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LEGAL PERSONHOOD FOR AI: A NECESSARY STEP OR A PERILOUS PATH?

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Abstract. *In its Resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics, the European Parliament calls on the European Commission to consider granting a special legal status to robots, under which the most advanced autonomous robots would be recognized as electronic persons liable for any damage caused by their operations. In this regard, the paper examines the main characteristics of Artificial Intelligence (AI), such as autonomy, opacity, unpredictability and complexity, which can cause problems in the attribution of liability. The paper analyzes whether there are valid reasons for granting (electronic) personhood to the most sophisticated forms of AI. In addition, it examines whether alternative mechanisms, such as the broader application of strict liability, the presumption of fault or causation, no-fault systems, or compulsory insurance, may be used to strike a fair balance between the interests of manufacturers and users of AI systems, as well as third parties.*

Key words: *Artificial Intelligence (AI), legal personhood, tort liability, compensation for damage.*

1. INTRODUCTION

The development of technology in the field of Artificial Intelligence (AI) and advanced robotics raises new, previously inconceivable, legal issues and challenges. As a result, there is an increasing debate about liability for the actions of intelligent robots and their legal status.

The European Parliament Resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2017)[1] highlights that the growing autonomy of robots aggravates the assignment of liability for their actions and omissions because "the more

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[1] EP Resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)), *Official Journal of the EU*, C-252/239, 18.7.2018, pp. 239–257 (hereinafter: the EP Resolution on Robotics 2017), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017IP0051

autonomous robots become, the less they can be viewed simply as tools operated by other actors (such as manufacturers, operators, owners, users). This raises the question of whether traditional liability rules are adequate, or whether new principles and rules should be established to define the liability of various actors for actions and errors of robots, especially when the cause cannot be attributed to a specific person" (Corrales, Fenwick, Forgó, 2018: 65).

Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the EU Member States concerning liability for defective products (1985)[2] left many open questions on its application to AI systems[3] and generated the idea of granting a special legal status to the most sophisticated forms of AI, by enacting the EP Resolution on Civil Law Rules on Robotics (2017). Considering that unpredictability and opacity (commonly referred to as the "black box effect") are essential features of AI, the question arises as to how the causal link between the malfunction and the resulting damage can be established. The new Directive (EU) 2024/2853 of the European Parliament and of the Council on liability for defective products was adopted on 23 October 2024, thus repealing the Council Directive 85/374/EEC,[4] and provided answers to many open questions.[5]

In the context of the user's fault liability, there could be difficulties in establishing the fault of the user (operator) and the causal link between the user's actions related to the AI system and the resulting damage. The decisive question is whether the cause of damage lies in the behavior of the user or whether the damage is due to the autonomous actions of the AI, and whether the user should have foreseen and prevented this autonomous behavior of the AI.

2. DEFINITION OF ARTIFICIAL INTELLIGENCE

Artificial Intelligendce (AI) can be defined as a computer system that is capable of performing complex tasks that would normally require human intelligence (Kaplan, 2016: 1). According to Article 3 § 1 of the EU Artificial Intelligence Act (2024)[6], an AI system is "a machine-based system that is designed to operate with varying degrees of autonomy

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[2] Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products, *Official Journal EU*, L210, 7.8.1985, https://eur-lex.europa.eu/eli/dir/1985/374/oj/eng

[3] The first question was whether product liability can be applied to intangible products, such as computer software, including AI. The second question was whether the autonomous behavior of AI and its independent actions can be considered a development risk that excludes liability. The third question was whether the autonomous behavior of AI can be considered a defect in itself.

[4] The new Directive (EU) 2024/2853 of the European Parliament and of the Council of 23 October 2024 on liability for defective products and repealing Council Directive 85/374/EEC, *Official Journal EU*, L series, 18.11.2024. https://eur-lex.europa.eu/eli/dir/2024/2853/oj/eng

[5] The Directive 2024/2853 covered several important issues: a) the definition of the term "product" explicitly includes software (Art. 1 § 1); b) the liability assessment is no longer based on the moment the product is placed on the market but extends throughout the period in which the manufacturer retains control over the product (Art. 7 § 1, point 1); c) among other requirements, a defect encompasses "safety-relevant cybersecurity requirements" (Art. 7 § 1/ f) ; d) the obligation imposed on manufacturers and operators of AI systems to disclose relevant evidence for the purpose of proving claims, and facilitate access to information regarding the operation of the AI system (Art. 9); e) it stipulates that causality may be presumed in specific instances (Art. 10 of the Directive).

