IMPACT OF ARTIFICIAL INTELLIGENCE ON THE SINGLE MARKET FOR DIGITAL CONTENT*

RENÁTA BAČÁROVÁ**

Abstract: The paper deals with the provision of digital content in the Digital Single Market with particular attention to the protection of creators' rights. The issue is examined in the context of the new phenomenon of artificial intelligence. The research focuses on the legal assessment of the input used to train an AI system and the output obtained from it with regard to the legality of the source and copyright protection. The use of exceptions and limitations, especially text and data mining, appears to be essential. It is also important to assess the legal nature of AI-generated output from a copyright perspective. Innovative solutions to protect authors' rights against unauthorized use of AI training works and to exclude them from the training data (e.g. "Have I Been Trained" website, DRM, data poisoning) are discussed. The paper polemics over the introduction of *sui generis* protection for AI creations.

Keywords: copyright; digital content; artificial intelligence; copyright infringement; exceptions and limitations; text and data miming; *sui generis* right for AI creations

DOI: 10.14712/23366478.2025.397

1. INTRODUCTION

Creating a Digital Single Market (DSM) has long been a priority for the EU as a part of the EU's project for a digital Europe.[1] A functioning digital market is fundamental to the prosperity of the European Union and touches all the sectors of economic and social life, especially cybersecurity, data protection, geoblocking, consumer protection, digital broadcasting and retransmission, the Digital Single Gateway, public sector data, commercial companies, copyright, internet connectivity, digital health,

* This article was written in the framework of the Project VEGA 1/0431/23 "Competition for the interests of consumers and traders in the provision of digital content and digital services in the digital single market, with an emphasis on legal and economic aspects".

** Doc. JUDr. Renáta Bačárová, PhD., LL.M., Associate Professor; Pavol Jozef Šafárik University in Košice, Faculty of Law, Department of Civil Law; Kováčska 26, 040 75 Košice, Slovakia; renata.bacarova@upjs.sk; ORCID: 0000-0002-1759-199X.

[1] Digital Europe Programme 2021–2027 is focused on bringing digital technology to businesses, citizens and public administrations (The Digital Europe Programme. In: *European Commission: Shaping Europe's digital future* [online]. 31. 1. 2025 [cit. 2025-01-06]. Available at: https://digital-strategy.ec.europa.eu/en/activities/digital-programme).

digital platforms.[2] In this paper, we will discuss DSM and digital content supply, with a particular focus on the protection of creators' rights. It is important to mention that functioning copyright market is a cornerstone of a functioning EU digital market. We examine this issue against the backdrop of the new phenomenon of artificial intelligence (AI) affecting all areas of human life, including creativity.[3] We therefore consider it crucial to legally assess the input used to create the AI system and the output obtained from it, with specific focus on the legality of the source and the protection of copyright.

In order to cover the topic broadly, it will be important to define the meaning of digital content in accordance with the concepts set out in the underlying legal standards, creating the basis for this paper.

The process of creating AI consists of three phases, namely input (encoding), machine learning or deep learning and output.[4] In our paper, we will discuss the first and the third phases of AI creation. Since the input affects the output, we will examine the legal nature of the input provided to the AI system. We will also discuss the possibilities of protecting the AI output, where we consider granting copyright protection, granting *sui generis* rights, or placing the AI output in the so-called public domain.

2. BASIC LEGAL FRAMEWORK AND DEFINITION OF TERMS

The legal framework for the contribution is constituted by the Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act) (DSA), 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 (Artificial Intelligence Act) (AIA), Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services (directive 2019/770), Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC (directive 2019/771) and Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC (DCR).

For the correct grasp of the topic of AI and its impact on the Digital Single Market (DSM) in the context of protecting the rights of digital content creators, it is essential

[2] Digital single market for Europe. In: *European Council, Council of the European Union* [online]. 2020 [cit. 2025-01-06]. Available at: https://www.consilium.europa.eu/en/policies/digital-single-market/.

[3] See: European approach to artificial intelligence. In: *European Commission: Shaping Europe's digital future* [online]. 18. 2. 2025 [cit. 2025-01-06]. Available at: https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence.

[4] See: MESARČÍK, M. – GYURÁSZ, Z. et al. *Právo a umelá inteligencia* [Law and artificial intelligence]. Bratislava: Faculty of Law, Comenius University Bratislava, 2024.

to define the term "digital content", which will be then examined in terms of the legal framework contained in the selected regulations and directives.

Both Directives 2019/770 and 2019/771 distinguish between the terms "digital content", "digital service" and "goods with digital elements". The DSA regulates the definition of the term "illegal content" that may be related to the infringement of intellectual property rights. From the AIA perspective, a broader context for creation of AI systems and models will need to be clarified. Analysing the input used to train AI from the perspective of the creator's rights settlement and exploring the legal nature of AI-generated output will be crucial.

