The Bundle Theory Dialectic of Attributing the Legal Personality to (AI)
A Study of European Artificial Intelligence Law and German Civil law

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Abstract

The Bundle Theory, or Electronic Personhood Theory, in the context of artificial intelligence (AI), is a theory adopted by the European legislature under the Artificial Intelligence Act 2024. It represents a legal and philosophical approach aimed at treating intelligent entities (such as robots and advanced AI systems) as independent legal persons, bearing certain responsibilities or possessing certain rights. The theory suggests that legal personality is not a fixed entity, but rather a bundle of legal attributes (such as financial liability, the right to sue, and liability) that can be granted to entities as needed. This theory has been used to grant legal status to companies and legal entities. Consequently, a future-oriented perspective has emerged, recognizing the legal personality of

robots equipped with artificial intelligence, in order to hold them liable for damages that may be caused by their application to advanced AI systems. In our research, we adopted a descriptive approach by reviewing and analyzing conflicting jurisprudential opinions regarding the attribution of legal personality. We also defined the concept of the bundle theory and demonstrated its acceptability, with the aim of assessing the final position of the legal personality of artificial intelligence. Among the results of this study, as an approach to the problem of attributing legal personality, is the possibility of attributing legal personality to artificial intelligence under the bundle theory, considering it an electronic third party, subject to two restrictions: the first is its nature, which prevents it from acquiring certain special family rights; and the second is the restriction of specialization, which limits legal activities to the purpose for which it was created.

Keywords: Bundle Theory , Legal Personality , Artificial Intelligence , Electronic Personality , European Robotics Law

نظرية الحزمة جدلية اسناد الشخصية القانونية للذكاء الاصطناعي

دراسة في القانون الاوربي للذكاء الاصطناعي والقانون المدني الالماني

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المستخلص

نظرية الحزمة او الباقة (Bundle Theory) او نظرية الشخصية الإلكترونية Electronic Personhood في نطاق الذكاء الاصطناعي نظرية اعتمدها المشرع الاوربي بموجب قانون الذكاء الاصطناعي 2024 ، وهي تمثل مقاربة قانونية وفلسفية تهدف إلى التعامل مع الكيانات الذكية (كالروبوتات وأنظمة الذكاء الاصطناعي المتقدمة) كشخصيات اعتبارية مستقلة، تتحمل بعض المسؤوليات أو تملك بعض الحقوق .

تشير النظرية إلى أن الشخصية القانونية ليست جوهرًا ثابتًا، بل حزمة من الصفات القانونية (كالذمة المالية، الحق في التقاضي، المسؤولية) يمكن منحها للكيانات و حسب الحاجة، اذ استُخدمت هذه النظرية في منح الشركات والهيئات المعنوية صفة قانونية، لذا ظهرت وجهة نظر ترنو الى المستقبل مؤداها الاعتراف بالشخصية القانونية للروبوتات التي توافر لها الذكاء الاصطناعي من اجل القاء المسؤولية عليها لتعويض الاضرار التي يمكن ان تسببها تطبيقها على أنظمة الذكاء الاصطناعي المتقدمة.

وقد اعتمدنا في بحثنا المنهج الوصفي من خلال استعراض الاراء الفقهية المتعارضة بشأن اسناد الشخصية القانونية وتحليلها ، كما تم تحديد مفهوم نظرية الحزمة وبيان مقبوليتها بهدف تقييم الموقف النهائي للشخصية القانونية للذكاء الاصطناعي.

ومن نتائج دراسة موضوع نظرية الحزمة كمعالجة للاشكالية حول اسناد الشخصية القانونية مكنة اسناد للشخصية القانونية للذكاء الاصطناعي بموجب نظرية الحزمة

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واعتباره شخصاً ثالثاً الكترونياً مع تقييد ذلك بقيدين أولهما طبيعته التي لا يمكن من خلالها أن يكتسب عدداً من الحقوق الخاصة لحقوق الأسرة، وثانيهما قيد التخصيص والذي يحدد الأنشطة القانونية بالغرض الذي أوجد من أجله فقط.

الكلمات المفتاحية: نظرية الحزمة ، الشخصية القانونية ، الذكاء الاصطناعي ، الشخصية الالكترونية ، القانون الاوربي للذكاء الاصطناعي

Introduction

The issue of legal personality in the scope of artificial intelligence remains thorny due to conflicting opinions regarding whether or not to recognize the legal personality of artificial intelligence. Legal opinions differ on whether or not to grant legal personality to robots. Some argue for the possibility of granting legal personality to artificial intelligence technologies, while others deny the existence of legal personality for artificial intelligence applications. A third group, which reconciles the two aspects, is known as the bundle theory or electronic personality. The reasons for this overlap of opinions are that legal personality has two meanings. The first meaning is called the legal personality described by the natural law school. According to this, personality is one of the characteristics of a human being, by which he acquires rights and bears obligations, Other persons, such as associations and companies, do not enjoy it, but it is granted to them virtually, in comparison to humans. The second meaning is called the abstract legal personality, which is adopted by the proponents of the positivist school. For them, legal personality has the power to acquire rights and bear obligations, and participates in legal relationships in order to achieve specific goals. It is a purely legal idea and has no connection to social or moral ideas, which distinguishes it from other philosophical theories that emphasize the importance of the human mind. However, the European Parliament created a third, intermediate person, which is the electronic or virtual person, with some restrictions attached to the real person.

