INTELLECTUAL PROPERTY ON DIGITAL CREATIONS

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RESUMO

Tive a honra de ser parte da comissão científica deste Congresso de Propriedade Intelectual sob o mote das Evoluções Recentes na União Europeia. Por esse motivo, além da parte organizativa, coube-me moderar o Painel I, que decorreu em inglês sob o tema "Intellectual Property on Digital Creations", e que teve como oradores os professores Andreas Wiebe, da Universidade Göttingen, Zsolt György Balogh, da Universidade Corvinus de Budapeste, e Matěj Myška, da Universidade de Masaryk.

Naturalmente, como moderador, não fiz qualquer apresentação na conferência, tendo tido o benefício de escutar e aprender com a excelência de todos os participantes.

Optei por isso por escrever não um texto científico sobre um tema mais específico, mas um resumo abrangente das temáticas que foram abordadas, em particular no painel neste painel I: Intellectual Property on Digital Creations.

Este texto não segue o processo normal da escrita científica, sendo particularmente escasso em referências doutrinais ou outras, apresentando-se apenas como um ensaio livre sobre as problemáticas em torno da criação digital.

Por respeito ao painel que moderei, optei por escrever este texto para publicação também em inglês.

ABSTRACT:

I had the honour of being part of the scientific committee of this Intellectual Property Congress under the theme of Recent Developments in the European Union. For this reason, in addition to the organisational aspects, I was responsible for moderating Panel I, which was held in English on the theme of 'Intellectual Property on Digital Creations', with speakers including Professors Andreas Wiebe from the University of Göttingen, Zsolt György Balogh from Corvinus University in Budapest, and Matěj Myška from Masaryk University.

Naturally, as a moderator, I did not make any presentation at the conference, having had the benefit of listening to and learning from the excellence of all the participants.

I therefore chose to write not a scientific text on a more focused topic, but a comprehensive summary of the topics that were addressed, particularly in Panel I: Intellectual Property on Digital Creations.

This text does not follow the normal process of scientific writing, being particularly sparse in doctrinal or other

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references, presenting itself only as a free essay on the issues surrounding digital creation.

Out of respect for the panel I moderated, I chose to write this text for publication in English as well.

PALAVRAS CHAVE

Inteligência Artificial; criações intelectuais; propriedade intelectual.

KEYWORDS

Artificial Intelligence; intellectual creations; intellectual property.

1. INTRODUCTION

Although the theme of this panel could be understood in a much broader sense, the major technological innovation with a legal impact is undoubtedly the potential of artificial intelligence as creator of works, products, and processes that may deserve protection under intellectual property law.

Artificial intelligence is often characterised as a computer programme capable of reproducing human-like abilities, such as reasoning, learning, planning, and creativity. European legislation refers to this type of computer technology as an Artificial Intelligence System (AIS).

The European Regulation on Artificial Intelligence (ERAI)[2] classifies Artificial Intelligence Systems according to different levels of risk of their use for the values of the European Union. ERAI is not specifically focused on intellectual property issues, but we will nevertheless use the definition of AIS given by this law as relevant to the purposes of this text.

Firstly, the same questions raised about computer programs, regarding their protection by copyright and/or patent as computer-implemented inventions, are also raised about AIS. In practice, the answer has remained the same in the doctrine and practice of registration entities. This was one of the topics explored by Professor Matej Myska in his presentation on "Recent developments in software copyright protection."

Secondly, echoing the old saying 'nothing is created, nothing is lost, everything is transformed', AIS includes the consumption of large amounts of data in its creative process, which is also often protected by intellectual property rights. This raises several questions regarding the protection of moral or economic rights that the owners of intellectual property rights used by AIS may have.

Third, AISs produce a variety of results that may be subject to intellectual property rights. Namely, works protected by copyright (images, music, videos, texts, etc.) and/or inventions protected by patents (products or processes that result in a technical solution to a technical problem). The question naturally arises as to whether they will meet the requirements for protection.

Finally, from a fourth perspective, AIS can also be understood as creators, authors or inventors, insofar as their creative process is generated autonomously, without significant human intervention. Raising various questions regarding the ownership of intellectual property rights that may exist over these creations.

All four of these perspectives were briefly outlined in the copyright perspective in the first presentation of the congress by the distinguished Professor Zolt Balogh under the motto "Overview of Copyright Protection of AIS", from a copyright perspective, and by Professor Andreas Wiebe, in

2 Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024.

a presentation titled "AI and Patents", from the perspective of patent law.