2.1 DEFINITIONS UNDER DIRECTIVE 2019/770 AND DIRECTIVE 2019/771

According to Article 2(1) of Directive 2019/770, "digital content" means *"data which is produced and supplied in digital form"*. The term "data" is to be understood in the broadest possible sense of the word and may include data protected by copyright. According to Article 2(2)(a) "digital service" means *"(a) a service which enables a consumer to create, process or store data in digital form or to have access to such data, or, according to (b), a service which enables the exchange of data in digital form or any other interaction with data in digital form which is uploaded*[5] *or created by the consumer or other users of that service"*.[6]

The explanation of the different categories of digital content and digital services contained in recital 19 of Directive 2019/770 is neither clear nor precise, as both digital content and digital services combined refer to computer programs, operating systems, applications, video, audio and music files, digital games, e-books or other electronic publications. Consequently, only digital services that allow the creation, processing, access or storage of data in digital form are specified (e.g. software as a service, streaming music or video platforms where consumers can upload their content to a retailer, access to files via streaming or cloud storage). The above explained imprecision could have a negative impact on the determination of the scope of Directive 2019/770 or Directive 2019/771, as it could be difficult to distinguish intended elements in contracts referring only to the supply of digital content, i.e., data in digital form, which is separate from the digital service.[7] We can include computer programs, audio, video or music files, digital games, e-books under the term of digital content, and we can refer to the services of different platforms or software as a service as digital services. For the purposes of assessing the infringement of intellectual property rights, it is not important to distinguish strictly between digital and non-digital goods or services.

---

5 In this context, we point out the related issues of liability of online content-sharing service providers also for content uploaded by users that is protected by copyright [Article 17(1) DCR].

6 The scope does not apply to internet access services. See also CARVALHO, J. M. – FARINHA, M. Goods with Digital Elements, Digital Content and Digital Services in Directives 2019/770 and 2019/771. *Revista de Direito e Tecnologia* [Journal of Law and Technology] [online]. 2020, Vol. 2, No. 2 [cit. 2025-01-06]. Available at: https://ssrn.com/abstract=3717078.

7 Ibid. See also SEIN, K. 'Goods With Digital Elements' and the Interplay With Directive 2019/771 on the Sale of Goods In: *SSRN* [online]. 30. 1. 2020 [cit. 2025-01-06]. Available at: https://ssrn.com/abstract=3600137 or http://dx.doi.org/10.2139/ssrn.3600137.

However, the interference with these rights may restrict or even prevent the use of the digital content or service.

2.2 DEFINITIONS UNDER THE DSA

According to the DSA, illegal content means *"any information that, in itself or in relation to an activity, including the sale of products or the provision of services, is not in compliance with Union law or the law of any Member State which is in compliance with Union law, irrespective of the precise subject matter or nature of that law"* (Article 3(h) of the DSA). Illegal activities include the unauthorised use of copyrighted material.[8]

To ensure terminological consistency, we will use the term "digital content" when examining digital content, digital services and illegal content in terms of legality and possible infringement of intellectual property rights, in particular copyright.

2.3 DEFINITIONS UNDER THE AIA

To understand the issue of the artificial intelligence impact and potential infringement on copyright, it is necessary to explain the functioning of AI systems and models.

"AI system" means *"a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments"*.[9]

It is the digital content generated by AI that will be the focus of our research, as output that infringe on intellectual property rights can negatively impact DSM. The autonomy of an AI system implies the ability of the system to operate without human intervention. In relation to the output, this means an essentially independent output, although we must also consider the copyrighted content on which the AI system is based. Adaptability is related to the ability of the system to self-educate. The capability to infer an independent output from input is related to the application of machine learning techniques, and the resources used for machine learning may be protected by intellectual property rights.[10] The mentioned characteristics of the system lead to considerations about the ability of the system to generate independent original output and the possibility of protecting it.[11]

---

[8] Recital 12 DSA.

[9] Article 3(1) AIA.

[10] The explanation of the terms "autonomy", "adaptability", and "inference" is based on Recital 12 of the AIA.

[11] Contrary to classic computer programs written by developers, machine learning models rely on vast artificial neural networks trained in giant amounts of data (SOUSA E SILVA, N. Are AI models' weights protected databases? In: *Kluwer Copyright Blog* [online]. 18. 1. 2024 [cit. 2025-01-06]. Available at: https://copyrightblog.kluweriplaw.com/2024/01/18/are-ai-models-weights-protected-databases/).

AI models form the fundamental components of AI systems and are integral to them. The definition of a "General-purpose AI model" is contained in Article 3(63) of the AIA and it means an *"AI model, trained with a large amount of data using self-supervision at scale, that displays significant generality and is capable of competently performing a wide range of distinct tasks regardless of the way the model is placed on the market and that can be integrated into a variety of downstream systems or applications, except AI models that are used for research, development or prototyping activities before they are placed on the market"*.

For the purposes of assessing copyright infringement, we will be particularly interested in large generative AI models that can create content in the form of texts, sounds, images, videos and other output in a relatively autonomous manner. We will examine the data used to train the models that raise the most frequent questions about the about the compliance with the author's copyright. Although the AIA declares its policy to comply with copyright and related rights by AI model providers,[12] this is not always the case in practice.

In the following section, we focus on the legal assessment of the input used by an AI system and the output derived from it. With regard to the copyright protection, we consider it important to examine the legality of the source, especially in relation to the input. The legal nature of the output will be examined with respect to the possibility of granting copyright protection to the AI-generated output.

