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Artificial Intelligence, Liability, and Legal Personhood: Towards a Human-Centered Framework Balancing Innovation, Responsibility, and Ethical Safeguards

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Abstract

Artificial intelligence (AI) is redefining traditional boundaries of law, ethics, and responsibility. Moving beyond its role as a tool, AI has acquired a level of autonomy that raises unprecedented challenges for legal systems worldwide. Legal frameworks originally designed for human agency or mechanical tools struggle to assign liability when damages arise from AI-driven decisions. This paper examines the debate surrounding AI's legal qualification, ranging from its treatment as a product subject to product liability, to its categorization under the custody of things, and finally to the controversial proposal of granting AI independent legal personhood. By analyzing these approaches and their limitations, the study argues for adapting existing legal structures rather than reinventing them. Flexible liability regimes, mandatory insurance, and compensation funds emerge as practical solutions. Ultimately, a balanced framework—anchored in human dignity and ethical responsibility—offers the most effective path forward to reconcile technological innovation with justice and societal stability.

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Introduction:

from being a mere tool directed by humans to an entity characterized by a certain degree of autonomy. This shift has generated serious challenges for the law in its various branches. Traditional systems of compensation and reparation have become incapable of addressing the increasing damages caused by artificial intelligence,

especially with the difficulty of determining liability among its designers and users, and the impossibility of holding it independently accountable due to existing legal constraints. This situation threatens societal stability and calls for innovative legal solutions.(Djamel, 2022, p. 174)

Although artificial intelligence raises profound legal challenges due to its autonomy and the difficulty of assigning civil liability, limiting the debate to problem identification is insufficient. The law must adopt a proactive and adaptable framework. Strict liability regimes and mandatory insurance can secure fair compensation for victims. At the same time, tailored legal instruments should reconcile rights protection with the encouragement of innovation.

In this context, it can be said that there is a direct relationship between the increasing autonomy of artificial intelligence on one hand, and the difficulty of applying the known rules of civil liability to it. Some proposed approaches include the necessity of recognizing artificial intelligence as having legal personality, and thus being subject to legal accountability and required to compensate for the damages it causes. This has faced significant challenges that are still the subject of heated debate to this day.(Djamel, 2022, p. 174)

Many experts in the field of artificial intelligence have tried to draw the attention of legal professionals to the necessity of working seriously on creating new legal rules specifically for artificial intelligence and excluding the application of traditional rules. Their main argument was the unique nature that characterizes this technology. Work on this idea has begun slowly, as Saudi Arabia took the initiative to grant citizenship to the robot Sophia in 2017. Additionally, the European Parliament approved civil rules specific to robots in the area of liability and recommended granting them a legal personality of their own. All of this exists amidst opposition and support. Furthermore, a group of artificial intelligence designers has initiated a request for the recognition of intellectual property rights for artificial intelligence, as it has achieved much success and creativity. (Farida, 2020)

Although these steps have been slow, they have prompted us to raise many questions that we have attempted to compile in the following issue :

What is the unique nature of artificial intelligence? And does its nature require a specific legal regulation?

First: The Concept of Artificial Intelligence

1- Definition of the term Artificial Intelligence:

Artificial Intelligence is defined as a branch of computer science that seeks to understand the application of technology based on the computer's simulation of human intelligence traits. Another definition describes it as: a scientific development that has made it possible for machines to perform tasks that fall within the scope of human intelligence, such as education, logic, self-correction, and self-programming. The term Artificial Intelligence has also been defined as: the study and design of intelligent systems in an independent manner that comprehend their environment, with the addition of necessary measures to achieve specific goals. It represents a means to control a computer or robot through a program that thinks in the same way that intelligent humans think.(Djamel, 2022, p. 175)

2-Types of Artificial Intelligence:

The types of artificial intelligence are divided into narrow artificial intelligence, general artificial intelligence, and superintelligent artificial intelligence, considering that artificial intelligence systems do not operate independently of the interveners or programmers. Each type will be addressed separately.

