EMERGING BASES OF CIVIL LIABILITY FOR ARTIFICIAL INTELLIGENCE SYSTEMS

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Abstract:

Given the privacy of artificial intelligence systems, there is a need to establish new foundations for civil liability. Traditional rules are insufficient to establish such liability and to compensate for the damage caused by artificial intelligence systems. As a result, the theory of human substitution has emerged, based on the provisions of the 2017 European Civil Law on Robots. The European Commission has proposed two European directives to the European Parliament. The first directive calls for the review and adaptation of European Directive 85/384 on liability for defective products, taking into account the impact of artificial intelligence. The second directive establishes liability based on the principles of negligence, taking into account the specificity of artificial intelligence.
Keywords: *Artificial intelligence, intelligent robots, civil liability, human replacement, new foundations.*

INTRODUCTION:

The world has witnessed a major technological revolution known as the Fourth Industrial Revolution. It is based on the integration of technologies that blur the boundaries between the physical, digital and biological domains. This revolution is embodied in artificial intelligence, which now reflects the level of development and control of nations as the dominant forces in the world.

Artificial intelligence, broadly defined, refers to any system, whether software-based or embedded in physical devices, that exhibits intelligent behaviour. This includes collecting, processing, analysing and interpreting data, as well as interacting with and adapting to its environment with a degree of autonomy to achieve specific goals. One of the applications of artificial intelligence is intelligent robots, which have raised questions about their legal personality[1].

An intelligent robot is defined as "an autonomous, self-governing intelligent machine capable of performing precise tasks in fields such as medicine, administration, internal auditing in institutions, transport and others, by means of artificial mental processes"[2]. The European Union has attached great importance to intelligent robots as machines created by humans that embody artificial intelligence and are able to operate in their environment according to their decision-making authority. This was manifested in the publication on 16 February 2017 of civil law rules on robotics, including recommendations to the Committee on Civil Law Rules on Robotics[3].

One of the key characteristics of an intelligent robot is its autonomy, which is manifested in its ability to make decisions and implement them in the external world. This autonomy is purely technical and its degree depends on the complexity of the interactions with the environment provided by the robot's

[1]- Mohammed Irfane Elkhatibe, "Artificial Intelligence and the Law: A Comparative Critical Study in French and Qatari Legislation - in Light of the European Civil Law Rules on Robotics of 2017 and the Comprehensive European Industrial Policy on Artificial Intelligence and Robotics of 2019", Ban Journal of Legal Studies, Volume 2020, p. 14.
https://www.digitalcommons.ban.edu.jb/jsjournal

[2]- Al-Qousi Hamam, "The Problem of the Person Responsible for Operating the Robot: The Impact of the Theory of Human Proxy on the Feasibility of Law in the Future - An Analytical Prospective Study in the Rules of European Civil Law Regarding Robots," Deep Legal Research Generation Journal, 25 May 2018, p. 79.

[3]- Resolution of the European Parliament of 16 February 2017 on the rules of civil law relating to robotics.
https://www.europarl.europa.eu/doceo/document/TA-8-2017-0051_FR.html

software and intelligent algorithms[1]. The higher the level of artificial intelligence, the greater the degree of autonomy. This is reflected in the definition adopted by the European legislator in its framework initiative on civil liability for artificial intelligence for the year 2020, which states that it is "an artificial intelligence system that operates by interpreting specific input data and using a set of pre-defined instructions, including but not limited to a commitment to achieve its specific objective and subject to the constraints imposed to achieve the objective and other design choices imposed by its developer"[2]. This has led some to see autonomy as the feature that enables the robot to avoid risks and think about safety in a similar way to humans[3].