Research Importance

The importance of the study lies in its highlighting of the most controversial legal aspects by recognizing the legal personality of artificial intelligence, and the resulting legal liability for potential

harm to others. It also seeks to elevate the legal status of artificial intelligence and view it not as a novelty but as a reality we experience daily.

The study seeks to provide an opportunity for decision-makers, students, researchers, and interested parties to benefit from it and its findings. This may create a specialized increase in legal and legal knowledge, contributing to the development of legislation regulating its subject matter and its application on the ground and in competent courts, keeping pace with the emerging developments that emerge from time to time in the world of technology, particularly artificial intelligence.

Research Aims

The aims of studying are:

- To Regulating a legal Rules for AI Personality in European Law for AI and BGB.
- To clarify the legal personality.
- To clarify the concept of bundle theory.

Research Problem

The main problem of the study is to clarify the extent to which artificial intelligence enjoys legal personality. Is artificial intelligence merely an extension of humans, or is it a separate entity from natural persons, possessing intelligence superior to that of natural persons, thus enjoying legal personality? Furthermore, it examines the extent to which these systems bear legal liability for the damages they cause if they enjoy legal personality.

Research Methodology

- we will adopt the descriptive approach by reviewing the theories that have been proposed regarding the attribution of legal personality to artificial intelligence, with an analysis of the bundle theory as a middle ground for recognizing the legal

personality of artificial intelligence In European law For AI and BGB.

Research Structure

First Requirement: The Possibility of Legal Personality for Artificial Intelligence.

Second Requirement: The Impossibility of Assigning Legal Personality to Artificial Intelligence.

Third Requirement: Assigning Legal Personality with Restrictions According to the Bundle Theory.

First Requirement

The Possibility of Legal Personality for Artificial Intelligence

The legal personality has two meanings: the described legal personality includes the characteristics of a human being by which he acquires rights and bears obligations. Other persons, such as associations and companies, do not enjoy it, but it is granted to them by default in comparison to humans. The second meaning is called the abstract legal personality, which was adopted by the proponents of the positivist school. For them, legal personality has the power to acquire rights and bear obligations and participate in legal relationships in order to achieve specific goals. It is a purely legal idea and has no connection to social or moral ideas, which made it distinct from the rest of the philosophical theories that emphasize the importance of the human mind[1].

Legal personality, in the general sense, is a characteristic that blends with the described and is inseparable from it. However, this personality may be complete in some cases, and may not be so in others. It may be real, material, and tangible, or it may be unreal and immaterial, as in the case of a legal person. A right cannot be conceived of except as attributed to a person[2] Given that artificial intelligence systems enjoy independence in making decisions, the ability to learn on their own, adapt to the surrounding environment,

and deal with others without the assistance of humans, these technologies have the ability to perform complex tasks without any human intervention, in addition to their ability to predict events and the extreme accuracy and speed in receiving hypotheses and deducing appropriate solutions to the problems associated with them. Consequently, relationships arise between artificial intelligence and those dealing with it, which creates rights and obligations for each party.[3] Therefore, some advocates for granting artificial intelligence (AI) legal personality,[4] given its tangible physical existence, similar to that of a natural person. Given the distinct advantages AI technologies offer over other ordinary objects, their ability to perform many important and diverse tasks, and their intervention in many aspects of life, there is an urgent need to grant AI legal personality and establish a specific mechanism to grant it rights or impose obligations on it[5].

The most important arguments put forward by proponents of this view are:

First: Autonomy and Self-Decision Making:

Artificial intelligence is characterized by being independent and automatic [6] Smart technologies express their own will, not the will of the user [7] they make decisions without direct human intervention [8]such as self-driving vehicles or expert systems. This makes them closer to autonomous entities. A robot is considered an entity, capable of making decisions and operating independently without human intervention. Therefore, it deserves to be granted legal personality. In other words, any entity that possesses certain qualifications in terms of a degree of self-awareness and possesses an independent will is granted legal personality[9].

Second: Legal Accountability and Determining Liability:

The capabilities of artificial intelligence technologies are not limited to simply following the orders of their programmers or users. Rather, they extend to becoming capable of making decisions based on various inferential processes, which feed into them. This enables them to simulate human behavior that would be carried out intelligently. These technologies are therefore liable for any harm. Every digital program or system possesses the characteristics of self-awareness and independent will[10] which necessitates treating it as a legal person, and there is no legal justification for excluding it from legal personality[11].

Granting legal personality is also of great importance in determining the liability regime that will apply in the event of material damage caused by a robot[12]. Therefore, the fact that smart robots possess rights and bear obligations gives them a virtual legal personality that can bear civil liability for their harmful actions[13].

Third: The modern international trend and the European Parliament's recommendation:

There is a modern international trend towards granting artificial intelligence robots legal personality. Although it has not yet reached the stage of full recognition of the robot's personality, it is moving in this direction, which calls for keeping pace with international legislation in this field. Therefore, some legal systems in the United States, Japan, and South Korea have granted robots limited legal personality[14]. In the American state of Nevada, for example, robots were implicitly recognized with some of the powers of a legal person. They were subject to registration procedures in a special registry created for this purpose and a financial statement was allocated to them for the purpose of insurance. In addition, the Kingdom of Saudi Arabia granted Saudi citizenship to a human-like robot named Sophia, created by Hansen

Robotics in 2017. [15]Also, the robot (Xiaofa Robot) in the Intermediate People's Court in Beijing, China, provides legal advice and helps clients understand legal terms. In addition, the United Arab Emirates created an "electronic marriage robot" in 2017 through a robot that connects the judge and the spouses to conclude the marriage contract remotely, in addition to appointing a minister. For artificial intelligence, because the robot used works and speaks in natural language with humans[16].

