IP Awareness Network (IPAN)

Response to UKIPO Open Consultation Artificial Intelligence: Call for Views

prepared on behalf of IPAN by

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30 November 2020

IPAN (www.ipaware.org) is committed to championing the importance and understanding of IP as a vital ingredient for innovation and success of businesses, large and small. Below we respond to the UKIPO's public consultation exploring how the UK patent legislation meets the challenges of artificial intelligence (AI) and whether the current Act meets the government's policy objectives for AI and the value of patent incentives for AI research and development in the UK.

The aims of the patent system

1. What role can / does the patent system play in encouraging the development and use of AI technologies?

We are delighted that the UKIPO is seeking views on the subject of AI inventions. This is difficult intellectual terrain on which there are a variety of views. The patent system can certainly play a role in encouraging the development and use of AI technologies. However, the first question is if it should and if yes, then how. The UK should aspire to be a leader in 'ethical safe and inclusive AI' with the potential adjusting legislative requirements.

As yet, the taxonomy related to AI systems has not been agreed. WIPO notes three areas of interest: (1) machine-created works; (2) AI systems; and (30 the data AI relies on to operate.

Further, IPAN suggests that the UKIPO publish data on the prevalence of AI related patents applied for and granted in the UK in order to provide an indication of rate, scope and nature of AI inventions.

Additionally, the UKIPO could commission a survey of firms that design and develop AI technologies to gather data to glean a deeper insight into whether the patent monopoly incentive is relied upon to invest resources into research and development of AI technologies.

IPAN also advocate additional guidance as to the advantages and disadvantages of granting potential 20 year AI technology monopolies and how they may differ from other platform technologies to enhance the wider debate as to whether a monopoly incentive is warranted.

AI as an inventor

2. Can current AI systems devise inventions? Particularly:

- **(a) To what extent is AI a tool for human inventors to use?**
- **(b) Could the AI developer, the user of the AI, or the person who constructs the datasets on which AI is trained, claimed inventorship?**
- **(c) Are there situations when a human inventor cannot be identified?**

Although AI systems may devise inventions, we are not convinced that compelling arguments have been put forward to explain why there is a 'need' to reward AI by naming the non-human AI system as inventor.

With respect to situations where a human inventor cannot be identified, IPAN recommends that the UKIPO commission a high level expert group of technology ethics experts to recommend key principles and ethical implications, risks and rewards. For example, in December 2019 the University of Montreal released the Montreal Declaration of Responsible AI, a document agreed upon by 100 different experts comprised of technology professionals and ethicists.

It may be that a new protocol requiring human involvement in directing and overseeing AI systems to ensure they are ethical, safe and inclusive could meet the human inventor requirement under the s.7(3) Patent Act 1977.

3. Should patent law allow AI to be identified as the sole or joint inventor?

We agree with the current approach of the UKIPO hearing decision in matter involving the AI machine DABUS that a non-human inventor cannot be regarded as an inventor under the Patent Act 1977.

IPAN advocates that a 'cautious approach' is necessary and that to allow AI systems to be designated as a non-human inventor is premature as there are too many unknown consequences, especially as the patent law system does not operate in isolation. There are potential social, safety, inclusivity as well as economic consequences. We are guided by Professor Nick Bostrum, Oxford University and author of *Superintelligence: Paths, Dangers and Strategies* (2016) and his view that 'superintelligence is the most daunting challenge humanity has ever faced'. AI technology has given rise to numerous ethical dilemmas and controversies and these should be carefully studied to avoid any potential unintended consequences. A cautious approach is also advocated in the USPTO's Public Views on Artificial Intelligence and Intellectual Property Policy published in October 2020 (see USPTO_AI-Report_2020-10-05.pdf).

We recommend that different approaches be modelled or be the the subject of 'sandbox' exercises as is common in several disciplines, notably the accounting discipline.

However, we suggest that a new protocol could be devised to ensure human involvement in directing and overseeing AI systems to ensure they are ethical, safe and inclusive. Potentially, such a protocol could provide the basis for potentially meeting the human inventor requirement under the s.7(3) Patent Act 1977.

4. If AI cannot be credited as an inventor, will this discourage future inventions being protected by patent? Would this impact on innovation developed using AI? Would there be an impact if inventions were kept confidential rather than made public through the patent system?

IPAN acknowledges WIPO's position that 'AI is increasingly driving important developments in technology and business. It is being employed across a wide range of industries with impact on almost every aspect of the creation' and this raises a number of policy questions' (see Artificial Intelligence and Intellectual Property Policy (wipo.int)).

If AI cannot be credited as an inventor, an alternative approach could involve creating a new system similar to that developed to reward database rights. Currently there are two types of IP protection for databases: *sui generis* data base rights and copyright. Both allow the owner to control certain uses of their database. The UK implemented the directive through the Copyright and Rights in Databases Regulations 1997. The regulations protect the data from being copied and the

arrangement of the data. Given the technology companies' ability to harvest data personal data protection would also need to be enhanced beyond the current provisions of GDPR.