[6] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (EU Artificial Intelligence Act), *Official Journal EU,* L 155, 10 June 2021, https://eur-lex.europa.eu/eli/reg/2024/1689/oj/eng

and exhibits adaptability once deployed", thus, for explicit or implicit goals, it infers from the inputs it receives how it can generate outputs, such as predictions, content, recommendations or decisions that can affect physical or virtual environments (Art. 3 § 1 of the EU AI Act). Autonomous systems are able to make decisions on their own, reducing or eliminating dependence on human involvement in decision-making processes. AI differs from conventional software because it is able to make autonomous decisions within its programmed algorithms and determine how to achieve a specific goal. In many cases, the AI's actions are not foreseen by the programmer, who cannot always understand the exact reasons for the AI's results. This is a fundamental difference to conventional computer programs, whose operations are predefined by natural persons and predictable.

The functioning of AI systems, especially of artificial neural networks in deep learning techniques, often eludes human understanding, as it relies on complex multidimensional statistical models and calculations (Goodfellow, Bengio, Courville, 2016: 96. ff). AI systems are able to learn from experience and make decisions that can be difficult to predict. This has caused concern in the legal literature, as the increasing complexity of these systems could turn them into „black boxes", making it difficult, if not impossible, to understand or predict their decision-making processes, even for their creators (Yu, Spina Alì, 2019: 2–13). The contemporary AI is considered a form of Artificial Narrow Intelligence (ANI), where machines replicate human abilities and skills in narrow domains. The other two forms of AI include Artificial General Intelligence (AGI) and Artificial Super Intelligence (ASI). Although AGI has not been achieved yet, it is defined as AI that demonstrates human capabilities in many areas of human activity and would be a true equivalent to the human mind. Conversely, ASI is defined as an AI that is more advanced than the most exceptional human minds in all areas, including creativity, general wisdom and social skills, and surpasses the capabilities of the human intellect. Although ASI could potentially develop emotions and interpersonal relationships, many contemporary scientists claim that the realization of ASI remains an unattainable goal (Corrales, *et al.,* 2018: 59; Boden, 2016: 219). Today's digital voice assistants may appear highly intelligent but their capabilities are limited by the parameters set by their developers. These systems are able to learn the user's preferences, interests and habits, allowing them to personalize the user experience. However, they remain constrained by the limits of the mathematical models and algorithms on which they are based. Furthermore, their performance is significantly affected by the amount of data they have access to (ThomasNet/Manganello, 2019).[7]

In the context of AI, the concepts of "autonomy" and "opacity" are two key features that can pose significant challenges to traditional liability regimes. The concept of "autonomy" (which is often criticized in the context of machines due to ethical considerations and its association with the notion of human free will) refers to the unpredictability of how software responds to new situations (Haagen, 2021: 51). In the context of AI, autonomy refers to the system's ability to make decisions and perform actions without human intervention. For example, autonomous vehicles use sensors and algorithms to assess the environment and decide about speed, direction and obstacle avoidance without the need for human control (Haagen, 2021: 51). Generally, the concept of "opacity" refers to non-transparency and unpredictability. In the context of AI systems, unpredicatability emerges for several reasons: a) *Complexity of the algorithms*: these

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[7] ThomasNet/Manganello, K. (2019), Defining Personhood in the Age of AI, 27.1.2019, Thomas Net, Thomas Publishing, NY, USA, https://www.thomasnet.com/insights/defining-personhood-in-the-age-of-ai/

systems often rely on highly complex mathematical models whose internal functions can be difficult to understand, even for experts; AI systems, especially those based on deep learning, use complex neural networks that make decisions based on many factors (Ebers, Navas, 2020: 44), which can lead to non-transparent decisions; b) *Machine learning and adaptability*: AI systems are based on learning from data (Ebers, Navas, 2020: 21-26); as the system learns from new data, it can develop new patterns and behaviors that were not predicted or covered in the original training; thus, these systems can learn and adapt their behavior based on new experiences; c) *Changes in the environment*: when conditions in the environment drastically change (e.g. different driving conditions for autonomous vehicles, new types of threats for security systems, or changing market conditions for financial systems), the system may react in a way that was not predicted because it was trained on data that did not take the new situation into account; d) *Data quality:* AI systems are sensitive to the quality of data used to train them. If the data contain errors or biases, or are not representative of real-life situations, the system may begin to make unpredictable or erroneous decisions (Dešić, 2024: 133).

3. EUROPEAN PARLIAMENT RESOLUTION OF 16 FEBRUARY 2017 WITH RECOMMENDATIONS TO THE COMMISSION ON CIVIL LAW RULES ON ROBOTICS (2015/2103(INL))

In February 2017, the European Parliament adopted the Resolution with recommendations to the Commission on Civil Law rules for Robotics (2015/2103(INL) (hereinafter: the EP Resolution on Robotics, 2017).[8] In this Resolution, the EP calls on the European Commission to "explore, analyze and consider the implications of all possible legal solutions", including *inter alia* the creation of "a special legal status for robots in the long run, so that at least the most sophisticated autonomous robots could be granted the status of electronic persons" responsible for redressing any damage they cause, and "possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently" (EP Resolution 2017, par. 59/f). The European Parliament left open the question of whether electronic personality could be recognized within the existing legal categories, or whether a new category of legal personhood with its own specific rights and obligations should be created (EP Resolution on Robotics, 2017, par. AC).

