Response to the UK IPO's consultation on the protection of AI inventions (Alasdair Poore)

Introduction

This response is submitted by Alasdair Poore of Mills & Reeve LLP. I am submitting this in a personal capacity, but as a solicitor specialising in intellectual property, and a patent attorney, registered trade mark attorney (and EU design attorney), with over 30 years' experience working in the intellectual property field, with a wide range of businesses but particularly those involved in the innovation sector.

I have set out below a brief summary of key points in response and attached specific answers, where relevant, to the consultation questions in the following sections of this note.

Context:

Categories of AI innovation: AI innovation covers a very wide field. In relation to "technical innovations" they may involve a number of different categories. It is important to distinguish these, as the approach taken to encouraging innovation is likely to differ in detail, if not in substance, depending on the category they fall into; and this will likely be relevant to the form of protection which may be most beneficial to innovation. Examples of these categories are:

1. innovations in the operation of the AI engine itself, for example in the hardware configuration or in the algorithms or software used to program the AI engine – to make it run faster, or with fewer resources, or to process new data sets, or which generates "new ideas" – ie the innovative design of the AI engine is key to valuable outputs, and it ;
2. innovations arising from the use AI engine – for example:
    a. new products such as drugs or candidate drugs or new design for a machine;
    b. new technical processes which are designed by or controlled by an AI engine, such as use of image recognition for autonomous vehicle control, or processing measured reaction parameters in order to control a chemical process, or assessment of physiological parameters to diagnose disease; or
    c. identifying new solutions to existing technical problems, such as novel structures for engineering components, or
    d. identifying new technical problems that had not been previously appreciated, such as the risk of a previously unappreciated mechanical failure.
3. innovations in the training data that is used for machine learning, which leads to more rapid training of the AI engine or to solutions to different problems.

These are referred to in the responses below as Category 1, 2 and 3 innovations.

Each of these categories is likely to include innovations which will be classified as excluded subject matter as well as innovations which would usually be seen as having a technical effect and be patentable in the UK or under the EPC. This is discussed in the context of the specific questions.

In addition, it is possible that, in each case, the innovation results from the AI agent configuring itself.

A friendly innovation environment: It is important to bear in mind that a friendly innovation environment does not necessarily mean one in which strong and broad protection can be obtained. In designing an good innovation environment, an appropriate balance needs to be struck between effective protection which allows investment in innovation processes – research, development and marketing, to thrive and which also drives those innovation processes; but also encourages an effective competitive environment and does not stifle potential competitors. That means that, for example, protection should be effective in covering the inventive contribution, but should not be so broad or long lasting that it excludes competition from areas which did not drive the original innovation, or for such a period that it prevents or hinders the natural development of a technology in the relevant field.

Two factors are particularly relevant here: the cost of innovation – which typically may be very low or (as in the case of many IT innovators) be effectively self funding, so that a high level of protection is not necessarily needed and is not necessarily advantageous for a high rate of innovation; but in other cases the cost of innovation may be very significant, especially where there is considerable downstream investment, such as in drug trials or aviation safety accreditations.

The second is the rate (and durability) of innovation. If an innovation is only a real advance for a short period of time, one may question whether giving many years protection for it is either appropriate or necessary as an incentive – and a consequence may be that other players are nevertheless constrained or pay a rent for participating in the innovation environment. This can be seen in relation to much IT innovation, where a patentable (and on many occasions patented) innovation would have been widely made only a short time later, maybe even only months later. Patents on such innovations can present a significant burden on subsequent entrants, without really contributing at that point in time to any enhanced innovation.

This is fundamentally an area which lies within the intellectual property field, although the current intellectual property tools may not provide the flexibility to provide an optimal innovative environment. Many of those businesses to which we have spoken suggest that a sui generis right might be more attractive (although clearly presenting challenges on the international front).

Other policy contexts: There are other key factors which will affect the innovation environment, and an overall strategy should not be considered in isolation – although it is appreciated that it is likely to be preferable to have an IP system which is (usually) independent of the other factors, at least for international uniformity. Some key contexts are:

Tools for the control of and access to data – which in many cases is, at present at least, a key component of AI technology. And control of data is a key asset which in turn restricts the innovations by potential competitors. A specific aspect of this is also that typically more data is better, and more data is accumulated and controlled by larger enterprises. That control not only arises from their processing or having access to larger volumes of data, but also being able to impose more terms of use and access more favourable to themselves than smaller enterprises. There may be some tools within the IP toolbox for “securing access”. Ironically, it may well be that less protection forces parties to rely on tight contractual controls (although these could be subject to competition policy – discussed below); whereas more protection may allow parties to relax contractual controls or impose “user rights” in exchange for some formal proprietary protection.