3. THE LEGAL NATURE OF THE INPUT USED TO TRAIN AI FROM A COPYRIGHT PERSPECTIVE

The AIA conceptually distinguishes between "input data" and "training data". The term input data can be viewed more broadly, as it includes not only *"the data provided to an AI system, but also the data directly acquired by an AI system from which it produces an output"*.[13] Training data is *"used for training an AI system through fitting its learnable parameters"*.[14] This data is purposely selected and processed for a specific purpose and should be relevant, sufficiently representative and correct.[15] When analysing the elements that constitute AI, copyright object can be most frequently identified as computer programs, databases that may be protected by copyright or *sui generis* databases, texts, sounds, images, audio or audiovisual recordings, and other copyright-protected items.[16]

If copyright-protected items are to be legally used, the legislation strictly defines instances when this can occur. These would be the cases of use based on consent granted

---

12 See: Article 53(1)(c) AIA and Recital 109 AIA.
13 Article 3(33) AIA.
14 Article 3(29) AIA.
15 Recital 67 AIA.
16 For easy to interpretation, we use the term copyright, which protects works. However, it may also refer to artistic performances or phonograms, audiovisual recordings, broadcasting or press publications protected by rights related to copyright.

by a licensing agreement in particular,[17] or it may be the use of public licenses, the use of works in public domain, or the use of works under exceptions or limitations of copyright. Permissible uses may also include the use of non-copyrighted items that are also used to train AI. This includes ideas, procedures, methods, systems, concepts, principles, discoveries, information,[18] official texts of a legislative, administrative and legal nature, and to official translations of such texts, daily news, only press information, political and judicial speeches, and other public speeches.[19] In this context, we can talk about the so-called public domain, which Koukal divides into four categories, namely structural, time-limited, autonomous and exceptional public domain.[20] In the following, we will mainly deal with the exceptional public domain.

For the purpose of facilitating the robust use of copyright-protected works, two new exceptions and limitations of copyright have been introduced for text and data mining (TDM), which can also be applied for AI input purposes.[21] Text and data mining' means any automated analytical technique aimed at analysing text and data in digital form in order to generate information which includes but is not limited to patterns, trends and correlations. Consequently, the legislator provides for two specific exceptions, namely Text and data mining for the purposes of scientific research in Article 3 DCR and a general Exception or limitation for text and data mining under Article 4 DCR.

In the case of TDM, the manner of use, the authorised subject and the purpose are decisive for the purposes of scientific research. The application of this exception limits the rightholders in the right to reproduce work[22] (including copyright-protected databases), in extraction and reutilization *sui generis* databases, and in the right to reproduce and making available to the public press publications in online use. However, the reproduction and extraction must be carried out by research organisations and cultural heritage institutions with the aim to extract texts and work data or other copyrighted objects to which they have lawful access for scientific research purposes.

As for the press publications, it is questionable whether the legislator, by referring to Article 15(1) DCR, also intended to allow an exception to the right of making available to the public, since it further allows only reproduction and extraction by authorised entities. In our opinion, the approach should be narrower, and the right of making available to the public should remain with the publishers of press publications.

Research organisations include universities or other institutions of higher education and their libraries, research institutes, any other entities whose primary goal is to

---

17 A practical option for settling rights to works used to training AI is a form of financial compensation paid through collective management organizations.

18 Article 2 WIPO Copyright Treaty and Article 9(2) Agreement on Trade-Related Aspects of Intellectual Property Rights.

19 Article 2 and Article 2bis Berne Convention.

20 KOUKAL, P. *Autorské právo, public domain a lidská práva* [Copyright, public domain and human rights]. Brno: Masaryk University, 2019, pp. 117–141. Koukal is based on Peukert's theory and divides the public domain into four categories. The structural public domain is defined through subject matter not covered by copyright protection; the time-limited public domain is related to the term of copyright protection; the autonomous public domain refers to public licenses; and the exceptional public domain is defined through exceptions and limitations to copyright.

21 Article 3 and 4 DCR; Recital 104 AIA.

22 This also applies to artistic performances, phonograms, audiovisual recordings, and broadcasting.

conduct scientific research or educational activities, e.g. hospitals carrying out research, regardless of their legal form. However, the condition is that they must operate either on a non-profit basis or in the public interest as recognised by the State.[23] Cultural heritage institutions mean publicly accessible libraries, museums, archives or a film or audio heritage institutions, educational establishments, research organisations, public service broadcasters.[24] The legislator understands scientific research as relating to both the natural sciences and the humanities.[25]

The second exception applies to any extraction of texts and data (Article 4 DCR) and also covers rights to reproduce works[26] (including copyright-protected databases), extraction and reutilization of *sui generis* databases, reproduction and making available to the public of printed publications for online use. This exemption is extended to permanent or temporary reproduction of a computer program by any means and in any form, in part or in whole, and to the translation, adaptation and arrangement and any other alteration of a computer program and the reproduction of the results thereof.