In the following sections, we will begin with a brief overview of AIS, based on the aforementioned European regulation, and then present the main arguments raised on these four issues during the congress.

2. BRIEF CONCEPT OF ARTIFICIAL INTELLIGENCE SYSTEMS

According to Article 3(a) of the ERAI "'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;"

Firstly, an AIS is a computer program. A computer program consists of a sequence of instructions, structured in computational algorithms, written in a programming language – source code or object code – which cause the hardware to perform a specific set of functions.

What distinguishes an AIS from other computer programs is its ability to solve new problems and generate results that are not specifically provided for in its original programming. In other words, these computational algorithms can develop new functionalities and/or solutions to problems not specifically provided for, through the processing of massive amounts of data and training processes.

We can therefore say that, as objects, AIS are computer programs composed of extremely complex computational algorithms that require a high processing capacity from the hardware. And, as producers of objects, they are computational algorithms capable of generating results not expressly provided for in their original code.

In a way, we can also conclude that an AIS, as a creative system, comprises not only the intelligent computational algorithm but also the set of data and instructions resulting from its training, which allows it to autonomously generate creative results.

3. AIS AS AN INTELLECTUAL PROPERTY OBJECT

As we mentioned in the previous section, AISs are, or include, computer programs. To that extent, there is no doubt that they are covered by the protection that European copyright law grants to the expressive form of computer programs, which has been understood to mean source code and object code.

As objects of copyright, AIS do not raise issues that are substantially different from those raised by the protection regime for computer programs. This has been a peaceful debate in doctrine.

Similarly, the possibility of AIS being patentable, i.e., being classifiable as inventions themselves, falls under European law within the scope of so-called computer-implemented inventions, which are already covered by extensive European doctrine and case law.

The question here arises only to the extent that the data structures and instructions resulting from its training may or may not be included in this patent registration. In fact, this topic has not yet been explored in depth in academic debate.

4. AIS AS A USER OF PROTECTED WORKS

One of the most debated issues is precisely the legitimacy of AIS as a massive user of protected works, and how to safeguard the rights of opposition and remuneration of copyright holders over the works used.

This issue is raised in recital (48) of ERAI, which warns that "The magnitude of the adverse consequences of an AI system for the fundamental rights protected by the Charter is particularly important when classifying an AI system as high risk. These rights include (...) intellectual property rights (...)" and this is reflected, for example, in Article 25/5, which expressly states that the obligations arising from this Regulation "shall be without prejudice to the need to observe and protect intellectual and industrial property rights, confidential business information and trade secrets, by Union and national law".

The ERAI remains fairly brief insofar as the issue of access to data protected by intellectual property rights by AIS. This issue is addressed in Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on the right to search text and data, commonly referred to in doctrine by the Anglo-Saxon expression 'text and data mining', or its acronym TDM.

This term TDM refers to search techniques for obtaining information from huge amounts of digital data using automated software tools. "It is a broad expression, an umbrella term that includes activities carried out by different processes and with different objectives, the only common element being the analysis and extraction of associations between concepts to identify new patterns and relationships"[3].

Directive 2019/790 establishes two exceptions to the exclusivity of IP rights holders for text and data mining situations.

Article 3 establishes the obligation of Member States to create an exception to copyright and certain related rights for reproductions and extractions made by research organizations and cultural heritage institutions to conduct scientific research on works or other performances to which they have legal access.

Article 4 provides that Member States must provide for an exception or limitation to copyright and certain related rights in respect of reproductions and extractions of works and other performances to which there is "lawful access" for the purposes of text and data mining. This exception or limitation is only admissible if the right-holders do not expressly reserve the use of the works.

The first of these exceptions is intended to promote scientific research, while the second refers to uses not related to scientific research.

The issue is obviously far from being resolved with these provisions of Directive 2019/790, continuing to fuel extensive doctrinal debate. As was commented on by several interventions during the congress.

In practice, access by AISs to protected works has been the subject of numerous legal actions in various jurisdictions, so it will certainly continue to be the subject of extensive academic debate in the future.

5. THE RESULT OF AIS PROCESSING AS INTELLECTUAL CREATIONS

As we said above, AISs produce a variety of results that may be subject to intellectual property rights.

