

Artificial Intelligence and Intellectual Property: copyright and patents

Consultation Response

submitted by [REDACTED]
to the UK Intellectual Property Office

Introduction

This response is submitted by

I had the opportunity to listen to a guest lecture by Lord Justice Richard Arnold about the Decision of the Court of Appeal on the famous DABUS case. The controversy about the patentability of inventions made by artificial intelligence enthralled me; thus I decided to make it the topic of my master's dissertation. I wish to share my views about artificial intelligence ('AI') and patents in this consultation response with the UK Intellectual Property Office.

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I. Patents Questions

Under the current UK patent law AI-devised inventions cannot receive patent protection because UK patent applicants must name a human inventor. This consultation response will examine whether the current rule for inventorship needs to be adapted and if so, how AI-devised inventions could be considered in the patent system.

A. Please rank these options in order of preference (most to least preferred) and explain why?

The most preferred option is Option 3: Protect AI-devised inventions through a new type of protection. The next most preferred options are Option 2: Allow patent applications to identify AI as an inventor and Option 1: “Inventor” expanded to include humans responsible for an AI system that devises inventions, which are equally preferred. Option 0: Making no legal change is the least preferred. The reasoning behind this order will be explained in the following sections.

Before I examine each option, there is a very pressing issue when talking about artificial intelligence and patents. When raising questions about how to deal with inventions that are made by AI, policymakers need to provide a technical definition of so-called “AI-devised inventions” and clarify how they can be distinguished from AI-aided inventions.¹ A technical explanation of the process must be introduced; otherwise, it is not clear when there is an AI-devised invention rather than a sole AI-aided invention.² So far, such a definition is missing. If policymakers continue to discuss new policy options, they must first define unequivocally what they are trying to regulate. Intellectual property rights, especially patents rights, are extremely valuable rights, ownership and entitlement to which should not be left to vague concepts by legislation.³

¹ KIM DARIA, “AI-Generated Inventions»: Time to Get the Record Straight? GRUR 2020 (443-456), p. 444.

² KIM, p. 445.

³ DAVIES R. COLIN, An evolutionary step in intellectual property rights – Artificial intelligence and intellectual property, CL & SR 2011 (601-619), p. 618.

B. Option 3: Protect AI-devised inventions through a new type of protection

When the patent law system was designed, policymakers had the human inventor in mind; thus, many aspects of patent law are not suitable to the idea that AI technology is creating inventions. Traditional patent law has become outdated and inapplicable to AI-devised inventions.⁴ Hence, the most preferred option is to protect AI-devised inventions through a new type of protection.

AI-devised inventions are the result of an interaction of multiple stakeholders.⁵ It starts with the AI programmer who drafts the algorithms and the data supplier who feeds the AI system with data to learn from. Afterward, someone needs to train the system, while a data scientist assists the trainer and data supplier on which data is suitable for the AI.⁶ By repeating this process, the system eventually outputs an invention. A successful AI-devised invention requires labour from a large group of professionals working together for a long time. However, the AI developers may not know how the system devised the invention, which is called the “black box conundrum”.⁷

The current patent law system does not recognise the multiplayer and cumulative environment of AI-devised inventions. It is not flexible in allocating rewards. In my opinion, each person contributing to the final result should be able to patent their intermediate results; i.e. the AI, algorithms, the trained AI, and the final AI system. A new patent model tailored to AI devisers would recognise the multiple stakeholders and cumulative environment of AI inventions. The new type of protection would form a separate system for AI-devised inventions.

The patent system has two main objectives: first, to incentivise technical innovation by applicants; and secondly, to encourage public disclosure of inventions to stimulate

⁴ YANSKY-RAVID SHOLMIT/LIU XIAOQIONG, When Artificial Intelligence Systems produce Inventions: An alternative Model for Patent Law at the 3A Era, CLR 2018 (2215-2262), p. 2215.

⁵ YANSKY-RAVID/LIU, p. 2231.

⁶ See YANSITSKY-RAVID SHOLMIT/JIN REGINA, Summoning a New Artificial Intelligence Patent Model: In the Age of Pandemic, Preprint (1-49), p. 37.