Fourth: The practical necessities of granting legal personality to artificial intelligence

Simply allowing artificial intelligence technologies to surpass human and natural intelligence levels and possess autonomous will capable of thinking, learning, and movement may not raise any significant legal issues. On the contrary, it may contribute to ensuring safety and serving humanity, as long as they are used for this purpose, as is the case when they are used for arduous and dangerous tasks such as mine clearance, surgical operations, and others[17].

Fifth: Encouraging Innovation:

Recognizing the legal personality of artificial intelligence technologies may encourage their designers to create high-risk medical devices[18]. It creates incentives for technology users to use it appropriately and reasonably [19].

Among the manifestations of granting legal personality to artificial intelligence technologies are:

1- Name: For example, the Kingdom of Saudi Arabia named the robot "Sophia", which appeared in late 2017, and "Sara," the robot used as a traffic policeman and made its debut at the LEAP 23 conference in February 2023.

2- Nationality: The Kingdom of Saudi Arabia granted the robot Sophia Saudi citizenship[20] marking the first time a robot has been granted citizenship of a country**[21]**.

3- Residence: A person's residence is a matter that must be determined in relationships, due to its legal implications. Granting legal personality to a robot requires a residence. Will the residence be the place where it was manufactured, the place where it operates, or the place where its owner resides? To answer this question, we refer to the general rules that define the residence of an object as the residence of its operator, and the possibility of specifying another, specific residence if the object has a location separate from its operator[22].

4- Capacity and financial liability: Recognizing the legal personality of a robot would allow it to conclude contracts, especially insurance contracts, which requires it to have financial liability. This liability is independent of the liability of the programmer or those who provided it with information and data[23] This is what was proposed by the European Parliament to create a special insurance system for robots, dedicated to compensating victims of robots, and its commitment to compensate for damages resulting from its illegal actions[24].

<p align="center">Second Requirement</p>

<p align="center">The Impossibility of Assigning Legal Personality to Artificial Intelligence.</p>

Another trend argues that the idea of creating an independent legal personality for intelligent robots stems from the data that real humans feed into their algorithms, rather than their own will. This renders them irresponsible for their actions and leaves them subject to human accountability. Even if a degree of autonomy is acknowledged, all their actions still have a human origin. Therefore, this trend rejects granting legal personality to artificial

intelligence. The most important arguments justifying their position are:

First: Lack of will and awareness: Artificial intelligence lacks legal capacity and therefore lacks liability[25].Artificial intelligence technologies are merely intelligent machines, but they are not intelligent enough to deserve legal personality[26] German jurisprudence describes it as dehumanizing .[27]

The claim that intelligent robots are civilly liable means accepting the concept of intelligent machine consciousness. This imposes an obligation on humanity to respect the fundamental rights of intelligent robots[28] even though these technologies are not self-aware and do not possess intentions, perceptions, feelings, and emotions like humans. Therefore, it seems necessary to impose scientific restrictions and legal controls on scientists when attempting to instill consciousness within intelligent machines. Due to the lack of will and full autonomy of artificial intelligence, it is difficult to imagine it enjoying certain rights and bearing certain obligations[29].These systems carry out their various activities based on specific programming and execute precise, regularly repeated automatic operations[30].

The lack of awareness, the producer cannot allow artificial intelligence to make decisions on its own, and if it does, it will have given up a large part of its decision-making tasks [31].This is known as a breach of the duty of care[32] and anyone who ignores the required duty of care is considered grossly negligent [33].

Second: Human Liability: The settled point is that the activity of the machine is considered to be attributed to humans[34]. Misuse is what causes damage, not machine failure[35].It is a principle approved by the German Civil Code (BGB) in (276) by stating that (everyone bears responsibility for intent and negligence) [36].

The producer and the manufacturer are responsible for the necessary care, including inspection, selection and monitoring [37] Therefore, the producer is responsible [38].

These technologies are objects and cannot commit errors or cause harm on their own. If this does occur, compensation is borne by the natural person who possesses these devices during their operation. The mere fact of allowing these technologies to engage in autonomous activity outside of human control should be considered—in and of itself—a harmful activity on the part of the producer, designer, programmer, or manufacturer[39] which necessitates legal liability, including civil liability, given the threat it poses to public safety and humanity[40] The idea of holding machines accountable is described by some as somewhat exaggerated. While we are still subject to the development of artificial intelligence, and knowledge of all its aspects, which ultimately return to human will, human manufacturers and developers are capable of subjecting it to human laws[41].

In this regard, Cassart argues, "...the right to travel in a self-driving vehicle is not granted to machines, even if they possess a degree of intrinsic intelligence and capability, but to humans alone." [42]

Third: Rejecting the idea of equality with natural persons:
Proponents of this approach reject the idea of comparing artificial intelligence technologies to natural persons, because accepting this means On the one hand, artificial intelligence is given tasks that were originally assigned to humans[43] on the other hand that robots enjoy human rights, such as the right to dignity, integrity, and citizenship, which would undermine existing human rights, potentially leading to a stage on the path to diminishing human status[44]. Furthermore, the claim that legal personality should be granted leads to the abolition of the prevailing division in law, which is the division into persons and things[45].

Fourth: Abstaining from responsibility: The risks of artificial intelligence, which arise from its unexpected behavior due to its self-learning algorithms and its unpredictable technical decision-making, make it a responsible person, because the source of the damage is the error inherent in it, and this means that the manufacturer escapes responsibility[46].