In the EP Resolution on Robotics (2017), the EP urges the Commission to develop common definitions and criteria for the classification of robots that should be subject to registration. "For the implementation of further recommendations, it is necessary to establish a system for the registration of advanced robots based on the criteria established for the classification of robots. The registration system and the register itself should be managed at the Union level and could be supervised by the EU Agency for Robotics and Artificial Intelligence" (Annex to the EP Resolution 2017).

The EP Resolution on Robotics (2017) further emphasizes that "the development of robotics should focus on complementing human capabilities rather than replacing them. It is important that humans remain in control of intelligent systems at all times." (EP Resolution 2017, § 3). The European Parliament emphasizes that a common definition of the term "robot" would be crucial, but stresses that this is not an easy task as there is no

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[8] EP Resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)), *Official Journal of the EU* ,C 252/239, 18.7.2018, pp. 239–257.

scientific consensus on this definition (Annex to the EP Resolution 2017). In current research literature, a robot in the broad sense must meet several criteria, including the presence of a physical device that can affect the environment and make decisions. Only some robots have the ability to learn, communicate and interact and have a certain degree of autonomy. The proposed regulation refers specifically to intelligent autonomous robots, not to all robots. According to current legal theory, granting legal personality to AI is not simply a matter of equating robots with existing legal entities (natural and juridical persons). This opens up a discussion about legal personhood, which has always been a source of controversy (like the status of slaves or women in the past, or of other living beings and corporations in more recent times) (Chopra, White, 2011:153/ff; Kurki, Pietrzykowski, 2017: 49/ff).

Legal personhood of AI was the subject matter of discussions during the drafting of the EP Resolution on Robotics (2017). In its study, Policy Department C (Citizens' Rights and Constitutional Affairs) of the EP Directorate-General for Internal Policies[9] strongly opposed the idea of giving robots legal personhood, stating that "this idea is neither useful nor appropriate", and "that creating something like an "electronic person" might challenge the core human values that Europe is built on." Policy Department C questioned how a simple machine without consciousness, emotions, thoughts or free will could become an autonomous legal person. From a scientific, legal and ethical perspective, this is currently not feasible and is likely to remain so for a long time, as robots cannot perform legal activities (e.g. enter into legally binding contracts) without human supervision. Furthermore, Policy Department C has pointed out that alternative mechanisms such as insurance for autonomous robots (similar to that for motor vehicles) combined with a no-fault compensation fund could be far more effective in compensating victims (EP Directorate for Internal Policies, 2016: 14-16).

After the adoption of the EP Resolution on Robotics (2017), a group of more than 250 AI experts from various European countries involved in AI technologies warned, in an open letter in April 2018, that granting legal personhood to robots (as proposed in the EP Resolution 1017) could have dangerous consequences. The open letter emphasized that "the legal status of robots cannot be based on the model recognized for natural persons, as this would give robots human rights such as the right to dignity, the right to physical and mental integrity, the right to compensation, or the right to citizenship. This would violate the Charter of Fundamental Rights of the European Union[10] and the European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR),[11] as these fundamental rights and freedoms are rights guaranteed only to humans." The letter also emphasizes that "the legal status of robots cannot be based on the model of a juridical person since such a model presupposes the existence of human persons who represent the legal person, make decisions, and operate a legal entity."(Turner, 2019: 190).

In March 2018, the European Commission established the Expert Group on Liability and New Technologies, which published its report on liability for AI in November 2019.[12]

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[9] EP Directorate-General for Internal Policies, Policy Department C, Citizens' Rights and Constitutional Affairs (2016). "European Civil Law Rules in Robotics: Study for the JURI Committee", (2016), PE 571.379, pp. 14-16, https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU(2016)571379_EN.pdf
[10] Charter of Fundamental Rights of the European Union (2016/C 202/02). Official Journal of the EU, C 202/389, 7.6.2016., p. 389.–405, https://www.europarl.europa.eu/charter/pdf/text_en.pdf
[11] Convention for the Protection of Human Rights and Fundamental Freedoms. Council of Europe, 1950. https://www.echr.coe.int/documents/d/echr/convention_ENG. (accessed 19 February 2025)
[12] EC Expert Group on Liability and New Technologies (2019). Report on Liability for AI and other emerging digital technologies, Publication Office, Luxembourg, EU, https://op.europa.eu/en/publication-detail/-/publication/1c5e30be-1197-11ea-8c1f-01aa75ed71a1/language-en (accessed 1 March 2025)

In its report, the EC Expert Group concluded that " existing liability rules in the Member States provide at least basic protection for injured parties whose damage results from the use of such new technologies. However, the specific characteristics of these technologies, such as their complexity, ability to be updated through changes or autonomous learning, limited predictability and vulnerability to cybersecurity risks could make compensation and attribution of the responsible party more difficult. To rectify this, certain adjustments need to be made to liability rules at the EU and Member State levels". Thus, "it is not necessary to give legal personhood to autonomous systems, as damage they cause can and should be attributed to existing natural or legal persons." (EC Expert Group Report, 2018:3,4).

