



**LATVIJAS  
UNIVERSITĀTE**

JOURNAL  
OF THE UNIVERSITY OF LATVIA  
No. 16

**Law**

LATVIJAS UNIVERSITĀTES  
ŽURNĀLS  
Nr. 16.

**Juridiskā zinātne**

The *Journal of the University of Latvia. Law* is an open access double blind peer-reviewed scientific journal.

The publishing of the *Journal of the University of Latvia. Law* is financed by the University of Latvia.

Editor-in-Chief Prof. **Jānis Lazdiņš**, University of Latvia, Latvia

Deputy Editor-in-Chief Prof. **Sanita Osipova**, University of Latvia, Latvia

Editorial Board:

Prof. **Carlo Amatucci**, University of Naples  
Federico II, Italy

Prof. **Kaspars Balodis**, University of Latvia, Latvia

Prof. **Ringolds Balodis**, University of Latvia, Latvia

Assist. Prof. **Kamil Baraník**, University of Matej  
Bel, Slovakia

Assist. Prof. **Edvins Danovskis**, University of  
Latvia, Latvia

Prof. **Michael Geistlinger**, University of Salzburg,  
Austria

Prof. **Helmut Heiss**, University of Zurich,  
Switzerland

Prof. **Peeter Järvelaid**, Tallin University, Estonia

Prof. **Sandra Kaija**, Riga Stradiņš University,  
Latvia

Assoc. Prof. **Annija Kārklīņa**, University of  
Latvia, Latvia

Prof. **Jānis Kārklīņš**, University of Latvia, Latvia

Assoc. Prof. **Artūrs Kučs**, University of Latvia,  
Latvia

Prof. **Irene Kull**, University of Tartu, Estonia

Prof. **Pia Letto-Vanamo**, University of Helsinki,  
Finland

Prof. **Valentija Liholaja**, University of Latvia, Latvia

Prof. **Hardy Richard Alejandro Torrez López**,  
University of Tarapacá, Chile

Prof. **Marju Luts-Sootak**, University of Tartu, Estonia

Assist. Prof. **Vadim Mantrov**, University of  
Latvia, Latvia

Prof. **Ārija Meikališa**, University of Latvia, Latvia

Prof. **Sanita Osipova**, University of Latvia, Latvia

Prof. **Peter Oestmann**, University of Münster,  
Germany

Dr. **Mārtiņš Papiņš**, University College  
London, United Kingdom

Prof. **Lali Papiashvili**, Ivane Javakhishvili Tbilisi  
State University, Georgia

Assist. Prof. **Jānis Pleps**, University of Latvia, Latvia

Prof. Emeritus **Gerhard Robbers**, University of  
Trier, Germany

Assoc. Prof. **Anita Rodiņa**, University of Latvia,  
Latvia

Prof. Emeritus **Joachim Rückert**, University of  
Frankfurt am Main, Germany

Prof. **Frank L. Schäfer**, University of Freiburg,  
Germany

Prof. **Christoph J. Schewe**, FHVD,  
University of Applied Sciences, Kiel-Altenholz,  
Germany

Prof. **Mark E. Steiner**, South Texas College of  
Law, USA

Prof. **Kristīne Strada-Rozenberga**, University of  
Latvia, Latvia

Prof. Emeritus **Ditlev Tamm**, University of  
Copenhagen, Denmark

Prof. **Gaabriel Tavits**, University of Tartu, Estonia

Prof. **Ingo Saenger**, University of Muenster, Germany

Assoc. Prof. **Hesi Siimets-Gross**, University of  
Tartu, Estonia

Prof. **Thomas Schmitz**, Universitas Gadjah Mada,  
Indonesia

Prof. **Helle Vogt**, University of Copenhagen,  
Denmark

Prof. **Dainius Žalimas**, Vytautas Magnus  
University, Lithuania

Proofreading: Andra Damberga

Layout: Andra Liepiņa

*The Journal of the University of Latvia. Law* is included in the international databases Elton B. Stephens Company (EBSCO) Publishing and European Reference Index for the Humanities and Social Sciences (ERIH PLUS). Since 2022, the journal is indexed in Directory of Open Access Journals (DOAJ).

