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The civil liability arising from damages caused by artificial intelligence

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Abstract :

The rapid and successive development that has affected artificial intelligence, reaching a level of advancement comparable to machine-based cognitive intelligence and the emergence of autonomous capabilities that render machines no longer fully controllable or their actions predictable once activated, has also led to a corresponding evolution in the risks arising from it. This development has raised questions regarding the extent to which traditional rules of civil liability are capable of addressing such harms, particularly with respect to identifying the responsible party in cases where these systems cause damage to others, as well as determining appropriate compensation for the damages that may result from these technologies and other future innovations.

Keywords: Civil liability ; artificial intelligence ; tort liability ; contractual liability ; algorithms.

Introduction:

The field of technology and artificial intelligence has witnessed significant development. Artificial intelligence has emerged as one of the most prominent contemporary legal challenges in light of the rapid advancement of its technologies. With its application across a wide range of sectors, questions relating to civil liability and the legal implications of this technology have become crucial. Determining the appropriate framework of civil liability requires consideration of the distinctive nature of artificial intelligence and its impact on both society and individuals.

The challenges associated with determining civil liability for artificial intelligence are complex and demand advanced legal and ethical analysis. It may be difficult to identify the person or entity responsible for the conduct of an artificial intelligence system, particularly in cases involving self-learning capabilities and autonomous decision-making.

Accordingly, research into civil liability and artificial intelligence seeks to strike a balance between technological development and the protection of society and individuals from potential risks. This necessitates the establishment of legal rules and guidelines that clearly define the civil liability of individuals and institutions engaged in the development and use of artificial intelligence, as well as mechanisms to compensate those harmed by its application.

The importance of this research lies in highlighting the shortcomings of traditional civil liability rules in addressing damages arising from artificial intelligence and in identifying the challenges faced by injured parties in obtaining full and fair compensation. These difficulties often stem from the complexity of clearly attributing responsibility and identifying the liable party.

Therefore, legislative intervention is required to establish a legal framework that precisely regulates the treatment of this emerging technology and defines the civil liability of individuals and entities involved in the production and use of artificial intelligence. Such a framework should include specific legal

mechanisms aimed at protecting the rights of injured parties and enabling them to obtain full compensation without incurring excessive financial burdens.

With an appropriate legal system in place, injured parties would be able to claim their rights and secure compensation for damages resulting from the use of artificial intelligence, thereby reinforcing the balance between technological progress and the rights of individuals and society. Continuous research and development within the framework of civil liability thus becomes necessary to address the challenges arising from artificial intelligence and to ensure adequate protection of affected parties and their interests.

Artificial intelligence technology remains relatively novel, not only from a legal perspective but also at the level of public awareness. Consequently, concerns have increased regarding the potential harms that may arise if artificial intelligence systems exceed the limits of their programming and automated operation. This concern is further compounded by the fact that the Majalla (the Ottoman Civil Code), which governs civil liability in certain jurisdictions, is outdated and does not keep pace with modern technological developments.

The following research question will be our base to further discuss and address the topic: What is the civil liability arising from damages caused by artificial intelligence?

This study adopts both the descriptive and analytical approaches. The descriptive method is employed to define artificial intelligence, while the analytical method is used to examine the relevant concepts and the traditional civil liability system and to assess its application to acts performed by artificial intelligence systems.

Chapter One: The Concept of Artificial Intelligence

Chapter Two: The Establishment of Civil Liability Arising from the Act of Artificial Intelligence

Chapter One: The Concept of Artificial Intelligence

Artificial intelligence (AI) is a continuously evolving technological field, regarded as a decisive tool upon which humans rely to achieve their objectives

more effectively. It contributes to increasing rates of development and growth and to attaining improved performance indicators. Intelligence grants the individual a critical capacity that enhances social standing and supports sound decision-making through cooperation with others and the activation of their contributions in proposing appropriate alternatives.

Within this chapter, we address the definition of artificial intelligence (Section One) and its characteristics (Section Two).

Section One: Definition of Artificial Intelligence

Formulating a precise and comprehensive definition of intelligence in general, and artificial intelligence in particular, is a challenging task. Consequently, there is significant divergence among scholars regarding its interpretation. Some consider it a branch of engineering design, while others associate it with the sciences concerned with simulating systems of human thought.