In view of this realistic fact, which may cause damage requiring civil liability and whose purpose is to compensate for the damage, it is necessary to regulate civil liability for artificial intelligence systems and to establish the legal basis for such liability. Since the intelligent robot is considered to be one of the most important artificial intelligence systems with the aforementioned characteristic, it cannot be subjected to the current content of civil liability because it does not take into account the risks of the intelligent robot. Therefore, attempts have been made at the level of the European Union to determine the legal basis for civil liability for damage caused by it. Have new bases for civil liability for damage caused by AI systems been introduced to ensure that the injured party receives adequate compensation to cover the damage?

In order to answer this question, it is necessary to divide the study into two parts. The first part is devoted to the study of the human surrogate theory as a basis for liability for damage caused by artificial intelligence. The second part discusses the content of two proposed unified European approaches to the basis of civil liability for damage caused by artificial intelligence.

Part One: The Human Surrogate Theory as a Basis for Liability for Damage Caused by Artificial Intelligence

The European Parliament has introduced the theory of human surrogate, also known as legal representative liability or liability of the person in control of the robot[4], in the European Civil Law Rules on Robotics adopted on 16 February 2017[5]. The purpose is to hold a person responsible for acts performed by an intelligent robot. Liability for the robot's acts and omissions falls on the human surrogate, referred to in French jurisprudence as the "robot companion".

However, attributing liability to the human surrogate for operational errors of the intelligent robot raises questions regarding the definition of the human surrogate in the context of the intelligent robot and operational errors. What is meant by the human surrogate in relation to the intelligent robot and operational errors? And what is the legal adaptation of the human surrogate?

First requirement: Definition of human surrogate and human error

The theory of the human surrogate has been introduced in order to determine the party responsible for the damage caused by the intelligent robot, taking into account the nature of this new entity, which raises legal and practical questions regarding compensation for the acts of a machine or an intelligent robot. It is therefore essential to understand who the human surrogate is, what forms it may take and what is meant by operational errors for which the human surrogate is liable.

First branch: The human surrogate and its forms

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[1]- Al-Mar Saham, "The Smart Robot between the Problem of Recognizing Legal Personality and Denying It", Journal of Law and Political Science, University of Naâma, Volume 09, Issue 02 for the year 2023, p. 04.

[2]- Report - A9-01-0178/2020, containing recommendations to the Commission on a civil liability regime for artificial intelligence.

https://www.europarl.europa.eu/doceo/document/A-9-2020-0-178-fr.html.

[3]- This issue is the turning point in the transition of the robot from being a thing under guardianship to an entity that replaces a human being, bearing responsibility with the force of law, without assuming fault. See: Al-Qousi Hamam, "The Theory of Virtual Personality of the Robot According to the Humanistic Approach - A Fundamental Analytical Prospective Study in Kuwaiti and European Civil Law - Generation Legal Research Journal", p. 13.

[4]- Amal Belabas, "The Suitability of Civil Liability Rules for Compensating Damages Caused by Intelligent Systems", Journal of Legal and Economic Research, an international journal published by the Institute of Law and Political Science, University Center of Aflou, Volume 06, Issue 01, Year 2023, p. 470.

[5]- Resolution of the European Parliament of 16 February 2017 on civil law rules on robotics. Op.cit.

Defining the concept of the human surrogate helps to determine the limits of its responsibility for the errors committed by the intelligent robot. The concept is clarified by identifying its forms.

Firstly, the concept of the human surrogate refers to the robot's representative, who is responsible for compensating the injured party as a result of operational errors, as provided for by the European civil law rules on robotics. These rules have legally transferred liability from the robot to the human surrogate. This is an innovative situation based on the assumption of legal representation between the robot and the human responsible for its operational errors.

It is worth noting that the European legislator used the term "human surrogate" to recognise its specific legal personality, as it did not use the term "guardian". The European civil law rules on robotics have therefore assumed the existence of legal representation for liability purposes between the intelligent robot and the responsible human. It states that "the robot's representative shall be legally responsible for compensating the injured party as a result of operating errors". In this way, the European legislator has legally transferred liability from the robot, which lacks legal capacity and personality, to the human being.

