Patenting AI-devised inventions—a look at the approach being taken in the UK and globally

TMT analysis: Patent applications are pending around the world for inventions said to be devised by DABUS, an artificial intelligence (AI) 'creativity machine' built by Dr Stephen Thaler. Existing legal frameworks are struggling with the notion that an AI (alone) can invent—these patent applications are routinely being denied. Clearly, AI has an important role to play in the act of invention in ever expanding fields of technology. What is less clear is whether and to what extent an AI contribution should be recognised under the current legal framework. Is it time for fundamental relegislation and debate to cater for the changing reality that is the modern-day act of invention? Alexander Korenberg, partner, and James Snaith, associate, at Kilburn & Strode discuss the approaches being taken globally, with a focus on the current UK position.

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AI inventorship

The questions are not simply academic. Core tenets of the patent system are to incentivise invention and disseminate information by offering a monopoly to those engaging in inventive activities. Without proper incentivisation, we may rapidly find ourselves in a scenario where technological developments deriving from AI are held secret or where no investment is made in AI due to a perceived lack of protectability of its fruits. Undoubtably, this would be to the detriment of the public as a whole.

AI increasingly has a role to play in devising new technologies. The design of novel therapies, for example, already makes use of computer modelling and algorithms to predict drug-body interactions.

Over time, as AI improves, it is expected to play an increasingly important role in technological development. Indeed, for the two DABUS inventions, (1) an emergency warning light and (2) a food container based on fractal geometry that improves grip and heat transfer, the AI reportedly had the only input in the relevant technological developments. There was said to be no person-led effort that accompanied DABUS' input to devise the specific inventions and the output derived solely from DABUS.

The US, Australia and South Africa

Recently, an Australian court has ruled that their local patent law does not prohibit AI from being an inventor[1]. In addition, the South African patent office has granted the world's first AI-devised patent for one of DABUS' inventions. However, the struggle is playing out in multiple jurisdictions and it is by no means clear that these outcomes will be applied consistently the world over. Moreover, in Australia, an appeal against the court ruling has recently been lodged by the Australian Patent Office (IP Australia). Clearly, the battle is far from over.

The US Patent and Trademark Office considers the local statute clear that an inventor must be an 'individual' and that 'only natural persons can be 'inventors'[2]. This position was recently confirmed by the US District Court for the Eastern District of Virginia (in September 2021). This decision made reference to legal and dictionary definitions of 'individual', both of which require that the person must be a 'natural person'. The US decision is open to appeal and it appears certain that Thaler will do so. However, at present, it seems that AI cannot be an inventor and DABUS' new technology cannot be patented in the US.

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[1] *Thaler v Commissioner of Patents* [2021] FCA 879 (Fed Court of Australia 2021)

[2] *Beech Aircraft Corp v EDO Corp,* 990 F 2d 1237, 1248 (Fed Cir 1993)

The legal struggle does not focus on the novelty or inventiveness of DABUS' new technologies—it has largely been accepted that these have sufficient technical contribution to warrant grant of a patent. Instead, the struggle generally focuses on two key issues: first, whether the AI machine (DABUS) itself qualifies as an 'inventor'; and, second, whether Dr Thaler owns the rights in any invention deriving from DABUS.

Pending Appeal in the UK

DABUS' patent applications have been deemed withdrawn by the UK Intellectual Property Office (UKIPO) Comptroller for lack of a valid statement of inventorship and the UK High Court has upheld this[3][4]. However, this decision is currently under appeal, the appeal has been heard and a judgement is eagerly awaited on the matter.

The main Sections of the UK Patents Act 1977 (PA 1977) at issue are PA 1977, s 7 (right to apply for and obtain a patent) and PA 1977, s 13 (mention of inventor). It was under PA 1977, s 13 that the UKIPO denied the patent applications in the first instance. The Comptroller considered that an inventor had to be a natural person. Since Dr Thaler had identified a non-person as an inventor, he had failed to identify any legally-recognised inventor within the scope of PA 1977. Moreover, since no person was qualifying as an inventor, there was no one to transfer rights to Dr Thaler to entitle him to apply for and obtain a patent.

The pending appeal does not seek to imbue DABUS with a status as a person but instead argues that PA 1977 does not require an inventor to be a person in the first place. Indeed, there is nothing in PA 1977 (nor the European Patent Convention 2000) that explicitly prohibits protection for inventions devised by AI in such unequivocal terms. However, various parts of the PA 1977 require that a 'person' must be involved, and thus, there may be an implication that the inventor must themselves be a person as well.