Compared to the previously mentioned exception, neither the eligible subject nor the purpose of the use of the works is limited. The limitation applies only to the necessary period of exploitation.[27]

Both TDM exceptions are based on two ways of works and other data use, namely reproduction and extraction. Importantly, these must be legally available sources, and the use of the works must comply with the three-step test.[28] That means that the exceptions and limitations under Articles 3 and 4 DCR shall only be applied in certain special cases which do not conflict with a normal exploitation of the work or other subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder.[29] According to Professor Rosati *"the three-step test is a fundamental mechanism that contributes to ensuring – in compliance with international, regional and national laws alike – that a fair balance is struck between protection of copyright and related rights, on the one hand, and third-party rights and legitimate interests, on the other. Failure to consider the three-step test on the side of either legislatures or courts implies that no fair balance may be fully achieved, including having regard to the development of generative AI."*[30] The European Copyright Society has also discussed the application of TDM and concluded that TDM exceptions cover *"some operations of training of a Generative AI model, but certainly not all aspects or stages of the life cycle of AI*

---

23 Article 2(1) and Recital 12 DCR.
24 Article 2(3) DCR and Recital 13 DCR.
25 See: Recital 12 DCR.
26 This also applies to artistic performances, phonograms, audiovisual recordings, and broadcasting.
27 Article 4(2) DCR.
28 Article 7(2) DCR. Compare with fair use applied in the USA.
29 Article 5(5) Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001on the harmonization of certain aspects of copyright and related rights in the information society.
30 ROSATI, E. No Step-Free Copyright Exceptions: The Role of the Three-step in Defining Permitted Uses of Protected Content (including TDM for AI-Training Purposes). *European Intellectual Property Review Stockholm University Research Paper* [online]. 2024, Vol. 46, No. 5, pp. 262–274 [cit. 2025-01-06]. Available at: https://ssrn.com/abstract=4629528 or http://dx.doi.org/10.2139/ssrn.4629528.

models and systems, from curating a dataset for training to the generation of an image, text or other media, by users".[31]

Unlike the previously mentioned TDM exception for the purposes of scientific research, exception under Article 4 DCR shall apply on condition that the use of works, and other subject matter referred to in that paragraph has not been expressly reserved by their rightholders in an appropriate manner. The form of the reservation is not specified in detail in the DCR. In the case of content that has been made publicly available online, it should only be considered appropriate to reserve those rights by the use of machine-readable means,[32] including metadata and terms and conditions of a website or a service (e.g. contractual agreements or a unilateral declaration.)

This lack of legal modification can cause problems in practice, as in the case of Kneschke,[33] where the reservation was stated in natural language.

Unclear legislation in relation to permissible actions in training AI models has resulted in several lawsuits by rightholders against companies that have created and operate generative AI models.[34] In addition to lawsuits, other innovative solutions are being sought to protect authors' rights from unauthorised interference on the internet.

Authors can use a website called "Have I Been Trained"[35] to search for their works used to train AI and exclude them from the training data. Essentially, this is a way of exercising an opt-out of copyright.[36]

Digital Rights Management (DRM) technology measures can also be used to protect digital works from unauthorised use. DRM technologies provide protection through encryption, scrambling or other transformation of the work or other subject-matter or a copy control mechanism.[37] The disadvantage is the possibility of removing technological protection.

---

31 European Copyright Society. Copyright and Generative AI: Opinion of the European Copyright Society [online]. January 2025 [cit. 2025-03-10]. Available at: https://europeancopyrightsociety.org/wp-content/uploads/2025/02/ecs_opinion_genai_january2025.pdf.

32 What is machine-readable means is further specified in directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information (Recital 35). See also Recital 18 DCR.

33 See: Court decision LG Hamburg 310 O 227/23 Kneschke v. LAION of 27 September 2024.

34 Statistically, the majority of legal proceedings originate in the USA and are most often directed against OpenAI, Microsoft, Perplexity AI, LAION, and Stability AI. In the EU the current focus is on the decision of the LG Hamburg 310 O 227/23 Kneschke v. LAION of 27 September 2024. LAION created the LAION-5B dataset, an open-source dataset compiled through AI web scraping, which included works protected by copyright. While the court dismissed the lawsuit on the grounds of applying the TDM exception for scientific research purposes (LAION is a non-profit organization that creates an open-source dataset for AI training purposes), it also partially addressed the general TDM exception. This post does not provide a detailed analysis of the decision, however, we will cover it in a separate article.

35 *Have I Been Trained* [online]. [cit. 2025-01-06]. Available at: https://haveibeentrained.com/.

36 HEIKKILÄ, M. Artists can now opt out of the next version of Stable Diffusion. In: *MIT Technology Review* [online]. 16. 12. 2022 [cit. 2025-01-06]. Available at: www.technologyreview.com/2022/12/16/1065247/artists-can-now-opt-out-of-the-next-version-of-stable-diffusion/. The post pertains to the image generation tool Stable Diffusion Ultra, powered by Stable Diffusion 3.5 on the stability.ai website. Stable Diffusion is based on the LAION-5B dataset (created as an open-source dataset for AI training purposes) created using AI web scraping. Open source datasets are exempt from transparency; see Recital 104 AIA and Article 50 AIA.

37 Article 6(3) Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society.

Another practical tool for copyright protection is the so-called data poisoning.[38] This tool allows authors to add invisible changes to pixels in their image before it is uploaded online. In AI web scraping, it causes unpredictable and chaotic output of the trained model.[39] A well-known example is the Glaze system, that allows an artist to apply carefully computed perturbations to their art, such that diffusion models will learn significantly altered versions of their style and be ineffective in future attempts at style mimicry. Artists to apply "style cloaks" to their art before sharing online.[40] Another system Nightshade, a prompt-specific poisoning attack optimized for potency that can completely control the output of a prompt in Stable Diffusion's model.[41]

4. THE LEGAL NATURE OF AI-GENERATED OUTPUT FROM A COPYRIGHT PERSPECTIVE

The question of the creator of copyrighted works is currently established clearly, although with the arrival of AI, a discussion about the possible extension of copyright protection to AI creations is being held. According to the current European law, the original subject of copyright is still the author, the natural person who has created the work.