Turner (2020) emphasizes that granting legal personality to AI systems is not "magic" as it does not make them alive. In some jurisdictions, some entities such as temples and rivers can acquire legal personhood for the purposes of their protection and administration of their property, but the administration of temple property or the protection of rivers is still entrusted to humans. Turner emphasizes that legal personality may be granted even to people who may not be aware of having it, such as minors and people in a coma, but they are legal subjects and can enter into legal transactions through their representatives (Turner, 2019:190, 191).

4. THE CONCEPT OF LEGAL PERSONHOOD – NATURAL AND LEGAL PERSONS

In the Croatian legal system, like in other modern legal systems, there is a distinction between two categories of legal subjects: natural persons and juridical persons (Klarić, Vedriš, 2014: 32-60). Legal personhood refers to the capacity to bear rights and obligations. A natural person refers to a human being as a legal subject, while a juridical person refers to a non-human legal entity (such as corporation/company, oragnization, institution, agency, etc.). In the Croatian legal system, like in other modern legal systems, every living person has the status of a natural person and a legal subject, which is acquired at birth (Slakoper, Mihelčić, Belanić, Tot, 2022: 103-111). While a natural person acquires its legal personality at birth, a juridical person acquires its legal personhood upon registration in the relevant register. However, in Croatian law, there are also juridical persons whose legal personhood is established directly by law (e.g. the Croatian National Bank, the Croatian Academy of Sciences and Arts). The status of a natural person is lost upon one's death or official declaration of a missing person as deceased, while a juridical person ceases to exist when it is removed from the register.

In the Roman law tradition, there is a maxim according to which an unborn but conceived child (lat. *nasciturus*) should enjoy legal protection in all situations concerning its interests (Klarić, Vedriš, 2014: 32-60). Unlike other living beings, humans have distinct biological characteristics, social abilities and unique traits. Due to these inherent characteristics, humans are granted special rights that are commonly recognized as human rights. Thus, the UN Universal Declaration of Human Rights (UDHR) states: "All humans are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood" (Art. 1 UDHR).[13] It is obvious that the legal personality of a natural person is based on philosophical views on personhood, in particular those of René Descartes, Immanuel Kant and G.W.F. Hegel.

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[13] UN Universal Declaration on Human Rights, UN General Assembly, 10 Dec. 1948, Paris, France, https://www.un.org/en/about-us/universal-declaration-of-human-rights

Descartes is known for his assertion "*Cogito, ergo sum*" ("I think, therefore I am"), which emphasizes that the ability to think and reason is central to human existence and consciousness (Descartes, 1637). He argued that this ability is a defining characteristic of humans and that this quality distinguishes humans from animals and inanimate objects. His most famous work, *Meditations on First Philosophy* (1641), deals with the nature of human knowledge, consciousness and existence. Descartes laid down the foundation for the mind-body problem by asserting that the mind (or soul) and the body are separate substances: *res cogitans* (thinking substance: mind, conscousness) and *res extensa* (extended substance: body, physical world). Regarding the question of whether machines, like humans, can have thoughts and consciousness, Descartes believed that the ability to think and have a consciousness is unique to the human mind (mental, immaterial substance), while machines, like animals, can only imitate behavior without having true consciousness or thought (Descartes, 1641: par. 6, 7). Kant argued that man is a rational being. The most important presupposition in his philosophy is that an individual is capable of acting according to moral principles, which necessarily presupposes reason and conscience. Thus, "man voluntarily submits to the moral law by prescribing it to himself; [...] this makes him a moral being and gives him dignity" (Kant, 1999: par xvii). Hegel formulated his idea of personhood under the strong influence of Kant. In Hegel's philosophy, a person is designated as an "individual, willing subject"; the will and freedom of the individual have a fundamental value (Hegel, 1991: § 4-24, 35).

This raises the question of whether modern AI systems fulfill Kant and Hegel's criteria for legal personhood. For example, the case of Microsoft's "racist" chatbot Tay highlighted how far AI is from being truly intelligent. Tay was a machine learning chatbot developed to interact with Twitter users. Yet, Microsoft had not anticipated that Twitter trolls would deliberately cause Tay to make insults and other inappropriate statements. Thus, Tay's communication with Twitter users turned into racist, inflammatory and political statements, and he eventually had to be banned (Criado, Such, 2019: 86; Turner, 2019: 131).

