The Patentability of AI Related Inventions

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Artificial Intelligence (AI) is generally defined as the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.[1]

Advances in computing power, algorithmic capabilities and the growing availability of data have brought AI innovations into many areas of our lives.

Notwithstanding, the impact of AI across the intellectual property (IP) landscape, including patent, trademark, copyright, and trade secret policy, as well as developing issues about database protection has become undeniably complex.

Further, there is a lack of harmonisation when it comes to patentability of AI-related inventions. Thus, determining if AI-related inventions are patentable and if AI can be named as an inventor in a patent application may differ from one jurisdiction to the other. This makes registering rights in this space even more challenging.

AI-related inventions can typically be classified into four categories.[2]

Category of AI-related Invention	Definition
AI models or algorithms	Inventions on core AI technology itself.
AI-assisted inventions	Inventions made using AI as a tool in the inventive process.
AI-based inventions	Inventions in which AI is part of the inventive concept.
AI-generated inventions	Inventions made autonomously by AI, without human input.

Article 52 of the European Patent Convention (EPC) states that computer programs per se shall not be considered patentable inventions. It is generally understood that inventions under the EPC should have a technical character and that so-called computer implemented inventions will benefit from patent protection, while computer programs per se will not. Thus, it would seem that AI models or algorithms are not considered by the European Patent Office (EPO) to be a technical pursuit whereas AI-assisted inventions and AI-based inventions could be considered patentable inventions.Many blockchain inventions that have been awarded a patent to-date relate to how the blockchain functions, and how external systems (including other blockchain) interact with the data on the blockchain.

Although there is no mention of AI-related inventions in the Malaysian Patents Act, Section 13(1) of the Malaysian Patent Act does specify what is excluded from patent protection. Further, Part D, Section 2.3.3.1 of the Guidelines for Patent Examination published by the Malaysian IP Office (MyIPO) contains a specific portion on Artificial Intelligence and Machine Learning. The section states that AI and machine learning must possess technical character as a whole in order to qualify for patent protection. Not surprisingly, this is similar to what is practiced at the EPO.

In China, patent eligibility of AI-related inventions is assessed by examining in sequence whether the AI inventions fall under the rules and methods for mental activities and whether it passes the 'three elements of technology' test. This 'three elements of technology' test analyses "the technical means involved, the technical problems solved, and the technical effects obtained". Like the EPO, AI models or algorithms are not considered to be patentable in China. AI-assisted inventions and AI-based inventions would be patentable if they pass the 'three elements of technology' test.

The US Patent and Trademark Office (USPTO) has issued a guidance, which makes clear that AI-related inventions are not categorically unpatentable. The guidance provides instructions to examiners and stakeholders on how to determine whether the human contribution to an innovation is significant enough to qualify for a patent when AI also contributed.

One example is US patent 9,442,889 B2, which discloses an AI product composition system that can learn about formulas, raw materials, historical success data and industry trends. The system is named Philyra and is the result of a pioneering partnership between the fragrance team at Symrise and IBM Research.

Patents function to incentivize and reward human ingenuity. Therefore, when it comes to AI-generated inventions, can, or should an AI be named as an inventor in a patent application?

An international case brought by Dr Stephen Thaler and his collaborators (creators of the AI machine DABUS) in a family of patents focused on whether an inventor needs to be human or not — and ultimately, in the latter instance, whether a patent application can proceed.

This matter has been considered by multiple patent authorities including the UK Intellectual Property Office (UKIPO), the EPO and the Australian Patent Office. To reach their decision, the Courts had to interpret the meaning of "inventor" under the relevant Act and Regulations.

Dr Thaler filed two applications for the grant of a patent for what was said to be an invention for a new kind of food or beverage container and an invention for a new kind of light beacon and a new way of attracting attention in an emergency.

Neither application designated a human inventor, and no separate document designating a human inventor was ever filed. It was Dr Thaler's belief that each of these inventions was created by the AI of a machine called DABUS and that he had acquired the right to the grant of the patents for which he had applied because he owned that machine.

UK Intellectual Property Office (UKIPO)

The UK Supreme court ruled that DABUS could not be listed as the inventor and held that an inventor, for the purposes of the Patent Act 1977 (the Act), must be a natural person, and that therefore an autonomous AI system cannot be named as inventor under the current provisions of the Act.

As a result, the two applications were treated as withdrawn for failing to comply with the requirements of the UK Patents Act 1977.

European Patent Office (EPO)

Similarly at the EPO, the Legal Board of Appeal of the EPO has issued its decision[3], which confirmed that under the European Patent Convention (EPC) an inventor designated in a patent application must be a human being.

The two patent applications have been rejected.

Australian Patent Office

In July 2021, the Australian Federal Court decided that an AI system can be an inventor citing that the Australian Patent Act provides no specific definition of an inventor, which means that the ordinary meaning of the word is used.

However, this decision was overturned[4] meaning that AI (or other non-human) inventors cannot be named as inventors of an Australian patent. This brings Australian practice in-line with the UKIPO and EPO.

If filed in Malaysia, the DABUS applications would likely have faced the same fate as the UK and EP applications.

Regulation 6 of Malaysia's Patent Regulations requires the application to contain the name and address of the inventor, and a declaration from the inventor if he does not wish to be named. It would be difficult to argue that a machine is capable of producing a signed declaration or having an opinion on whether it wishes to be named in a patent application (or not).

Further, in patent law, an invention is the result of an inventive step if it is not obvious to a person skilled in the art. In the UK Supreme Court's case against DABUS, an argument was made that "the inventor is the natural person who came up with the inventive concept."

Malaysia's Patents Act does not include a definition of an "inventor". However, Section 12(1) states that "An invention means an idea of an inventor which permits in practice the solution to a specific problem in the field of technology." Section 15 of the Patents Act states that an invention shall be considered as involving an inventive step if, having regard to prior art, "such inventive step would not have been obvious to a person having ordinary skill in the art."

The UK Supreme Court's reasoning against DABUS could be equally applicable in Malaysia.

From the above we can conclude that at this time, AI cannot be named inventors for patent applications, but humans can use AI tools in the process of creating patentable inventions. However, this may possibly change in the future due to possible refinements or additions to

patent legislation and its practice to accommodate AI specificities, as well as possible new interpretation of certain definitions by the Courts.

1 https://www.britannica.com/technology/artificial-intelligence
2 https://www.wipo.int/export/sites/www/about-ip/en/frontier_technologies/pdf/wipo-ai-inventions-factsheet.pdf
3 J 0008/20 (Designation of inventor/DABUS) 21-12-2021
4 Commissioner of Patents v Thaler [2022] FCAFC 62