© University of Latvia, 2023



*The Journal of the University of Latvia. Law* is an open access journal licensed under the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>)

ISSN 1691-7677 (Print)

ISSN 2592-9364 (Online)

Journal website and archive: <https://journal.lu.lv/jull>

<https://doi.org/10.22364/jull.16>

<https://doi.org/10.22364/jull.16.03>

## Risks to Employees' Intellectual Property Rights Posed by Artificial Intelligence

*Dr. iur.* **Ramūnas Birštonas**

Vilnius University

Professor at the Faculty of Law

E-mail: [ramunas.birstonas@tf.vu.lt](mailto:ramunas.birstonas@tf.vu.lt)

Artificial intelligence (AI) is one of the disruptive technologies, causing new and unforeseen social problems and uncertainty about how these problems should be solved. One such problem area is granting the status of author or inventor to AI in the area of intellectual property protection. One of the risks of giving AI this status is damage to workers' interests. Currently, employees can benefit from statutory guarantees concerning their creative results. Such existing regulation contributes to ensuring fair remuneration for creative workers and allows them to participate in the commercial success of their creative activities. The development of AI and related regulatory changes may undermine employee guarantees. The article distinguishes and analyses four scenarios – not protecting objects created by AI, granting rights to AI, allocating rights to the employer, or granting them to the employee. The consequences of each choice are evaluated from the point of view of the interests of the employees.

**Keywords:** artificial intelligence, employees, intellectual property, copyright, patent.

### Contents

|  |    |
|--|----|
| <i>Introduction</i> . . . . .  | 50 |
| 1. <i>Rights of employees to their works and inventions</i> . . . . .                | 50 |
| 1.1. <i>Employees' copyright</i> . . . . .   | 51 |
| 1.2. <i>Employees' inventions</i> . . . . .  | 52 |
| 2. <i>AI and its impact on authorship and inventorship</i> . . . . .                 | 54 |
| 3. <i>The status of AI in copyright and patent law</i> . . . . .                     | 54 |
| 4. <i>Possible scenarios of allocation of IPRs to AI-generated results</i> . . . . . | 56 |
| 4.1. <i>Public domain</i> . . . . .  | 56 |
| 4.2. <i>AI</i> . . . . .   | 56 |
| 4.3. <i>Employer</i> . . . . .   | 57 |
| 4.4. <i>Employees</i> . . . . .  | 57 |
| <i>Summary</i> . . . . .   | 58 |
| <i>References</i> . . . . .  | 58 |
| <i>Bibliography</i> . . . . .  | 58 |
| <i>Normative acts</i> . . . . .  | 59 |
| <i>Case law</i> . . . . .  | 59 |
| <i>Other sources</i> . . . . .   | 59 |

## Introduction

Artificial intelligence (hereinafter – AI) is one of the disruptive technologies that has already affected many areas of life and will undoubtedly continue to exert an even greater impact in the future. Although the phenomenon of AI itself and the attention of scientists devoted to it is not new,<sup>1</sup> it has recently acquired a second wind. Suffice it to mention the hype surrounding the success of AI ChatGPT just a few months ago.

One of the most relevant and worrisome impact areas of AI is how it affects workers' rights and income inequality. This article does not consider the problem of rising unemployment, which is one of the most sensitive issues when it comes to AI and the labour market<sup>2</sup>. This article focuses on a much narrower aspect – how the development of AI can affect the intellectual property rights (hereinafter – IPRs) of employees and, accordingly, their ability to receive financial benefits from these rights.

The protection of IPRs, such as copyright and patents, from the very beginning was deeply entrenched in social security discourse. One of the most important justifications for copyright and patent law is related to the need to ensure the well-being of authors and inventors. According to the current rules, employees participate to some extent in using intellectual property (hereinafter – IP) objects created by them, giving them additional opportunities. In almost all European countries, specific legal rules enable the employee to control his work and sometimes provide additional remuneration. The question is – how the current model will be affected by AI and whether the position of employees will be worsened.

Therefore, the research question of this article is – how will the development of AI affect the IPRs of employees and their opportunities to receive remuneration from these rights?

The article analyses the impact of AI from the perspective of two “classic” IP rights – copyright and patent rights. Both IP rights share the attribute that their objects are characterized by creativity. Accordingly, only natural persons, i.e., humans, are recognized as authors and inventors in many countries because, at least until now, only they have been recognized as possessing a creative activity. Another significant limitation of the study is that the article does not examine AI-assisted works and inventions when the creative contribution of the employee can be traced in them, but only the “real” AI-generated results, when it is no longer possible to ascertain the creative contribution of the employee.<sup>3</sup>

The boundaries of the study are mostly linked to the European region. However, the study also includes the US and some other non-European jurisdictions for illustration.

## 1. Rights of employees to their works and inventions

It is a well-established principle that the production created by the company and the benefits generated by it belongs to the owner of the company, not to the employees, who participate in the benefits of the production generated by the company only

<sup>1</sup> A convenient starting point is the year 1956, when a conference dedicated to AI was held, marking the beginning of the discipline of artificial intelligence.