Second: Forms of human surrogate

The European legislator has defined the forms of human surrogate responsible for compensation as follows:

1. Manufacturer: This refers to the entity involved in the manufacturing process of the intelligent robot, including both the physical aspects and the software components that include the artificial intelligence. The manufacturer may be held liable for manufacturing defects that cause the robot to malfunction. For example, if a medical care robot has a defect that causes a patient to move incorrectly, resulting in a worsening of the patient's condition, or causes harm because the robot fails to communicate properly with a medical testing laboratory[1]. In such cases, the European law on intelligent robots indicates the possibility of applying the provisions on liability for defective products[2], as laid down in European Directive No. 85/374.

2. The operator: This refers to the professional person who controls the robot using artificial intelligence programs. An example of this is virtual bank management, which relies on intelligent robots to carry out banking operations[3].

In this context, the decision of the European Parliament of 20 October 2020 contains recommendations to the Commission on the civil liability regime for artificial intelligence[4]. It addresses both the apparent operator and the principal operator under the general provisions.

The apparent operator refers to any natural or legal person who has a degree of control over the risks associated with the operation of the artificial intelligence system and benefits from its operation. The main operator, on the other hand, is the entity that determines the characteristics and features of the technology, provides data and provides essential back-end support.The main operator exercises a higher degree of control over the risks associated with the AI system.

[1]- Hassan Mohammed Omar Al-Hamrawi, "The Basis of Civil Liability for Robots Between Traditional Rules and Modern Trends", Journal of the Faculty of Sharia and Law at Tafhna Al-Ashraf - Dakahlia, Issue No. 23 for the year 2021, Second Edition, Part Four, p. 3088.

[2]- Habeeb Zahlool Alkarar, Hussam Oabes Ouda, "Civil Liability for Damage Caused by Robots (Comparative Analytical Study)", Route Educational, Social Science Journal, Volume 6 (5), May 2019, p. 755.

[3]- Nawal Mejedoub, "Legal Liability Issues for the Application of Artificial Intelligence Systems", Scientific Group for Printing, Publishing and Distribution, Cairo, first edition, year 2022, p. 84.

[4]- European Parliament Resolution of 20 October 2020 with recommendations to the Commission on a civil liability regime for artificial intelligence (2020/2014(INL)). "A Civil Liability Regime for Artificial Intelligence", Official Journal of the European Union. https://eurlex.europa.eu/legalcontent/FR/TXT/PDF/?uri=CELEX:52020IP0276&from=EN#:~:text=L'IA%20permettra%20de%20lutter,%C3%A0%20tous%20types%20d'%C3%A9students .

In summary, the human surrogate responsible for compensation may be the manufacturer or the operator, depending on their role and level of control over the functioning and risks of the intelligent robot[1].

3. Propriétaire (owner): This refers to the person who personally operates the robot for their own service or for the service of their clients. For example, a doctor who owns and operates a medical robot to perform surgeries.

4. Utilisateur (user): This refers to a third party who uses the robot, separate from the owner or operator. The user is concerned with the behaviour of the robot during its use and the potential harm it may cause to others. For example, if a group of passengers are using a self-driving bus via an electronic panel and one of them sends an incorrect command to the bus, causing a traffic accident. In addition, a professional operator may have a human user who uses the robot as an assistant. In this case, the user, who is a subordinate user within the robot's operating company, can sue the operator for negligence in maintenance[2].

Second branch: Operating errors

The more autonomous the intelligent robot becomes, the less it is a simple tool controlled by the manufacturer, operator, owner or user. Therefore, the liability of the human surrogate, enforced by law, covers damage resulting from operational errors. Operational errors refer to both positive actions performed by the robot and negative actions, such as its failure to act. The limits of these errors, which fall within the scope of operation, determine the extent to which the liability of the human surrogate is legally enforced[3].

