'WHY CAN'T OUR CREATIONS CREATE?' - AI CAN BE PATENT INVENTORS IN AUSTRALIA

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Legal Briefings – By **Aaron Hayward, Tess Mierendorff, Claire Dorse and Sophie Yates**

A Federal Court ruling holds the prospect of AI systems being named as 'inventors' of patentable subject matter. Will other courts follow?

An artificial intelligence system is capable of being named as an “inventor” of patentable subject matter, according to the Federal Court’s recent decision in *Thaler v Commissioner of Patents*.[1] Subject to any appeal, this decision has salient implications for the ways in which inventorship, ownership, and inventiveness might be assessed in Australia in the future.

KEY TAKEAWAYS

- AI systems can be “inventors” for the purposes of the *Patents Act 1990*.
- AI systems cannot be the owners of patents, but a patentee can, in certain circumstances, “derive” their entitlement to a patent from an AI “inventor”.
- This differs from the position taken with respect to AI “inventors” in decisions in the UK, EU and US.
- The decision also contrasts with the legislative requirements for human authors in other areas of intellectual property in Australia, such as copyright.
- The decision may have implications for the way in which the entitlement and inventiveness of patentable subject matter are assessed in the future.

BACKGROUND

Dr Stephen Thaler is the creator and owner of DABUS, the "device for the autonomous bootstrapping of unified sentience". DABUS is comprised of several "generator" artificial neural networks which, together, are capable of generating new concepts, encoding those memories in chains, and recognising salient outcomes. In other words, DABUS is an artificially intelligent system, trained through a combination of supervised and unsupervised learning.

According to Dr Thaler, DABUS "invented" an improved, interlocking container for food products. In September 2019, Dr Thaler sought to patent a "'food container and devices and methods of attracting enhanced attention", and named DABUS on the application as the inventor.

In February 2021, the Deputy Commissioner of Patents found that to treat an AI system as an "inventor" would be inconsistent with the *Patents Act 1990* (Cth).[2] Further, the Deputy Commissioner held that the failure to nominate a valid inventor meant that Dr Thaler's application for a patent had lapsed.

FEDERAL COURT DECISION

Dr Thaler sought judicial review of the Deputy Commissioner's decision before Justice Beach in the Federal Court.

His Honour set aside the Deputy Commissioner's decision and found that an AI system is capable of being an "inventor" within the meaning of the *Patents Act*.

In the absence of a statutory definition of "inventor", his Honour considered that:

- "inventor" is an agent noun that means "a person or thing that invents";
- nothing in the *Patents Act* dictates the contrary conclusion; and
- to hold otherwise would be to deprive patentable inventions of protection in circumstances where those inventions were not created by a human.

The third bullet point took significant emphasis in the reasons given for the judgment. His Honour discussed various ways in which artificial intelligence has been used in pharmaceutical research, noting that this was just "*one field of scientific inquiry of interest to patent lawyers*" and that "*the examples can be multiplied*". His Honour found that depriving inventions made by AI systems of patentability would be "the antithesis" of the objects of the *Patents Act*, as set out in the recently-introduced objects clause,[3] and that, by contrast, recognising computer inventorship would promote the objects of the Patents Act since it would "*incentivise the development by computer scientists of creative machines, and also the development by others of the facilitation and use of the output of such machines, leading to new scientific advantages*".

Pending any appeal, the matter is now remitted to the Deputy Commissioner for re-examination in accordance with his Honour's findings.

The decision has significant implications for the concepts of inventorship, ownership and inventiveness and, if upheld on appeal, diverges from the positions in the US, UK and EU, as well as with the requirement for human intellectual endeavour under Australian copyright law.

"INVENTORSHIP" OPENED UP TO AI

A key outcome of this decision is that now in Australia, a person (or company) can file a patent application that identifies a computer as the inventor, potentially making Australia a more appealing jurisdiction than others for new patent filings in the AI space.

However this decision raises interesting questions as to how provisions of the *Patents Act*, directed to an "inventor" in its capacity as a legal person, could – or would - apply to AI inventors. For example, provisions of the *Patents Act* dealing with the acquisition, assignment or devolution of intellectual property would seem inapplicable to AI inventors.[4]

WHO "OWNS" AI-GENERATED INVENTIONS?