With the development of AI applications, its definition has become closely linked to a branch of computer science concerned with designing and developing computer programs that simulate human thinking processes. Its objective is to enable computers to perform tasks requiring reasoning, understanding, hearing, speaking, and movement in a logical and organized manner consistent with human nature. In general, artificial intelligence aims to develop intelligent systems capable of learning, adapting, and performing complex tasks in ways comparable to humans. To achieve this objective, AI employs a variety of techniques and tools, such as machine learning, deep learning, and natural language processing¹.

Despite the challenges involved in articulating a comprehensive definition, artificial intelligence remains a dynamic and evolving field that offers substantial opportunities for improving computer systems and applications across diverse domains.

Artificial intelligence may also be defined as the capacity of devices and computer programs to simulate human intelligence and to perform tasks that require reasoning, inference, and learning. This capability relies on various

techniques, including machine learning, artificial neural networks, natural language processing, and computational reasoning.

The European Commission has defined artificial intelligence as systems that display intelligent behavior by analyzing their environment and taking actions with a degree of autonomy to achieve specific objectives. Such AI-based systems may be software-based in nature. ²

Artificial intelligence can further be understood as a set of behaviors exhibited by computer programs. It seeks to enhance productivity and improve performance while simulating human cognitive abilities. Indeed, AI has become integrated into many of our devices and has emerged as an essential resource for numerous individuals. It is therefore necessary to establish effective means of engaging with such programs in a manner that enhances productivity and promotes positive interaction between humans and machines alike. Effective cooperation and constructive interaction between humans and AI are essential to maximizing the benefits of this technology.

The American scientist John McCarthy defined artificial intelligence as the “science and engineering of making intelligent machines.” This involves studying and designing intelligent systems capable of perceiving their environment and taking actions that maximize their chances of success. AI seeks to optimize the performance of machines and programs and to improve their ability to address various challenges and situations. ³

Based on the foregoing definitions, artificial intelligence may be described as a collection of modern methods and techniques in system programming aimed at developing systems that simulate certain elements of human intelligence. These systems are capable of performing inferential processes and interpreting facts and rules represented within computer memory. It should be noted, however, that AI cannot yet be regarded as fully replicating human thought processes, as researchers have not reached that level.

At present, AI is commonly referred to as “narrow” or “weak” artificial intelligence, as it is limited to performing specific tasks. The development of

“general” or “strong” artificial intelligence therefore remains a long-term objective for many researchers. While narrow AI may surpass humans in particular specialized tasks, general AI would possess the capacity to outperform humans across a broad range of cognitive and perceptual domains.

Intelligence is closely associated with various mental processes performed by humans, such as creativity, learning, inference, and pattern extraction. When a machine performs such processes, it is considered intelligent. Accordingly, the concept of artificial intelligence may be clarified through reference to related distinctions, including:

- Strong Artificial Intelligence:

In this form, a computer possesses artificial intelligence capable of equaling or even surpassing human intelligence in certain respects. Strong AI refers to a machine that approaches or fully replaces human-level intelligence. Such a machine would be capable of performing tasks across a wide range of domains based on its own knowledge and would possess a degree of self-awareness. The goal of strong AI is to construct a machine whose cognitive capacities do not significantly differ from those of humans. ⁴

- Programmed (or Applied) Artificial Intelligence:

This term refers to machines that employ software to study or solve specific problems or to perform limited tasks that do not encompass the full spectrum of human cognitive abilities. Programmed AI lacks self-awareness and operates at a high level of recognition and analytical capability to resolve defined problems.

Section Two: Characteristics of Artificial Intelligence

Artificial intelligence is characterized by functional autonomy in performing its tasks without human control or even direct supervision. This autonomy has developed progressively—from semi-autonomous systems to fully autonomous ones. Such autonomy renders AI actions difficult to predict, as systems independently generate multiple decisions and select among them based on

specific criteria and surrounding data. Consequently, their behavior may be unpredictable.

This unpredictability raises complex legal questions, particularly concerning the attribution of fault. Since AI systems operate beyond direct human control and may produce outcomes not directly intended by their users, it becomes difficult to attribute personal fault to the user for actions generated autonomously by the system.