Branch One: Narrow Artificial Intelligence

Narrow artificial intelligence grants the machine the ability to understand commands, comply with them, and apply them, such as face and image recognition programs, among others. What distinguishes it from others is its limited scope, as it cannot go beyond the tasks it was programmed for, thus remaining within the scope of predicting its actions and the possibility of controlling it. (Fatiha, 2024, p. 1183)

Branch Two: General Artificial Intelligence

General artificial intelligence operates with a capacity similar to human thinking; it allows the machine to think and plan on its own in a manner akin to human behavior. Applications of this type include scientific studies conducted in the field of production. (Fatiha, 2024, p. 1183)

Branch Three: Superintelligent Artificial Intelligence

Superintelligent artificial intelligence surpasses the limits of human intelligence, as it can perform tasks and powers better than those possessed by a human specialist in a specific field, thanks to the learning technology it possesses. Artificial intelligence has many features that make it unique and must include capabilities such as learning, planning, automatic communication, and making judgments and decisions quickly and independently.(Fatiha, 2024, p. 1184)

3- Independence and Specificity of Artificial Intelligence

Branch One: Independence of Artificial Intelligence

One of the most important characteristics of artificial intelligence is its independence in creating certain effects through making individual decisions that are distant from the user's will. Artificial intelligence is independent in that it possesses a minimum level of information, which constitutes support from its designer, in addition to the information it acquires from its environment and during its performance of its work. It thus has the ability to take the initiative proactively while demonstrating a degree of flexibility in doing so. This includes undertaking initiatives and providing suggestions to the user, as well as interacting and responding to requests directed to it from the latter. (Farida, 2020, p. 159)

Unlike traditional programs that operate only within the framework of pre-defined instructions and in a predictably stereotypical manner, not independent of their users or operators, there are smart programs that operate in a different way and independently to varying degrees.

As we mentioned earlier, there is no single type of artificial intelligence; rather, there are different types and successive generations that continue to develop and gradually become independent from their users, forming a revolution in progress and development that rivals human intelligence and sometimes surpasses it .(Djamel, 2022, p. 177)

Independence according to ISO 2012/8373 is the ability to perform specific tasks based on a certain state and conclusions without human intervention; thus, the freedom of decision-making can be considered a guarantee for the existence of the concept of artificial intelligence, which is distinct from ordinary software and computing that operate within the framework set by the user, and all its decisions are predictable, unlike artificial intelligence whose decisions cannot be anticipated. The robot Sophia embodied the actual reality that artificial intelligence and its applications have reached, as she was the first robot created by Hanson Robotics, where Sophia displayed artificial intelligence that amazed everyone through her ability to recognize faces and converse with people during the sessions of the Future Investment Initiative conference held in Riyadh in 2017. Sophia is the first robot to have obtained citizenship in history. (Farida, 2020, p. 159)

The liability for the actions of artificial intelligence is characterized by the involvement of multiple parties in the development and implementation process, and the relationships among them can be complex, making it difficult to determine the role of each in the development process and, consequently, the challenge of identifying who is responsible for compensating for the damages incurred. In addition to this, there is the role of the user and the increasing autonomy that artificial intelligence enjoys in performing its tasks. (Djamel, 2022, p. 177)

Branch Two: The Specificity of Artificial Intelligence

The more the independence of artificial intelligence from its interveners, whether directly or indirectly, increases, the greater the degree of specificity. Hence, the issue of independence arises and its connection to the decisions made by artificial intelligence, which may cause harm to others, thus raising the question of legal accountability on one hand, and on the other hand, who is obliged to compensate for those damages? The previous proposition comes in the context of many legal questions related to rights and responsibilities,

especially those related to the civil liability system, and how all of this relates to the issue of recognizing artificial intelligence with legal personality. (Djamel, 2022, p. 177)

Science has not yet reached complete independence for artificial intelligence in making decisions on its own, but the degree of independence is gradually increasing with the rapid development in this field, and there may come a day when we see an entirely independent intelligent automated system from its users.(Djamel, 2022, p. 177).

Second: The Challenges Imposed by Artificial Intelligence in the Field of Law

1- Attempting to Provide a Legal Characterization of Artificial Intelligence Actions within the Framework of Civil Liability :

The first legal challenge that the law may face is related to legal responsibility for the behavior of artificial intelligence, given that it has reached a stage where it can make independent decisions entirely detached from human will. This may result in causing harm to others within the framework of civil liability, or in committing crimes under criminal liability. (Farida, 2024, p. 162)

Therefore, the question arises here as to whether traditional and newly developed rules of civil liability can cover the responsibility of artificial intelligence in cases where it causes harm to others. (Farida, 2024, p. 162)