The Berne Convention for the Protection of Literary and Artistic Works provides protection for literary and artistic works, which includes all creations in the literary, scientific and artistic fields, regardless of the manner or form of their expression.[42] These works must also be the intellectual creations of the author[43] and the author is also granted the right of authorship.[44]

Article 3(1) of Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases (DBD) also refers to the author's own intellectual creation.[45] In the same way, the authorship of a computer program belongs

---

38 Data poisoning is also regulated by Article 15(5) or Recital 76 of the AIA, but in the context of a third-party cyberattack on an AI system.

39 This new data poisoning tool lets artists fight back against generative AI. See: HEIKKILÄ, M. This new data poisoning tool lets artists fight back against generative AI. In: *MIT Technology Review* [online]. 23. 10. 2023 [cit. 2025-01-06]. Available at: www.technologyreview.com/2023/10/23/1082189/data-poisoning-artists-fight-generative-ai/.

40 SHAN, S. – CRYAN, J. – WENGER, E. – ZHENG, H. – HANOCKA, R. – ZHAO, B. Y. Glaze: Protecting Artists from Style Mimicry by Text-to-Image Models In: *arXiv:2302.04222v5* [online]. 3. 8. 2023 [cit. 2025-01-06]. Available at: www.people.cs.uchicago.edu/~ravenben/publications/pdf/glaze-usenix23.pdf.

41 SHAN, S. – DING, W. – PASSANANTI, J. – WU, S. – ZHENG, H. – ZHAO, B. Y. Nightshade: Prompt-Specific Poisoning Attacks on Text-to-Image Generative Models. In: *arXiv.org* [online]. 29. 4. 2022 [cit. 2025-01-06]. Available at: www.arxiv.org/pdf/2310.13828v3.

42 Article 2(1) Berne Convention.

43 Article 2(5) Berne Convention.

44 Article 6bis (1) Berne Convention.

45 Recital 16 DBD Whereas no criterion other than originality in the sense of the author's intellectual creation should be applied to determine the eligibility of the database for copyright protection, and in particular no aesthetic or qualitative criteria should be applied.

to the natural person who has created the program.[46] Protection is granted to a computer program if it is original, i.e., if it is the author's own intellectual creation[47]. Similarly, a photographic work is considered to be original if it is the result of the author's own creative mental activity in which his personality is expressed.[48]

Only a work that bears the individual creative stamp of the author, which is absent in the case of AI, can be copyrighted. The European Parliament has also expressed the same in its resolution, where it states that works autonomously produced by artificial agents and robots might not be eligible for copyright protection, in order to observe the principle of originality, which is linked to a natural person, and since the concept of "intellectual creation" addresses the author's personality.[49] The Parliament considers it inappropriate to grant legal subjectivity to AI technologies and expresses worry about the negative impact on human creation. In another resolution, it states that AI-systems have neither legal personality nor human conscience, and that their sole task is to serve humanity.[50]

The issue of attribution of authorship to entities other than authors is not new. In the past there has been intense discussion on the protectability of computer generated content. Recently, the courts have addressed the possibility of copyright assertion by animals. This was the famous case of Naruto v. Slater, where the court concluded that the animal had constitutional standing but lacked statutory standing to claim copyright infringement of photographs known as the "MonkeySelfies".[51] We still treat animals not as subjects but as objects of legal relations.

With the rise of AI, the debate on the possibilities of granting copyright protection to AI creations is reopened. A distinction is made between creations of human activity with the help of AI and creations generated independently by AI.

AI creativity and the associated rights to the results of creative intellectual activity have been the subject of several court decisions. One of the first cases was the DABUS case, which concerned two UK patent applications for two inventions that Stephen Thaler (sole owner, creator and user of DABUS) claimed were created by the DABUS machine using AI, without the involvement of a human inventor. The British court stated, among other things, that the inventor must be a natural person,[52] and the "inventor" is the person who actually devised the invention.[53] For the same reasons, the court

---

46 Article 2(1) Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs (Codified version) (CPD).

47 FANDIÑO LÓPEZ, E. Authorship in the Age of Artificial Intelligence: A Civil Law Approach. In: *SSRN* [online]. 12. 9. 2023 [cit. 2025-01-06]. Available at: https://ssrn.com/abstract=4573685 or http://dx.doi.org/10.2139/ssrn.4573685.

48 Article 6 and Recital 16 Directive 2006/116/EC of the European Parliament and of the Council of 12 December 2006 on the term of protection of copyright and certain related rights (codified version).

49 European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies [2020/2015(INI)].

50 European Parliament resolution of 20 October 2020 with recommendations to the Commission on a civil liability regime for artificial intelligence [2020/201(INL)].

51 The United States Court of Appeals, Ninth Circuit Judgment of 23 April 2018 Naruto v. Slater, 888 F.3d 418 (9th Cir. 2018).

52 Supreme Court Judgment of 20 December 2023 Thaler v. Comptroller-General of Patents, Designs and Trademarks [2023] UKSC 32.