Despite the advanced level of autonomy achieved by AI, it remains challenging to distinguish between harmful and non-harmful actions, or to determine whether a given action conforms to or violates the law.

Artificial intelligence is further characterized by its immaterial nature, as it consists of algorithms and software operating within a virtual environment that is not perceptible by the human senses. This immateriality complicates the determination of its spatial and temporal presence. AI systems are not confined to a specific place or time; rather, they may be accessed and utilized by any person, at any time and from any location. This characteristic creates legal difficulties in identifying the element of fault or the act that caused damage, particularly in cross-border or decentralized contexts.⁵

Chapter Two: The Establishment of Civil Liability Arising from the Act of Artificial Intelligence

In this chapter, we examine civil liability according to its traditional frameworks, and we analyze the applicability of such liability in the context of artificial intelligence (AI). We will assess whether contractual or tortious liability can be applied to damages that may result from AI, based on the circumstances leading to such harm. Accordingly, the first section addresses contractual liability, while the second focuses on tortious liability.

Section One: Contractual Liability

When two parties enter into a valid contract and one party fails to fulfill its contractual obligations, the other party is entitled to release itself from its obligations and claim compensation. The amount of compensation may be stipulated within the contract; if it is not, the court can determine it based on the loss incurred by the aggrieved party and any potential profit they were deprived of.

Breach of contract may take various forms, such as a seller failing to deliver the goods in accordance with the specifications stipulated in the contract. In the context of AI, if a robot does not conform to the terms of the contract, the buyer or user has the right to terminate the contract. Contractual liability arises when the robot's performance does not meet the contractually agreed specifications, even if no actual damage or injury occurs. Nonconformity entitles the buyer to compensation, and the seller is obliged to deliver the goods in the condition agreed upon at the time of contracting, ensuring their functionality and freedom from latent defects. For a defect to trigger the warranty, it must be unknown to the buyer, non-obvious, absent prior to sale, and substantial. According to prevailing legal doctrine, the rules governing latent defects are interpreted flexibly, encompassing material damages caused by AI-powered robots. Consequently, contractual liability applies if the robot is not delivered in accordance with the terms and provisions agreed upon between the manufacturer and the user.⁶

Where the robot is not delivered according to the contractual conditions between the seller and the buyer, contractual liability can be invoked. It is clear that the robot constitutes a product that has been sold. However, applying traditional rules of contractual liability is insufficient to address all damages potentially caused by AI. Moreover, contractual liability is limited to natural persons who breach the contract; AI itself cannot be a contractual party. Even if contract clauses outline AI capabilities and risks, the contract imposes a duty of care rather than a strict obligation to achieve a specific result.

Section Two: Tortious Liability

Tortious liability is based on the breach of a legal duty, independent of any contractual relationship between debtor and creditor. It arises from wrongful acts committed by one person against another, and it relies on the notion of fault—i.e., the violation of a general legal obligation not to harm others.

Fault involves two elements: a material element, represented by the harmful act or deviation, and a mental element, encompassing awareness and discernment. For the injured party to obtain compensation under tort law, it must be proven that a fault occurred, that damage resulted, and that a causal link exists between them.

This framework can apply to individuals responsible for damages caused by AI. For instance, if a physician relies on an AI-supported clinical decision-making program that recommends an incorrect medication, and the physician disregards an observable error, the physician—not the AI—may be held accountable for resulting harm to the patient.⁷

Applying tort law to AI presents significant challenges, primarily in identifying the person responsible for damage resulting from AI actions. Courts often struggle to establish liability when AI operates with increasing autonomy. In some cases, it may be difficult even to identify the responsible party when AI makes independent decisions, rendering traditional liability rules insufficient.