The claim that legal personality should be granted to artificial intelligence is nothing more than a means for manufacturers and producers of artificial intelligence technologies to evade responsibility for the harm caused by these technologies and to relieve themselves of the risks that have a significant impact on public order[47].

The claim that legal personality should be granted means that the robot manufacturer is abdicating responsibility towards them, and thus decreasing the degree of care taken to manufacture or use safe robots, because in In this case, liability would be borne by the smart robot itself, not by the manufacturer, programmer, or user [48].

Fifth: Absence of a legal text: This means the absence of any legal legislation explicitly granting smart robots legal personality in the sense intended by the legislator. Creating a legal personality for smart robots, similar to the legal personality granted to natural and legal persons, requires the creation of a special legal system governing civil liability for damages caused by artificial intelligence systems in general [49].

Sixth: Contradicting the ethics of artificial intelligence: Granting legal personality to robots would be inappropriate and illogical from an ethical and legal perspective and would conflict with human rights[50].

Moreover, replacing humanity with smart robots and granting them legal personality, enabling them to acquire rights and bear obligations, would raise social and economic concerns among the

human world. Therefore, the European legislator, in the Civil Code for Robotics, drafted an annex to the latter law, which includes a code of ethical conduct for robot engineers. The Code calls for engineers to adhere to the principles of human dignity, privacy, and safety when developing robots[51]. The European Code on Intelligent Robotics emphasizes that robotics researchers must adhere to the highest standards of ethical and professional conduct, and focus their efforts on making robots work for the benefit of humans[52].

Third Requirements
Assigning Legal Personality with Restrictions According to the Bundle Theory.

There is a forward-looking view that recognizes the legal personality of robots endowed with artificial intelligence, in order to hold them liable for damages they may cause[53]. The Bundle theory of legal personality (electronic personality) has emerged [54]. Its goal is not simply to grant robots legal personality and treat them like humans, but rather to create a legal basis for compensating those harmed by their Fault , German jurisprudence holds that the basis is strict liability[55] which forms the basis of legal liability and makes attribution and liability possible[56].

This is what jurist Dider supported, calling for the need to consider expanding the concept of legal personality, so that it should not be limited to natural persons and legal entities. This trend, which supports granting smart robots legal personality, is based on an additional premise stating that whenever a robot is capable of making and implementing decisions independently without human intervention, it should not be considered a mere body subject to the control of others, such as the manufacturer, owner, user, or designer. Rather, it should be considered an independent entity. In other words, any entity with self-awareness and independent will

is eligible for legal personality. This is what the European Parliament seeks to implement in a recommendation issued on February 17, 2017, in which it asked the committee responsible for drafting civil law rules related to robotics to consider granting electronic personality to a robot in cases where the robot possesses the ability to make independent decisions or interact independently with other parties[57].

In the view of proponents of this view, an autonomous robot endowed with artificial intelligence is a responsible electronic person. This view clearly implies recognition of the robot's legal personality. This theory was initially adopted by the European Parliament, in its resolution issued on February 16, 2017, at least for the most advanced autonomous robots that make autonomous decisions or act independently with others. The aforementioned European Parliament resolution explains that the establishment of legal personality aims to make the robot itself responsible, obligating it to compensate for damages caused to third parties. Rather than assigning responsibility to the robot's designer, manufacturer, owner, or user for the robot's actions, responsibility falls on the robot itself. Recognizing the legal personality of an intelligent robot, in the view of proponents of this view, is similar to recognizing the legal personality of a legal person[58]. If legal personality is merely a metaphor, then so too is the case for an intelligent robot, which, according to this view, can be recognized with rights and obligations. This recognition is not surprising; The legal system for legal entities is structured roughly in accordance with the legal system for natural persons, even recognizing their fundamental rights. Consequently, they may conclude contracts, such as insurance, and have a financial liability, which is funded by contributions from the designer of the AI-powered robot, its owner, and, if the owner is a different person, its user[59] The

primary advantage of this proposal is that compensation for harm caused by the robot will be effective and expeditious, without the burden of proof being placed on them[60].

Recognizing the virtual electronic personality of smart machines and systems, and their consequent civil liability, will provide protection for consumers and users of these smart machines and systems. These consumers and users have little knowledge of the identities of the intermediaries and actors involved in the manufacture, programming, and operation of robots. Therefore, it was necessary to define the robot's identity as a virtual person for customer transactions as Virtual person . It is worth noting that granting artificial intelligence systems legal personality is limited to the scope of the work these smart systems will perform, and the resulting obligations, such as their obligation to financially compensate others who interact with them for any damages resulting from their actions. The goal of granting artificial intelligence systems legal personality is not so much to ensure their independence from the natural person operating them, but rather to protect those who interact with these systems and define a clear framework for their powers and obligations. This is the same meaning underlying the principle of specialization in legal persons[61].

The European Civil Code on Robotics, issued on February 16, 2017 [62] also adopted the proposals of the proponents of this moderate approach. Paragraph 59/F of the European Civil Code stipulates: "The establishment of a specific legal status for robots in the long term, so that it can be proven that the most advanced autonomous robots enjoy the status of electronic persons responsible for repairing any damage they may cause [63].