If the development of robot technology is to complement human capabilities rather than replace them, then human control over intelligent robots must be guaranteed at all times and in all places. We are dealing with intelligent robots based on autonomy, learning and intelligence. The relationship between humans and robots may evolve, especially with vulnerable people such as children, the elderly and people with disabilities. The European Commission has therefore called on Member States to improve and encourage research into the potential risks and long-term prospects of artificial intelligence, in particular intelligent robots[4].

As a result, European legislators need to be more precise and forward-looking in their definition of human error. For example, they should make it possible to define the scope of civil liability in relation to these errors. The concept of "operator" in the strict sense refers to the operator, who is a substitute for the human being, and is not limited to the operator alone. It could include the manufacturer, the owner or the user.

Furthermore, as Professor Odile Siary has pointed out, another future issue may be the possibility of robots owning other robots, whether as manufacturers, programmers or users. What would be the legal description of such a situation? Would the human surrogate be responsible for the robot and its actions, as well as for the programming of this intelligent robot?[5]

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[1]- Miada Mahmoud El Azab, "Privacy of Civil Obligations in the Field of Robotic Surgery: A Comparative Study", Dar Al-Ahram for Publishing, Distribution and Legal Publications, first edition, year 2023, p. 126.

[2]- Hassan Mohamed Omar Al-Hamrawi, ibid, p. 3089.

[3]- In this context, an incident occurred in February 2015 when a woman from South Korea bought a robotic vacuum cleaner.

This vacuum cleaner was programmed to move immediately and clean the area automatically when something falls on the floor. The Korean woman happened to fall asleep on the floor, and the robotic vacuum cleaner automatically moved after detecting something on the floor and sucked up the woman's hair, requiring emergency services to be called.

- Ivan Slenger and Dohartzog, "Risks of Trusting in Robot Devices," 20 August 2015, accessed 3 January 2023, at 17:43. https://www.bbc.com/arabic/scienceandtech/2015/08/150820_vert_fntdangers_of.trasting.robots

[4]- European Parliament resolution of 16 February 2017 on recommendations to the Commission on civil law rules for robotics. https://www.europarl.europa.eu/deceo/document/ta-8-20170051-fr.html .

[5]- Odile Siary, "What legal personality for robots?" 24 June 2020. https://www.village.justie.com/articles/quelle.personnal-juridique-pour-les-robots,24075.html .

In this context, the European Commission's Guidance on Artificial Intelligence, published on 20 October 2020, refers to the operator, whether front-end or back-end, in Article 3 of the first chapter entitled General Provisions. The operator refers to any natural or legal person who has a degree of control over the risks associated with the operation of an AI system and benefits from its operation. The back-end operator is responsible for determining the technological advantages, providing data and providing essential back-end support services. Thus, the back-end operator exercises a greater degree of control over the risks associated with the operation and functioning of the AI system.

The second issue: The legal adaptation of human responsibility for the robot's actions.

The concept of human representation differs from the idea of legal representation, which aims to replace the principal with the force of law. The principal may be incapacitated, incompetent or fully competent, while the representative bears no responsibility. In the system of human representation, however, it is representation by the force of law, which primarily involves the transfer of responsibility from the non-personified intelligent robot to the human representative, who has legal personality.

Therefore, the human representative can be held liable for compensating the victim due to the robot's operation, based on the theory of proven fault. This is the case if the robot's performance deviates during the operating state or if the human representative fails to prevent this despite having foreseen the outcome.

The purpose of the newly established theory within the framework of liability for errors in the operation of intelligent robots, as far as the human representative is concerned, is to move from a system of presumed fault for things to a system of representation. This involves transferring responsibility from the robot to the human representative on the basis of a proven fault in the manufacture, operation, use or failure to prevent a foreseeable serious accident. This is based on the idea that the robot is not an object of custody, but an intelligent machine based on intelligence and autonomy.

In this context, MEP Maria da Graça Carvahlo said in the European Parliament that artificial intelligence systems (intelligent robots) pose new legal challenges to the liability system.

