

IMPACT OF AI ON INVENTORSHIP – LIKELY SCENARIO IN SINGAPORE?

1. Recently, the UK Supreme Court in *Thaler v Comptroller-General of Patents, Designs and Trade Marks* [2023] UKSC 49 unanimously dismissed the notion that a machine acting autonomously and powered by artificial intelligence (“AI”) can be an inventor for the purposes of obtaining a patent under the United Kingdom Patents Act 1977 (the “**1977 Act**”). It decided that only a natural person could be such an inventor under that Act.
2. The court emphasized that its decision was based on the interpretation and application of the relevant provisions of the 1977 Act, principally section 7. It was not concerned with the broader questions of whether technical advances generated by machines acting autonomously (that is, without human intervention) and powered by AI should be patentable and whether the meaning of the term “inventor” in the 1977 Act ought to be expanded to include such machines.
3. The appellant, Dr. Stephen Thaler (“**Dr Thaler**”), filed two applications for the grant of patents for new types of a food or beverage container and a light beacon which has a way of attracting attention in an emergency. In the applications, he willingly declared that he was *not* the inventor of the inventions and disclosed that the inventions were created by the AI of a machine known as DABUS (an acronym for “Device for the Autonomous Bootstrapping of Unified Sentience”). He stated that he acquired the right to file the patent applications because he owned the machine.
4. The following principal issues emerged from Dr Thaler’s applications:
 - (a) Whether the meaning and scope of the term “inventor” in the 1977 Act extends to a machine such as DABUS; and
 - (b) Whether Dr Thaler was the owner of the inventions created by DABUS and was entitled to make the patent applications.
5. Both the UK Comptroller-General of Patents, Designs and Trade Marks and the majority of the UK Court of Appeal ruled against Dr Thaler in respect of these issues. The UK Supreme Court agreed with their decisions. In this case note, we briefly review its principal reasons and conclude that there is no reason why the reasons cannot be relied upon in relation to the equivalent provision of our Patents Act 1994 (the “**1994 Act**”).
6. Section 7 of the 1977 Act provides an exhaustive code for determining who is entitled to the grant of a patent. Section 7(2)

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states that a patent for an invention may be granted (a) “primarily” to the inventor or joint inventors; (b) “in preference to” an inventor or joint inventors, any person or persons who was/were entitled to the property in the invention (other than equitable interests) by virtue of any enactment, rule of law, foreign law, international convention or any agreement entered into by the inventor; or (c) “in any event”, a successor or successors in title.

7. Section 13 of the 1977 Act mandates that the inventor or joint inventor has the right to be mentioned as such in the patent and imposes an obligation on the applicant to provide certain information to the UK Patent Office. Specifically, the applicant must file with the office a statement identifying the person or persons whom he believes to be the inventor or inventors and indicating the derivation of his or their right to be granted the patent. If he fails to file the statement, the application will be taken to be withdrawn.
8. Lord Kitchin (with whom the other 4 judges agreed) opined that the structure of sections 7 and 13 permits only one interpretation: an inventor within the meaning of the 1977 Act must be a natural person. He noted that section 7 provides that the “primary” or first person to whom a patent may be granted is the inventor or joint inventors and that the term “inventor” is defined in the section to mean the “actual deviser” of the invention. In his view, the word “deviser” has the ordinary meaning of a *person* who devises an inventive product or process that may be protected under the patent system.
9. Lord Kitchin’s interpretation of the word “deviser” aligns with Lord Hoffmann’s opinion in *Yeda Research and Development Co Ltd v Rhone-Poulenc Rorer International Holdings Inc.* [2008] RPC 1 that the deviser is the *natural person* who came up with the inventive concept of the invention. This involved assessing the evidence adduced by the parties as to the nature of the inventive concept and who contributed to it.
10. Lord Hoffmann further indicated that the inventor must be a natural person when he opined that the word “primarily” in section 7(2) emphasises that a patent could be granted only to an inventor or someone through him and observed that

“The claim through an inventor may be made under one of the rules mentioned in [section 7(2)(b)], by which someone may be entitled to patent an invention which has been made by someone else (the right of an employer under section 39 is the most obvious example) or the claim may be made under [section 7(2)(c)] as successor in title to an inventor or to someone entitled under [section 7(2)(b)]”.
11. Such a claim through an inventor can only be made if the inventor is a natural person and to a person falling within section 7(2)(b) or (c), such as an employer or a successor in title. The abiding fact is that a machine cannot own anything and cannot assign or transfer ownership to someone else.
12. The court held that Dr Thaler’s applications were fatally flawed because DABUS was not and is not a person and could not grant a patent through it. His ownership of DABUS did not entitle him to apply for a patent both because DABUS could not grant a patent and because he was not a person falling within section 7(2)(b) or (c). As he did not file a statement identifying a natural person as an inventor and explaining how he derived the right to apply for a patent from that person, the applications were rightly treated as withdrawn by the UK Comptroller-General of Patents, Designs and Trade Marks.