Electronic personality may be applied to cases in which robots make independent decisions or otherwise interact independently

with third parties." Therefore, it can be said that artificial intelligence systems are characterized by taking on the character and characteristics of a virtual person, which can be defined as a digital entity with unique characteristics that distinguish it from other beings existing in the virtual world or network. The virtual person also represents the digital entity, whether its identity is identical to its real identity or not. On the other hand, the virtual person is a digital extension of the human being in this new space. However, this does not mean that the real world has been transformed into a virtual world. Rather, there has become a parallel world where reality has taken a different form.

However, some have criticized the idea of likening AI systems to a legal entity, similar to other legal entities such as companies. This is inaccurate and highly unfair, as companies are managed by natural persons who are jointly liable for the obligations of these companies and compensation for damages resulting from their actions. Meanwhile, AI systems can manage themselves according to their development perspective, as they are flexible and capable of analyzing data when dealing with them and with awareness. Therefore, when these smart systems emerge in new generations without any human intervention, they can be granted legal personality as a third party, different from natural persons and legal entities, or they can be considered a legal entity with special provisions that differ from traditional legal entities[64].

Conclusion

The topic of artificial intelligence faces many challenges, the most important of which relates to granting electronic personality to artificial intelligence technologies. Artificial intelligence applications are not considered persons, as the legislature

recognizes only two types of persons: natural persons and legal persons. However, this division has proven deficient, especially in light of artificial intelligence, which is not classified within either category of persons due to its technological nature, on the one hand. On the other hand, the development of artificial intelligence and its close proximity to human behavior to a degree that makes distinguishing between them difficult, reinforces its entitlement to a legal status similar to that of a natural person. Therefore, the European Parliament deemed it necessary to create a third person, whereby artificial intelligence becomes a third type under the name of electronic person. This opinion takes into account the necessity for laws to address emerging developments in society and offers solutions to potential problems in a manner consistent with legislative and legal principles.

This opinion tends to restrict the acquisition of legal capacity for legal persons and grant them legal personality with two restrictions. The first is their nature, which prevents them from acquiring certain special family rights. The second is the restriction of specialization, which limits the legal activities of legal persons to the purposes for which they were created.

Recommendations

First: It is essential for Iraqi legislators to pay attention to all that is new and expected to emerge in the future, especially with regard to artificial intelligence systems, which are witnessing significant and rapid development, making updating the legislative system a necessity. Constitutional and legislative amendments are necessary, and legal texts are created to regulate the operation of artificial intelligence systems. Therefore, we suggest that Iraqi legislators expedite the development of a legal regulation specific to artificial intelligence, consistent with the legislation of developed countries.

Second: Given the failure of Iraqi legislators to apply strict liability provisions in any field, and because most of these technologies may deviate from their intended purpose and interfere with their functions, causing harm to users, and in order to facilitate the process of compensating those harmed by the actions and risks that may result from the operation of these systems, we propose that the misuse of artificial intelligence be the most appropriate area for applying these liability provisions.

Third: In the area of compensation for damages caused by artificial intelligence, after it is granted legal personality, we propose the establishment of a fund to insure against material and moral damages caused by artificial intelligence.

Fourth: Granting artificial intelligence legal personality should be codified, clearly defined, and defined within the framework of the actions these systems will undertake, and the resulting obligations should their actions cause harm to others.

Fifth: Ethical and professional standards must be established for those working in the field of artificial intelligence technologies, and the use of these smart systems must be limited to those technically and financially qualified entities. This allows large and specialized companies to bear the potential consequences of artificial intelligence. As for those working in the field of artificial intelligence, and on an individual basis, such as programmers and developers, their work must be regulated and available compensation methods must be provided through insurance companies or insurance funds.

Sixth: Explore innovative methods for determining legal liability, such as pre-determining liability as a condition for the use of artificial intelligence systems.

Endnotes

(1) See: Andrade, F., Novais, P., Machado, J., & Neves, J. (2007). Intelligent Contracting: Software Agents, Corporate Bodies and Virtual Organizations. In L. M. Camarinha-Matos, H. Afsarmanesh, P. Novais, & C. Analide (Eds.), Establishing the Foundation of Collaborative Networks (pp. 217-224). Springer US.
https://doi.org/10.1007/978-0-387-73798-022 See also : Omar Nafeh Al-Abbasi, The Legal System of Artificial Intelligence, A Comparative Study, 1st ed., Arab Center for Scientific Studies and Research for Publishing and Distribution, Cairo, Egypt, 2023, pp. 88-89.

(2) See: Dr. Khaled Mamdouh Ibrahim, Legal Regulation of Artificial Intelligence, Dar Al Fikr Al Jami'i, Alexandria, 2022, p. 121.

(3) See: Bostrom, N., & Yudkowsky, E. (2018). The Ethics of Artificial Intelligence. In R. V. Yampolskiy (Ed.), Artificial Intelligence Safety and Security (1st ed., pp. 57-69). Chapman and Hall/CRC. https://doi.org/10.1201/9781351251389-4 see also: Hamada Muhammad Abd al-Ati Nasr, Civil Liability for the Harmful Effects of Adopting Artificial Intelligence Systems in Corporate Governance: A Comparative Analytical Study, 2024, a research paper published in the Journal of the Secretariat of Sultan Qaboos University - Issue 45, January 2025, p. 57.

(4) See: Paul Churchland and Patricia Churchland, 'Could a Machine Think?' (1990) 262 Scientific American 32, 37. Cf. Lawrence Solum, 'Legal Personhood for Artificial Intelligences' (1992) 70 North Carolina Law Review 1231, 1265, and Steven Livingston and Mathias Risse, 'The Future Impact of Artificial Intelligence on Humans and Human Rights' (2019) 33 Ethics & International Affairs 141, 149.