The boundaries are still unclear and the current framework remains a valid reference, but we must be able to keep up with the rapid development of these new technologies. Perhaps a different approach is now needed, starting with the identification of different levels of risk associated with AI applications, and considering the obligation to insure high-risk AI systems[1].

The second issue concerns the content of two European directives aimed at establishing a uniform basis for civil liability for damage caused by artificial intelligence.

After rejecting the idea of legal personality and liability, since the absence of legal personality necessarily implies the absence of liability[2], the search for foundations of civil liability for AI systems emerged. In this context, the national strategies of the EU Member States on AI show that many Member States are considering and already implementing measures. Therefore, if the European Union does not take action, it is expected that Member States will adapt their liability rules to the challenges posed by AI in the absence of harmonised rules at EU level for the compensation of damage caused by AI systems. Manufacturers, operators and users of these systems, on the one hand, and those injured by them, on the other, will face 27 different liability regimes.

[1]- Maria da Graça Carvahlo, Member of the European Parliament, "Work in Parliament, Civil Liability Regime for Artificial Intelligence (A9-0178/2020-Axl Voss)", https://www.arocavalho.eu/en/wak-in-panliament/explanationsofvote/civilliatabty-resina-for-antificial-intellgent . Accessed: 3 January 2023, at 10:23.

[2]- Mohammed Irfane Elkhatibe, "Artificial Intelligence: Towards a Legal Definition - An In-Depth Study of the Philosophical Aspects of Artificial Intelligence from a Comparative Legal Perspective", Ban Journal - Journal of Legal Studies, Volume 2021, p. 23.

On this basis, the European Commission has submitted two proposals for European Directives to the European Parliament and the Council, numbered 2022/0302[1] and 2022/0303[2]. The Commission has presented these proposals as projects relating to the liability of artificial intelligence products, with the aim of facilitating civil proceedings and enabling the injured party to obtain compensation.

In the first quarter of 2024, the European Parliament is expected to approve the first major set of regulatory rules for advanced artificial intelligence, which is at the forefront of technological investment. This project, proposed by the European Commission for approval in April 2021[3], is the first legal framework for artificial intelligence, classifying it according to the risks it poses to users. The risks have been categorised into four levels[4]: minimal risks, limited risks, high risks and unacceptable risks[5].

As the study is related to the newly created foundations, we will discuss both proposal 2022/0302 (COD) and proposal 2022/0303 (COD).

First request: Relying on the provisions of European Directive 85/384 while adapting them to the specificities of artificial intelligence systems.

This proposal is based on the revision of European Directive 85/384 on liability for defective products. After 40 years, this Directive has not taken into account the major technological advances of recent years. To address this issue, the European Commission has proposed the following changes to the current system, including

Modify the product concept: To include software, including artificial intelligence systems.

Extend the scope of compensation: To include physical damage, damage to property and loss of data. The manufacturer or its representative within the European Union would be responsible in the event of a malfunction of the intelligent robot, such as a cleaning robot or a medical robot. The responsibility also applies in case of a defect in the product (Smart Robot) resulting from software updates in the Smart Robot.

Modification of the prescription rules: To make it easier to obtain compensation.

Reduction of the burden of proof: By assuming the defect in the artificial intelligence system.

Second claim: Based on the rules of liability for errors, with the need to adapt them to the specificity of artificial intelligence systems - Proposal number: 2022/0303.

The proposed directive on artificial intelligence reassesses the liability for errors by adapting it to the requirements of artificial intelligence. Liability in the field of AI is based on the common nature of fault-based liability, which is based on error, damage and causation. However, this can be challenging in complex and ambiguous AI systems. Therefore, the European Commission recommended the creation of exceptions to the nature of fault-based liability for damage caused by artificial intelligence-based products, including intelligent robots.

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[1]- Proposal for a Directive of the European Parliament and of the Council on liability for defective products, European Commission, 28 September 2022 (2022/0302 (COD)). https://oeil.secure.europarl.europa.eu/oeil/popups/fiche-procedure.do?lang=fr&reference=2022/0302(cod) .