⁷ Demystifying the Black Box That Is AI, <<https://www.scientificamerican.com/article/demystifying-the-black-box-that-is-ai/>>, accessed 19.12.2021.

innovation by others.⁸ A patent grants the owner the right to commercialise exploitation an invention. This comes with a distortion in the free-market equilibrium and thus requires a convincing justification.⁹ A new type of patent must find a balance between innovative incentives and anti-competitive costs. With the right balance between the interest of the right holders and the public, it has the potential to boost innovation and to generate economic growth.¹⁰

C. For option 3:

AI-devised invention results from the cooperation of different stakeholders. The new sui generis right should incentivize each stakeholder on the way to the final product, the AI-devised invention.

1st What term and scope of protection should a new right offer?

a) Scope of protection

As discussed above, AI-devised inventions are the result of a collaboration of work from different professionals. Therefore, the scope of the new type of patents should not only comprise AI-devised inventions but also AI algorithms and trained AI.¹¹ Allowing patents for all these would incentivize the research, development, and teaching of AI systems for all kinds of AI fields.¹²

b) Term

The speed at which AI is advancing is unparallel to other industries. At the time when the twenty years duration of patents was designed, industries developed very slowly.¹³ The

⁸ APLIN TANYA/DAVIS JENNIFER, *Intellectual Property Law: Text, Cases and Materials*, 4. ed., Oxford 2020, p. 622.

⁹ APLIN/DAVIS, p. 622.

¹⁰ FRASER ERICA, *Computers as Inventors – Legal and Policy Implications of Artificial Intelligence on Patent Law*, SCRIPTed 2016 (305-333), p. 326.

¹¹ YANISKY-RAVID/JIN, p. 33.

¹² YANISKY-RAVID/JIN, p. 35.

¹³ YANISKY-RAVID/JIN, p 41.

lifetime of a patent right for AI-devised inventions consequently should be shorter than twenty years.¹⁴ The duration for exclusive patent rights needs to be long enough that there is still an adequate time to exclusively exploit the invention, but short enough that it does not block next generation inventions and disincentivise those who would lead the field to even greater heights.¹⁵ In the field of AI inventions, the inventive process is fast, and the life of the invention can be extremely short; accordingly, a patent for an AI invention does not need a term of twenty years' protection.¹⁶ With a shorter term for a new type of protection right, the AI technology will come faster to the public domain and the disseminated knowledge will stimulate further innovation.

Furthermore, the current patent law is criticised for not having a flexible, industry-specific patent term system.¹⁷ Thus, the new patent for AI inventions could vary among industries depending upon the pace of innovation within particular fields. Also, it could start with a shorter term, combined with the possibility of extensions if needed.¹⁸

2nd What should the criteria for grant of a new right be and why?

The criteria for grant of a new sui generis right can be adapted from the current requirements for a patent. According to s1(1) Patents Act 1977 ('**PA 77**') a patent may be granted for an invention if the invention is new, involves an inventive step, and is capable of industrial application. These criteria need to be altered for special circumstances in the AI inventive process.

In particular, the issue arising from the requirement of an "inventive step" needs to be addressed. Under the current UK patent law, the invention must feature an inventive step to be patentable.¹⁹ According to s3 PA 77 an invention involves an inventive step if it is not obvious to a person skilled in the art. The skilled person is deemed to be selectively

¹⁴ NOLAN PAUL, Artificial Intelligence: Inventorship and Ownership – Are The Planets Lining Up?, IPSANZ 2020 (1-21), p. 15; YANISKY-RAVID/JIN, p 42.

¹⁵ NOLAN, p. 14-15; YANISKY-RAVID/JIN, p 42.

¹⁶ YANISKY-RAVID/JIN, p. 41.

¹⁷ LESTER SIMON/ZHU HUAN, Rethinking the Length of Patent Terms, AUILR 2019 (787-806), p. 800.

¹⁸ LESTER/ZHU, p. 800.

