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How AI Inventorship Is Evolving In The UK, EU And US

By **Mark Prinsley, Brian Nolan and Benjamin Beck** (February 5, 2024, 1:01 PM GMT)

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On Dec. 20, 2023, in Thaler v. Comptroller-General of Patents, Designs and Trade Marks,[1] the U.K. Supreme Court **unanimously held** that U.K. patent legislation does not permit an artificial intelligence system to be named as the inventor in a patent application.[2] In doing so, the U.K. Supreme Court reaffirmed earlier findings from U.K. courts and the U.K. Intellectual Property Office, or UKIPO, that a patent's inventor must be a natural person.

The judgment does not preclude human inventors from using AI systems as tools to devise inventions. Indeed, the U.K. Supreme Court's judgment notes that "in this jurisdiction it is not, and never has been Dr Thaler's case that he was the inventor and used DABUS as a highly sophisticated tool. Had he done so, the outcome of these proceedings might well have been different." However, when seeking to obtain patents at the UKIPO it is essential that the inventor is a natural person.

The U.K. Supreme Court's decision is the latest in a series of decisions in which national courts and patent offices have considered whether AI systems can be named as the inventor of a patent application in their given jurisdiction.

This article compares the position of the U.K. Supreme Court with those of the U.S. Patent and Trademark Office, or USPTO, and U.S. federal courts, as well as the European Patent Office, or EPO, and the German Federal Patent Court.

Consistent with the U.K. Supreme Court's decision, the view in the U.S., at the EPO and in Germany is that patent law does not allow for the listing of AI as an inventor on a patent application. Listing human inventorship therefore remains a filing obligation across these major patent filing jurisdictions.

What was the background of the U.K. Supreme Court decision?

In 2018, Stephen Thaler submitted two U.K. patent applications to the UKIPO. During the patent application process, the UKIPO requested that Thaler file a statement of inventorship for the claimed inventions.

When filing the requested statements of inventorship, Thaler asserted that the claimed inventions had been created by an autonomous, AI powered machine called DABUS, which he owned. Thaler also asserted that he had the right to the grant of the respective patents given that he was the owner of the DABUS machine.

In December 2019, the hearing officer for the Comptroller-General of Patents refused Thaler's U.K. patent applications on the basis that they were noncompliant with the U.K. Patents Act 1977. In particular, the hearing officer found that the act's provisions governing the right to apply for and obtain a patent require the invention to be devised by an inventor, and that DABUS, as a machine, did not qualify as such.

Thaler subsequently unsuccessfully appealed the hearing officer's decision, initially at the U.K. High Court of Justice of England and Wales, and later at the U.K. Court of Appeal of England and

Wales. Each time, the U.K. courts found that DABUS, as a machine and not a person, could not be an inventor under the act.

Following the U.K. Court of Appeal's 2021 **decision**, Thaler was granted further permission to appeal to the U.K. Supreme Court.

The U.K. Supreme Court decision clarified whether an AI system could be named an inventor.

The outcome of the U.K. Supreme Court's judgment turned on the following three issues.

1. What is the scope and meaning of the term "inventor" in the 1977 act?

The U.K. Supreme Court concluded that the applicable sections of the act — specifically Sections 7 and 13 — allow for one meaning of the term "inventor," namely that an inventor must be a natural person, i.e., a human being. DABUS could therefore not be the inventor of any new product or process described in the U.K. patent applications.

Interestingly, in reaching its decision, the U.K. Supreme Court also considered a submission by the U.K. Chartered Institute of Patent Attorneys, which broadly aligned with a dissenting judgment in the U.K. Court of Appeal, and effectively said that the fact that Thaler stated on the application that he believed the inventor was a machine should have been no impediment to the grant of a patent to Thaler.

2. Was Thaler the owner of any invention in any technical advance made by DABUS?

The U.K. Supreme Court concluded that Thaler could not apply for or obtain the patents that were subject to the applications by virtue of Thaler's ownership of DABUS. Although the act contains instances in which a noninventor can obtain ownership of a patent, all such instances require at least one inventor to have been previously established.

In the context of the DABUS patent applications, the U.K. Supreme Court had established that DABUS could not be an inventor, and therefore there was no basis on which Thaler could claim to have obtained any rights in any patent application under the act.

The U.K. Supreme Court also rejected Thaler's arguments that he had acquired the right to apply for and obtain the patents through the doctrine of accession on the basis that, as the owner of DABUS, any rights to new property derived from DABUS would be owned by Thaler. In rejecting this accession argument, the U.K. Supreme Court acknowledged that an invention did not amount to tangible property such that title to it can pass to the owner of the machine who generated the invention.

3. Was the hearing officer entitled to hold that the applications would be withdrawn?

The U.K. Supreme Court decided that the hearing officer was ultimately entitled to determine that the applications would be taken to be withdrawn at the expiry of the 16-month-period, as set out in Rule 10(3) of the Patent Rules 2007.

The U.S. courts also concluded that AI can't be an inventor.