<sup>2</sup> A recently published study states that AI could replace the equivalent of 300 million full-time jobs. See <https://www.bbc.com/news/technology-65102150> [last viewed 17.08.2023].

<sup>3</sup> For the distinction between these two situations, see *Hristov, K.* Artificial Intelligence and the Copyright Dilemma. IDEA, Vol. 57, 2017, pp. 435–437.

indirectly, through wages and other possible (but by no means mandatory) financial incentives.

However, the legal regime of intellectual property objects in many jurisdictions differs from that of physical production, with workers acquiring additional rights upon the intellectual property objects they create. In this respect, regulation differs between common law and civil law systems.<sup>4</sup> While in the countries representing the first system (primarily the US and the UK), the employer becomes the holder of all rights to the intellectual property created by his employees, and the employees are not given any additional statutory rights in the civil law countries, it is usually possible to find imperative or dispositive provisions that give the employees additional opportunities to benefit from the IP they created. The following is an overview of several continental European jurisdictions illustrating this statement.

### 1.1. Employees' copyright

At the EU level, issues of authorship and copyright ownership of works created by employees are not regulated, leaving them to the competence of the member states. The only area in which the regulation of copyright in the creations of employees is harmonized in the case of computer programs provided for in Directive 2009/24/EC on the legal protection of computer programs<sup>5</sup>. Article 2.1 of this directive provides that "the author of a computer program shall be the natural person or group of natural persons who have created the program or, where the legislation of the Member State permits, the legal person designated as the rightsholder by that legislation." Thus, according to the directive, the authors of computer programs could be both natural and legal persons. However, according to Article 2.3, "where a computer program is created by an employee in the execution of his duties or following the instructions given by his employer, the employer exclusively shall be entitled to exercise all economic rights in the program so created, unless otherwise provided by contract." This provision establishes a default rule, causing the transfer of all economic rights from employee to employer. Due to the said harmonization, analogous provisions are found in all the states discussed below.

French copyright law, characterized by a personalized approach to the author and creation, does not provide a general rule for transferring copyright to works created by employees to the employer. On the contrary, Article L.111-1 of the French Code of Intellectual Property provides that the author owns the moral and economic rights to the work from its creation, even though it was created during an employment contract or public service duties. The employer can acquire the rights to the employees' work through the copyright agreement.

There are no special provisions in the Danish Copyright Act to regulate the transfer of copyright from the employee to the employer, and these issues are left to the parties' agreement. The copyright for computer programs created in the performance of official functions belongs to the employer according to Article 59 of the Danish Copyright Act.

As indicated in the literature, based on court practice, the copyright to the works of employees is still assigned to the employer in some cases when such a job function

<sup>4</sup> *Wolk, S., Szkalej, K. (eds). Employees' Intellectual Property Rights. Wolters Kluwer, 2015, pp. 3–4.*

<sup>5</sup> 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). OJ L 111, 05.05.2009, pp. 16–22. Available: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0024> [last viewed 14.04.2023].

is described in the description of the employee's duties, and the rights are transferred only to such use of the work, which is intended for the employer's normal activities.<sup>6</sup>

According to German law, the natural person who created the work is considered an author. In addition, in Germany, the transfer of copyright is not allowed in principle, and copyright contracts can only agree on the assignment of rights. However, Article 43 of the German Copyright Act provides for the presumption of copyright ownership to the employer when the author created the work to perform his duties in the employment or service relationship unless otherwise agreed. The specified provision applies when an employment or service relationship between the author and the work must be created during employment. The scope of permitted use is determined based on the so-called principle of specific purpose – if there is no agreement on specific methods of use, the scope of use is determined according to the goals pursued by the contracting parties.

Article 69 of the above law provides legal regulation for computer programs, according to which the rights to computer programs are transferred to the employer. In this case, the rights are fully transferred, and the so-called principle of specific purpose does not apply.

Lithuania also includes additional guarantees for employees. From the point of view of copyright, the Lithuanian Copyright Act establishes a unique rule that the rights to the works created by the employee are transferred to the employer for five years (the exception applies to computer programs, the rights to which are transferred to the employer for the entire duration of rights) unless otherwise agreed. After five years, the rights return to the employee. Thus, although Lithuania establishes a statutory presumption of transfer of rights, it is limited in time, so the employer, in order to acquire rights for a period longer than five years, must conclude an additional contract with the employee.

## 1.2. Employees' inventions

At the EU level, the rights of employees to their inventions are not harmonized, and the rights to service inventions are regulated at the discretion of each state. There is no harmonization of this issue in the European Patent Convention<sup>7</sup> as well, as Article 60 thereof indicates that the issue of the right to patent an invention made by an employee is decided according to national law.