13. The equivalent provisions in the 1994 Act are sections 19 and 24 which are identical in terms. Like section 7 of the 1977 Act, section 19 provides a hierarchy of groups of persons to whom a patent for an invention may be granted. The primary persons are the inventors or joint inventors and other persons (such as an assignee and a successor in title) are entitled to a patent through them. The word “inventor” is also defined to mean the “actual deviser” of the invention, albeit in section 2(1). Like section 13 of the 1977 Act, section 24 requires the inventor to be mentioned as such in the patent application, failing which the application would be taken to be withdrawn. This requirement is designed to protect and acknowledge the rights of inventors. Due to these similarities, it is reasonable to surmise that the courts in Singapore are likely to rely on a number of important aspects of the reasoning of the UK Supreme Court to also disallow AI-related patent applications. Besides, local jurisprudence does indicate that the law relating to the entitlement of a person to the grant of a patent is premised on the invention arising from the mind and creative energies of a natural person or persons.
14. For instance, in *First Currency Choice Pte Ltd v Main-Line Corporate Holdings Ltd and another* [2008] 1 SLR(R) 335, the Court of Appeal was quite explicit as to whom the patent system is intended to reward. It agreed that patents give inventors a temporary monopoly on a “new idea” in return for disclosing how it works, whilst acknowledging the intrinsic tensions between stimulating the “creative energies” of inventors and promoting the free flow of ideas and encouraging entrepreneurship. It is trite that human agency and endeavour are required to develop a “new idea” and stimulate “creative energies” and are rewarded by the grant of a limited term of protection.
15. Confirmation that an inventor must be a natural person under the 1977 Act may be found in the case of *Cicada Cube Pte Ltd v National University Hospital (Singapore) Pte Ltd and another appeal* [2018] 2 SLR 940 which concerned a dispute between the parties regarding entitlement to a patent relating to a system which allowed specimens to be ordered and collected from patients in an automated manner for laboratory testing. In the case, the Court of Appeal accepted the notion that the deviser is a person who came up with the inventive concept of the invention - specifically, he is the person “who formulated or contributed to the formulation of the inventive concept”. The inventive concept is “the core (or kernel, or essence) of the invention – the idea or principle ... which entitles the inventor’s achievement to be called inventive” (adopting the statement of the House of Lords in *Generics (UK) Limited and others v H Lundbeck A/S* [2009] UKHL 12 at [30]). The court considered certain contributions to be inventive, such as where a person contributed to the solution of a particular problem (“where something in the invention helps to solve a particular problem or answer a particular question in a new way, this will generally be regarded as an inventive contribution”). On the other hand, a person whose contributions relate to an “unnecessary detail” to an invention or were of a managerial, administrative or financial nature would not be the deviser of the inventive concept.
16. Although the Court of Appeal in *Cicada Cube* addressed different issues, its ruling and reasoning did not provide any scope at all for suggesting that the person who formulated or contributed to the formulation of the inventive concept could be other than a natural person. It plainly had human actors in mind as it considered whether one or all of the three employees of the parties contributed to the inventive concept underlying the subject invention. In the event, it held as follows:

“... the Invention was an automated process designed to reduce human error in hospitals and laboratories and required input from both the healthcare sector (Dr Sethi) and the software sector (Dr Ratty and Dr Poo, through Cicada). While the seed of the Invention may have been planted by NUH, it only took root with the aid of Cicada’s software expertise and bloomed when both parties nurtured and nourished it together. We find it difficult to attribute inventorship to one party to the exclusion of the other in such circumstances where the Invention involved the substantial cross-pollination of ideas from two different sectors.”

Conclusion

17. It is thus likely that the courts in Singapore will also not allow a machine (including a machine acting autonomously and powered by AI) to be an inventor under our 1994 Act. This would be consistent not only with the recent decision of the UK Supreme Court discussed above but also the decisions of the courts in Australia, the EU and the US which had also refused Dr Thaler’s patent applications. These decisions were based on the statutory language, structure and history of the legislation relating to patents. The courts refused to depart from the literal interpretation of the legislation and declined to be drawn into the debate (provoked by the applications) regarding the desirable ambit of the inventorship concept and whether the patent regime should accommodate inventions autonomously generated by AI and the ramifications of such an accommodation.
18. In the meantime, the debate persists. It also raises many thorny issues, including those concerning the purpose of the patent system of incentivizing and rewarding innovation by *human* inventors. Also, is the current patent regime, with its notion of inventorship being limited to human conception and creativity, suitable for the forthcoming technological landscape in which AI plays a role in conceiving and creating inventions? Doubtless, these issues will need to be addressed urgently, given the rapid evolution of AI technologies and the increasing deployment of AI in various sectors of the economy and society.

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