

Current Developments – Europe

The European Patent Office (“EPO”) rejects patent applications which name an artificially intelligent inventor

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Introduction

The ramifications of Artificial Intelligence (“AI”) have inspired the imagination of many, sparked fears over a dystopian future and provided endless food for science fiction novels, films and series. The increasing functionality of AI has also meant that questions as to ownership of computer-generated creations and inventions need to be addressed and have become a pertinent issue in the intellectual property (“IP”) discourse.

IP, as the name suggests, attributes certain rights to the “owner” of the rights deriving from IP. While much debate surrounds the philosophical and doctrinal underpinnings of IP ownership and AI, practical issues are also a sticking point in the discussion. Along with the debate on the virtues and pitfalls of AI, courts and IP offices are now dealing with very practical issues regarding AI and IP. The Nanshan District Court of Guangzhou Province in the *Shenzhen Tencent v Yinxun* case, which related to an article created with the assistance of the *Dreamwriter* software, has recently held that a work generated by an AI system could be protected by copyright.¹ Similar issues can also arise under patent, where an invention is devised with the assistance of an AI system. Much debate revolves around the level of contribution of an AI system in devising the work or invention and whether a standalone contribution by an AI system would render it an author or inventor – a notion which is difficult to fathom *de lege lata*. The cases discussed below, which have also featured in the media,² shed some light as to how the EPO is currently addressing this issue.

Background

The romantic notion of the sole inventor of the late 19th century, the genius devising groundbreaking inventions on his or her own, has gradually given way in the 20th and 21st centuries to collaboration and corporatisation. Many inventions are nowadays devised by professional teams of inventors working within research & development departments of big, multinational corporations. The question of who will be granted ownership over a subsequent patent is then regulated by the law of employee inventions. However, one remnant of the early days of 19th century patent law can still be seen in the obligation to name the inventor in a patent applicant which then acts a form of “moral right”. Within the law of the European Patent Convention (“EPC”), which serves as a template for national patent law within the Contracting Member States of the EPC (i.e. all European Union (“EU”) Member States, as well as the United

¹ Kan He, ‘Another decision on AI-generated work in China: Is it a Work of Legal Entities?’, *IP Kat Blog* 29 January 2020 – available here:< <http://ipkitten.blogspot.com/2020/01/another-decision-on-ai-generated-work.html>>.

² Martin Coulter, ‘Patent agencies challenged to accept AI inventor’, *Financial Times* 1 August 2019 - available here:<<https://www.ft.com/content/9c114014-b373-11e9-bec9-fdcab53d6959>>.

Kingdom (“UK”)) and that of the possibly incumbent patent with unitary effect by the EU, it is mandated that patent applications have to specify ownership and inventorship.

The EPC specifies that the right to a European patent application belongs to the inventor. In addition, Article 81 of the EPC prescribes that the inventor must be named: “[t]he European patent application shall designate the inventor”. If the applicant is not the inventor or is not the sole inventor, the designation shall contain a statement indicating the origin of the right to the European patent.³ In cases where the inventor is not designated, the EPO will inform the applicant that the application will be refused pursuant to Rule 60(1) of the EPC Implementing Regulations if it is not provided within 16 months from the date of filing of the application or, if priority is claimed, of the date of priority.

These rules, however, do not specify that the inventor needs to be a human being. Ownership, of course, can be held by a legal person, but the nature of the inventor is not clearly defined, although there is a suggestion that this would need to be a human being. As already mentioned, the increasing abilities of AI systems challenge the notion of inventor having to be human beings. The EPO had to deal with this issue in the two patent applications discussed below.