According to Article 1242 of the French Civil Code and Article 178 of the Egyptian Civil Code, a person is not only liable for damages caused by their own actions but also for damages caused by persons under their responsibility or by things under their supervision. Since AI cannot be considered a person, some scholars advocate applying the legal concept of liability for supervising things to AI, such as in the case of assistive robots. However, identifying who has supervisory authority over AI at the time of damage can be complex. For example, if the owner of a robot goes on a trip and entrusts the robot to a friend, questions arise: does the friend become the supervisor of the robot? Do they have the capacity to control, monitor, and direct it? Can supervision be considered transferred from the owner to the friend? Legal scholars generally agree that supervisory responsibility can be delegated to the person entrusted with using or

guarding a thing, who is then responsible for managing, monitoring, and taking necessary precautions to prevent damage.⁸

If the owner retains supervisory authority, they remain responsible; if the robot is stolen, responsibility shifts to the thief, as actual control—not lawful control—determines liability. Establishing a guardian's liability requires exercising authority over the use, direction, and control of the thing. However, AI robots with autonomous decision-making complicate the exercise of such control, creating a tension between autonomy and supervisory authority. In such cases, this cannot be considered a transfer of supervision but rather a total relinquishment of it.

Clearly, numerous challenges arise when applying the concept of supervision to AI, particularly regarding the level of autonomy AI possesses. Robots capable of independent learning and decision-making without direct human orders are difficult to monitor and control, potentially preventing the guardian from fulfilling their liability if the harm arises from actions beyond their control.

Conclusion

In conclusion, while artificial intelligence (AI) technologies continue to evolve rapidly, the current legal frameworks governing these technologies remain insufficient. AI frequently causes harm to third parties, necessitating the identification of a responsible party. The unique nature of AI complicates the determination of direct responsibility, and traditional civil liability rules are no longer fully capable of addressing actions generated by such systems. From our analysis, several key findings emerge:

- The application of traditional civil liability rules has proven inadequate for addressing damages potentially caused by AI, due to its distinctive characteristics.
- The primary consequence of civil liability is to provide the injured party with compensation. However, in the context of AI, obtaining restitution in kind is often impractical, leaving monetary compensation as the primary remedy.
- Compensation should cover material damages arising from AI-powered robots, whether due to operational defects, changes in physical or intangible

components, or maintenance deficiencies. These damages are assessed and quantified monetarily.

Based on these findings, a number of recommendations can be proposed:

- Enact legislation that addresses the specific challenges and risks associated with AI, including a clear legal definition of AI, its scope of application, and the framework for civil liability.

- Clearly define the civil liability of all parties involved in AI within legal provisions, including the identification of responsible parties for damages arising from the use of AI.

- Establish mechanisms to ensure appropriate compensation for individuals harmed by AI technologies.

- Promote awareness and education regarding AI, including training programs, public information initiatives, and targeted education for stakeholders.

Bibliography List :

¹ Abdullah Saeed Abdullah Al Wali, Civil Liability for Artificial Intelligence Damages in UAE Law, Dar Al Nahda Al Arabiya, Cairo, 2021, p. 27.

² Ahmed Ali Hassan Othman, The Implications of Artificial Intelligence on Civil Law: A Comparative Study, Journal of Legal and Economic Research, Faculty of Law, Mansoura University, Vol. 11, Issue 76, Egypt, 2021, p. 1526.

³ Ben Othman Farida, Artificial Intelligence (A Legal Comparison), Notebooks of Politics and Law Journal, Vol. 12, Issue 12, 2020, p. 158.

⁴ Abdel Rahman Doaa, The Impact of Artificial Intelligence Technologies on the Provisions of Applicable Intellectual Property Laws (Patent as a Model), Al-Sharia and Law Journal, Faculty of Law, Ain Shams University, Issue 36, Part Two, Egypt, 2021, p. 1762.

⁵ Refaf Lakhdar; Maouch Feryouz, The Specific Nature of Civil Liability for Damage Caused by Artificial Intelligence Systems in Algerian Law, Revue Tobna for Academic Scientific Studies, Volume 06, Issue 01, 2023, p. 581.

⁶ Nour Khaled Abdel Razzaq, Civil Liability Arising from the Use of Artificial Intelligence, Journal of Legal and Economic Challenges and Prospects of Artificial Intelligence, Volume 66, Issue 03, pp. 14–15.

⁷ Nour Khaled Abdel Razzaq, Civil Liability Arising from the Use of Artificial Intelligence, *ibid*, pp. 14–15.

⁸ Yahya Mowafi, Liability for Things in the Light of Jurisprudence and Case Law: A Comparative Study, Alexandria, 1992, p. 39.