Notably, PA 1977, s 13(2)(a) requires the applicant to 'identif[y] the person or persons whom he believes to be the inventor or inventors'. Does this section, and others, imply that an inventor must be a person? Does this section merely require one to demonstrate a 'belief' in who is the inventor? We await the UK Court of Appeal's decision on these matters.

On the point of ownership, PA 1977, s 7(2)(a) explicitly attributes ownership 'primarily to the inventor'. However, since DABUS is a machine and not a natural or legal person, it cannot hold property under already-well-explored UK law and hence this primary ownership does not appear to apply. In fact, the patent applications in question were originally applied for by Dr Thaler himself. PA 1977 does allow another to seek patent protection for an invention which was not devised by themselves. For example, the right to be granted a patent can be conferred to any person who 'by virtue of any enactment or rule of law' is entitled to the property in the application (PA 1977, s 7(2)(b)). Dr Thaler's position is that, because of his status as owner of DABUS itself, he is entitled to any property produced by it, including the subject inventions.

By way of analogy, Dr Thaler submits that the fruits of a tree would, under current law, be owned by the owner of that tree. By extension, the fruits of DABUS' AI-led activities (eg the inventions which are the subject of the patent applications) belong to Dr Thaler. However, the counter to this position draws a distinction between tangible and exhaustible property on the one hand (eg fruit from a tree), which can only be held by one person at a time and, therefore, its owner must have a specific status in law; and, on the other, intangible and inexhaustible property (eg intellectual property/inventions), which can be held by many. Does this distinction mean that the existing legal framework on ownership does not apply to inventions and other intangibles? We await the UK Court of Appeal's decision on this matter as well.

The pending litigation represents the first test on the law of AI-led invention. Regardless of the outcome, it is clear that the topic should be debated to ensure that our legal frameworks are fit for purpose in the modern day. We may be able to shoehorn DABUS into the existing law to confer on it status as 'an inventor'. However, existing law clearly was not drafted with AI in mind and it is questionable whether shoehorning in this way will lead to adequate results or unintended consequences.

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[3] *Patent application no GB1816909.4* and *Patent application no GB1818161.0*

[4] *Thaler v Comptroller-General of Patents, Designs and Trade Marks [2020] EWHC 2412 (Pat)*

Looking forward

One aspect that has not been discussed in detail is whether DABUS can actually be said to have invented these technologies *independently*. It appears to have been accepted by the UK High Court that it was only DABUS that had a role here[5]. The first instance decision highlights Dr Thaler's own submission that 'the machine only received training in general knowledge in the field and proceeded to independently conceive of the invention and to identify it as novel and salient.' However, no judgement on the validity of this position has been given.

The Court of Appeal's decision is expected to include consideration as to whether:

- it can really be said that DABUS independently conceived of the inventions, and
- what are the technical undepinnings that would make this plausible

It is clear that AI will play an increasing role in the creation of new technologies. Therefore, the answers to these questions are fundamental to determining how urgent it is that we ensure our legislation is fit-for-purpose for dealing with independent AI inventorship. If there is no independent inventorship by DABUS in the present instances, then there must be a human inventor and first owner. The controversial legal issues then fall away. More broadly, if AI can only ever play a supportive, rather than independent, role in inventorship, then these legal issues are largely academic. To date independent invention by AI, to our knowledge, seems to have been taken as fact by all deciding bodies but this is surely something that needs to be addressed by evidence at some point if independent AI invention is to be considered seriously.

The UK government has a 'new strategy to unleash the transformational power of Artificial Intelligence' (see: UK government to publish new AI strategy, LNB News 15/03/2021 33). The present DABUS litigation perhaps could be a blow to this if they decide to uphold the deemed withdrawal of these patent applications. However, it is not the role of the courts to enact new laws but to apply the laws that exist. Therefore, if a change is indeed needed, this would require new legislation by parliament in case of a negative decision by the Court of Appeal. In addition, we should not rush to address an issue which may not, in fact, exist in practice. Therefore we hope that the Court of Appeal decision will at least shed some light onto the factual enquiry into the inventorship by DABUS.

[5] *Thaler v Comptroller-General of Patents, Designs and Trade Marks* [2020] EWHC 2412 (Pat) at para [5]