

Generative AI and intellectual property in questions

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*In lecture halls where wisdom's light transcends,
Prof. Janssens reigns, where knowledge subtly blends.
Her intellect, a beacon shining bright,
Ignites the minds that seek the scholar's height.*

*With grace, she guides through realms of deep insight,
A mentor true, in intellectual property's flight.
In academia's dance, she leads the way,
A maestro of the mind, in bright array.*

These alexandrines honoring Marie-Christine were unfortunately not written by me.

They were written by the famous artificial intelligence (AI) system ChatGPT¹.

In 2003, as part of my Master's degree in intellectual property law at the KUB, I had the pleasure of following course '*Intellectuele rechten in de informatiemaatschappij*', in which Prof. M-C Janssens addressed the intellectual property rights issues raised by the arrival of new technologies, such as conflicts between trade mark rights and domain names or the protection of technological measures in copyright law.

In the spirit of this course, I would like to make a modest contribution around the intellectual property law issues raised by the advent of artificial intelligence, in the form of questions and short answers.

As we all know, generative artificial intelligence systems are computer systems that are capable of performing tasks previously reserved to humans, such as creating text, images, music or even solving complex problems without human intervention.

These systems generally involve a software component (the generative models) and a large amount of data used to train the model (the training data). Once trained, the system is able to generate results that are new but share characteristics similar to those of the training data.

The use of the training data (referred to as the "input") and the protection of the results generated by the AI system (referred to as the "output") raise interesting questions in the field of intellectual property law.

I will try to answer some of them.

1. The input: the IP protection of training data

1.1. What if the training data are protected by copyright?

As any work, training data may be protected by copyright it constitutes an intellectual creation reflecting the freedom of choice and personality of its author².

To the extent that a work is protected, the author is entitled to prevent its reproduction, and therefore its use as training data for a generative AI system.

¹ Based on the prompt : "create an alexandrine about Professor Marie-Christine Janssens".

² CJEU, 12 Sept. 2019, C-683/17 (*Cofemel*), ECLI:EU:C:2019:721.

Even if the training data are no longer used or are deleted after the AI model has been trained, the reproduction may not be considered as a transient or incidental reproduction in the meaning of Article 5(1) of Directive 2001/29³.

However, as part of the Directive 2019/790, a new exception was introduced for 'text and data mining'.

This exception is both mandatory (in the sense that Member States must implement this exception) and transversal (in the sense that it applies to a wide range of intellectual property rights⁴).

Text and data mining is defined as "*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*"⁵. The activities consisting in using the training data to train a generative AI model will fall under this definition.

This new exception is subject to three conditions⁶ :

(1) the work must be lawfully accessible and accessed: we know that the use of a work is considered lawful where it is authorised by the right holder or where it is not restricted by the applicable legislation⁷,

(2) the reproductions and extractions may be retained only for as long as is necessary for the purposes of text and data mining : therefore, the training data may not be retained after the AI models have been trained,

(3) last but not least, the rightholders may expressly exclude the exception, in which case the exception does not apply : the exclusion must be made in an appropriate manner, which, includes the use of a "robots.txt" for content made publicly available online.

1.2. What if the training data are protected by copyright-related rights?

The training data may also consist in content that is protected by copyright related rights, such as the performers' right on the fixations of their performances, music producers' right on their phonograms, film producers' right on their films, broadcasters' right on the fixation of their broadcasts⁸ and, more recently, press publishers' right on their publications⁹.

To the extent that training data are protected by a copyright related right, the right owner is entitled to prevent its reproduction and, therefore its use as training data for a generative AI system.

The exception for text and data mining, as detailed in question 1.1. also applies to copyright-related rights.

1.3. What if the training data are protected by a *sui generis* database right?

³ See by analogy, the act in the data capture process at issue in the the *Infopaq* case, CJEU, 16 July 2009, C-5/08 (*Infopaq*), ECLI:EU:C:2009:465.