¹⁹ APLIN/DAVIS, p. 759.

omniscient and has read, understood, and remembered every existing reference from the prior art in the relevant field of invention.²⁰ However, in the context of AI-devised invention, it is unclear who the person skilled in the art is.²¹ Is it the programmer, the AI system, or perhaps the data scientist? An AI programmer may know a lot about the program but has a very limited understanding of the specific field in which the AI system is applied.²²

Further, if AI continues to advance, it will be common practice in the research and development in certain fields to use AI.²³ The person skilled in the art would then be anticipated to be able to use AI systems in their work. This would increase the hurdle for the non-obvious test. The person skilled in the art who is equipped with AI systems could subsequently carry out an almost unlimited mosaic examination of the prior art in all fields of expertise, which would presumably mean that a considerable number of inventions would no longer pass the “non-obviousness” test and thus, would not receive patent protection.²⁴ Human-made inventions would stand no chance against AI-devised invention when applying the same examination standard.²⁵ However, on the other hand, if the knowledge of AI technology is not considered when assessing the obviousness, it would lead to unjustified monopolies for the use of these technologies, which could hamper innovation.²⁶ Therefore, the requirement for the inventive step should be rethought in relation to AI-devised inventions.

In conclusion, policymakers need to rethink the interpretation of the inventive step in relation to AI-devised inventions, particularly who the person skilled in the art is and what means the person has at her disposal.

Section 14(3) PA 77 requires an application to disclose the invention in a manner that is clear enough and complete enough for the invention to be performed by a person skilled in

²⁰ APLIN/DAVIS, p. 761.

²¹ YANISKY-RAVID/JIN, p. 23.

²² YANISKY-RAVID/JIN, p. 24.

²³ Center for the Fourth Industrial Revolution, Artificial Intelligence Collides with Patent Law, World Economic Forum 12 (April 2018), http://www3.weforum.org/docs/WEF_48540_WP_End_of_Innovation_Protecting_Patent_Law.pdf.> accessed 5.1.2022.

²⁴ YANISKY-RAVID/JIN, p. 24.

²⁵ YANISKY-RAVID/JIN, p. 24.

²⁶ FRASER, p. 321.

the art. This requirement should incentivize inventors to disclose their knowledge so that the public can benefit from it.²⁷ Also, the description defines the scope of protection provided by the patent.²⁸ In the light of AI-devised inventions, the written description of the process of making and using the inventions is challenging. It needs to be assessed who the intended audience and their skills of the required description should be.²⁹ If the AI system is producing on its own, the question arises what the meaning of the person skilled in the art is. This inquiry could be judged on whether an AI machine could reproduce the results.³⁰

Furthermore, as explained above, an invention made by AI can be unexplainable due to the so-called “black box conundrum”.³¹ The people responsible for the AI machines sometimes do not know how the machine determined the result.³² This lack of transparency challenges the requirement of providing a clear and complete description of the invention so that it can be performed by a skilled person in the art. Even if the AI system is described in detail, no clear instruction for the AI-devised invention can be provided.³³

3rd Be an automatic or registered right?

UK Patent Law requires for a patent to be registered. Through the application process, the inventions filed are reviewed so that only inventions that are truly new and inventive inventions receive the protection of a patent.³⁴ Further, the publication of the invention in the patent register promotes disclosure of important knowledge and provides legal certainty to the patentee.³⁵ Thus, the new type of patent right should also be granted for an AI-devised invention through registration. However, UK patent applications take around two to four years to be granted.³⁶ This long waiting time for a patent examination is particularly critical

²⁷ FRASER, p. 322.

²⁸ FRASER, p. 322.

²⁹ VERTINSKY LIZA/RICE TODD M., Thinking about Thinking Machines: Implications of Machine Inventors for Patent Law, Boston University Journal of Science & Technology Law 2002 (574-613), p. 601.

³⁰ VERTINSKY/RICE, p. 601.

³¹ YANSKY-RAVID/JIN, p. 27.

³² YANSKY-RAVID/JIN, p. 28.

³³ YANSKY-RAVID/JIN, p. 28.

³⁴ APLIN/DAVIS, p. 759.

³⁵ FRASER, p. 322.

³⁶ <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjAscU55f1AUg_bsIHSf8Be8QFnoECB0QAQ&url=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fgovernment>

with regards to the incredible speed at which the AI industry is developing.³⁷ Accordingly, the UK Intellectual Property Office should implement a new, online, and fast method for processing patent applications for AI-devised inventions.³⁸

D. Option 2: Allow patent applications to identify AI as inventor

This option proposes two ways to allow patent applications to identify AI as an inventor: amending legislation to allow AI to be named as the inventor or removing the requirement to name an inventor if there is an AI-devised invention. The owner of the patent rights would be the human closely responsible for an invention devised by AI.