Competition policy: A related context is competition policy which has been slow to recognize behaviour, such as control of access to data or terms on which data is acquired, as having a significant anticompetitive effect. And currently competition regimes are not necessarily well

tuned to respond to anticompetitive behaviour which adversely affects only small players because it does not have an overall significant impact. However, such players may well form a key part of the innovation environment in relation to AI. Certainly our experience is that, because in many cases there is a low cost of entry, small businesses are contributing considerably to innovative approaches to and uses of AI. Examples of possibly concerning behaviour are already apparent in the wider data technologies environment, ranging from control of data to cumulative acquisition of smaller players which may provide an incentive and exit for such businesses, but may also result in stifled innovation.

A second area of potential concern is in relation to platform type technologies – where access on suitable terms may well promote innovation, but such access is not always available or be like grit in the gears of innovation – getting there but with considerable wear, tear and delay in the meantime. An example is the impact of patent licensing pools and standards essential patents in respect of which the current essentially laissez faire environment for negotiating and setting terms for use of standards essential patents acts as something of damper on innovative downstream players (and possible on the upstream players who are contributing technology).

There are already tools in the competition (anti-trust) framework which may be used either to address these issues, in combination with IP rights, or to induce voluntary agreement to frameworks which promote innovation. Government funding policy may provide a further incentive here.

Taxation policy: A further context is that of taxation policy in relation to the digital industries. While innovation may depend on an attractive environment – skilled human resources, reliable investment frameworks, efficient and effective intellectual property rules, the operation of AI agents is essentially likely to be far more mobile, based as it frequently is, around processing of data. Currently many of the digital industries manage to obtain their profits in low tax jurisdictions, and the same can be forecast for use of AI technologies, unless an appropriate framework is established for assuring that the revenue benefits of such innovations can be retained in the UK.

This is less likely to be addressable directly within the IP framework.

Regulatory controls: Although we have deferred discussion of regulatory (including ethical) controls, as one within the ethics regime, the use of tools within the regulatory framework does provide an opportunity for providing both protection for, and openness within certain markets. An example is in relation to data exclusivity for drug approvals, and it is possible that a tool of this sort can have a complementary impact to intellectual property rights.

The responses to the specific questions in the consultation paper are set out in the following sections.

Patents questions

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

The patent system can play a significant role. Patent protection is, in one sense ideally suited to providing an incentive for innovation, as it protects the implementation of the idea, and is therefore able, in principle[1], shelter the innovator from copiers (or independent developers) of that idea.

The nature of this role depends on the category of innovation in question[2], and is likely to depend on a combination of the cost of innovation (including getting to market), the value of the protection obtained, and whether the players behind the innovation – innovative businesses, their investors and partners are able to obtain the value of that protection:

- an internal AI agent innovation (category 1 innovation) where the innovation is in the AI engine will potentially benefit. However, there are significant issues about whether relevant protection can necessarily be obtainable and if obtained how difficult or easy it is to enforce. In addition, if the new AI agent is essential a platform for making further innovations, to exploit the invention, the innovator can use it itself (and provide a chargeable service to third parties), or supply it to third parties and, if desirable or possible, maintain a contractual link to the value it creates downstream. In practice this appears to make a less than optimal use of the technology or sharing of the benefit. Similar examples can be seen in the development of inkjet technology, where the cost is in the development of the print head, but the value is in the supply of inks for use in the printhead – the more versatile the printhead is in inks it can use, the more difficult it becomes for the inkjet printhead innovator to profit from the value it generates. Thus while (when available and enforceable) patents have a role in protecting internal AI agent innovations, ideally, there should be a clear route to the innovator securing value from the innovations (along the lines of label licensing, which unless given express statutory authority gives rise to significant competition concerns as well as bad will in the market place (see for example the inkjet cartridge battles).

  to make life more difficult, there is also a countervailing interest in relation to internal AI agent innovations. That is that, based on experience in the IT field, patents can be granted for very minor innovations which presents the risk of providing competitive barriers which are not justified by the “level of innovation"” and either preventing third party innovators entering the market or extracting a rent from them (or doing both one after the other). This is a particular issue associated with both the high rate of innovation and the (generally) relatively low cost of the invention part of the innovation in many IT sectors. It means that an early innovator (even a paper innovator) may make what is apparently a non-obvious development in a technology where the rate of development makes it inevitable that that same development or one covered by the patent, would have been made

[1] This is obviously subject to the caveat as to whether such protection is obtainable, has a suitable scope and is enforceable – all discussed below.