The two applications

The two applications relate to creations by the AI system named DABUS, which was itself created by Dr Stephen Thaler. The first application (EP 18275163) related to a food container suitable for liquid and solid food products, while the other to a flashlight system which could be used to attract attention in emergency situations (EP 18275174). The European Patent application initially filed with the Intellectual Property Office (“IPO”) of the UK. They were subsequently forwarded to the EPO on 7 November 2018. On the application form for a European Patent (Form 1001P) the field which indicates the inventor was left blank by the applicant. In December 2018, the EPO sent a letter to the applicant’s legal representatives in relation to the deficiencies regarding the designation of inventor. In communications to the Office, the designated inventor was both times named as DABUS. The communication contained the additional information that “[t]he invention was autonomously generated by artificial intelligence.”⁴ A letter by the applicant’s representative dated 2 August 2019, stated that the applicant “derives the rights of the invention by being the successor in title, namely the owner of the AI inventor.”⁵

The oral proceedings took place in Munich on 25 November 2019. The applicant’s representatives stated that the applicant did not contribute at all to these inventions.⁶ They argued that accepting the AI system as inventor “would allow the applicant to name the true inventor.”⁷ In addition, not accepting an AI system as inventor would exclude inventions

³ Rule 19 (1) of the EPC Implementing Regulations.

⁴ Designation of Inventor dated 23 July 2019. Available here:

<https://register.epo.org/application?documentId=E3L3EUR49944DSU&number=EP18275174&lng=en&npl=false>.

⁵ Designation of Inventor dated 23 July 2019. Available here:

<https://register.epo.org/application?documentId=E3NDI4BO8858DSU&number=EP18275174&lng=en&npl=false>.

⁶ Minutes of the oral proceedings before the Receiving Section from 25 November 2019, [98]. Available at:

<https://register.epo.org/application?documentId=E36YGR9Q2260498&number=EP18275174&lng=en&npl=false>.

⁷ Minutes of the oral proceedings before the Receiving Section from 25 November 2019, [9]. Available at:

<https://register.epo.org/application?documentId=E36YGR9Q2260498&number=EP18275174&lng=en&npl=false>.

devised by these from patentability which would be contrary to Articles 52-57 EPC.⁸ The representative added that the EPC does not specify that the inventor must necessarily be human: The *Travaux Préparatoires* of the EPC only suggests that inventors are human beings without specifically denying non-human inventorship.⁹ After a short deliberation, the chairperson presiding over the proceedings announced that the application was refused.

The opinion with regard to both applications was published on 27 January 2020. Both applications were refused pursuant to Article 90(5) EPC “since the designation of inventor filed for the application does not meet the requirements of Article 81 and Rule 19 EPC.” The decision found that the name of a machine would not meet the requirements of Rule 19(1) EPC.¹⁰ This is because names given to things, such as machines, cannot be equated to names of natural persons. The decision made a clear statement that inventorship can only refer to natural persons. It based this on the legislative history of the EPC.¹¹ In addition, the EPC safeguards the inventor’s position through various measures and AI systems or machines cannot be rights holders since they do not “have legal personality comparable to natural or legal persons.”¹² The decision adds that “[w]here non-natural persons are concerned, legal personality is only given on the basis of legal fictions.”¹³ Such legal fictions “are either directly created by legislation or developed through consistent jurisprudence.”¹⁴ Since no legislation nor jurisprudence would exist to convey legal personality to AI inventors, AI systems could not have the rights conveyed to inventors. Finally, the EPO Boards have recognised that inventors are natural persons within their jurisprudence. .

Comment

The decisions highlight the possible starting point of further activity on the issue of AI inventorship. The *IP Kat* blog has noted that the decision will be appealed¹⁵ and will then be discussed by the Technical Boards of Appeal. It does not, however, appear that the EPO will change its stance on this issue, at least not in the foreseeable future. A report on AI

⁸ Minutes of the oral proceedings before the Receiving Section from 25 November 2019, [9]. Available at: <<https://register.epo.org/application?documentId=E36YGR9Q2260498&number=EP18275174&lng=en&npl=false>>.

⁹ Minutes of the oral proceedings before the Receiving Section from 25 November 2019, [11]. Available at: <<https://register.epo.org/application?documentId=E36YGR9Q2260498&number=EP18275174&lng=en&npl=false>>.