⁴ The databases protected under Directive 96/9/EC, the copyright and related rights under Directive 2001/29/EC, the software under Directive 2009/24/EC and even the newly introduced press publisher right under Article 15(1) of Directive 2019/790.

⁵ Article 2,(2) of Directive 2019/790.

⁶ Article 4 of Directive 2019/790.

⁷ CJEU, 4 October 2011, C-403/08 (*Premier League*), EU:C:2011:631 and CJEU, 26 April 2017, C-527/15 (*Stichting Brein*), ECLI:EU:C:2017:300.

⁸ Article 4 of Directive 2001/29.

⁹ Article 15(1) of Directive 2019/790.

Since databases are collections of data arranged in a systematic or methodical way and individually accessible by electronic means¹⁰, databases are extremely useful as training data for generative AI.

For example, a database of metadata accompanying the works (such as keywords, description, comments, etc) will allow an AI model to discover new patterns and relations quicker and therefore, to be more effectively trained.

The maker of a database is protected if a (qualitatively or quantitatively) substantial investment was made in the obtaining, verifying or presenting the data.

If the database is protected, the maker of the database may prevent the extraction and/or re-utilization of all or a substantial part of the contents of its database, and therefore its use as training data.

The exception for text and data mining, as detailed in question 1.1. also applies to database rights.

1.4. What if the training data are protected by a contract?

If the training data are not protected by copyright, copyright related or database rights, the owner of the data may still set contractual terms limiting or regulating their use by third parties¹¹.

Such contractual limitations could, for example, specify that the data may not be used for training an AI system or require a specific payment for such use.

1.5. What if the training data contain protected trade marks?

It may happen that the training data contain names or graphics that are registered as trade marks.

In this case, the question arises whether the trade mark owner could prevent the use of its trade mark as training data for an AI system.

We believe that the answer should be negative, considering that the use of a trade mark as training data is not a public use, and therefore not a use in the sense of trade mark law.

In a similar situation concerning the use of trade marks by Google Adwords consisting of presenting keywords to advertisers (some of which corresponded to registered trade marks), the Court of justice considered that simply storing the keywords and displaying its clients ads based on the keywords did not amount to a 'uses' those trade marks within the terms of Article 10 of Directive 2015/2436 and Article 9 of Regulation 2017/1001¹².

2. The output : the IP protection of the AI generated results

2.1. Can the output be protected by copyright?

In order to be eligible for copyright protection, the output must be the result of human intellectual effort.

Although there is no legal provision expressly stating this, it is generally admitted that EU copyright law requires a human creator¹³, as it is also traditionally the case under Belgian law¹⁴.

¹⁰ Article 1, (2) of Directive 96/9/EC.

¹¹ CJEU, 15 Jan 2015, C-30/14 (*Ryanair*), ECLI:EU:C:2015:10.

¹² CJEU, 23 Mar 2010, C-236/08 (*Google*), ECLI:EU:C:2010:159.

¹³ Bernt Hugenholtz et al. 'Trends and Developments in Artificial Intelligence, Challenges to the Intellectual Property Rights Framework, Final Report' (2020), https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=71915

¹⁴ See for example F. de Visscher & B. Michaux, *Précis du droit d'auteur et des droits voisins*, Bruylant, 2002, p. 6.

This requirement of human authorship is indeed fundamental to the copyright regime, be it because the duration of the rights is linked to the author's death¹⁵ or because the fundamental principles of international copyright law are linked to national treatment and the author's nationality.

This requirement is also reflected in the CJEU's case law on originality, which relies on the notion of a human being engaging in creative acts. Indeed, according to the Court, it is both necessary and sufficient that the subject matter reflects the personality of its author, as an expression of his or her free and creative choice¹⁶.

Anything that is entirely created by an AI system is therefore not eligible for copyright protection. This applies, for example, to the poem reproduced in the introduction, which has been created based on based on a generic and non-creative prompt.