Although Article L.611-6 of the French Intellectual Property Code stipulates that the right to a patent belongs to the inventor or his successor, Article L.611-7 provides for the so-called service inventions. This article distinguishes three cases: when inventions are created during a normal work function, when inventions are created beyond the employees' normal duties, and when inventions are created beyond employment duties. In the first case, the rights to the invention belong ab initio to the employer, and the employee is entitled to additional remuneration; in the second case, the right to the invention belongs to the employee, but the employer may require a mandatory transfer of rights or a license, in which case the employee must be paid fair wages; in the third case, an employer has no rights to such inventions.

In Denmark, the rights to employees' inventions are regulated by two legal acts – the 1955 Service Inventions Act and the 2000 Law on Inventions in Public Research Institutions.

<sup>6</sup> Wolk, S., Szkalaj, K. (eds). *Employees' Intellectual Property Rights*, p. 78.

<sup>7</sup> The European Patent Convention (5 October 1973). Available: <https://www.epo.org/law-practice/legal-texts/epc.html> [last viewed 13.04.2023].

The Service Inventions Act applies to inventions that are created by employees in the course of their work duties. The concept of employee is understood based on the provisions of labour law. In the case of employee-created inventions, both the right to the invention and the right to decide whether to patent it pass to the employer. The law provides for the employee's right to reasonable remuneration if the employer requires the transfer of the invention, as well as the right to additional remuneration if the value of the invention exceeds what the employee was required to create.

The Act on Inventions in Public Research Institutions applies to inventions patentable under the Danish Patent Act and the Utility Model Act when developed in public research institutions named in the Act. The law stipulates that although the right to the invention belongs to the inventor, he is obligated to transfer the right, if the invention is created while the researcher works at the institution. There is also a special provision for inventions created during funded research activities. In such cases, the research institution has the right to transfer the rights to the inventions created by the researchers to the funder of the research activity. If the institution uses the invention for commercial purposes, the employee has the right to appropriate remuneration, just as if the employee uses the invention for commercial purposes, the institution has the right to remuneration.

German Patent Law provides that the right to an invention belongs to the person who created the invention. In the case of service inventions governed by the German Employee Inventions Act, the employer has the right to demand the transfer of the right to the invention. Service inventions are inventions created during carrying out the work duties, as well as employee inventions made using experience or results arising from the employment relationship. The employee can register the invention in countries where the employer has not registered. Also, in cases where the employer claims the right to the invention, he has the right to fair remuneration for using the patent.

Likewise, in Lithuania, there is a rule that in the case of an official invention, the rights may pass to the employer (unless the employer is not interested in it), and the employee is provided with a remuneration.

In conclusion, although there is no international or regional regulation, and the national regulations are sufficiently different, one can observe a fairly universal tendency in European countries to establish the opportunity for employees to receive additional income from their inventions. Usually, the legal mechanism allows the employer to acquire the rights to the invention invented by the employee performing his normal working duties, while providing the employer with the obligation to pay the employee a remuneration. The situation in the field of copyright is slightly different, and, as a rule, the law does not expressly provide additional remuneration to the employee for created copyrightable subject matter. However, in many European countries, there is no automatic transfer of copyright to the employer, or such a transfer is provided only for a short period of time (the case in Lithuania). Even if the presumption of transferring the employee's property rights to the employer is established, when deciding on the scope of the transferred rights, the purpose rule applies, which limits the rights transferred to the employer only to the extent necessary to achieve the purpose of the contract. In this way, the legal regulation of authors leaves a sufficient number of possibilities where the employer and the employee have to conclude a separate contract for the work created during work, which implies the possibility for the employee to receive additional compensation for the transfer of such rights. Therefore, the status of authors and inventors working



under an employment contract is somewhat privileged – unlike employees who create physical products, the former have additional guarantees of participation in the benefit of IP.

## 2. AI and its impact on authorship and inventorship

AI is not a new phenomenon, but a unified definition can hardly be given. On the one hand, the term “AI” refers not to a single technology but describes a relatively distinct group. On the other hand, AI is constantly developing, so trying to provide a definition is risky because it may immediately become outdated. For this article, the definition given by R. Abbott is entirely sufficient: “an algorithm or machine capable of completing tasks that would otherwise require cognition.”<sup>8</sup>

Thus, AI is a machine, computer, and/or computer program that can make decisions independently. Related to this feature of AI is, for this article, the most important attribute of AI, which is autonomy.<sup>9</sup> The autonomy of AI can also be seen in the definition presented by the European Commission in the draft AI Act<sup>10</sup>. Autonomy means that the results of AI are no longer just the execution of pre-formulated human instructions. Autonomy is a crucial element that distinguishes AI from other technical tools.