Indeed, Churchland and Churchland leave open the possibility of an AIE: 'Could science construct an artificial intelligence by exploiting what is known about the nervous system? We see no principled reason why not,See also :Dr. Hammam Al-Qousi, The Theory of the Virtual Personality of the Robot According to the Human Approach: An Authentic, Analytical, and Prospective Study of the Rules of Kuwaiti and European Civil Law, Journal of Generation of In-Depth Legal Research, Generation Center for Scientific Research, Issue 35, May 2019, pp. 11-60.

(5) See: Dr. Muhammad Irfan Al-Khatib, Artificial Intelligence and Law, a comparative study of Tunisian and Qatari civil legislation in light of the European rules in the Civil Law for Humans of 2017 and the European Industrial Policy for Human Artificial Intelligence of 2019, BAU Journal-journal of Legal Studies - Volume 2020, article 4, P14
http://digitalcommons.bou.edu.lb/lsjournalvol2020/iss2020/4

[6] Reusch /Weider: Future Law: Blockchain, Industrie 4.0, Internet of Things, Robotik, S. 3 Rn.5

[7] See: Francisco Andrade, And others : Contracting agents: Legal personality and representation, The previous reference, P 359

[8] Wagner: Roboter als Haftungssubjekte? S. 1; Mainzer: Künstliche Intelligenz, S. 1 ff

[9] . See: Walid Mohammed Almajid : Can Electronic Agents Be Granted Legal Personality under Islamic Law? A Conceptual Rethink Is Imperative, Arab Law Quarterly, Vol 24, N 4, Brill, 2010, P 397 .

[10] . See :Emad. Al-Dahiyat, From Science Fiction to Reality: How will the law adapt to Self-Driving Vehicles?, Journal of Arts and Humanities 7 (9), 2018,pp. 34-43.

[11] .See: Lawrence B. Solum : Legal Personhood for Artificial Intelligences, North Carolina law review, School of Law, University of North Carolina, Vol 70, N 4, USA, 1992, P 1238-1239 see also : Chopra, S., & White, L.. F. (2011). A Legal Theory for Autonomous Artificial Agents. University of Michigan Press. https://doi.org/10.3998/mpub.356801

[12] See: Bottomley, D., & Thaldar, D. (2023). Liability for harm caused by Al in healthcare: an overview of the core legal concepts. Frontiers in Pharmacology, 14, 1297353. https://doi.org/10.3389/fphar.2023.1297353 see also : Dr. Muhammad Ahmad Al-Maadawi, Abd Rabbuh Mujahid, Civil Liability for Artificially Intelligent Robots, previous source, p. 304.

[13] See: Ahmad Kamal Ahmad, The Legal Nature of Intelligent Agents on the Internet, previous source, p. 283.

[14] See: Dr. Mahmoud Salama Abdel Moneim Al-Sharif, Criminal Liability of Humans: A Comparative Foundational Study, Arab Journal of Forensic Sciences and Forensic Medicine, Naif Arab University for Security Sciences, Volume 3, Issue 1, 2021, p. 11.

[15] See: Dr. Wafaa Yaqoub Janahi, The Legal Status of Intelligent Robots and Their Operator Liability, previous source, p. 426.

[16] See: Dr. Abdullah Saeed Abdullah Al-Wali, Civil Liability for Harmful Effects of Artificial Intelligence Applications in UAE Law, A Comparative Analytical Study, Dar Al-Nahda Al-Arabiya, Egypt, Dar Al-Nahda Al-Ilmiyyah, UAE, 2021, p. 158.

[17] See: Gatt, L., Caggiano, L. A., Gaeta, M. C., Aulino, L., & Troisi, E. (2023). The Possible Relationships Between Law and Ethics Applied to Al. In 2023 IEEE International Conference on Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering (MetroXRAINE) (pp. 570-574). IEEE. https://doi.org/10.1109/Met COXRAINE58569.2023.10405648

[18] See: Dr. Mohamed Fathy Mohamed Ibrahim, The Legal Framework for Liability for the Use of Modern Technology in the Medical Field, Mansoura University, Special Conference Issue, 2022, p. 11.

[19] Herbert: Zivilrechtliche Haftung für den Einsatz von Robotern–Zuweisung von Automatisierungs- und Autonomierisiken, S. 197 f.

[20] .See : Muna Naeem Jaaz. 2024. "The Role of Artificial Intelligence Technologies in Providing Legal Consultations". *Journal of Legal Sciences* 39 (1): 542-72. https://doi.org/10.35246/reb92292.

Artificial intelligence is a technology that has a superior ability to learn, develop, and make appropriate decisions. It has the ability to deal with situations and develop appropriate solutions for them, and the ability to sweep different fields.

[21] .See :Alistair Walsh, Saudi Arabia Grants Citizenship to robot Sophia, DW, 2017, available at: https://www.dw.com/en/saudi-arabia-grants-citizenship-torobot-sophia/a-41150856.

[22] See: Tahani Hamed Abu Talib, Robot from the Perspective of Egyptian Civil Law (Personality and Liability), Journal of Jurisprudential and Legal Research, Issue 37, April 2022, p. 149.

[23].See: L. Solum, 'Legal personhood for artificial intelligences', 70 N.C.L. Rev.1992, p. 1275.

[24] See: Hamada Muhammad Abd al-Ati Nasr, op.cit, p. 57.