The basis of liability for compensating damage caused to others lies in the acquisition of legal personality, which the law grants to natural and legal persons according to specific foundations and conditions. A group of legal scholars has attempted to examine the basis of civil liability for artificial intelligence. Some of them leaned toward applying the traditional rules of liability (contractual and tortious), as well as product liability, in order to determine the party responsible for compensating any harm that artificial intelligence may cause to others—while introducing minor modifications to those rules. They also rejected the idea of attributing legal personality to artificial intelligence, considering that, despite its autonomy in producing certain effects, it remains ultimately linked to humans prior to making decisions. (Fatiha, 2024, p. 159)

Thus, we cannot truly speak of artificial intelligence unless there are specific algorithms provided by the manufacturer, serving as a reference for learning, comparison, and inference in order to make its decisions. Likewise, artificial intelligence can never make certain decisions without first being activated by humans. . (Fatiha, 2024, p. 159)

In other words, artificial intelligence can be likened to a highly advanced machine that remains dormant and ineffective unless a human intervenes to operate and activate it; thus, human will remains the fundamental driving force behind everything these systems produce.

Some European jurists have considered artificial intelligence as a tool, drawing on the United Nations Convention on the Use of Electronic Communications in International Contracts. This convention imposes liability on anyone who programs a computer to act on their behalf, and therefore the burden of compensating for any damage that artificial intelligence may cause to others falls upon its owner or user, in accordance with the rules of liability for the acts of others or vicarious liability. However, this approach conflicts with the autonomy of artificial intelligence in making decisions independently of the will of its owner or user. (Fatiha, 2024, p. 159)

Another group of legal scholars has regarded artificial intelligence as a product, and thus subjected it to the rules of liability that obligate the producer to compensate for any harm caused to others by a defective product. However, this view has also faced criticism, since it is difficult to prove a defect in artificial intelligence due to its ability to learn and evolve. This makes it challenging to establish the existence of a defect at the moment of production. Distinguishing between harm caused by artificial intelligence as a result of its independent decisions and harm arising from an actual defect in the product itself is therefore extremely difficult.(Bentria Maamar & Chahida, 2018, p. 125)

In the same context, a group of French jurists attempted to establish civil liability for artificial intelligence based on the existing legal rules applied in civil law. Artificial intelligence involves several parties that could potentially be held liable for the damage it causes (the designer, the manufacturer, the user, etc.). In their view, fault-based liability cannot be applied to AI, since it is founded on the notion of awareness, which can in no way be attributed to artificial intelligence, despite its autonomy. Consequently, they turned directly to the concept of liability without fault, finding that liability for the custody of things (responsabilité du fait des choses) was the most appropriate framework. (Fatiha, 2024, p. 159)

Liability for the custody of things is founded on the principle that the custodian of a thing is responsible for the acts of that thing while under their supervision, provided that the custodian has the ability to direct, manage, and control it. This conception treats artificial intelligence as an object subject to the guidance and supervision of its custodian. However, this does not fully align with the true nature of AI, which is characterized by its ability to learn and its autonomy in making decisions without any external guidance. Added to this is the difficulty of determining who can truly be considered the custodian of AI: is it its designer, its owner, or its user? And which of them actually has the ability to direct and control it, given that AI is, in fact, created to operate freely, beyond any supervision or control.(Bentria Maamar & Chahida, 2018, p. 129)

The legal characterization of artificial intelligence as a "thing" subject to the theory of custody of things has been criticized. This is because the concept of custody is not fixed, but rather flexible, and thus the judiciary may give it a broader interpretation that would render it applicable to the actions of AI. Civil liability is, above all, a judicial construct, and under the rationale of protecting victims, courts should adopt a new understanding that aligns with the particularities of artificial intelligence.(Islam, 2018, p. 237).

The custodian of artificial intelligence holds the power of use and the power of management, but lacks the power of control over AI's actions, given the autonomy that characterizes the latter. Therefore, the custodian of AI may argue the absence of custodian status, since he lacks effective control, and thus liability should not arise. However, the law does impose liability on the custodian of an animal, even though humans do not exercise full control over animals, which are also autonomous in nature.(Islam, 2018, p. 237).