Every natural person and juridical person has the right to protection of their personal rights under the conditions prescribed by law. Under the Croatian Civil Obligations Act (CO Act),[14] a natural person has the right to life, physical and mental health, reputation, honor, dignity, name, privacy of personal and family life, freedom, etc. (Art. 19 § 2 CO Act). A juridical person (legal entity) has the right to reputation and good name, honor, trade secrets, freedom to conduct business, etc. (Art. 19 § 3 CO Act). From the standpoint of civil law, it is important that a juridical person acts as a participant in civil law relations and can bear legal responsibility for its actions.

Under the Croatian Civil Obligations Act, a natural person acquires the capacity to be held liable in tort at the age of 14 (Art. 1051 § 3 of the CO Act). It is presumed that minors who have reached the age of 7 but not yet the age of 14 do not have the capacity to be held liable in tort, but they may be held liable for damage if it is proven that they were capable of reasoning at the time the damage occurred (Art. 1051 § 2 of the CO Act). Minors under the age of seven cannot be held liable in tort at all (Art. 1051 § 1 of the CO Act).[15] Conversely, a juridical person acquires the capacity to be held liable in tort upon acquiring

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[14] Civil Obligations Act (Zakon o obveznim odnosima), *Narodne novine* 35/05, 41/08, 125/11, 78/15, 29/18, 126/21, 114/22, 156/22, 155/23, https://www.zakon.hr/z/75/zakon-o-obveznim-odnosima

[15] According to Art. 1056 of the CO Act, "Parents are liable for damage caused by their child to another person until the child reaches the age of seven, regardless of their fault (strict liability) (§ 1). They are relieved of liability if there are grounds for excluding liability under the rules of strict liability (§ 2). They are not liable if the damage occurred while the child was entrusted to another person, and that person is responsible for the damage (§ 3). Parents are liable for damage caused by their minor child who has reached the age of seven, under the rules of presumed fault (§ 4)."

legal personhood (registration) and loses it upon the loss of legal personhood (removal from the register) (Slakoper *et al.,* 2022: 121-122).

Autonomous behavior, unpredictability and opacity of AI can pose a challenge when assigning responsibility. It is important to point out that several European national legal systems (e.g. German, French, common law systems) are based on the principle of proven fault. In these systems, the burden of proof lies with the claimant who must prove both the fault of the defendant and the causal link between the harmful act and the damage incurred. In the Croatian legal system, the basic principle of civil liability is the presumption of fault, where ordinary negligence is presumed (Art. 1045 § 1-2 of the CO Act). This provision in the Croatian Obligations Act was taken over from the Civil Obligations Act of 1978 (Art. 154).[16] The presumption of fault under the former Civil Obligations Act (1978) was introduced in response to increasing industrialization and growth of transportation, in order to equalize the procedural position of the plaintiff and the defendant. This was because the defendant was in a more favorable procedural position when the rules on proven fault were applied, due to his special knowledge of the production process and his better economic position.[17] Thus, the presumed fault was introduced to equalize the position of the parties to the proceedings.

The Croatian Civil Obligations Act does not provide a definition of fault, which is shaped by legal doctrine. Vizner describes fault as "a specific inner and hidden psychological attitude of the tortfeasor towards his conduct and the resulting harm to another", emphasizing that "fault is a series of psychologically manifested states of the individual" and that "fault is the subjective relationship between the personality of the tortfeasor and his harmful act" (Vizner, 1978: 676). Thus, "in committing the harmful act, the tortfeasor did not act as any other reasonable and prudent person would typically act in such situations, although such conduct could reasonably have been expected of him in the specific circumstances" (Vizner, 1978: 677). According to Radišić, "fault as a ground for liability is based on a personal reproach directed at the tortfeasor. He did not act as he should have acted in the given situation, and he made a mistake although he could have avoided it" (Radišić, 1988: 188).

Regardless of the degree of autonomy, considering the current state of science and technology, there are no cognitive abilities that would enable an AI system to be capable of fault. Intent, which implies awareness and the will to commit an unlawful act, presupposes that the tortfeasor intended to commit the unlawful act, which AI cannot do in the absence of its own will. AI does not have the ability to reason, which is essential for intentional acts under tort law. In contrast, negligence involves the failure to meet an objective standard, which is assessed by comparison with the behavior of a person with similar characteristics in the same or a comparable situation (Konertz, Schönhof, 2020: 122). In common law systems, the "reasonable person test" is applied when determining negligence. The key question in determining negligence is whether the defendant acted as an average, reasonable person would have acted in the same situation. However, the problem arises when attempting to apply the reasonable person test to AI. When it comes to the objective standard of behaviour, the law assumes that all humans are equal and have a set of abilities and limitations that arise from our shared

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[16] Civil Obligations Act (Zakon o obveznim odnosima,1978*), Službeni list SFRJ* br. 29/78, 39/85,46/85, 57/89, *Narodne novine* br. 53/91, 73/91, 3/94, 111/93, 107/95, 7/96, 91/96, 112/99, 88/01, 35/05, hereinafter: Obligations Act 1978)

[17] Vuković considered the criterion of proven fault to be an "outdated concept" that hinders the progress of society as a whole, as it does not contribute to improving the quality of production relations. On the other hand, the criterion of presumed fault was seen as a "middle" solution between fault-based liability and strict liability, which should contribute to strengthening individual personality and social solidarity (Vuković, 1971: 165, 171).

physiology (Turner, 2019: 88). On the other hand, AI is heterogeneous in nature (encompassing devices from translation applications to autonomous airplanes); there are also many different techniques for its development, and this diversity is likely to increase as new technologies develop. Applying the same standard to all these highly diverse intelligent systems may be inappropriate (Turner, 2019: 88).