53 Ibid., para. 54.

dismissed a lawsuit to establish authorship of an image created by the AI DALLE based on the plaintiff's prompt.[54]

As an exception, the author of a computer program may be also a legal person, if it is labelled as the rightholder and the State legislation permits it.[55] In these circumstances, it may seem a legitimate a requirement to attribute authorship to AI-generated creations. However, the fundamental difference lies in the fact that a legal person is a subject of the law in the sense, that it is the exerciser of legal rights, obligations and subject to liability. AI is not a legal entity in the current legal framework, and in our view, there is no need to grant AI legal subjectivity. Thus, the rights to the creations of AI as well as the obligations and liability should apply exclusively to natural or legal persons.[56] In practice, however, it may be problematic to identify the persons liable for the damage caused by AI, as a number of subjects participate in the development, deployment and operation of AI.[57]

Is it legitimate to consider to the possibility of granting copyright to the AI creations or even to create new special rights (*sui generis* rights) for AI. In the context of granting rights, we will distinguish between a creation of a natural person with the help of AI and an AI-only creation.

If the output of AI were to be granted copyright, it should bear the individual creative stamp of the author. In this case, the mere provision of prompts, based on which the AI generates an output, cannot be considered creative. The natural person is not creatively involved in this output and the result will be unexpected even for them. If we were to accept the opposite interpretation, any person who is able to formulate a prompt for the AI could be the author and could claim all copyright to the AI's output, which we do not consider correct. Prompt could be described as merely a suggestion or an idea that is unprotected by copyright.

If the AI output serves only as a blueprint and the final form is creatively refined by the author, then the final output could qualify copyright protection. This would be the case of AI output not being the final form, and rather being further refined by the author. The author will make free and creative choices in the development of the final output that will lead to an original output. Originality will result from the selection, arrangement and combination of the AI output by which the author expresses his creativity in an original way and arrives at a result that will be an intellectual creation.[58] In order for

---

54 The Municipal Court Prague Judgment of 11 October 2023 Case No. 10 C 13/2023-16.

55 Article 2(1) CPD or Article 1(4) Directive 2006/116/EC of the European Parliament and of the Council of 12 December 2006 on the term of protection of copyright and certain related rights (codified version).

56 It could be the operator AI [Article 3(8) AIA], who could be the provider [Article 3(3) AIA]; the product manufacturer [Article 2(1)e AIA], the deployer [Article 3(4) AIA], the authorised representative [Article 3(5) AIA], the importer [Article 3(6) AIA] or distributor [Article (7) AIA].

57 Regarding the matter of liability, refer to 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.

58 See: Judgments of the Court of Justice of the European Union (CJEU): CJEU Judgment of 29 July 2019 Funke Medien NRW GmbH v. Federal Republic of Germany, C-469/17, para. 23, EU:C:2019:623 also CJEU Judgment of 16 July 2009 Infopaq International A/S v. Danske Dagblades Forening, C-5/08, para. 37,45, EU:C:2009:465, CJEU Judgment of 1 December 2011 Painer v. Standard VerlagsGmbH and Others, C-145/10, EU:C:2011:798, CJEU Judgment of 4 October 2011 Football Association Premier League Ltd and Others v. QC Leisure and Others, C-403/08, EU:C:2011:631, CJEU Judgment of 1 March 2012,

copyright protection to be granted for such an output, several conditions must be met. It must be (i) an output in the field of literature, art or science,[59] (ii) the result of the creative intellectual activity of a natural person, (iii) an expression in a form perceptible to the senses, and (iv) an output that is not excluded from protection.[60] Similar reasoning was the subject a of a Chinese court decision, in which the fulfillment of the prerequisites for the grant of copyright in an AI creation was upheld.[61]

The opinions on granting copyright protection for AI-generated content are based on the argument of human involvement in the process of AI-generated content, potential value of AI-generated content and the need to incentivise innovation and creativity in the AI industry.[62] Arguments against such protection emphasize the lack of human authorship in AI-generated content, potential infringement of existing works and stifling of innovation.[63]

Based on the analysis above, we are inclined to the view that it is not appropriate to grant copyright protection for AI-created output. We also consider it inadequate to grant protection to AI creations without human creative intervention because in the case of AI creations human creativity is replaced by the algorithm used to create the AI output.[64] Where the expression of components is dictated by their technical function, the criterion of originality is not met.[65]

Given the absence of human creativity, current legislation does not provide any protection for AI output. In principle they it may be classified as belonging the category of the so-called public domain. The explicit inclusion in the public domain opens up the discussion revolving around the question, whether (human) dishonesty could be

---

Football Dataco Ltd and Others v. Yahoo! Inc. and Others, C-604/10, EU:C:2012:115, CJEU Judgment of 13 November 2018 Levola Hengelo BV v. Smilde Foods BV, C-310/17, EU:C:2018:899, CJEU Judgment of 12 September 2019 Cofemel-Sociedade de Vestuário SA v. G-Star Raw CV, C-683/17 EU:C:2019:721, CJEU Judgment of 11 June 2020 Brompton Bicycle Ltd. v. Chedech / Get2Get, C-833/18 EU:C:2020:461, Judgment of 13 November 2018 Levola Hengelo BV v. Smilde Foods BV, C-310/17, EU:C:2018:899, CJEU Judgment of 12 September 2019 Cofemel – Sociedade de Vestuário SA v. G-Star Raw CV (2019), C-683/17, EU:C:2019:721.