It should be noted here that authors and inventors rarely create without using technical means. From the very beginning, works of literature or art have required the use of at least means of writing or painting (which have been successfully replaced by the computer). Similarly, the inventor uses various, sometimes extremely complex, devices. However, using technical means does not affect the decision on the authorship of a work or invention – it belongs to the individual making creative decisions.

However, AI differs from other technologies because humans no longer make creative decisions. The participation of AI in creating traditional IP objects is a well-established fact. AI creates music, movies, works of art, other computer programs, fiction and non-fiction books, and various inventions. The human contribution can be limited to an abstract command to the computer to create a work of some kind. Therefore, previous judgments that technology is just a tool to implement the will of the human actor are no longer applicable. Consequently, the following chapter will consider the status of AI in the context of IPRs.

## 3. The status of AI in copyright and patent law

Copyright has been and remains anthropocentric. In the laws of many countries, it is stated *expressis verbis* that only a human being can be an author. In other countries,

---

<sup>8</sup> Abbott, R. *The Reasonable Robot: Artificial Intelligence and the Law*. Cambridge: Cambridge University Press, 2020, p. 22.

<sup>9</sup> Ramalho, A. *Intellectual Property Protection for AI-generated Creations Europe, United States, Australia and Japan*. eBook. London, Routledge, 2021, p. 69.

<sup>10</sup> “Artificial intelligence system” (AI system) means a system that is designed to operate with elements of autonomy and that, based on machine and/or human-provided data and inputs, infers how to achieve a given set of objectives using machine learning and/or logic- and knowledge-based approaches, and produces system-generated outputs such as content (generative AI systems), predictions, recommendations or decisions, influencing the environments with which the AI system interacts”. See the updated Proposal for a Regulation laying down harmonized rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts. Available: [https://www.artificial-intelligence-act.com/Artificial\\_Intelligence\\_Act\\_Articles\\_\(Proposal\\_25.11.2022\).html](https://www.artificial-intelligence-act.com/Artificial_Intelligence_Act_Articles_(Proposal_25.11.2022).html) [last viewed 13.04.2023].



even if there is no such imperative in the law, this approach is followed by judicial case law and doctrine. Accordingly, animals, plants, or – most importantly – machines – cannot be qualified as authors. As the author, the human creator is also the first rights owner. The mentioned anthropocentrism is reflected in the requirements for protecting the work. In the EU, the essential condition for a work to receive copyright protection is originality, which is defined as the author's own intellectual creation<sup>11</sup>. It is generally accepted that only human creativity can meet the criteria formulated this way.

The indicated anthropocentric approach is reflected in the refusal to recognize copyright protection for AI-generated works. Most recently, the US Copyright Office adopted guidelines<sup>12</sup> reiterating its longstanding practice that AI-generated results will not be registered as copyrightable works. Due to the originality requirement mentioned above, the same decision regarding AI-generated works would likely be made in European countries. The resolution of the European Parliament<sup>13</sup> states that works created by machines should not receive copyright protection.

Although anthropocentrism is not so pronounced in patent law, the inventor in many countries can be only a human being. This aspect of the human inventor was especially evident in the recent DABUS cases, which deserve to be presented in greater detail.

DABUS is an AI created by US scientist S. Thaler, which is said to produce creative results entirely autonomously. DABUS has brought into existence many objects that, if created by a human, would be considered copyrighted objects (pictures, movies) and – most likely – would be considered patentable inventions. Seeking patent protection for such inventions, S. Thaler filed patent applications in a number of jurisdictions. The applications listed AI as the inventor. In most jurisdictions, patent offices and courts have rejected the application, because only a human can be named as the inventor. This was the situation in the European Patent Office,<sup>14</sup> the United States,<sup>15</sup> and the United Kingdom. The only country where DABUS has managed to obtain a patent is the Republic of South Africa. However, such a decision is explained by the Republic of South Africa applying the formal examination patent system. As a result, this single success does not seem very persuasive.

However, there is no clear answer to patenting AI inventions. The EU Parliament resolution states that AI inventions should be patentable.<sup>16</sup> At the end of 2022, UK Intellectual Property Office published the guidelines where the possibility of patenting

---

<sup>11</sup> Judgment of the Court (Fourth Chamber) of 16 July 2009. *Infopaq International A/S v. Danske Dagblades Forening*. Available: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:62008CJ0005> [last viewed 13.04.2023].

<sup>12</sup> US Copyright Office. Copyright Registration Guidance for Works Containing AI-Generated Material. Available: [https://www.copyright.gov/ai/ai\\_policy\\_guidance.pdf](https://www.copyright.gov/ai/ai_policy_guidance.pdf) [last viewed 13.04.2023].