[2] These are referred to below as Category 1, 2 and 3 innovations respectively, namely: innovations to the AI agent itself; innovative products or processes characterised (created or identified) by the AI agent; and innovative choices of inputs to the AI agent.

within a significantly shorter period than the term of the protection. Even if such a patent is not in fact valid, it can present a real obstacle – although this obstacle could be ameliorated by very effective examination. However, that would then add a cost to the protection afforded.

That, together with an obligation to publish, perhaps make it unsurprising that in fact, the significant majority of businesses we have spoken to are either indifferent to patent (or other formal intellectual property) protection or positively avoid it in favour of confidentiality.

As a result our view is that currently potential patent protection provides relatively little incentive for this type of AI innovation compared with other incentives, although it may provide significantly valuable protection in a minority of cases: most businesses shun it in favour of confidentiality. On the other hand, some businesses may choose patent protection as a formal strategy as provided an apparently investible asset – in which case it is an incentive in the sense of providing investment funding to the business, although it is far from clear that it directly incentivises innovation, and it may simply allow such a business con consolidate first mover advantage by producing patent "flak" – thickets if there are a large number, but potentially a disincentive to competitors even if there are only a few, even if the patents are not enforceable.

- AI output innovations: an innovation generated by AI as a tool (a category 2 innovation) is likely to be incentivised by patent protection in the same way as any product or process innovation – and subject to the vagaries of computer implemented inventions, namely that significant amongst them will be business method innovations or other excluded subject matter innovations.

  At present, such innovations may be incentivised by patent protection, but for the wrong reasons: the protection, if obtained, may not be enforceable, but may still be a deterrent, and often its timescale and the cost of challenge mean that a challenge is not worthwhile.

  There is certainly justification for considering whether patent protection can be provided for those innovations which are likely to be excluded subject matter, if using AI is the only effective way of implementing them, in the same way that a novel mechanical filing system can be patentable. The difficult balance here is ensuring that the innovations which can be protected in that case a sufficiently significant, and there is a question as to the term of protection granted.

  When my firm asked the broad question of whether patents were appropriate protection for AI innovations, the response by a majority was that it would be better to have a shorter more directly crafted protection for at least some AI innovations, and this might well fit this category. Bearing in mind that the UK is not constrained in introducing additional protection, it could consider a sui generis protection for certain AI based innovations which are not sufficiently protected under the existing rules.

- input innovations: innovations in the choice of data/data set or other input (Category 3 innovations): in terms of incentivisation, the comments made in relation to internal AI innovations and AI output innovations broadly apply, except that there is an additional level of disconnect between the

person making the innovation and the commercial value in generating it, and there is much greater likelihood that any "innovation" here will be in the information content and therefore excluded subject matter. It seems doubtful that further patent protection would encourage innovators to give more availability to their datasets which currently they are likely to retain confidential with one qualification. It also seems doubtful that "patent" protection would ever be regarded as conceptually suitable for data sets, so one should look for protection elsewhere.

2. *Can current AI systems devise inventions?*

The concept of "devising" an invention is inherent in the UK patent system. However, it is far from clear that it always means "devise" in the sense of starting out with a blank sheet of paper and working out something which could be regarded as inventive. There are already existing examples where the concept of "devising" is stretched or simply in appropriate, for example:

- an accident happens in an experiment (such as the recent half dose administration in the Oxford University/Astra Zeneca vaccine). This would clearly be regarded as an invention if it were confidential. However, no-one "devised" that invention; they spotted the result and thought that was useful.
- Many examples of inventions based on discoveries are in a similar category, although in that case one can justify it on the basis that the inventor devises the utilisation of the discovery – even if their contribution cannot be regarded as anything other than obvious having made the discovery.
- Many "inventions" are made through the use of tools, such as mass throughput chemical screening to identify candidate chemical species which show a desired activity.

One can clearly reasonably say of an AI agent (or a mass thoughput screening machine) that it has identified an innovation. However, one has more difficulty in saying that it has "devised" it, if that requires any degree of conscious effort. Moreover, there is no reason why one should treat an AI agent any differently from any other tool used in making inventions.