This option is very attractive as it allows AI to be the inventor. It would encourage innovation under the incentive theory.³⁹ Although the prospect of a patent would not motivate AI to invent, the people who build, use, or own AI systems are responsive to patent incentives.⁴⁰ Allowing AI-devised inventions to receive protection promotes investment in the development of inventive AI, which ultimately results in more inventions. Which aligns with the purpose of patent law.⁴¹ Moreover, permitting AI inventors and patents on AI-devised inventions might promote disclosure and commercialisation.⁴²

The Federal Court of Australia has found that AI is capable of being an inventor under the Australian patent regime.⁴³ The court stated that “it is a fallacy to argue [...] that an inventor can only be a human”⁴⁴ and that an “inventor may be an artificial intelligence system.”⁴⁵ The court support this argument by pointing out that one should not read limitations and

t%2Fuploads%2Fsystem%2Fuploads%2Fattachment_data%2Ffile%2F977633%2Fpatent-timeline.pdf&usg= AOvVaw3mKg-wtYL35fbolZyJSx5G>, accessed 29.12.2021.

³⁷ YANSKY-RAVID/JIN, p. 27.

³⁸ The UK Intellectual Property Office already offers different methods of accelerating the processing of patent application regarding different inventions: <<https://www.gov.uk/guidance/patents-accelerated-processing>>.

³⁹ ABBOTT RYAN, I Think, Therefore I Invent: Creative Computers and the Future of Patent Law, Boston College Law Review 2016 (1079-1126), p. 1104.

⁴⁰ ABBOTT, p. 1104; KÄDE LISA, KI-Systeme als Erfinder? RDi 2021 (557-559), p. 558.

⁴¹ ABBOTT, p. 1104.

⁴² ABBOTT, p. 1104; FRASER, p. 322.

⁴³ Federal Court of Australia, *Thaler v Commissioner of Patents* (2021) FCA 879, 30. July 2021.

⁴⁴ Federal Court of Australia, *Thaler v Commissioner of Patents* (2021) FCA 879, 30. July 2021, para. 12.

⁴⁵ Federal Court of Australia, *Thaler v Commissioner of Patents* (2021) FCA 879, 30. July 2021, para. 12.

qualifications into a statutory definition unless it is clearly required by its terms or context.⁴⁶ In the Australian Patents Act 1990, in particular in s15(1) there is no specific requirement that the inventor has to be a human and to construe the term inventor in a manner that promotes technological innovation and the publication and dissemination of AI-devised inventions is consistent with the object of the Act.⁴⁷ However, the court emphasized that on the other hand, the owner, controller, or patentee to an AI-devised invention cannot be an AI system.⁴⁸

In the UK, there is no specific provision under PA 77 that forbids that an artificial intelligence system can be an inventor. In my opinion, it seems justifiable to interpret the PA 77 analogously to the Australian Patents Act 1990.

National patent laws and international agreements have a statutory requirement to identify inventors in issued patents or patent applications.⁴⁹ This requirement is justified with the idea that human creativity should be encouraged and recognised. Mentioning the inventor gives him his desired recognition and thus gives the patent system legitimacy in the public view.⁵⁰ The requirement also reflects the appraisal of the products of the human mind and their makers.⁵¹ An AI system does not care about such recognition, however for AI-generated inventions, AI should be listed as the inventor and not their human operators because it is not fair to human inventors, if people are able to get credit for the work of a machine.⁵² Thus, allowing AI to be listed as inventor will protect the rights of human inventors.⁵³ Otherwise, a person who arranges an AI system to devise an invention and a person who is inventing something on his own will be credited the same way.⁵⁴ Therefore, the requirement to name an inventor if there is an AI-devised invention should not be

⁴⁶ High Court of Australia, *PMT Partners Pty Ltd (in Liq.) v Australian National Parks & Wildlife Service* (1995) 184 CLR, 11 October 1995.

⁴⁷ Federal Court of Australia, *Thaler v Commissioner of Patents* (2021) FCA 879, 30. July 2021, para. 124.

⁴⁸ Federal Court of Australia, *Thaler v Commissioner of Patents* (2021) FCA 879, 30. July 2021, para. 12.