<sup>13</sup> European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies (2020/2015(INI)). Available: [https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277_EN.html) [last viewed 13.04.2023].

<sup>14</sup> 20-12-2019 Decision of the European Patent Office, Available: <https://www.epo.org/news-events/news/2019/20191220.html> [last viewed 13.04.2023]; 21.12.2021 Decision of the Legal Board of Appeal of the European Patent Office, Available: <https://www.epo.org/law-practice/case-law-appeals/recent/j200008eu1.html> [last viewed 13.04.2023].

<sup>15</sup> Decision of the United States Court of Appeals for the Federal Circuit, Available: [https://cafc.uscourts.gov/opinions-orders/21-2347.OPINION.8-5-2022\\_1988142.pdf](https://cafc.uscourts.gov/opinions-orders/21-2347.OPINION.8-5-2022_1988142.pdf) [last viewed 13.04.2023].

<sup>16</sup> European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies (2020/2015(INI)). Available: [https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277_EN.html) [last viewed 13.04.2023].

AI inventions is recognized<sup>17</sup>. For its part, in the USA, the US PTO is currently surveying how AI inventions should be treated, so the final answer has yet to be discovered. It should be noted that legal regulation and practice are still uncertain, and the search for solutions is still ongoing.

#### 4. Possible scenarios of allocation of IPRs to AI-generated results

Based on the preceding analysis, the main alternatives for determining who should own IPR in an AI-created work or invention are discussed below.

##### 4.1. Public domain

According to this view, intellectual property rights in results created by AI should not be recognized at all. In other words, the creative results produced by AI, no matter how creative or valuable, would fall into the public domain.<sup>18</sup>

This approach can be supported by arguments derived from the IPRs justification doctrine. If IPRs are traditionally perceived as incentivizing persons to create, this incentive is irrelevant to AI. The machine can create 24/7 all year round, without any extra incentives. A public domain solution would benefit society as a whole, as it would have unlimited access (at least in terms of copyright and patent rights) to the creative output of AI, the quantity of which is likely to increase exponentially.

On the other hand, this approach will face the obvious problem that companies interested in protecting AI works and inventions will pretend that the work or invention is created by natural persons. In addition, without copyright or patent protection, the perceived gap in legal protection will undoubtedly be filled with trade secrets, contracts, and other legal instruments.

Judging from the employees' perspective, the public domain option would not be helpful for them, as it, in principle, eliminates any IPRs and the possibility of any additional remuneration.

##### 4.2. AI

The second option would be to consider AI as the author or inventor. This option directly relates to another fundamental choice – considering AI as a separate person.

The postulate that the AI should be considered a rightsholder and, accordingly, acquire property rights in the created IP object has its supporters. One of the most vocal of them is probably R. Abbott, who helps the above-mentioned S. Thaler in the DABUS patenting process. His main argument is that AI nowadays has become sufficiently independent to be considered as an entity making creative decisions. Since there is no creative contribution of natural persons in the final product, their authorship would be fictitious, while the actual author or inventor is AI.<sup>19</sup>

On the other hand, current regulation is not moving in this direction. On the contrary, both US and EU practice and regulatory proposals demonstrate a clear

<sup>17</sup> United Kingdom Intellectual Property Office. Examining patent applications relating to artificial intelligence (AI) inventions: The Guidance. Available: <https://www.gov.uk/government/publications/examining-patent-applications-relating-to-artificial-intelligence-ai-inventions/examining-patent-applications-relating-to-artificial-intelligence-ai-inventions-the-guidance> [last viewed 14.04.2023].

<sup>18</sup> *Huson, G. I.*, Copyright. *Santa Clara High Technology Law Journal*, Vol. 35, issue 2, 2018, p. 77.

<sup>19</sup> *Abbott, R.* The Reasonable Robot, pp. 25–27, 34. Also see *Lawrence, B. S.* Comment, Legal Personhood for Artificial Intelligences, *North Carolina Law Review*, Vol. 70, 1992, pp. 1231, 1259; *Watanabe, Y. I.*, Inventor: Patent Inventorship for Artificial Intelligence Systems. *Idaho Law Review*, Vol. 57, issue 2, 2021, pp. 473–496; *Comer, A.* AI: Artificial Inventor or the Real Deal? *North Carolina Journal of Law & Technology*, Vol. 22, issue 3, 447–486, 2021.

orientation to maintain the central position of the human being and refusal to grant AI the status of an independent person.<sup>20</sup>

No matter how the legal status of AI is resolved, the consequences of recognizing AI as the author or inventor would not be favourable for the employee. It is noteworthy that the authors who are in favour of granting the status of author and inventor to AI simultaneously advocate that IPRs should be immediately passed to the company<sup>21</sup>. In this case, the employee does not acquire IPRs or other guarantees.