It remains, however, that the outcome may be the result of a combination of the AI system and human creativity guiding the system. In this case, the AI system serves as a tool for human creators, augmenting their creative capabilities. The creation process is not fundamentally different from the use of other tools or systems that require human direction. To the extent that the human intervention reflects free and creative choices causing the output to reflect the personality of its author, the output will be protected by copyright.

Therefore, copyright protection of the output is highly dependent on the role of the artificial intelligence and of humans in the creation process.

2.2. Can the output be protected by copyright-related rights?

Like the author, the performer must, in our opinion, be a human¹⁷. Therefore, content created by generative AI may never be considered a "performance". Nor could it be considered as a press publication, which requires the intervention of a journalist¹⁸.

On the other hand, a generative AI system could create music or films. However, in our opinion, it is doubtful that instructing an AI system to create a music or a film makes you a music or film producer. Producers are protected because of their role and investments in their productions¹⁹.

Finally, a broadcast can, in our view, be protected even if the content was generated by an artificial intelligence system as long as it is broadcasted by a broadcasting organization, as the act of broadcasting is the trigger for protection.

2.3. Can the output be protected by a *sui generis* database right?

¹⁵ See Directive 2006/116 on the term of protection of copyright and certain related rights, in particular Article 1(4) which expressly refers to the "*natural persons who have created the work*".

¹⁶ See CJEU, 27 Apr 2023, C-628/21 (*Castorama Polska and Knor*), ECLI:EU:C:2022:905; CJEU, 11 Jun 2020, C-833/18 (*Brompton Bicycle*), ECLI:EU:C:2020:461; CJEU, 12 Sep 2019, C-683/17 (*Cofemel*), ECLI:EU:C:2019:721; CJEU, 29 Jul 2019, C-469/17 (*Funke Medien NRW*), ECLI:EU:C:2019:623.

¹⁷ See for example F. de Visscher & B. Michaux, *Précis du droit d'auteur et des droits voisins*, Bruylant, 2002, p. 263. It can also be reminded that the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations defines the performers as the "*actors, singers, musicians, dancers, and other persons who act, sing, deliver, declaim, play in, or otherwise perform literary or artistic works*", thereby highlighting that the performers must be persons.

¹⁸ Article 2(4) of Directive 2019/790.

¹⁹ Recital 10 of Directive 2001/29. It can also be reminded that the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations defines the producer as the "*the person who, or the legal entity which, first fixes the sounds of a performance or other sounds*", thereby excluding that a producer could be a machine.

As explained above in question 1.3, a database is protected when the maker of the database made a (qualitatively or quantitatively) substantial investment in the obtaining, verifying or presenting the data.

Even if substantial investments were made in a generative AI system or even in the processing of the training data, a new database created by generative AI would, in our view, not be eligible for protection as a database.

That is because, according to the Court of justice, the resources used for the creation of the materials which make up the contents of the database does not qualify as investments in the obtaining, verifying or presenting the data²⁰.

2.4. Can the output be protected by a patent right?

Similar to our conclusions regarding copyright protection as detailed in question 2.1., patent protection of the output is dependent on the role of the artificial intelligence and of humans in the invention process.

It is generally accepted that inventions using AI for the verification of the outcome or inventions in which a human identifies a problem and uses AI to find a solution will be considered as human-made inventions where AI is used as a tool by the human inventors, to augment their capabilities. Therefore, the invention is eligible for patent protection²¹.

However, when it comes to inventions in which the AI system both identifies a problem and proposes a solution, without human intervention, then there would be no human inventor and the invention would not be patentable subject matter.

This is the conclusion reached by the Legal Board of Appeal of the European Patent Office in the case "DABUS"²². The applicant filed two patent applications designating as inventor "DABUS" (which stands for "Device for the Autonomous Bootstrapping of Unified Sentence"), with the comment that "*the invention was autonomously generated by an artificial intelligence*".