⁴⁹ See e.g. European Patent Convention, arts 62, 80.

⁵⁰ VERTINSKY/RICE, p. 585.

⁵¹ FRASER, p. 328.

⁵² ABBOTT RYAN, The Artificial Inventor Project, wipo magazine 2019, <https://www.wipo.int/wipo_magazine/en/2019/06/article_0002.html>, accessed 29.12.2021.

⁵³ ABBOTT, WIPO; FRASER, p. 329.

⁵⁴ ABBOTT, WIPO; FRASER, p. 330.

removed. Listing the AI system as the inventor is fair, reflects the impersonal reality of inventorship, and aligns with the idea for the statutory requirement to identify an inventor.

Under the s7(2) PA 77 the inventor is the original owner of the patent unless another entity has a superior right, such as through employment or contract. AI systems cannot own property; therefore, a person must own the patent rights. The option is proposing the human closely responsible for in AI-devised person. Possible owners could be the owner, user, or the developer of the AI. Under UK patent law, employee inventions are invented by employees, although the ownership right of the patent belongs to the employer according to s7(2)(b) and 39 PA 77. However, the employer has not created that right, as they had no creative input.⁵⁵ The transfer of intellectual property rights is based on the special relationship between employer and employee.⁵⁶ The AI machine and its owner have an analogous relationship: the AI machine is a quasi-employee and the owner its quasi-employer.⁵⁷ Therefore, the owner of the AI machine, as its quasi-employer, would be entitled to any rights the AI machine, his quasi-employee, generates.⁵⁸

E. Option 1: “Inventor” expanded to include humans responsible for an AI system which devises inventions

Under UK copyright law, the CDPA 1988 includes a unique provision that specifically regulates computer-generated works. In the case of a literary, dramatic, musical, or artistic work, which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken s9(3) CPDA. This provision is very innovative and might even protect AI-generated works.⁵⁹ It is therefore arguable whether such provision should be adopted into the patent system. When the CDPA 1988 was designed, the envisioned computer-generated works were the result of a

⁵⁵ DAVIES, p. 616.

⁵⁶ DAVIES, p. 616.

⁵⁷ DAVIES, p. 618; ENGEL ANDREAS, Can a Patent be granted for an AI-Generated Invention? GRUR Int. 2002, (1123-1129) p. 1129.

⁵⁸ DAVIES, p. 618; ENGEL, p. 1129.

⁵⁹ LEE JYH-AN, Computer-generated Works in the CDPA 1988, in: LEE JYH-AN/HILTY RETO/LIU KUNG-CHUNG, Artificial Intelligence and Intellectual Property, Oxford 2021 (177-195), p.177.

comparatively simple process. The works generated by AI technology of today, however, are fairly different from the works that were generated from computers in 1988.⁶⁰ Moreover, the UK courts have only once examined the provision in a case, and that did not involve AI technology.⁶¹ Thus, the understanding of ‘the arrangements necessary for the creation of the work’ is not clear, which makes it hard to determine the author.⁶² Not only do some legal terms remain quite vague, but also parallel to the process of an AI-devised invention, there are multiple contributors involved in the creation process of AI-generated works, which makes it even harder to determine the author.⁶³ Thus, the UK copyright provision on computer-generated works may be the starting point to protect AI-generated works, however the norm creates too many uncertainties. I therefore do not suggest adopting a similar provision for AI generated invention into the patent system.

The German Federal Patent Court has ruled on a case relating to an invention made by an AI machine.⁶⁴ The court confirmed the decision of the German Patent and Trademark Office that rejected a patent application describing an invention that has been generated by AI.⁶⁵ The court recognised that in the future, machines can produce patentable inventions. However, problems arise in relation to inventorship. The Federal Patent Court does not accept a machine as an inventor. The inventor must be a natural person, however, the court affirmed that the AI system supposedly responsible for the underlying invention could be additionally named.⁶⁶ The decision of Germany’s Federal Patent Court circumvents the issue with the requirement of a human inventor: it does not allow AI to be the inventor, yet clearly states that the human named as the inventor is only a substitute for the true inventor, which is the AI system. In my opinion, AI should then be listed as the inventor instead of creating a pro forma inventor. Moreover, as explained above, it is not fair to actual inventors to list a person as an inventor who is not the true inventor.