5. Is there a moral case for recognising AI as an inventor in a patent?

A moral case for recognising AI as an inventor in a patent is not obvious. It is unclear how an AI system would respond to being noted as inventor or not. Moral rights are recognised as the preserve of a person or personality, this does not fit with either AI inventions or AI works of creation (as for copyright).

6. If AI was named as sole or joint inventor of a patented invention, who or what should be entitled to own the patent?

The law currently recognises individual human and the corporate legal personality of companies as owners of property such as patents. Companies have human controllers, namely the board of directors, who have collective and personal liability under the various UK company legislation and soft law codes to regulate behaviour. It would be a major step with long-term consequences to grant AI inventions monopoly rights.

A less radical step, while still enabling the application of the economic development of AI inventions and innovation would be to give legal effect to contracts and licences for inventions and innovations through AI electronic agents. AI contracts and licenses can be constructed or deconstructed and traded in seconds. Real time electronic trading with AI evolutionary learning does not have space or time for the existing legal and physical signature paradigm. The Electronic Transactions (Electronic Agents) (Guernsey) Ordinance, 2019 which came into force in March this year, is an example law giving legal effect to AI technologies.

IPAN again recommends a cautious approach and affording and AI system itself ownership rights is premature but enabling the commercial use through contract law could be a next step.

Conditions for grant of a patent

7. Does the current law or practice cause problems for the grant of patents for AI inventions in the UK?

On this point, the views of the Chartered Institute of Patent Attorneys (CIPA), the representative body for the patent attorney profession, experts in patent law and practice, should be highly regarded.

We would note however, that the current UK and international patent registration system relies on highly skilled patent examiners and thus patent examination of AI patents is a likely resource issue that needs to be managed to ensure that the legal requirements of the patent legislation is met.

8. Could there be patentability issues in the future as AI technology develops?

We can envisage that certain types of AI inventions that are not ethical, safe and inclusive should be excluded from patentability and the patent monopoly privilege.

We draw the UKIPO's attention to the Norman AI system (described as "psychopath") developed by the Massachusetts Institute of Technology (MIT) with the express purpose of demonstrating that AI cannot be unfair and biased unless such data is fed into it.

Exclusion from patent rights

9. How difficult is it to secure patent protection for AI inventions because of the list of excluded categories in UK law? Where should the line be drawn here to best stimulate AI innovation?

On this point, the views of the Chartered Institute of Patent Attorneys (CIPA), the representative body for the patent attorney profession, experts in patent law and practice, should be highly regarded.

10. Do restrictions on the availability of patent rights cause problems for ethical oversight of AI inventions?

IPAN recommends that the UKIPO commission a high level expert group of technology ethics and economic experts to recommend key principles and ethical implications, risks and rewards and consider developing its own AI and Ethics board to oversee patent applications involving AI inventions.

Disclosure of the invention

11. Does the requirement for a patent to provide enough detail to allow a skilled person to performance an invention pose problems for AI inventions?

On this point, the views of the Chartered Institute of Patent Attorneys (CIPA), the representative body for the patent attorney profession, experts in patent law and practice, should be highly regarded.

Inventive step

13. Does or will AI challenge the level of inventive step required to obtain a patent? If yes, can this challenge be accommodated by current patent law?

Here, distinction needs to be made between two approaches to AI machine learning. The first requires the programmer, usually working with a specialist team, to write the AI architecture under which the machine innovation and invention will operate. In the second case and becoming more widely used the programmer and specialist team create programmes based around the model used by the brain in creating neutral networks. Here the architecture, operations and creations / inventions of the AI machine learning is being continually revised and adapted from the responses to the interactions with human environment or subject matter. The latter could lead to an AI invention different to or beyond that of the programming team and a person "skilled in the art." The legal consequences need to be examined by our proposal for a specialist AI Ethics expert Board.

14. Should we extend the concept of "the skilled in the art" to "the machine trained in the art"?

There is no doubt that AI has great potential to collate, measure and assess "the skilled art". The patent world is increasingly complex and inter-related within and between technologies. The advent of 5G with many thousands of patents involved in the delivery of a new invention along with the power to harvest vast data resources will make the patent world too complex for the individual inventor. However commercial companies are now offering AI based patent search services able to collate and assess "the art" within and across technology fields. Such machines "trained in the art" offer great scope in the patent examination processes in Patent Offices. Extending legal effect to "machines trained in the art", is a logical next step, but not one without wider societal and ethical implications. In 5G, potentially "the art" could become too complex for an individual inventor, a patent attorney/drafter and IP lawyer. IPAN recommends this is a further subject for a specialist AI Ethics expert Board.

Infringement

15. Who is liable when AI infringes a patent, particularly when this action could not have been predicted by a human.

Knowledge or *mens rea* is not a legal requirement of primary patent infringement under the Patent Act 1977.

16. Could there be problems proving patent infringement by AI? If yes, can you estimate the size and the impacts of the problem?

We suggest that access to the alleged infringing AI system to prove infringement could indeed be difficult. Such access would need to be requested during the disclosure proceedings in the patent litigation process.

The potential and risk for patent infringement by AI is likely to grow as AI enabled electronic agents proliferate in the fourth industrial revolution. Making such electronic agents responsible in law alongside being given legal effect to AI electronic agent transactions could help establish an actionable party – reference section 6.