The rights and obligations associated with legal personhood vary depending on the type of subject. Although both natural persons and corporations are legal entities, their rights and obligations differ. Legal personhood generally includes the ability to enter into legal transactions, acquire and dispose of property, and participate as a party in legal proceedings (Solum, 1992: 1231-1287). Legal personhood in the Croatian legal system is a legal fiction; it is a construct of the law. Each legal system determines which legal entities may be granted legal personhood and the content it should entail.

Juridical persons are collectives that act through their bodies. They consist of individuals and property, and they have a status separate from that of their members (Corrales *et al.,* 2018: 21). Their decisions are the result of human will, such as voting by the members of the board of directors. While legal entities are always supervised by humans (e.g. shareholders and directors, autonomous AI systems have the ability to act independently without the need for human intervention at every moment. The existence of a juridical entity is always tied to at least one natural person acting as its representative, and in most cases there are several such persons. The capacity of a juridical person to be held liable in tort is linked to the acts or omissions of natural persons who have a relevant connection to the entity (e.g., management, the assembly, the supervisory board, employees). A juridical person is liable for damage caused by its bodies in the performance of, or in connection with, their duties, as well as for damage caused by its employees during, or in connection with, their work (Slakoper *et al.,* 2022: 121-122; Klarić, Vedriš, 2014: 52).

The legal personhood of juridical entities is based on doctrinal theories: the theory of fiction, the theory of concession, the organic theory, the theory of legal reality, etc. (Klarić, Vedriš, 2014: 38-48; Slakoper *et al.,* 2022: 123-124). According to the theory of fiction, juridical persons (such as corporations) are merely legal constructs created by the legislator to have rights and obligations (Klarić, Vedriš, 2014: 41-42). They exist only because the law grants them this status, and their actions are always indirectly attributable to the people who administer them (Klarić, Vedriš, 2014: 41-42). This theory has not defined the necessary conditions for the classification of an entity as a legal subject and leaves the legislator a wide margin of discretion. The author of this article therefore takes the view that, according to this theory, there are no obstacles to granting legal personhood to AI systems. However, the question remains as to who would be held accountable for their actions and what the legal basis for such autonomous decisions would be, especially given that the operator of the AI system controls how, when and where it is deployed. Therefore, it is unclear how responsibility is shared between the AI system and its operator.

On the other hand, organic theory emphasizes that legal entities have the ability to act autonomously through their bodies (Klarić, Vedriš: 2014: 42-43). It is argued that this theory excessively biologizes the human collective. According to the organic theory, a legal entity has its own will, which is carried out through its representatives. In the case of AI, human will would be replaced by algorithmic processes. Therefore, the question arises as to whether the "will" of AI can be compared with the will of legal entities or their organs. Organic theory emphasizes that legal entities exist to achieve a specific purpose. Similarly, AI systems are developed with a specific purpose for which they are designed (e.g.

automation, data analysis etc.). However, while legal entities can be held liable for their actions, the legal responsibility of AI remains unclear. Unlike legal entities whose decision-making bodies consist of humans, AI makes decisions based on collected data and programming. Thus, it may be concluded that the organic theory is incompatible with e-personhood, as it emphasizes that a legal entity is not a legal fiction but a group of individuals and attaches great importance to the human factor (Klarić, Vedriš, 2014: 42-43).

In contrast to the theory of fiction, the theory of legal reality (or the realist theory of legal personhood) holds that the existence of a legal subject should be recognized even in the case of legal silence, if the collective interest is expressed in an organized manner (Klarić, Vedriš, 2014: 43-44). Should the AI develop to the point where it can act autonomously and create its own goals, it could be considered a legal entity according to this theory.

The most important types of juridical persons are traditionally corporations and foundations (Klarić, Vedriš, 2014: 54-53). A corporation is a community of individuals that exists as an independent legal entity (separate from its individual members), while foundations are legal entities whose substrate are assets earmarked for a specific purpose (Klarić, Vedriš, 2014: 94-98). From these definitions, we can conclude that a corporation cannot consist of different AI systems because AI systems are things (not persons) and do not have legal personhood. On the other hand, a foundation can consist of different AI systems because the assets (particularly the economic ones) consist of goods belonging to a single entity.