¹⁰ Decision of the Receiving Section from 27 January 2010, [21]. Available at: <<https://register.epo.org/application?documentId=E4B63OBI2076498&number=EP18275174&lng=en&npl=false>>.

¹¹ Decision of the Receiving Section from 27 January 2010, [24]. Available at: <<https://register.epo.org/application?documentId=E4B63OBI2076498&number=EP18275174&lng=en&npl=false>>.

¹² Decision of the Receiving Section from 27 January 2010, [27]. Available at: <<https://register.epo.org/application?documentId=E4B63OBI2076498&number=EP18275174&lng=en&npl=false>>.

¹³ Decision of the Receiving Section from 27 January 2010, [28]. Available at: <<https://register.epo.org/application?documentId=E4B63OBI2076498&number=EP18275174&lng=en&npl=false>>.

¹⁴ Decision of the Receiving Section from 27 January 2010, [28]. Available at: <<https://register.epo.org/application?documentId=E4B63OBI2076498&number=EP18275174&lng=en&npl=false>>.

¹⁵ Rose Hughes, ‘EPO refuses "AI inventor" applications in short order - AI Inventor team intend to appeal’, *IP Kat Blog* 22 December 2019. Available at: <<http://ipkitten.blogspot.com/2019/12/epo-refuses-ai-inventor-applications-in.html>>.

inventorship¹⁶ commissioned by the EPO and drafted by Dr Noam Shemtov from Queen Mary University of London has canvassed the current state of affair on this issue throughout EPC Contracting Member States. It found that none of the investigated patent jurisdictions (i.e. US, China, Japan, Republic of Korea, UK, Germany, France and Switzerland) would allow AI systems to be named as inventors.¹⁷ So, the finding on the applications discussed above does not really come as any surprise.

Another related matter which was not discussed is whether the inventions would have actually been patentable. The search report in relation to the food container application suggested that the invention would not be new pursuant to Article 52(1) EPC in light of the prior art.¹⁸ This might suggest that current AI technology is not advanced enough to overcome criteria like novelty and inventive step. However, the advances within the field might make this possible in the future. If such advances are made would this then warrant reconsideration of the status and nature of AI systems as patent inventors, or rights holders in more general terms? This, of course, has much wider ramifications of a political, ethical, theological and philosophical nature. The science fiction genre (e.g. *Star Trek – The Next Generation*'s character of Lieutenant Data) showcases some of the possible ramifications.¹⁹

¹⁶ Noam Shemtov, *A study on inventorship in inventions involving AI activity* (EPO, 2019). Available at: [http://documents.epo.org/projects/babylon/eponet.nsf/0/3918F57B010A3540C125841900280653/\\$File/Concept_of_Inventorship_in_Inventions_involving_AI_Activity_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/3918F57B010A3540C125841900280653/$File/Concept_of_Inventorship_in_Inventions_involving_AI_Activity_en.pdf).

¹⁷ Noam Shemtov, *A study on inventorship in inventions involving AI activity* (EPO, 2019), p. 5. Available at: [http://documents.epo.org/projects/babylon/eponet.nsf/0/3918F57B010A3540C125841900280653/\\$File/Concept_of_Inventorship_in_Inventions_involving_AI_Activity_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/3918F57B010A3540C125841900280653/$File/Concept_of_Inventorship_in_Inventions_involving_AI_Activity_en.pdf).

¹⁸ European Search Opinion, available at: <https://register.epo.org/application?documentId=E275652S6532DSU&number=EP18275163&lng=en&npl=false>. It must be noted that the UK IPO's search report came to a different conclusion.

¹⁹ In particular the episode "The Measure of a Man" of *Star Trek: The Next Generation* (Season 2, episode 9) which examines whether the Lt Data, an android, would be the property of the fictional star Fleet or sentient life.