[25] Bauer: Elektronische Agenten in der virtuellen Welt, S. 219. See also : Doomen, J. (2023). The Artificial Intelligence Entity As a Legal Person. Information & Communications Technology Law, 32(3), 277-287. https://doi.org/10.1080/13600834.2023.2196827 , John Searle, Minds, Brains and Science (Harvard University Press, 1984) 28; cf. The Rediscovery of the Mind (MIT Press, 2002) 7.

Self-consciousness may be considered a necessary condition for strong AI to exist, or, alternatively, a lower standard may be used, by which one holds that strong AI already exists if intelligence is manifested in solving problems that matches that of an average human being, or (far) surpasses it,

[26] Reusch /Weider: Future Law: Blockchain, Industrie 4.0, Internet of Things, Robotik, S. 3 Rn.7.

[27] Leupold/Wiebe/Glossner: IT-Recht, Teil 9.6.3 Vertragsrecht, Rn. 13

[28] .See: Ugo pagallo, vital, Sophia, and co. – The quest for the legal personhood of robots, previous reference, P.7. Allgrove, Ben, Legal Personality for Artificial Intellects: Pragmatic Solution or Science Fiction? Baker & McKenzie LLP, London, 2004 , (June 2004). Available at SSRN:
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legal persons are 'the subjects of legal rights and obligations' or, simply, 'units of legal logic'.

[29] Dr. Muhammad Ahmad Al-Maadawi, op.cit , p. 209

[30] Kniepert: Die Rechtsfähigkeit autonomer Systeme, S. 358; Zech ZfPW 2019, S. 198.

(31) Grapentin: Vertragsschluss und vertragliches Verschulden beim Einsatz von Künstlicher Intelligenz und Softwareagenten, S. 127.

(32) Schulz: Verantwortlichkeit bei autonom agierenden Systemen, S. 137; John: Haftung für künstliche Intelligenz, S. 253.

(33) Grapentin: Vertragsschluss und vertragliches Verschulden beim Einsatz von Künstlicher Intelligenz und Softwareagenten, S. 126 f

(34) Kraul: Künstliche Intelligenz: Wenn Roboter Verträge schließen, https://www.noerr.com/de/newsroom/news/kunstliche-intelligenz-wenn-roboter-vertrage-schliessen abgerufen am 29.03.2023

(35) Grapentin: Vertragsschluss und vertragliches Verschulden beim Einsatz von Künstlicher Intelligenz und Softwareagenten, S. 123 f. See also : Brundage, M., Avin, S., Clark, J., Toner, H., Eckersley, P., Garfinkel, B., et al. (2018). The Malicious Use of Artificial Intelligence: Forecasting, Prevention, and Mitigation. arXiv preprint arXiv:1802.07228 https://doi.org/10.48550/arXiv. 1802.07228

(36) Thöne: Autonome Systeme und deliktische Haftung, S. 75.

(37) Leupold/Wiebe/Glossner: IT-Recht, Teil 9.6.4, Zivilrechtliche Haftung bei Einsatz von Robotern und Künstlicher Intelligenz, Rn. 32.

(38) Horner/Kaulartz DSRITB 2015, S. 501; Haagen: Verantwortung für Künstliche Intelligenz, S. 288.

(39) Herold/Pieper: Vertragsfragen im Zusammenhang mit KI, https://www.telemedicus.info/vertragsfragen-im-zusammenhang-mit-ki/ abgerufen am 29.03.2023

(40) Groß DSRITB 2017, 611; Grapentin: Zivilrechtliche Haftung beim Einsatz Künstlicher Intelligenz, https://www.frankfurter-hefte.de/artikel/zivilrechtliche-haftung-beim-einsatz-kuenstlicher-intelligenz-2034/ abgerufen am 29.03.2023

(41) Kainer/Förster ZfPW 2020, S. 275; Specht/Herold MMR 2018, S. 40.

(42) .See : Alexandre Cassart, «Aéronefs sans pilote, voitures sans conducteur: la destination plus importante que le voyage», dans ouvrage collectif: L'intelligence artificielle et le droit, sous la coordination de Hervé Jacquemin et Alexandre De Streel, 2ème edition, Larcier, Belgique, 2018, p. 320.

(43) Lee: Grundfragen der Regulierung von Künstlicher Intelligenz, S. 9; Simbeck: Künstliche Intelligenz und Fairness im Bildungskontext, S. 91.

(44) See: Hammam Al-Qawsi, Errors of the Artificial Intelligence-Powered Algorithmic Trading Robot - An orientalist study of the prospects of civil liability in the stock market, Jeel Journal of In-depth Legal Research, Jeel Center for Legal Research, Issue 41, 2020, p. 24.

(45) See: Dr. Muhammad Muhammad Abd al-Latif, Liability for Artificial Intelligence between Private Law and Public Law, a paper submitted to the Conference on the Legal and Economic Aspects of Artificial Intelligence and

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(46) Linardatos: Autonome und vernetzte Aktanten im Zivilrecht, S. 99 ff.; Herbert: Zivilrechtliche Haftung für den Einsatz von Robotern–Zuweisung von Automatisierungs- und Autonomierisiken, S. 175.see also : Hagendorff, T. (2020). The Ethics of AI Ethics: An Evaluation of Guidelines. Minds and Machines, 30(1), 99-120. https://doi.org/10.1007/s11023-020-09517-8

(47) See: Dr. Hammam Al-Qousi: The Problem of the Person Responsible for Operating the Robot (The Impact of the Human Deputy Theory on the Future Effectiveness of Law) A Prospective Analytical Study of the Rules of European Civil Law on Robotics, Generation Center for Scientific Research, Jabal Journal of In-Depth Legal Research, Issue 25, May 2018, p. 77.