The conferral of legal personhood on a legal entity does not necessarily mean that the legal entity can make decisions independently. On the contrary, juridical persons typically act exclusively on the basis of the decisions of humans. For example, a company makes decisions through its management board or the general assembly. There is always at least one human decision-maker at the top of the hierarchy. If AI were given a legal personhood, decision-making would not be driven by the human mind but by a mathematical-logical algorithm (Turner, 2019: 182). Although companies have a legal personhood, each company is owned and controlled by humans or another entity (whose decisions are also made by humans).

On the other hand, allowing AI systems to own property could be very dangerous and lead to undesirable legal consequences. Unlike corporations, where decisions are made solely by humans, AI systems are generally capable of acting autonomously. They can potentially create business strategies, invest and develop new products or processes (Kaplan, 2016: 104). However, AI lacks the ability to understand the causes and consequences of certain phenomena; its decision-making is based on learned patterns. Therefore, it is important to be aware that granting such status could inevitably lead to unforeseeable legal consequences. If the legal system grants legal personhood to AI, which implies certain rights and obligations, the question arises as to which rights should be guaranteed to AI systems. Should they have the right to own property, the right to enter into legally binding transactions, the right to have their own name, the right to freedom of expression, the right to sue and be sued? What we certainly do not want is for an AI to have rights that are closely tied to human society, such as the right to vote or the right to marry. However, the right to own property would likely be one of the most important rights.

In order to be granted legal personhood, an AI entity must be identifiable. Modern computer programs are transferred online without physical media and are subject to constant updates and improvements; thus, it is often difficult to determine whether they are identical to the original program (Karnow, 1996: 147–204). In that regard, blockchain technology (Dešić, Demark, 2023: 717–738) or another type of distributed ledger can be used to verify whether a computer program has been modified (Turner, 2019: 199 ff). However, it means that all changes, updates and improvements to the program must be

recorded and entered into the registry, which could be a challenge as each change to the program must be properly documented. Considering that there are daily updates, documenting all these changes could be a major challenge. Karnow proposes a "registry" for AI that "recognizes the agent by inserting a unique encrypted guarantee into it". This registry would specify the capabilities of registered AI agents and the limits of their liability (Karnow, 1996: 147–204, 193 ff). The registers should be set up in such a way that it is always possible to find who is responsible for a particular AI system (Turner, 2019: 199).

5. CONCLUSION

At first glance, it may seem pragmatic to grant legal personhood to autonomous systems. Thus, the question arises whether such a concept could close the legal gap in cases where an autonomous system causes harm through unforeseeable and autonomous actions of AI. The author of this paper believes that there are no legal gaps in liability in relation to AI because all harmful actions can be attributed either to the manufacturer or the user (operator). If an autonomous system were granted legal personhood, the question arises under what rules it could be held accountable, and whether fault liability (intent, negligence), strict liability, or a no-fault system would apply. It would inevitably require the creation of completely new rules. It calls for a fundamental shift in perspective because the current rules are inherently anthropocentric and geared towards human actions. Humans have both consciousness and self-awareness; they are capable of understanding phenomena in their environment and contextualizing different occurrences and events. The legal personhood of AI is not inherent. Therefore, it can only be normative and determined by legal provisions. Humans are capable of making voluntary decisions based on awareness and deliberation. AI can make decisions and learn from data but it lacks awareness of its actions. It has neither its own will nor self-awareness, both of which are essential for tort liability.

Although it would be inappropriate to equate robots and AI with humans, we could consider granting "rights" to robots in the same way that they are granted to juridical persons. However, the decision on granting legal personhood to AI systems has to be supported by particularly strong justification. The author of this paper argues that the possibility of closing the legal gaps in civil liability is not currently a sufficiently strong justification because the harm caused by AI can be attributed to existing subjects. In addition, there are other effective legal mechanisms available to the injured party to recover damages, such as compulsory insurance (like the one for motor vehicles), no-fault compensation funds, strict liability,[18] presumption of fault,[19] shifting the burden of proof to establish causation, etc.

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[18] The Croatian Civil Obligations Act prescribes strict liability for dangerous objects and dangerous activities (Art. 1045 § 3 of the CO Act), but it does not provide a definition of a dangerous object; instead, the criteria for determining whether a particular object or activity is considered dangerous have been established by case law. Autonomous vehicles and high-risk AI systems would undeniably fall into the category of dangerous objects, which means that strict liability could already be applied to such high-risk systems. In the context of strict liability, it is not necessary to determine the exact cause of the damage or a lack of care on the part of the liable party; it is sufficient that the dangerous object was involved in causing damage. It should also be noted that, in the context of strict liability, causality is presumed and the burden of proof lies with the defendant to prove that its dangerous object was not the cause of damage (Art. 1063 of the CO Act).

[19] In the Croatian legal system, the criterion of presumed fault has already been established as a general rule in tort law. According to Art. 1045 § 1 of the CO Act, the tortfeasor's fault (liability) is presumed, based on the presumption of tortfeasor's ordinary negligence (Art. 1045 § 2 of the CO Act).

