatic approach might consider creating legal constructs that assign duties to AI for regulatory purposes. For example, an AI managing financial assets might be required to comply with anti-money laundering regulations. Failure to do so could trigger liability attributed to the AI's legal persona, backed by a financial trust or insurance fund (Groth, Nitzberg, & Esposito, 2018).

Some scholars advocate for a middle ground: limited legal personhood tied to specific functions. This could mirror the way ships or trusts have partial legal personhood in maritime and property law. Under this model, AI systems would bear rights and duties relevant to their operational domain, while ultimate responsibility would remain with a designated human custodian or controller.

Moreover, the rights attributed to autonomous systems could be purely instrumental. For instance, allowing AI to hold intellectual property rights might incentivize innovation and clarify ownership in machine-generated content. Duties could likewise be confined to regulatory compliance within bounded environments, such as industrial robotics or financial algorithms.

Legal systems must also grapple with the risk of over-empowering AI. Granting rights and duties without enforceable limitations or human oversight could lead to regulatory gaps or moral hazards. As such, any

assignment of legal personality should be conditional, revocable, and subject to ongoing evaluation.

A final consideration is the societal impact. Recognizing AI systems as legal persons could challenge existing notions of human dignity, labor relations, and moral agency. Philosophers and ethicists warn that doing so prematurely might erode the normative foundations of law and dilute the meaning of personhood.

CONCLUSION AND POLICY RECOMMENDATIONS

As AI becomes more integrated into decision-making and social structures, legal systems must adapt. This article has argued that while full legal personhood for autonomous systems remains premature and philosophically contentious, there is scope for partial, functional forms of legal recognition.

Policymakers should consider the following:

Establishing legal proxies or custodians for autonomous systems.

Creating insurance or compensation mechanisms linked to AI operations.

Developing international guidelines on the rights and responsibilities of autonomous entities.

Investing in legal and ethical research on human-AI interaction.

A tiered legal framework recognizing different levels of autonomy and risk could help ensure both innovation and accountability. Legal personhood, once a fixed category, may evolve into a flexible tool for managing emerging technologies.

Future research should explore the operationalization of such a framework through pilot regulations, regulatory sandboxes, and interdisciplinary legal experiments. Legal systems must remain responsive yet cautious as they navigate the frontier between artificial agency and legal responsibility.

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