Artificial intelligence call for views:

Patents

The aims of the patent system

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

   The patent system does have a significant role to play but it does not appear to us that it does or should allow comprehensive protection of AI technologies; to change patent law to accommodate AI protection could undermine non-AI technologies and we would not advocate this. In our view, where AI is used to assist in devising inventions or may be involved in infringement, existing concepts in patent law are available.

AI as an inventor

2. **Can current AI systems devise inventions?**

   Currently AI systems cannot devise inventions alone. AI can assist to a greater or lesser degree in concert with natural persons who set the parameters of the AI system and/or problem to be solved.

a) **to what extent is AI a tool for human inventors to use?**

   This varies across a spectrum of types and proportion of input/involvement.

b) **could the AI developer, the user of the AI, or the person who constructs the datasets on which AI is trained, claim inventorship?**

   It will vary on the facts between situations as to whether any of the above may rightfully claim inventorship or co-inventorship. Our current view is that the requirement that the inventor be a natural and legal person should remain. AI does not meet this requirement but to the extent that the inventive concept is significantly or substantially devised by AI systems, one view may be that the person or persons who "control" that process or system might be the inventor or inventors. The development of a legal definition of "control" of AI systems in this context could be helpful and could also assist with assessing liability for infringement.

c) **are there situations when a human inventor cannot be identified?**

   AI systems are not currently fully autonomous entities and require human involvement at some point. In future, this may change.

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

   We can foresee practical difficulties arising if patent law allowed AI to be identified as the sole or joint inventor, including for instance the fact that currently AI does not have the legal ability to assign rights and if they were the sole/joint inventor, in some circumstances an assignment may be required.

4. **If AI cannot be credited as inventor, will this discourage future inventions being protected by patents? 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?**

   There is a call to make AI more "explainable" and the requirement to set the details of the invention out in a patent is a way of making it more explainable. If patent protection is not available those investing in AI may turn to other forms of protection such as trade secrets law, which by its nature would not promote transparency in the same way. However, we do not see that this necessarily justifies amending the patent system - consideration should be given to AI transparency incentives or requirements which are independent from the patent system.

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

   Morality is a human-centric concept. To the extent that AI is involved in invention then any moral implications for recognition of AI as an inventor should fall to the human responsible for the AI and/or its deployment in the invention.

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

   See answer to Q2.

<u>Conditions for grant of a patent</u>

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

   Yes, see below.

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

   We anticipate there could be patentability issues in the future, for example should AI ever become truly autonomous and where an invention produces more advanced, more complex AI which itself goes on to devise further inventions.

<u>Exclusions from patent rights</u>

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?**

   It can be difficult and complicated to secure patent protection due to the list of excluded categories. This may suggest that currently patents alone are not the most appropriate IP right to protect AI. Arguably the line should be drawn as present – with computer programs – as to whether or not they make a technical contribution. However, at this time we do not see that patents should be a primary IP right for AI systems/inventions.

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

    The restrictions on the availability of patent rights may result in organisations relying on trade secret protection, which by its nature involves limiting transparency. As noted above,

consideration should be given to AI transparency incentives or requirements which are independent from the patent system.

Disclosure of the invention

11. **Does the requirement for a patent to provide enough detail to allow a skilled person to perform an invention pose problems for AI inventions? In answering this question, you may wish to consider:**

- **is it clear how much information would be sufficient for a skilled person to be able to work the invention?**

  This could be clarified in the context of AI; however, we would think that the test remains the same – the disclosure by the patentee must enable a skilled person (or team of persons) to work the invention. Where AI is involved then sufficient disclosure will necessarily involve revealing all of the information clearly enough and completely enough for the invention to be performed by a person skilled in the art (including particular training techniques, previous training data or other requisites to allow the invention).

- **could there be uncertainty knowing when an AI could be obtained by a skilled person to achieve the specific purpose of a patent claim and when an AI would need to be specified in a patent application?**

  Not if sufficient disclosure has been made (albeit this pulls greater complexity and knowledge into the ambit of the skilled person).

- **what are the consequences if the details of AI algorithms need to be disclosed?**

  This would potentially lead to decreased patent applications, as organisations seek to protect their algorithms. On the other hand, to not ask for this disclosure would fundamentally undermine key concepts of patent law.

- **if AI is making decisions in a black box:**

  - Could there be a need to disclose more than a basic trained AI model, for example training data or the coefficient or weight of the model? If yes, is it clear how much information would be sufficient for a skilled person to be able to work the invention? Are special provisions needed for this information to be filed and stored?

  Enough information needs to be disclosed to allow a skilled person to work the invention - how much information this requires is a technical question. "Skilled person" should include both persons skilled in the art of AI and persons skilled in the art of the invention. Special provisions for this information to be filed and stored should be considered.

  - What would be the effect if competitors could use data to quickly train a different AI model?

  See above.

- How would the skilled person know whether the invention could be repeated across the breadth of the patent claims or whether a claimed result could be achieved?

If the invention is not reproducible then sufficient disclosure has not been provided.

12. **In the future could there be reasons for the law to provide sufficient detail of an AI invention for societal reasons that go beyond the current purposes of patent law?**

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?**

    As mentioned above, current patent law may be able to accommodate AI involvement where person(s) skilled in the art includes persons skilled in the art of AI as part of the evaluation of inventive step.

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

    No, see above.

Infringement

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

    In line with the position regarding AI infringement of copyright, we would suggest the responsible person would be the legal person who has control over the infringement of the patent. As we have noted in relation to copyright, we accept that there needs to be a certain amount of flexibility in order to accommodate the many different possible factual scenarios. However, any further guidance as to who would have control over the infringement for these purposes would be welcome.

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

    We agree that proving infringement may be an issue if processing occurs in a black box. Full disclosure of AI workings and inputs is likely to be required. It is possible that there may be increased litigation in this area in future.