59 The critical review of the assessment of the conceptual characteristics of a work see HUSOVEC: K európskemu „prepisovaniu" pojmových znakov autorského diela [On the European "rewriting" of the conceptual features of a work of authorship]. *Duševné vlastníctvo* [Intellectual property]. 2011, Vol. XV, No. 4, pp. 24–27.

60 See: HUGENHOLTZ, P. B. – QUINTAIS, J. P. Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output? *International Review of Intellectual Property and Competition Law* [online]. 2021, Vol. 52, pp. 1190–1216 [cit. 2025-01-06]. Available at: https://link.springer.com/article/10.1007/s40319-021-01115-0; or BONADIO, E. – McDONAGH, L. Artificial intelligence as producer and consumer of copyright works: evaluating the consequences of algorithmic creativity. *Intellectual Property Quarterly* [online]. 2020, No. 2, pp. 112–137 [cit. 2025-01-06]. Available at: https://ssrn.com/abstract=3617197.

61 Beijing Internet Court (2023) Jing 0491 Min Chu No. 11279.

62 WERZANSKY-ORLAND, Y. AI-generated content and the question of copyright. *The Market: International Journal of Business* [online]. 2024, Vol. 5, pp. 2–20 [cit. 2025-01-06]. Available at: https://www.researchgate.net/publication/381566789_AI-Generated_Content_and_the_Question_of_Copyright.

63 Ibid.

64 "Algorithmic creativity" is the way by which AI/machines create new works. See: BONADIO – McDONAGH, *c. d.*

65 CJEU Judgment of 22 December 2010 Bezpečnostní softwarová asociace – Svaz softwarové ochrany v. Ministry of Culture of the Czech Republic, C-393/09, EU:C:2010:816.

encouraged if AI outputs are not protected and remain in the public domain, which is certainly a relevant argument.[66]

Another argument takes into account the fact that the AI industry cannot adequately function and develop without adequate financial resources and investment. It is therefore legitimate to take into account the demands of AI systems and models providers to be granted *sui generis* rights,[67] similarly as in the case of non-copyrighted databases. The proponents of this solution propose granting limited protection to works created by algorithmic creativity as way of striking a balance between encouraging the creation of these technologies and protecting human creativity.[68]

However, there are also opposing views that point to the shortcomings of the current *sui generis* protection of databases and suggest that it should be adjusted or even abolished.[69] The main argument of the Max Planck Institute for Innovation and Competition (MPI) is that the duration of protection is too long with regard to technological developments,[70] creating a monopoly for database contractors and potentially distorting competition. This situation not only discourages investment but may lead to stagnation, which has a negative impact on the DSM. One can share MPI's view that *"introducing a new protection regime (e.g. a new related right) for AI-generated output is not justified according to the current state of knowledge"*.[71] The MPI opinion *"even suggests transforming the database sui generis right into a registered right"*.[72]

As ever-increasing amounts of data are generated by machines or processes based on emerging technologies, such as the Internet of Things, the EU is discussing changing data access and transfer.[73] It has been identified by the EU a problematic application of the *sui generis* right in the Internet of Things context.[74] In this context and in our view,

---

66 BONADIO – McDONAGH, *c. d.* See also MACKO, L. Artificial Intelligence as a Challenge to Copyright of the New Age. In: KLUČKA, J. – BAKOŠOVÁ, L. – SISÁK, Ľ. (eds.). *Artificial Intelligence from the Perspective of Law and Ethics: Contemporary Issues, Perspectives and Challenges*. Prague: Leges, 2021, pp. 135–144.

67 BONADIO – McDONAGH, *c. d.*

68 Article 7 DBD.

69 DREXL, J. – HILTY, R. – DESAUNETTES-BARBERO, L. – GLOBOCNIK, J. – GONZALEZ OTERO, B. – HOFFMANN, J. – KIM, D. – KULHARI, S. – RICHTER, H. – SCHEUERER, S. – SLOWINSKI, P. R. – WIEDEMANN, K. Artificial Intelligence and Intellectual Property Law: Position Statement of the Max Planck Institute for Innovation and Competition of 9 April 2021 on the Current Debate. In: *SSRN* [online]. Max Planck Institute for Innovation & Competition Research Paper No. 21-10, 2021 [cit. 2025-01-06]. Available at: https://ssrn.com/abstract=3822924 or http://dx.doi.org/10.2139/ssrn.3822924.

70 The issue primarily concerns dynamic databases. The *sui generis* right expires fifteen years from the first of January of the year following the date of completion [Article 10(1) DBD]. Any substantial change to the content of the database constitutes the creation of a new database [Article 10(3) DBD].

71 DREXL – HILTY – DESAUNETTES-BARBERO – GLOBOCNIK – GONZALE Z OTERO – HOFFMANN – KIM – KULHARI – RICHTER – SCHEUERER – SLOWINSKI – WIEDEMANN, *c. d.*

72 Ibid. Regarding this topic, see also SOUSA E SILVA, *c. d.*

73 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions COM(2017) 9 final of 10 January 2017 on Building a European Data Economy.

74 Proposal for a Regulation of the European Parliament and of the Council COM(2022) 68 final of 23 February 2022 on harmonised rules on fair access to and use of data (Data Act) and Regulation (EU) 2023/2854 of the European Parliament and of the Council of 13 December 2023 on harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 (Data Act).

the introduction of a new *sui generis* right for providers of AI systems or models would not be an appropriate alternative.