If the result of AIS processing is an image, video, music, or text, and it is presented as distinct from pre-existing works, the question arises as to whether these can benefit from copyright protection. This was in this congress the main subject of discussion of the presentation of Professor Pablo

3 ROCHA, Maria Victória, "Prospeção de texto e dados (text anda data mining) na Diretiva relativa aos Direitos de Autor e Direitos Conexos no mercado digital", Revista Rede de Direito Digital, Intelectual & Sociedade, v. 2, n. 4, p. 99, 2023, p. 103. (translation by Deepl.com free version)

Fernandéz Carballo-Calero, titled "Protection of work created by AI".

Here, despite the multiple hypotheses supported by doctrine, there has been international consensus that, under current law, only works with a human author can be protected by copyright. If the processing of the AIS is completely autonomous and unrelated to any creative choice made by the human user, this opinion tends to be consensual. Authors vary when considering the possibility of finding relevant human intervention in the creative process in the act of developing the prompts that drive the AIS. In this regard, some innovative legal solutions were proposed at the conference that point to this option, particularly in the United Kingdom.

As for the prospects for legislative developments in copyright law on computer-generated works, legal scholars are divided between those who propose one (more) related right for computer-generated works and those (currently in the majority) who believe that these works should remain in the public domain because they do not contribute to the promotion of human cultural creation under copyright law. This was the position defended in the debate that closed Panel I by Professor Andreas Wiebe.

Another possibility is that the result of AIS processing constitutes a product or a process that represents the solution to a technical problem, in which case the issue falls within the field of patent law.

Interestingly, from this perspective, the issue has proved to be much more complex in doctrinal debate and among industrial property registration entities.

In principle, legal doctrine tends to agree that there is nothing formally preventing the registration of an invention generated by an AIS. A report by the European Union's Joint Research Center even states that "there is nothing to prevent the granting of patents for AI-generated inventions, provided that they relate to a patentable subject matter"[4]. Similar conclusions have been reported by doctrine in relation to the US and Japan.[5]

Even so, the doctrinal debate surrounding this issue — which we have seen repeated at this congress — has raised some interesting questions about this hypothesis.

For example, if we consider that most of these computational models of artificial intelligence operate by processing enormous amounts of data - Big Data - from which they extract their own "conclusions," one might wonder whether we are dealing with new knowledge in relation to the state of the art - fulfilling the requirement of novelty - or whether we are merely dealing with an "obvious deduction" in relation to data that was already public - lacking inventive activity[6]. In this regard, the aforementioned report points out that doctrine has "argued that the possible use of AI as a tool (if its use were common in the field in question) should be taken into account in the assessment of inventive activity"[7].

On the other side, this leads us to question whether it would not make sense to also have artificial intelligence computer applications to verify the requirements of novelty and inventive activity.

Compliance with the criterion of inventiveness, as well as the methods used to assess it, is the most debated point

4 IGLÉSIAS, Maria; SHAMUILIA, Sharon; ANDENBERG, Amanda, *Intellectual Property and Artificial Intelligence: a literature review.*, Luxembourg,: Publications Office of the European Union, 2019, p. 16..

5 PEIXOTO, Sara, *O requisito da atividade inventiva da invenção patenteável e as invenções geradas por inteligência artificial*, Mestrado, Universidade do Minho, Braga, 2022; RAMALHO, Patentability of AI-Generated Inventions.

6 PEIXOTO, Sara, *O requisito da atividade inventiva da invenção patenteável e as invenções geradas por inteligência artificial*.

7 IGLÉSIAS; SHAMUILIA; ANDENBERG, *Intellectual Property and Artificial Intelligence*, p. 16.

in doctrine. As was once again demonstrated in the various presentations that addressed the topic, there is still far from being a consensus on this matter.

Another issue that is widely debated, not only in doctrine but also among registration entities, is whether the fact that the invention was created by artificial intelligence is an impediment to its classification as an invention. In other words, does patent law require that the invention be the result of human inventive activity?

The question is obviously only relevant if there is no relevant human intervention in the inventive process, in which case, there is no doubt that the AIS will be seen as a mere instrument.

In the formal tradition of industrial property, it is usually irrelevant whether the inventive process results from human or artificial intelligence, or even chance.