### 4.3. Employer

There is already a lot of research intended to assess which entities are placed in the best position to receive the rights to the results created by AI, specifically whether it should be the company that created the AI<sup>22</sup> or the user-company<sup>23</sup>. For this article, it does not matter – in both cases, the rightsholder will be the employer, not the employee. In both cases, the assignment of rights to the company is motivated by the fact that, although AI does not need incentives, the companies that invest in the creation of AI and the development of new products with the help of AI do need such incentives.

The discussed option is attractive, because it maintains the existing regulatory structure of IPRs and does not require significant changes. Possibly, in many jurisdictions, adopting this option would not necessarily require changes in legal regulation at all, and minor adaptations of the doctrine, relevant practice of courts, and other institutions would be sufficient.

As in the previous case, this decision is unfavourable for employees, because they would not receive any additional benefit from IP objects. The existing exclusivity of creative workers would be abolished, and they would be subject to the same regime as “non-creative” workers, who, as mentioned before, typically have no rights to the result of their work.

### 4.4. Employees

Another option is to initially grant the IPRs to employees who have directly interacted with the AI, for example, formulated the task that resulted in the AI generating a new work or invention. Such an alternative would essentially be the preservation of the status quo. Employees would be considered authors and inventors, and the IPRs would pass to the employer, as it is now, preserving the guarantees established for the benefit of employees, discussed in Chapter 1 of this article. On the one hand, such a solution would be acceptable, because it would avoid the problem of AI personhood, and from the point of view of the legal economy, this option would require little change in legal regulation. Socially, this would also be the most suitable option for employees, as it would maintain the existing guarantees.

However, this alternative faces a fundamental flaw. Because AI creates a creative output autonomously, workers cannot be considered authors and inventors in the context of current copyright and patent law. The existing practice of legal institutions, especially in the USA, demonstrates just such an approach, and does not

<sup>20</sup> European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies (2020/2015(INI)). Available: [https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277_EN.html) [last viewed 13.04.2023].

<sup>21</sup> *Abbott, R.* The Reasonable Robot, pp. 87–88

<sup>22</sup> *Abbott, R.* The Reasonable Robot, pp. 87–88. Similarly, see *Hristov, K.* Artificial Intelligence.

<sup>23</sup> *Schuster, W.* Artificial Intelligence and Patent Ownership. *Washington and Lee Law Review*, Vol. 75, issue 4, 1945–2004, 2018, p. 1988.

recognize rights to objects created in this way.<sup>24</sup> Employees could only be considered authors or inventors by applying legal fiction. It is possible – an existing model could be the category of computer-generated works that is recognized in the UK and some other common law states. The rights to computer-generated works are attributed to the person by whom the arrangements necessary for the creation of the work are undertaken. It is noteworthy that the actions of such a person do not have to be creative<sup>25</sup>. However, such a decision requires additional legal regulation, which would change the fundamental provisions of copyright and patent law. In addition, common law has always been more flexible regarding protected subject matter and requirements of protection, while such an instrument is conceptually alien to continental legal tradition. Therefore, the possibility of the discussed alternative remains unclear at the moment.

## Summary

Although there is currently no universal solution as to who should own the rights to the works and inventions created by the employee, in most continental European countries, there are provisions in favour of the employees, which determine that they can receive additional benefits from the IP subject matter created by them. In the case of copyrightable work, these rules usually mean the requirement for the employer to enter into a separate agreement with the employee, thereby enabling additional remuneration or at least certain leverage for the employee. In the case of rights to service inventions, the employer, upon acquiring these rights, has a legal obligation to pay the employee remuneration for the invention.

The question of ownership of rights to AI-created objects, which would generally be copyrighted works or patentable inventions, remains unresolved at the global or regional level. National regulation is also in its nascent stages. However, four emerging scenarios can be distinguished: considering such objects to be in the public domain; allocating rights to the AI itself; granting rights to the employer, granting rights to the employee.

According to the first three scenarios, employees would lose the opportunity to rely on the current system of guarantees associated with service inventions and copyrightable works created in the course of employment duties. Therefore, the most likely consequence is that employees will not participate in the benefits created by AI and will be worse off due to the development of AI.

The fourth alternative is to preserve the status quo and consider employees as the authors and inventors of the AI-created result. Although it would be the most beneficial option to employees, this solution would face conceptual obstacles and require revision of fundamental postulates of copyright and patent law.

## References

### Bibliography

Abbott, R. *The Reasonable Robot: Artificial Intelligence and the Law*. Cambridge: Cambridge University Press, 2020.