5. CONCLUSION

In this paper, we analyzed the legal nature of the inputs used to train AI and the output generated by AI from the perspective of copyright protection. A functioning copyright market is crucial to the functioning of a DSM.

Analyzing the legal nature of AI-generated input, we discussed the copyright protection of the data used to train AI and delineated the cases of the legal use of works. These are: use of the work based on consent granted primarily by a licensing agreement, use of public licenses, use of works in public domain, or use of works based on exceptions and limitations to copyright. We can also include among the permissible uses the use of non-copyrighted items, which are also used to train AI.

This includes ideas, procedures, methods, systems, concepts, principles, discoveries, information, official texts of a legislative, administrative and legal nature, and to official translations of such texts, daily news, only press information, political and judicial speeches, and other public speeches that falls into the realm of the public domain. Special attention was paid to the exceptional public domain, where we discussed the possibility of applying the TDM exception in the context of AI. We concluded that both exceptions, i.e. Text and data mining for the purposes of scientific research (Article 3 DCR) and the broader Exception or limitation for text and data mining (Article 4 DCR), can be applied to train AI systems.

We also discussed other innovative solutions to protect authors' rights from unauthorised use on the internet. We identified the ability of an author to search for their works used for AI training on the "Have I Been Trained" website and exclude them from the training data as practical.

The use of DRM appears to be effective, although there is a risk of the removal of technological protection.

Another practical tool for copyright protection is the so-called data poisoning. This tool allows authors to add invisible changes to pixels in their image before it is uploaded online, causing unpredictable and chaotic output of the trained model. As examples of the systems that enable data poisoning, we mentioned Glaze and Nightshade.

In the following of section, we explored the possibility of granting copyright to AI creations, or granting them a new special right *sui generis*, or keeping AI output in the so-called public domain.

For exploration of the option to grant copyright to AI, we distinguished between creations created by an individual with the help of AI and AI-only creations. In both cases we reached a negative conclusion. Although in the case of a creation of a natural person with the help of AI, we found the presence of creativity as long as the final output was created by a natural person.

The inappropriateness of introducing *sui generis* protection points to the protection of *sui generis* databases, where the problem is the excessively long a period of protec-

tion in view of technological developments. A monopoly for database contractors distorts competition, which threatens investment and may lead to the AI sector stagnation. This situation may negatively affect the development and competitiveness of DSM. In our view, the existing system of copyright protection is satisfactory and there is no need to introduce new *sui generis* rights in relation to AI.

As things currently stand, it seems most appropriate to keep AI-generated output in the category of the public domain. Currently, the issue of AI is dealt with under general contract law and competition law, which seems sufficient under the current legal framework. We see a return on investment in the use of partially free and paid versions of AI, as is currently the case.

Finally, it should be noted that there are other views regarding the protection of AI outputs through copyright.[75] They rely on the theory of utilitarianism, which claims that *"granting copyright will encourage people to use"* creative AI to generate and disseminate socially valuable works and to "develop" generative AI technologies.[76] According to the utilitarian view, admitting that an AI qualifies as a full-blown author increases transparency and protects human creators, thus contributing to what utilitarians regard as the greatest happines'.[77]

Some authors are critical of the issues of incentives and access in copyright when balancing the interests of authors and users. On the one hand broadening the scope of copyright increases the incentive to produce works of authorship and results in a greater variety of such works. But on the other hand, broadening copyright's scope, however, also limits access to such works both generally, by increasing their price, and specifically, by limiting the material that others can use to create additional works. They consider this paradigm of access and incentives to be fundamentally flawed.[78] Goold also argues against granting copyright to works created by AI and, while not rejecting the arguments for granting copyright protection, suggests leaving them in the public domain.[79]

doc. JUDr. Renáta Bačárová, PhD., LL.M.
Pavol Jozef Šafárik University in Košice, Faculty of Law
renata.bacarova@upjs.sk
ORCID: 0000-0002-1759-199X

---

75 See: Copyright and Artificial Intelligence. In: *gov.uk* [online]. 17. 12. 2024 [cit. 2025-03-06]. Available at: https://www.gov.uk/government/consultations/copyright-and-artificial-intelligence/copyright-and-artificial-intelligence.

76 ABBOTT, R. – ROTHMAN, E. Chapter 20: A utilitarian approach to copyright law and generative artificial intelligence. In: TUSSEAU, G. *Research Handbook on Law and Utilitarianism* [online]. Cheltenham: Edward Elgar Publishing, 2024, pp. 349–367 [cit. 2025-03-06]. Available at: https://www.elgaronline.com/edcollchap/book/9781789901726/book-part-9781789901726-26.xml.

77 GOOLD, P. The dubious utilitarian argument for granting copyright in AI-generated works. In: *Kluwer Copyright Blog* [online]. 9. 1. 2025 [cit. 2025-03-06]. Available at: https://copyrightblog.kluweriplaw.com/2025/01/09/the-dubious-utilitarian-argument-for-granting-copyright-in-ai-generated-works/.

78 LUNNEY, G. S. Jr. – LUNNEY, G. Reexamining Copyright's Incentives-Access Paradigm. *Vanderbilt Law Review* [online]. 1996, Vol. 49, No. 3, pp. 483–656 [cit. 2025-03-06]. Available at: https://scholarship.law.vanderbilt.edu/vlr/vol49/iss3/8.

79 GOOLD, *c. d.*