The granting of legal personhood to AI could only be conceivable if AI systems had financial funds from which damage caused in each individual case could be compensated. The obligation to take out liability insurance with a certain minimum amount of insurance coverage would be a more economically efficient solution. The question arises as to who should bear the costs of such insurance, i.e. who should pay the premiums. The answer seems clear: mandatory liability insurance for robots should be financed by those who can control the behavior of the system to a certain extent and who would otherwise be personally liable for any damage caused by the robot. The manufacturers and users of digital autonomous systems largely fulfill these conditions. Consequently, it should be the manufacturers and users who have to pay for the costs of mandatory liability insurance (Wagner, 2020: 717).

As for the issue of establishing causality between the harmful act and the damage in the context of AI, the literature already mentions rules that can solve this problem. Firstly, it is possible to reverse the burden of proof by asking the defendant (the tortfeasor) to provide evidence to the contrary. In the case of harm caused by AI, the manufacturer or the user/operator may be considered the tortfeasor, depending on the context of the harmful event. The manufacturer would be considered a tortfeasor because they are obliged to define the fundamental characteristics of the product, warn the users that the system operates on AI basis, guarantee that the system operates as safely as possible, and ensure that it can be deactivated in the event of a malfunction. On the other hand, the user/operator should also be considered a tortfeasor because they decide which system to use, how, when, and in what manner. Yet, what is crucial is that neither the manufacturer nor the operator/user can call upon the autonomous behavior of AI systems in order to be relieved of liability for damages, as otherwise, they would be exempt from liability in every case in which the damage was caused by the AI system.

Secondly, if the plaintiff establishes a *prima facie* case, the court can only shift the burden of proof for certain facts to the defendant. *Prima facie* case refers to a case where there is sufficient evidence to support a claim for damages, unless it is rebutted by additional evidence or defenses. For example, if an AI system causes harm, and the manufacturer's role in developing or implementing the system is established, this could be the ground of a *prima facie* case for producer's liability. Thirdly, it is possible to lower the burden of proof to a level that allows to prove an uncertain causal link. For example, that causation does not rely on absolute certainty but rather on a set of serious, precise and consistent *indicia*. Fourthly, instead of the "all-or-nothing" principle, it is possible to move to a system based on proportionate liability (e.g. loss of chance doctrine) [20] (Lombardi, 2020: 14-160).

It follows from all the above that granting legal personhood to intelligent systems would not solve the existing problems but rather create even more complex ones. Therefore, a more effective solution would be to leave civil liability with the programmers, manufacturers, operators, or users. Manufacturers should be liable for the functions of such systems, instructions for use and upgrades, as long as they retain a certain degree of control over them. In the meantime, users should be responsible for the use of AI systems. Strict liability rules should apply to dangerous and high-risk AI systems, their manufacturers and

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[20] The loss of chance doctrine is a specific doctrine related to causation, used in cases involving personal injury or medical malpractice, where the plaintiff argues that due to the defendant's actions (or failure to act), they have lost the opportunity to achieve a better outcome. Essentially, it allows a person to claim damages for the loss of a chance of a more favorable result, even if that result wasn't guaranteed (Dešić, 2020: 37-59).

providers. As for AI systems that do not pose a high risk, fault-based liability rules should apply to the operator or user. However, it is essential to ensure that the operator cannot be exempt from liability by claiming that the harm was caused by an autonomous activity of the AI system.

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PRAVNI SUBJEKTIVITET ZA UMJETNU INTELIGENCIJU: NUŽAN KORAK ILI OPASAN PUT?

Europski je parlament u Rezoluciji od 16. februara 2017. s preporukama Komisiji o pravilima građanskog prava o robotici pozvao Europsku komisiju u t. 59. f.) da razmotri stvaranje posebnog dugoročnog pravnog statusa za robote kako bi barem najsofisticiraniji autonomni roboti mogli imati status elektroničkih osoba s odgovornošću ispravljanja štete koju su uzrokovali. U tom kontekstu, u radu se razmatraju temeljne karakteristike umjetne inteligencije (UI) poput neprozirnosti, nepredvidivosti i složenosti UI, te njezinog autonomnog djelovanja. U radu se razmatra postoje li opravdani razlozi za priznanje elektroničkog subjektiviteta najsofisticirajnijim oblicima umjetne inteligencije, te da li bi inteligentnim robotima trebalo priznati osobnost u okviru već postojećih pravnih subjekata. Razmatra se i da li postoje neki drugi mehanizmi poput širenja primjene objektivne odgovornosti, kriterija presumirane krivnje te pravila o presumiranoj uzročnosti temeljem kojih bi se uspostavila pravična ravnoteža između interesa proizvođača i korisnika UI sustava, odnosno trećih osoba.

Ključne reči: *umjetna inteligencija (UI), pravni subjektivitet, građanskopravna odgovornost, naknada štete.*