The Commissioner argued that recognising an AI system as an "inventor" would be inconsistent with, among other provisions, s 15 of the *Patents Act*, which prescribes who is entitled to a patent. Beach J accepted that, even if patentable subject matter may be "invented" by an AI system, the *Patents Act* did not permit that AI system to be the owner of any patent granted in relation to the subject matter. However, his Honour held that despite this, a legal person (such as a person or corporation) may be able to derive entitlement to such a patent, under s 15(1)(b) or s 15(1)(c). These sections provide that a patent may be granted to a person who:

(b) would, on the grant of a patent for the invention, be entitled to have the patent assigned to the person; or
(c) derives title to the invention from the inventor or a person mentioned in paragraph (b).

Such entitlement may arise in a number of ways, and his Honour recognised that there may be competing entitlements to the inventive output of an AI system, including:

- the software programmer or developer of the AI system, who may own the copyright in the computer program;
- the person who selected and provided the input data;
- the person who trained the AI system using the input data;
- the person who invested capital to produce the output;
- the operator of the AI system.

In this case, his Honour held that it was unnecessary to reach a definitive conclusion as to what was required to be entitled to such a patent, as it was clear to his Honour that Dr Thaler was entitled to the inventions of DABUS. In particular, Dr Thaler was in possession of DABUS, owned the copyright in DABUS' source code, and owned the computer on which DABUS operated. These facts were sufficient to find that Dr Thaler's was entitled to any patents protecting the inventions produced by DABUS, under at least s 15(1)(b), if not also under s 15(1)(c). This was notwithstanding that there were no formal means by which DABUS could hold or dispose of proprietary rights.

WHAT DOES THIS MEAN FOR "INVENTIVENESS"?

Although noting that it was not immediately relevant to the decision at hand, his Honour also observed that recognising AI inventorship may have flow-on consequences for the concept of "inventiveness" in assessing whether a patent involved an inventive step. For example, his Honour observed that, in future:

- a person skilled in the art might be taken in the future to be a person as assisted by AI;
- the "common general knowledge", against which inventiveness is determined, may expand to include developments made by artificial intelligence; and
- it seems likely that "inventive steps" will in fact be generated by artificial, rather than human, intelligence.

These observations could present challenges in future for both parties, and the Court, in ascertaining the extent of the common general knowledge in a particular field, and whether any particular advance is “inventive” That is particularly so in circumstances involving “inventions” generated within an AI’s black box, where even the owners of AI may be unable to articulate or recreate the steps taken by the AI system.

AI-GENERATED IP IN AUSTRALIA

The outcome of this decision differs from the accepted position under Australian copyright law, which requires that original works must be created by a human author in order to attract copyright and moral rights protection.

His Honour recognised this difference, but did not consider that there were any provisions of the *Patents Act* that compelled the construction of “inventorship” in a manner consistent with the concept of “authorship” under the *Copyright Act*.

This distinction means that, while it may be possible for technical inventions developed by AI systems to be legally protected by patents, creations that would otherwise be protected by copyright (such as computer code) will not be protected if they are created by non-human authors. As such, the protection of creations produced using AI systems needs to be carefully considered.

COMPARISON WITH OTHER JURISDICTIONS

The US, EU and UK patent offices have all found that AI cannot be a legal inventor for the purposes of a patent registration. Each of those jurisdictions has rejected Dr Thaler’s patent applications naming DABUS as an inventor on the basis that listing an AI system as an inventor does not meet the relevant requirements for patentability.[5]

In the UK, the patent office decision was appealed and subsequently dismissed by the High Court in September last year. The court held that AI is not a "person" as envisaged by sections 7 and 13 of the UK Patents Act and therefore AI cannot be a listed inventor on a patent.

In contrast to these decisions, South Arica’s patent office recently approved Dr Thaler’s patent application listing DABUS at its inventor. Despite the successful grant, South Africa has a less formal patent examination system compared to other jurisdictions and it is not certain how the patent would withstand a formal legal challenge.

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1. *Thaler v Commissioner of Patents* [2021] FCA 879.

2. *Stephen L. Thaler* [2021] APO 5 (9 February 2021).

3. *Patents Act 1990* (Cth) s 2A.

4. For example, section 172(1).

5. UK Intellectual Property Office, applications GB1816909.4 and GB1818161.0; European Patents Office, applications EP 18 275 163 and EP 18 275 174; United States Patent and Trademark Office, application 16/524, 3250.

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