From this standpoint, it is proposed that the concept of custody be adapted to the specific nature of AI by presuming the existence of the power of control in the custodian, or by considering that the custodian, through accepting the use and exploitation of AI, has implicitly waived the requirement of control. In any case, the matter ultimately rests with the judiciary to adjust the concept of custody so that it responds effectively to the unique characteristics of artificial intelligence.(Islam, 2018, p. 237)

Some American jurists have sought to define civil liability for artificial intelligence based on U.S. case law. This approach primarily relied on the practical applications of AI, such as smart cars, attempting to characterize them by analogy with elevators or horses. While this line of reasoning does allow courts to explore the existing body of legal rules in order to establish a basis for liability, it may nonetheless prove insufficient when confronted with the vast range of AI applications across numerous fields—medical, engineering, commercial, and even legal.(Bentria Maamar & Chahida, 2018, p. 127)

The American approach of analogizing artificial intelligence to traditional objects such as elevators or horses may be suitable for limited applications but proves insufficient when confronted with more complex uses of AI. For instance, in the case of self-driving cars, the analogy with elevators might work, as liability could be attributed to the manufacturer if an accident occurs due to a technical defect. However, in the medical field, if an AI diagnostic system provides an erroneous assessment that leads to a patient's death, it becomes unclear whether liability should fall on the physician, the producer, or the developers of the algorithm. Similarly, in engineering, if an AI program designs a bridge that later collapses due to flawed calculations, attributing responsibility under traditional frameworks becomes highly problematic.

The same difficulty arises in commercial and legal applications, where AI systems may autonomously conclude contracts or draft legal documents, raising the question of whether liability lies with the user, the programmer, or the company. These examples demonstrate that while analogical reasoning may provide

temporary solutions, it is insufficient to address the broad and complex spectrum of AI applications, thereby necessitating the development of more tailored legal frameworks.

2- The Contradiction Between Legal Logic and the Reality of Artificial Intelligence :

The step taken by Saudi Arabia amid ongoing discussions and initiatives toward a legal framework for artificial intelligence met with both support and opposition has confronted the world with hypotheses that have now become a tangible reality, in a climate of striking silence. Saudi Arabia granted citizenship to the robot Sophia. This did not merely confer upon her a special legal personality adapted to the nature of artificial intelligence, but also granted her rights and imposed obligations that went beyond what had been previously imagined. By acquiring Saudi citizenship, Sophia was endowed with the right to a private life, including the right to choose a religion and the right to marry, in exchange for the duty not to harm others or infringe upon their privacy. Moreover, by virtue of her citizenship, Sophia also gained both the right and duty to vote. This step represents a stimulus for deeper reflection on the actual dimension of legal regulation of artificial intelligence, the essence of which lies in issues of responsibility and intellectual property rights.(Farida, 2020, p. 165)

Granting Saudi citizenship to the robot Sophia has sparked significant debate over the possibility of assigning legal personality to artificial intelligence. While some viewed it as a symbolic or promotional gesture rather than a genuine regulatory step, others considered it a glimpse into a future where traditional legal categories may no longer suffice. The decision highlights the tension between legal logic, rooted in natural and legal persons, and the reality of AI as an autonomous entity. Moreover, it raises questions about the practicality of granting rights such as marriage or voting to systems incapable of self-awareness. Ultimately, this move serves as an incentive to reconsider the need for a dedicated legal framework tailored to the unique nature of AI.

A total of 156 experts in law and artificial intelligence from 14 European countries submitted a strongly worded memorandum opposing discussions within the European Parliament on granting legal personality to artificial intelligence. They argued that such a step would necessarily entail the recognition of additional rights, such as the right to marry and to own property, and considered it merely an attempt by manufacturers to evade responsibility for their products.(Farida, 2020, p. 165)

Granting artificial intelligence an independent legal personality remains a matter of doctrinal controversy, since the foundation of legal personality lies in the capacity to bear obligations and acquire rights. This is inconsistent with the nature of artificial intelligence, which ultimately remains an immaterial entity incapable of exercising certain human-centered rights, such as making donations, entering into marriage, or even assessing moral damage. Moreover, holding it legally accountable would necessarily require disclosing its algorithms and decision-making processes, thereby infringing upon intellectual property rights and hindering its development. Consequently, the notion of an “electronic personality” constitutes a legal construct that does not align with established legal reasoning.(Farida, 2020, p. 165)

Granting artificial intelligence legal personality raises profound challenges that touch upon the very foundations of the legal system and human dignity. Assigning liability to such a non-material entity is inconsistent with its unpredictable autonomy, while the imposition of sanctions or the exercise of certain rights remains unrealistic. Accordingly, the more reasonable solution lies in adapting existing legal frameworks to technological developments rather than creating a parallel legal personality that could compete with humans in rights and obligations.(Farida, 2020, p. 165)