Particularly:
(a) to what extent is AI a tool for human inventors to use?

AI can clearly be a tool for human inventors to use. As explained above my view is that should remain the case for all AI assisted or originated innovations are treated on the basis that the AI agent is a tool used by someone for making an innovation or assisting in making an innovation.

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

Yes, potentially, if that person/those people are the ones who controlled the AI agent in such a way as to produce an innovative result.

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

No. There will always be some human intervention in setting in motion the steps conducted by the AI agent as a result of which an innovation arises. However, it

may be helpful to make this explicit in legislation (subject to addressing any risk that this conflicts with third country arrangements as they might apply to patent applications to which any UK rules applied). This would remove uncertainty that the UK courts might take a different view.

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

   No. AI agents should not be identified as an inventor. There is neither an incentive or principle based reason for doing so.

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?*

   It would not discourage inventions being patented. An AI agent could not legally file a patent application, and it makes no practical sense for one to do so. It is possible that there is an argument that, if this meant that the operator, rather than the owner of the AI agent was the beneficiary of any patent protection, it might discourage innovation – this issue has been noted above (see the inkjet analogy). There are better solutions that making the AI agent the inventor.

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

   No. Further doing so presents potential hazards – as endowing the AI agent with moral credentials and therefore moral responsibility, there is an invitation for humans to blame AI agents for decisions that those AI agents mediate, rather than the humans taking responsibility for "programming" the AI agent taking those decisions.

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

   This is not applicable – see above in relation to inventorship. If the AI agent were able to be an inventor, the same person was if the human were the inventor, should be given ownership.

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

   There are several issues addressed below. Aside from those issues, the inventorship issue presents a theoretical problem if the applicant seeks to nominate the AI agent as an inventor. The answer is for the applicant not to nominate the AI agent as an inventor. However, it may assist applicants if the position on inventorship is clarified by legislation deeming the controller ot be the inventor. Making this legislation consistent with creators of other rights would be a sensible simplification, subject to that being compatible with international recognition of who is the inventor (ie whether it is determined by the law of the country of the invention (or something like that) or the law of the country of the patent.

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

   In relation to inventorship, there could be more complicated issues to resolve (eg in relation to artificial general intelligence). However, I do not see those as being

ones that the courts cannot address as certainly, in the foreseeable future there will be a person who is responsible for controlling the AI agent..

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

   See above under 1. They will present issues. It is not clear that those issues justify withholding protection in all cases; although patent protection may be too long a duration and too inflexible in the threshold requirements to be appropriate in the vast majority. I would not advocate a change at present (especially as the majority of innovators already seem to work well with confidentiality).

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

    If this question is intended to cover the fact that many AI innovations will be maintained confidential, or there will be a reluctance to release data about AI innovations because there is no other protection than confidentiality, then there is a potential impact. However this should better be addressed in the context of the ethical oversight – and it may be that some form of protection can be given, similar to data exclusivity (rather than patent protection). In any event, it will depend on the individual ethical context and it is doubtful that encouraging publication by offering protection would necessarily answer the ethical concerns.

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

    There has been considerable discussion about this. There are two aspects to it: firstly in terms of bare sufficiency; and secondly in terms of the breadth of invention and whether it is supportable.

    The first can be answered by drawing analogies from the old product by process claims – a product made with these starting materials, which is subjected to this processing, and has these output characteristics. Further, one possibility would be to provide for data deposit in the same way as cell deposits.

    The second is more difficult to address as it would potentially require an explanation as to the underlying principle which justified the expectation or plausibility of a particular performance – and that principle may not even be known. It would then require testing with a range of different inputs. I am not skilled sufficiently to determine whether this would create significant problems or whether those would be significantly different from problems on sufficiency in other fields.

    One specific difficulty (but it is not different in the old chemical claims) is that AI systems are not necessarily linear and therefore predictability of outputs is not necessarily ever certain in more complex systems.

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?*

    Yes. But that is a matter to be addressed in the context of those societal pressures (and not under the patent system – although clearly the patent system

needs to be flexible enough to address what happens to protection in the context of mandatory disclosure. The debate is similar to whether disclosures of discoveries made in (public) regulatory trials of new drugs should be exempt disclosures).