The Legal Board of Appeal concluded that the designation of the inventor is a mandatory requirement of the application under Article 81 of the European Patent Convention and that and that the inventor had to be a human. In other words, a machine is not an inventor within the meaning of the European Patent Convention²³.

2.5. Can the output be protected by a design right?

Similar to our conclusions regarding copyright and protection as detailed in question 2.1. and 2.2. respectively, design protection of the output is dependent on the role of the artificial intelligence and of humans in the creation process.

Artificial Intelligence is increasingly being used a tool in the creation process, with most popular design software offering generative AI functionalities²⁴.

²⁰ CJEU, 9 Nov. 2004, C-444/02 (*Fixtures Marketing*), ECLI:EU:C:2004:697.

²¹ See <https://www.epo.org/en/news-events/in-focus/ict/artificial-intelligence>

²² EPO Legal Board of Appeal, 21 December 2021, J 0008/20 (Designation of inventor/DABUS), ECLI:EP:BA:2021:J000820.20211221.

²³ Similar decisions have been taken by Patent Offices across the world regarding the DABUS case in the United States, the United Kingdom, Australia and New Zealand, with the notable exception of South Africa where the patent was issued to the applicant.

²⁴ For example, the popular software Adobe Photoshop advertises "*Tap into the power of generative AI for photo editing with Adobe Photoshop. Make tricky edits and unique designs instantly with AI-powered design tools.*" (<https://www.adobe.com>).

When AI is simply used by a human designer to create a design, it is generally accepted that the design is eligible for design protection²⁵.

However, the question regarding the protection of designs solely created by an AI system, without any human intervention is more complicated to answer. To our knowledge, it has not yet been answered by any court or administrative body.

Unlike the legal framework for copyrights (see question 2.1 above), the protection of designs is not fundamentally centered around a human creator. The duration of the protection is not linked to the death of the designer, the designer is not granted any moral rights and the conditions for protection (novelty and individual character) are not centered around the designer (unlike copyright protection which requires the work to reflect the personality of its author).

Unlike the legal framework for patents (see question 2.4 above), Regulation 6/2002 on Community designs does not require a designation of the designer. Article 18 only provides for a right to be cited as designer and does not require the designer to be designated in the same way as the inventor must be.

Therefore, the argument could be made that a design created solely by an AI system, without human intervention, can validly be registered as a Community design.

The argument could also be made that Regulation 6/2002 requires that the designer is a natural person. Indeed, Article 14 provides that: "*the right to the Community design shall vest in the designer or his successor in title.*" However, the Regulation does not define the designer and does not contain any express requirement that the designer must be a natural person.

A definitive answer will therefore have to wait for a resolution by the Courts or by a legislative change.

2.6 Can the output be protected by a trade mark right?

Contrary to the legal framework for copyright, patent and design rights (see above questions 2.1, 2.4 and 2.5, trade mark law does not involve at any point the creator of a trade mark.

The conditions for protection are only linked to the sign to be registered and its perception by the relevant public. The protection is obtained by registration and any natural or legal person may be the proprietor of a EU trade mark, without any need to investigate how the trade mark came to existence.

Therefore, a sign entirely created by an AI system may, in our view, be registered as a trade mark, provided that it complies with the requirements.

2.7 Can the output be protected by a contract?

As seen in question 1.4, the owner of the data may set contractual terms limiting or regulating their use by third parties.

Such terms are in principle enforceable, but, of course, only against the person who accepted the contract (which will usually be the person who agreed to the terms of use of the AI system).

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²⁵ See for example, M. ANTIKAINEN & H. HÄRKÖNEN, "Artificial Intelligence and EU Design Law", in Dana Beldiman (ed), *Design Law: Global Law and Practice* (Edward Elgar Publishers 2024), Available at SSRN: <https://ssrn.com/abstract=4575982>