Bearing responsibility in its broad sense is an honor that only humans can attain. Therefore, we do not agree with the path taken by some jurists when they attempted to assign responsibility to artificial intelligence and robots. It is true that the emergence of artificial intelligence has raised certain issues and difficulties within the civil liability system, but this system, in our view, remains capable of addressing artificial intelligence and thereby compensating the injured party. In fact, artificial intelligence will, in the future, constitute a fertile ground for applying the rules of the civil liability system. There is no doubt that this heralds a bright future for civil liability and refutes the thesis of its anticipated demise.(Islam, 2018, p. 240)

At an initial stage, the judiciary should adapt certain rules of the civil liability system to compensate anyone who suffers harm, since establishing a new model of liability for the acts of artificial intelligence remains a matter for the future. The justification for this is that artificial intelligence is still in its early stages, and at the same time it continues to progress in parallel with the advancement of science. Therefore, it is necessary to wait a little longer to fully understand this technology, so that legislators can establish the appropriate rules.(Islam, 2018, p. 240)

Conclusion

The analysis of various doctrinal perspectives and legal debates demonstrates that the question of legal liability for artificial intelligence remains both complex and contentious. Some scholars view AI as a mere tool, with liability resting on the programmer or user; others classify it as a product subject to product liability rules; while another current treats it as an object governed by the theory of custody of things. Comparative experiences reveal attempts, such as in French and American law, to adapt existing legal frameworks, while other initiatives have gone so far as to propose granting AI an independent "electronic personality," a proposal that has faced strong objections due to its incompatibility with legal logic and human dignity.

This diversity of approaches reflects the difficulty of confining AI within a single legal model, given its inherent autonomy and continuous evolution, as well as the challenges of disclosing its algorithms without undermining intellectual property rights. Therefore, the solution does not lie in creating a parallel legal personality alongside natural or legal persons, but rather in adapting and developing existing legal frameworks to balance the protection of victims with the promotion of technological innovation.

In this regard, several legal proposals can be advanced:

1. Establishing a specific civil liability regime for AI based on joint liability between the designer, manufacturer, and user.
2. Creating a dedicated compensation fund for victims harmed by AI systems, similar to compensation funds in traffic accidents.
3. Imposing legal obligations on AI-developing companies to ensure transparency and partial disclosure of algorithms, without infringing upon intellectual property rights.
4. Developing harmonized international legislation to avoid discrepancies between national legal systems in addressing AI.

Ultimately, the greatest challenge facing legislators today is not merely to find temporary solutions for AI liability, but to construct a comprehensive legal framework that accounts for its unique characteristics while safeguarding human rights and ensuring the sustainable advancement of technology.

Actuality

The actuality of the research lies in the rapid and widespread deployment of AI across critical sectors such as healthcare, finance, transportation, and security. These domains directly affect human rights and public safety, making liability for damages a pressing issue. Traditional systems of civil and criminal responsibility are insufficient to handle the complexity of AI's semi-autonomous decisions. Moreover, global legal discourse reflects deep divisions, as seen in Saudi Arabia's symbolic recognition of the robot Sophia and the European Parliament's debates on civil rules for robotics. These examples show how states and institutions are grappling with AI's disruptive impact, underscoring the urgent need for coherent international legal responses.

Findings

The study finds that granting AI independent legal personality is neither necessary nor desirable. While proposals for AI legal personhood highlight the difficulties of applying existing rules, they create new conflicts with fundamental legal logic and human dignity. Instead, adapting current frameworks provides more effective and ethically consistent solutions. The most promising measures include:
- Establishing joint liability regimes that distribute responsibility between developers, users, and operators.

- Introducing mandatory insurance systems to guarantee compensation for victims of AI-related harm.
- Creating compensation funds as safety nets in complex liability scenarios.
- Enforcing transparency obligations on algorithm designers, ensuring traceability while protecting intellectual property rights.

These findings suggest that law does not need to be reinvented, but rather recalibrated to address the unique challenges posed by AI.

Ethical Considerations

AI raises profound ethical dilemmas, including threats to human dignity, accountability, and privacy. The opacity of algorithmic decision-making—the so-called "black box problem"—makes it difficult to ensure transparency and fairness. Ethical debates also extend to intellectual property, with growing calls to recognize AI-generated works as protectable creations. However, transferring moral or creative agency to machines risks undermining human rights and eroding the principle of accountability. Therefore, legal reform must remain grounded in human-centered ethics, ensuring that technological progress does not compromise justice, fairness, or social stability.

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Conflict of Interest

The authors declare no conflict of interest related to the content or publication of this research.

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