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?*

    Arguably it does present challenges. However, I believe this can be addressed within the existing framework with the AI agent being one of the tools at the behest of the inventor or inventor team

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

    No. The person skilled in the art has tools. One of them is an AI agent. It is appreciated that the outcome of use of the AI agent may depend on the input data/data sets. I anticipate that can be addressed in the same was a combining references or the degree of likelihood of the AI agent, eg identifying, specific prior art.

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

    The person controlling the AI agent – although the designer of the AI may also be liable as providing the means to infringe.

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

    If the claims are drafted around the internal operation of the AI agent there could be problems, although more in terms of identifying infringement than proving it, although in some cases it may be difficult to prove it because of the difficulty of understanding what goes on inside. This is not a new problem: physical chemistry, small scale physics, chemical reactions may all present problems of characterising exactly what steps take place – I have experience of claimants presenting four different tests of a particular synthetic polymer product, two of which they said proved infringement. Electron microscopy including chemical analysis was no help in identifying the process used. We said the other two tests (that the claimants ignored) showed that it did not use the process. Eventually the court ordered inspection of the process. The claimants agreed that the process inspected did not infringe the claim, but sought to argue that the difference they detected in the end product meant it had not been made by the same process as the alleged infringement. That's life.

    The answer is for patent attorneys to draft claims that it is possible to show have been infringed. It's not a perfect system.

Copyright questions

1. *Do you agree with the above description of how AI may use copyright works and databases, when infringement takes place and which exceptions apply? Are there other technical and legal aspects that need to be considered?*

   There are two conflicting values to copyright protection – one illustrated by the CJEU approach to originality and copyright: namely that the work should embody the creativity of the author by reflecting the authors personality; and the second reflecting the utilitarian approach of common law systems, that copyright protection can be used to protect the functional attributes of a work – meaning that an engineering drawing can be protected by copyright and that runs through into copying that that drawing for the purpose of making a duplicate three dimensional article.

   There needs to be a substantial reconsideration of the objective of copyright law and how exceptions are handled post leaving the EU and the extent to which purely economic rights (in the sense of ones independent of creativity should be protected.

   In addition, there is a potential concern that the use of AI could exploit the attractive value of a copyright work which has been created by a third party. There are two aspects where this arises. The use of digital technologies makes it much easier to take parts of a work and alter it by degrees so that it is not evidently taking a substantial part. If AI is used to assess what the attractive features of a specific work are and to take those (and not other features) the human observer may say that the AI output does not create appear to reproduce a substantial part, when the work carried out by the AI agent is to ensure that in fact they do have the impact of the originators creativity on the subsequent customer.

   I would suggest research is carried out to determine whether this is an issue and whether guidance should be developed on the use of AI agents to assist in the assessment of reproduction of a substantial part.

2. *Is there a need for greater clarity about who is liable when an AI infringes copyright?*
3. *Is there a need to clarify existing exceptions, to create new ones, or to promote licensing, in order to support the use of copyright works by AI systems? Please provide any evidence to justify this.*
4. *Is there a need to provide additional protection for copyright or database owners whose works are used by AI systems? Please provide any evidence to justify this.*
5. *Should content generated by artificial intelligence be eligible for protection by copyright or related rights?*
6. *If so, what form should this protection take, who should benefit from it, and how long should it last?*
7. *Do other issues need to be considered in relation to content produced by AI systems?*
8. *Does copyright provide adequate protection for software which implements artificial intelligence?*
9. *Does copyright or copyright licensing create any unreasonable obstacles to the use of AI software?*

Designs questions

1. *Do you agree with the analysis above which concludes that it is not possible for AI to be the author or owner of a UK or Community design?*

   The law should not be changed make an AI agent the author of a design. There is no basis in principle or practicality and an AI gent has no legal personality so as to make AI the owner of a design. The sensible course is to make the controller of the AI agent the author (unless the design is not original or the equivalent requirement).

2. *Are there, or could there be, any tensions with the current legislation when seeking to register a design or be recognised as the owner of an AI-created design? Who would be the legal entity applying for the rights?*

   The controller of the AI agent (or person making arrangements) or their successor in title (eg employer).

3. *Who should be recognised as the author of a design created by AI where the system has been bought from a supplier, and the buyer has provided input or data to the system? Does the wording of legislation need to be changed?*

   The controller.

4. *Do you consider that legislation should be changed to allow AI systems to be recognised as the author of a registered design or designer of an unregistered design?*

   No. There is no sensible principled basis for doing so.