(48) See: Dr. Othman Ahmed (2021). Implications of Artificial Intelligence on Civil Law (76). Journal of Legal and Economic Research. Faculty of Law, Mansoura University, Egypt, p. 1009.

(49) See: Dr. Muhammad Rabie Anwar Fath Al-Bab, "The Legal Nature of Civil Liability for Robot Damages: A Comparative Analytical Study," a paper presented at the 20th Annual International Conference, Faculty of Law, Mansoura University, 2021, p. 123

(50) .See: Caroline Cauffman , Robo-liability : the European Union in search of the best way to deal with liability for damage caused by artificial intelligence , Maastricht journal of European and Comparative law 527 , vol 24 (5) , 2018 , p.532 .

(51) .See: A.Hamoui, La responsabilité civile médicale à l'épreuve de l'intelligence artificielle, Mémoire, Master , Paris II,2020,p.49

(52) . See: G.Courtois, Robots intelligents et responsabilité; quels régimes, quelles perspectives?, Dalloze IP/IT, juin 2016, n 6, P.287..see also : Chesterman, S. (2020a). Artificial Intelligence and the Limits of Legal Personality. International & Comparative Law Quarterly, 69(4), 819-844. https://doi.org/10. 1017/S0020589320000366

(53).See: A. Bensoussan, Droit des robots : science-fiction ou anticipation ? D. 2015. 1640 ; A.-S. Choné-Grimaldi et Ph. Glaser, Responsabilité civile du fait du robot doué d'intelligence artificielle : faut-il créer une responsabilité robotique ? CCC 2018. Alerte 1

(54) See: Chesterman, S. (2020b). Artificial Intelligence and the Problem of Autonomy. Notre Dame Journal on Emerging Technologies, 1(2), 210-250. https://scholarship.law. nd.edu/ndlsiet/voll/iss2/1 see also : Dr. Khaled Mamdouh Ibrahim, Legal Regulation of Artificial Intelligence, Dar Al Fikr Al Jami'i, Alexandria, 2022, p. 129.

(55) Some describe the activities resulting from artificial intelligence technologies as dangerous activities of an exceptional nature, and they see the

need to tighten liability for them by applying the strict liability system known in English law. This type of liability applies to all dangerous activities resulting from scientific and technological progress, based on the fact that the danger of these robots lies in the difficulty of penetrating them, in addition to their being extremely complex. In addition, the robots' ability to move includes more risks. It is conceivable that a self-service robot, such as a delivery robot, could move from the possession of its owner and cause harm to others. Therefore, robots are classified as objects of special care. The latter are defined as those whose nature is accompanied by danger in their use and handling, which requires careful care to prevent the occurrence of their risks. They are among the objects accompanied by conditions that make them a source of danger. Trees are not naturally dangerous, but they become so if they obstruct a public road due to their falling or the extension of their roots.

See : Michael S. Moore , The Strictness of Strict Liability , Crim Law and Philos ,29 August , 2017 , p 2. See also :P.OPITZ , CIVIL LIABILITY and Autonomous Robotic Machines: Approaches in the EU and US, TTLF Working PAPERS NO. 43 Stanford-Vienna, 2019, P.23 , see also : Eric Schwitzgebel and Mara Garza, 'A Defense of the Rights of Artificial Intelligences' (2015) 39 Midwest Studies in Philosophy 98, 104.

[56] Veith: Künstliche Intelligenz, Haftung und Kartellrecht, S. 56.

[57] See: Christian Youssef, Civil Liability for the Acts of Artificial Intelligence, 1st ed., Al-Halabi Legal Publications, Beirut, Lebanon, 2022, p. 56.

[58] A legal person is defined as an intangible moral person (legal entity), whose existence is presumed by law for specific purposes. The law recognizes a legal personality independent of the individuals who comprise it, to the extent that it is consistent with the purpose of its establishment. See: Yahya Ahmed Mowafi, The Legal Person and Its Legal Responsibilities, Maaref Establishment, 1987, p. 15.

[59] .See : G. Loiseau, M. Bourgeois, Du robot en droit à un droit des robots, JCP G n° 48, nov. 2014, doctr. 1231. 16 V. not., A. Bensoussan, Plaidoyer pour un droit des robots : de la « personne morale » à la « personne robot », La lettre des juristes d'affaires, 23 oct. 2013, n° 1134 ; A. Bensoussan, J. Bensoussan, Droit des robots, Larcier, 2015

[60] .See : A-S.Choné-Grimaldi et Philippe Glaser, Responsabilité civile du fait du robot doué d'intelligence artificielle : faut-il créer une personnalité robotique ? »,Contrats Concurrence Consommation n° 1, Janvier 2018, alerte 1 ; A. Bensoussan et J. Bensoussan, Droit des robots, Editions Larcier 2015, p. 41 et s.

[61] See : Muhammad Irfan al-Khatib, op.cit , p. 109

[62] European Parliament ‹Civil Law Rules on Robotics of 2017

[63] European parliament , sec (F/59) civil law rules on robotics , op.cit , p 250

[64] See: Dr. Abdul Rahman Mazen Abdul Rahman Al-Majali, The Legal Implications of Artificial Intelligence Enjoying Legal Personality - Mansoura, 2025, p. 97.

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