<sup>24</sup> See Chapter 4.1.

<sup>25</sup> Lee, J. *Computer-Generated Works under the CDP 1988*. In: *Artificial Intelligence and Intellectual Property*. Lee, J. Hilty, R. M., and Liu, K.-Ch. (eds). Oxford University Press, 2021.

- Brynjolfsson, E., Rock, D., Syverson, Ch. Artificial Intelligence and the Modern Productivity Paradox: A Clash of Expectations and Statistics. NBER Working Paper No. 24001, 2017.
- Comer, A. AI: Artificial Inventor or the Real Deal? North Carolina Journal of Law & Technology, Vol. 22, issue 3, 2021.
- Ramalho, A. Intellectual Property Protection for AI-generated Creations Europe, United States, Australia and Japan. eBook. London, Routledge, 2021.
- Hristov, K. Artificial Intelligence and the Copyright Dilemma. IDEA, Vol. 57, 2017.
- Huson, G. I. Copyright. Santa Clara High Technology Law Journal, Vol. 35, issue 2, 2018.
- Lawrence, B. S. Comment, Legal Personhood for Artificial Intelligences. North Carolina Law Review, Vol. 70, 1992.
- Lee, J. Computer-generated Works under the CDPA 1988 In: Artificial Intelligence and Intellectual Property. Lee, J., Hilty, R. M. and Liu, K.-Ch. (eds). Oxford University Press, 2021.
- Schuster, W. Artificial intelligence and patent ownership. Washington and Lee Law Review, Vol. 75, issue 4, 1945–2004, 2018.
- Watanabe, Y. I. Inventor: Patent Inventorship for Artificial Intelligence Systems. Idaho Law Review, Vol. 57, issue 2, 2021.
- Wolk, S., Szkalej, K. (eds). Employees' Intellectual Property Rights. Wolters Kluwer, 2015.
- Wolk, S. Remuneration of Employee Inventors – Is There a Common European Ground? A Comparison of National Laws on Compensation of Inventors in Germany, France, Spain, Sweden, and the United Kingdom. International Review of Intellectual Property and Competition Law, Vol. 42, issue 3, 2011.

## Normative acts

- 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). OJ L 111, 5.5.2009, pp. 16–22. Available: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0024> [last viewed 14.04.2023].
- The European Patent Convention (5 October 1973). Available: <https://www.epo.org/law-practice/legal-texts/epc.html> [last viewed 13.04.2023].

## Case law

- Judgment of the Court (Fourth Chamber) of 16 July 2009. Infopaq International A/S v. Danske Dagblades Forening. Available: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:62008CJ0005> [last viewed 13.04.2023].
- 20-12-2019 Decision of the European Patent Office. Available: <https://www.epo.org/news-events/news/2019/20191220.html> [last viewed 07.04.2023].
- 21-12-2021 Decision of the Legal Board of Appeal of the European Patent Office. Available: <https://www.epo.org/law-practice/case-law-appeals/recent/j200008eu1.html> [last viewed 07.04.2023].
- 05-08-2022 Decision of the United States Court of Appeals for the Federal Circuit. Available: [https://cafc.uscourts.gov/opinions-orders/21-2347.OPINION.8-5-2022\\_1988142.pdf](https://cafc.uscourts.gov/opinions-orders/21-2347.OPINION.8-5-2022_1988142.pdf) [last viewed 07.04.2023].

## Other sources

- European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies (2020/2015(INI)). Available: [https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277_EN.html) [last viewed 14.03.2023].
- Proposal for a Regulation laying down harmonized rules on artificial intelligence (Artificial Intelligence Act) and amending certain union legislative acts. Available: [https://www.artificial-intelligence-act.com/Artificial\\_Intelligence\\_Act\\_Articles\\_\(Proposal\\_25.11.2022\).html](https://www.artificial-intelligence-act.com/Artificial_Intelligence_Act_Articles_(Proposal_25.11.2022).html) [last viewed 14.03.2023].
- United Kingdom Intellectual Property Office. Examining patent applications relating to artificial intelligence (AI) inventions: The Guidance. Available: <https://www.gov.uk/government/publications/examining-patent-applications-relating-to-artificial-intelligence-ai-inventions/examining-patent-applications-relating-to-artificial-intelligence-ai-inventions-the-guidance> [last viewed 14.04.2023].
- US Copyright Office. Copyright Registration Guidance for Works Containing AI-Generated Material. Available: [https://www.copyright.gov/ai/ai\\_policy\\_guidance.pdf](https://www.copyright.gov/ai/ai_policy_guidance.pdf) [last viewed 13.04.2023].