From this perspective, for industrial property, it does not matter how the invention is "achieved," but only that its description and claims meet the requirements for patentability, i.e., that they satisfy the purposes of promoting technological innovation and economic development.

In truth, the recognition of the patentability of creations generated by AI is the subject of extensive doctrinal divergence that has not yet been resolved[8]. Some argue that the inventive process must have some relevant human intervention. Another issue yet to meet a consensus, as eloquently presented by Professor Andreas Wiebe, in a presentation titled "AI and Patents".

6. CAN AIS BE UNDERSTOOD AS CREATORS, AUTHORS OR INVENTORS?

Finally, the answer to this last question is closely linked to the arguments put forward in the previous section.

From a copyright perspective, in principle, authorship of a work can only be attributed to a human intellectual creator.

However, the general regime, at least in two circumstances – and with special emphasis on special regimes for digital works such as computer programs and databases – allows the original attribution of ownership of the right to a third party other than the intellectual creator, who may even be a legal person. We are referring to collective work and works done by hire or under an employment contract.

It is therefore defensible that, assuming that a computer-generated work is protected by copyright (which, as we have seen, is not the prevailing position in doctrine and courts), the respective ownership may be recognized as belonging to the entity, whether natural or legal, on whose behalf the AIS created that work.

Assuming that the result (creation) of an AIS meets the requirements for patentability, and is therefore a product or process that presents itself as a solution to a technical problem and as such is eligible for protection by means of a patent right, the question arises as to the identification of the respective subjects: the inventor and the holder of the registration right.

The second question is easy to answer. The right to registration does not necessarily belong to the inventor (the intellectual creator) but to the entity, whether individual or collective, public or private, that has undertaken the inventive endeavor.

In addition to the obvious fact that the AIS does not have legal personality under established law, it is necessarily a working "instrument" owned by some entity with legal personality, the inventive process having been developed in the interest and at the expense of that entity.

8 PEIXOTO, *O requisito da atividade inventiva da invenção patenteável e as invenções geradas por inteligência artificial*., p. 94–98.

It has been peacefully concluded by most of the doctrine that, in all conceivable circumstances, the right of registration will always belong to the entity, whether singular or collective, for whose benefit SIA's inventive process was conducted.

A separate issue, but one that is nevertheless clearly resolved in established law, is whether the AIS can be indicated in the registration as the inventor, i.e., as the intellectual creator of the invention.

On this point, case law has been consistent in answering in the negative. It has been implied by the legal regime that recognition as an inventor can only be given to a human being.

In fact, in our understanding, the right to be recognized as an inventor is a personal and non-transferable right, which will always and only belong to the intellectual creator of the invention. In this sense, it is a "moral right" that only makes sense to recognize in human beings.

Having been another dominant understanding that AIS cannot be recognized as an inventor in the patent registration process. Nor do we see this as a relevant issue, given the strictly moral or ethical nature of this recognition of "authorship" in the patent law.

From a distinct perspective, some doctrine argues that "de iure condendo", the identification of artificial intelligence intervention in any invention should be mandatory, if only as a secondary matter, or in the description[9]. According to this doctrine, the information would be relevant to safeguard the terms of assessment of patentability requirements based on the very nature of the inventive process, as we pointed out above regarding the patentability of creations generated autonomously by an AIS.

In summary, in the current situation, AISs have not been recognized as having either the right to register patents or the right to be mentioned in the register as inventors.

7. CONCLUSIONS

The Intellectual Property Congress, under the theme of Recent Developments in the European Union, organised by Lusófona University in Porto, Portugal, featured an international panel of experts, which gave us the opportunity to take a comprehensive look at the issues that recent technological developments have brought to intellectual property law.

In this text, I shared just a few of the topics covered in the first panel - 'Intellectual Property on Digital Creations' - but, as I mentioned throuout the text, the issues raised here were also addressed in topics discussed in other panels throughout the congress. Revealing how interconnected and interdependent these subjects are.

In this complex digital society, increasingly dominated by massive data consumption and the emergence of artificial intelligence, AIS have become 'quasi-subjects': consumers and producers of intellectual creations that seem to break with traditional intellectual property norms. Certainly a topic that will continue to interest legal experts and spark new debates.

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9 *Ibid.*

PEIXOTO, Sara. *O requisito da atividade inventiva da invenção patenteável e as invenções geradas por inteligência artificial*. Mestrado, Universidade do Minho, Braga, 2022.

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