[2]- Proposal for a Directive of the European Parliament and of the Council on adapting the rules on non-contractual liability to the field of artificial intelligence (Directive on AI liability), European Commission, 28 September 2022 (2022/0303(COD)).
https://oeil.secure.europarl.europa.eu/oeil/popups/fiche-procedure.do?lang=fr&reference=2022/0303(cod) .

[3]- Proposal for a Regulation of the European Parliament and of the Council establishing harmonised rules concerning artificial intelligence (AI legislation) and amending certain legislative acts of the Union, European Commission, 21 April 2021. 2021/0106(COD). https://eur-lex.europa.eu/legal-content/FR/TXT/HTML/?uri=CELEX:52021PC0206 Accessed 22 September 2023.

[4]- Eric A. Caprioli, "The European regulation proposal on artificial intelligence takes shape", Bercynumerique, 17 July 2023. https://www.bercynumerique.finances.gouv.fr/la-proposition-de-reglement-europeen-sur-lintelligence-artificielle-se-precise Accessed on 25 September 2023.

[5]- Quentin Sgard, Emma Massucci, "Regulation of Artificial Intelligence in Europe: Towards a GDPR for AI", Devoteam France. https://france.devoteam.com/paroles-dexperts/reglementation-de-lintelligence-artificielle-en-europe-vers-un-rgpd-de-lia/ Accessed on 25 September 2023.

This project includes:

Presumption of causation: Once the injured party is able to prove a breach of duty by the liable party, the burden of proof shifts to the liable party to prove that there is no causal link between the defect and the damage.

The need to establish an additional guarantee: This guarantee is for the benefit of the plaintiff in the liability action and obliges the manufacturer or distributor to provide the necessary information to help the injured parties to obtain evidence in support of their claims, within the limits of confidentiality. This applies in particular to high-risk artificial intelligence systems.

In this context, the European Committee has set a deadline for the transposition of the Directives into the national legislation of the Member States. This deadline is one year from the implementation of the text, which includes the amendment of European Directive 85/374 on liability for defective products, and two years for the rules on liability for errors specifically related to artificial intelligence (AI)[1].

Conclusion:

The use of artificial intelligence systems has resulted in significant damage due to programming errors, necessitating civil liability. Practical questions have arisen regarding the legal basis for such liability, and the study concludes that:

- Holding the manufacturer responsible for the actions of defective products may be closer to legal application, as the European Union legislator recommended subjecting the "human surrogate" in the form of the manufacturer to liability for defective products.
- Establishing liability in the field of AI based on the common nature of fault-based liability, which is based on error, damage and causation, seems challenging in complex and ambiguous AI systems. This requires a new legal framework based on the specificity of these systems.

Therefore, proposed recommendations in this context include:

- The need to establish a specific legal regime for artificial intelligence that determines the legal status of intelligent robots and the party responsible for damages. Although the European Union has introduced the concept of "human surrogate", there seems to be some ambiguity regarding the granting of legal personality, since it is referred to as a "surrogate" and is considered a product or thing without legal personality. Therefore, it is more appropriate to develop a clear legal system that identifies the responsible party as the "human assistant" and includes the rules of liability for defective products, which can cover damage caused by intelligent robots, provided that the relevant provisions are modified, supplemented or introduced to take into account the risks of artificial intelligence.
- Mandatory inclusion of civil liability insurance provisions for damage caused by intelligent robots. With the prospect of robots being present in every household in the future, insurance becomes a solution to cover damages, with the specification of the parties obliged to take out insurance, including the manufacturer, operator, owner and user.
- Establishment of specialised compensation funds to cover damage caused by artificial intelligence.

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[11] Report - A9-01-0178/2020 with recommendations to the Commission on civil liability rules for artificial intelligence. Available at: https://www.europarl.europa.eu/doceo/document/A-9-2020-0-178-fr.html .

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