Like the U.K. Supreme Court deciding that, under U.K. patent legislation, "an inventor must be a natural person," U.S. federal district and appellate courts concluded in another case involving Thaler — Thaler v. Vidal — that U.S. statutory language forecloses the listing of AI as an inventor.[3]

In 2022, in Thaler v. Vidal, the U.S. Court of Appeals for the Federal Circuit Court explained that "there is no ambiguity: the Patent Act requires that inventors must be natural persons; that is, human beings."

The court based its **ruling** on portions of the statute that referred to inventors as "individuals." After acknowledging that the U.S. patent statute did not define that term, the court looked to U.S. Supreme Court precedent that makes clear that the term "individual" refers to a human being, unless the Congress indicated otherwise in a statute using the term.[4]

While the court clarified in Thaler that AI cannot be listed as an inventor, it expressly noted that it

was not confronted with the issue of whether inventions made by a human being with the assistance of AI are eligible for patent protection.[5] The question remains as to how U.S. law will treat a patent application if AI contributes in some significant manner to the conception or its reduction to practice such that, had a human being made that contribution, that person would be listed as a joint inventor.

We expect that the USPTO will provide insight on this situation in the **AI guidance** that it must provide by February 2024 based on President Joe Biden's executive order.[6] But that will only be the USPTO's view, and should an applicant disagree with the manner by which the USPTO handles such a situation, it may seek review by a federal court.

The EPO and German courts have taken similar approaches to AI patents.

The provisions of Sections 7 and 13 of the U.K. Patents Act, which were considered by the U.K. Supreme Court in reaching the Thaler decision, are not among the provisions introduced into U.K. patent law to assimilate the European Patent Convention into the U.K. Thus, it is not inevitable that the approach of the EPO and other national patent offices of the convention's member states would be the same as in the U.K.

However, the EPO has also refused the equivalent application made by Thaler at the first instance and at the Boards of Appeal. An appeal to the Enlarged Board of Appeal was also refused. Like the U.K. Supreme Court, the EPO Boards of Appeal held on Dec. 21, 2021, that "the designated inventor has to be a person with legal capacity."[7]

According to the EPO Boards of Appeal, the purpose of the provisions dealing with the inventor and its designation were "primarily to confer and to protect rights of the inventor … to facilitate the enforcement of potential compensation claims provided under domestic law, and to identify a legal basis for entitlement to the application."[8] Designating a machine without legal capacity would serve neither of these purposes.[9]

While the EPO Boards of Appeal clarified that a machine could not be designated as the inventor, they explicitly stated that patentable inventions were "not limited to human-made inventions."[10] In the European patent system, it did not matter how the invention was made. Therefore, it was "arguable that AI-generated inventions too are patentable".[11]

Other European Patent Convention member states, such as Germany, have taken a similar approach. According to the German Federal Patent Court, only natural persons may be designated as inventors.[12] The requirements to designate an inventor were intended to protect the inventor's personality rights, which a machine does not have.

However, if an invention was conceived by a machine, which in this case was DABUS, the German Federal Patent Court did not exclude that the persons operating the software could be considered as inventors. Interestingly, in another decision,[13] the court allowed the human inventor to be named with the additional indication "who caused the artificial intelligence DABUS to generate the invention," which was later rejected.[14]

Where does this leave the patentability of AI-generated inventions?

While the U.S, U.K. and EPO patent systems are dated from an era when AI-generated inventions were not seriously imagined, and the applications filed by Thaler failed because of the absence of a human inventor, the clear guidance in the U.S., U.K., EPO and Germany is that these decisions are without prejudice to the possibility of patents being granted to human inventors that use AI as a sophisticated tool — possibly even in cases where the AI was solely or almost exclusively responsible for inventing.

For the moment, however, attribution of human inventorship remains the filing requirement across these major patent filing jurisdictions.

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[1] Thaler (Appellant) v Comptroller-General of Patents, Designs and Trade Marks (Respondent) 2023 UKSC 49.

[2] https://www.supremecourt.uk/cases/uksc-2021-0201.html.

[3] Thaler v. Vidal , 558 F.Supp.3d 238, 247 (E.D. Va. 2021), aff'd, 43 F.4th 1207, 1210 (Fed. Cir. 2022), cert. denied, 143 S.Ct. 1783 (2023).

[4] Id. at 1211.

[5] Id. at 1213.

[6] See Section 5.2(c)(i) Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (Oct. 30, 2023).

[7] Decisions of 21 December 2021 - J 0008/20 (Designation of inventor/DABUS) and J 0009/20 (Designation of inventor/DABUS II), each at 4.3.1.

[8] Id. at 4.3.3.

[9] Id. at 4.3.3.

[10] Id. at 4.6.2.

[11] Id. at 4.6.2.

[12] Decision of 11 November 2021 – 11 W (pat) 5/21 and decision of 21 June 2023 – 18 W (pat) 28/20.

[13] Decision of 11 November 2021 – 11 W (pat) 5/21.

[14] Decision of 21 June 2023 – 18 W (pat) 28/20.