5. *If so, how should we assess when AI stops being a tool programmed by a human and becomes an intelligent entity capable of producing its own IP? What proof or evidence would be required?*

   Not applicable.

6. *Unlike UK domestic legislation, the CDR has no provisions relating specifically to computer-generated designs. Does this result in legal uncertainty in relation to authorship and ownership of computer-generated designs? Would the same apply to AI-generated designs?*
7. *Are there any other issues in relation to the CDR which we should consider in relation to AI?*
8. *Can the actions of AI infringe a registered or unregistered design? Can AI do the acts set out in law?*

   An AI agent cannot be an infringer, but the actions of an AI agent can result in infringement

9. *When considering infringement are there, or could there be, any difficulties applying existing legal concepts in the registered designs framework to AI technology? Does AI affect the use of the "informed user" in measuring overall impression?*

In general the existing approach works. The issue in relation to a design is whether it creates the same overall impression on the observer – that is a human tests.

However there is a potential concern that the use of AI could exploit the attractive value of a design which has been created by a third party. There are two aspects where this arises. The use of digital technologies makes it much easier to take parts of a design and alter it by degrees so that it is not evidently similar. If Ai is used to assess what the attractive features of a specific design is and to take those (and not other features) the human observer may say that the designs do not create the same overall impression, when the work carried out by the AI agent is to ensure that in fact they do create the same overall impression.

I would suggest research is carried out to determine whether this is an issue and whether guidance should be developed on the use of AI agents to assist in the assessment of overall similarity.

10. *If AI can infringe a registered design, who should be liable for the infringement? Should it be the owner, the programmer, the coder, the trainer, the operator, the provider of training data, or some other party?*

The person controlling the operation of the AI agent. Other parties may have responsibility for inducing the infringement. This should be address in conjunction with other liability issues arising from the use of AI agents.

Trade marks questions

1. *If AI technology becomes a primary purchaser of products, what impact could this have on trade mark law?*
2. *Are there or could there be any difficulties with applying the existing legal concepts in trade mark law to AI technology?*

   It is worth reviewing/researching the impact that use of AI agents could have in undermining the essential characteristics of trademark protection, and thereby encroaching on the owners economic rights.

   There is a potential concern that the use of AI could exploit the distinctive features (and repute) of a trade mark owned by a third party. If Ai is used to assess what the attractive features of a specific trade mark or its repute are and to take those (and not other features) the human observer may say that the trade marks are not similar or that no advantage has been taken of the distinctive character or repute of the mark, when the work carried out by the AI agent is to ensure that in fact they do create the same overall impression.

   I would suggest research is carried out to determine whether this is an issue and whether guidance should be developed on the use of AI agents to assist in the assessment of overall similarity, confusion, riding on the coat tails, and whether the courts would pay any attention to this (bearing in mind how little attention they pay to survey evidence..

3. *Does AI affect the concept of the "average consumer" in measuring likelihood of confusion?*
4. *What is the impact of AI on the drafting of section 10? Can AI "use in the course of business" a sign which may be confusingly similar or identical to a trade mark?*
5. *Can the actions of AI infringe a trade mark?*

   They can result in infringement. The controller is responsible for the infringement – and others may have liability for inducing the infringement.

6. *If AI can cause trade mark infringement, does this shift who could be liable? Should it be the owner, the operator, the programmer, the trainer, the provider of training data, or some other party?*

Trade secrets questions

1. *Is trade secret protection important for the AI sector? Does the nature of AI technologies and business influence your answer?*

   Yes, practically confidentiality (which may go further than trade secret protection) is extremely important (and viewed as the main form of protection by many AI businesses.

2. *Does AI impact UK trade secret law? Does UK trade secret law give adequate protection to aspects of AI technology where no other intellectual property rights are available?*

   That depends on whether it is practical to maintain it secret. In addition it may be difficult to keep key principles secret (especially in the context of mandatory disclosure on how decisions are reached). So the answer is that it may not provide adequate protection to optimise innovation and especially the release of information about innovation.

3. *What are the advantages and disadvantages of using trade secrets in the AI sector? Could information that is not shared inhibit AI development?*

   Disclosure enhances others ability to build on existing innovations. To that extent confidentiality impair potential innovation.

   Lack of disclosure may also lead to distrust of AI which could inhibit innovation in the sense of it being adopted by the market.

4. *Do trade secrets cause problems for the ethical oversight of AI inventions?*

   A question for ethicists to address.