⁶⁰ LEE, p. 189.

⁶¹ *Nova Productions Ltd v Mazooma Games Ltd* [2006] EWHC 24 (Ch) (20 January 2006).

⁶² LEE, p. 188.

⁶³ LEE, p. 192.

⁶⁴ MEISSNER BOLTE, Computer made inventions patentable?, <<https://www.lexology.com/library/detail.aspx?g=e6c52ba3-d4e5-471d-b70b-90ee6f7d82f6>>, accessed 28.12.2021 (hereinafter: Computer inventions decision).

⁶⁵ Patent Application DE102019128120.2, <<https://register.dpma.de/DPMAreger/pat/register?AKZ=1020191281202>>, accessed 28.12.2021.

⁶⁶ See Computer inventions decision.

Under the Swiss, German, and European patent law, some scholars argue that AI-devised results would only become an invention through the realisation of a human that the produced result is the solution to a technical problem.⁶⁷ Without this step, the AI-generated product lacks a relationship to the inventor.⁶⁸ Accordingly, the patentability of AI-generated inventions is possible, whereby the legal inventor is the natural person who first recognises the invention as such.⁶⁹ However, as discussed above, it is not fair to human inventors to list the person who recognises the AI-devised result as an invention and thus being able to get credit for the work of a machine. The person who recognises the invention cannot be considered the “actual deviser” of the invention. Therefore, and for the reason of transparency, AI should be listed as the inventor.

F. Option 0: Make no legal change

AI will lead to a change in all areas of our lives. It is, therefore, crucial to address the arising question and difficulties. Having a regulatory solution ready before the market gets flooded with patent applications for AI-devised inventions is an essential step for the UK to become a global centre for the development, commercialisation, and adoption of responsible AI. The system of law in this area should be proactive rather than reactive.⁷⁰ The UK could be one of the first countries to introduce a policy regarding AI-devised inventions. It could constitute a role model for other national and international jurisdictions.

The implicit assumption that the inventor is a natural person is based on the belief that only the human mind could be creative and therefore produce an invention.⁷¹ When the foundations of the patent system were formed, legislators did not know that one day AI-

⁶⁷ MÜNCH PETER/HERZOG NICOLAS, *Berechtigung an der Erfindung*, in: BERTSCHINGER CHRISTOPH ET AL., *Schweizerisches und europäisches Patentrecht*, Basel 2002 (163-189), p. 163.; KRASSER RUDOLF/CHRISTOPH ANN, *Patentrecht*, 7.ed. Munich 2016, § 19 para. 7; MELULLIS KLAUS-JÜRGEN, *Beck-Komm. Patentgesetz*, § 6 para. 31.

⁶⁸ Original: «Beziehung zum Erfinder», MELULLIS KLAUS-JÜRGEN, § 6 para. 31.

⁶⁹ BLOK PETER, *The inventor’s new tool: artificial intelligence – how does it fit in the European patent system?*, *EIPR* 2017 (69-73), p. 71.

⁷⁰ NOLAN, p. 15.

⁷¹ NOLAN, p. 1.

devised inventions would be possible.⁷² However, now it is, and this development of modern technology should be processed into the law.

The argument that a human will continue to qualify as an inventor for most inventions made with AI involvement is very short-sighted. With the speed at which AI technology is developing, it can be expected that more and more AI-devised inventions will be made over the following years.⁷³ Under the current UK framework, a patent cannot be assigned to AI-devised inventions. This is particularly precarious for the following reasons: Companies will either be reluctant to invest in the development and research of AI systems if they do not have patent protection to amortise their costs or not disclose important discoveries.⁷⁴ Further, people will be inclined to falsely declare that they are the inventor of a new discovery, instead of AI, only to meet the statutory requirements.⁷⁵ These incentives are contrary to the rationales of the patent system. Eventually, valuable knowledge and discoveries are not being exhausted; thus, society as a whole is missing out on a benefit. Therefore, making no legal change is the least preferred option.

II. Concluding observations

In many areas, AI systems are already an indispensable part of the inventive process. The UK patent system must prepare to respond to this technological reality where human-made inventions are gradually being replaced by AI-devised inventions. AI has the possibility to devise inventions from which society could greatly benefit. Research and development of AI systems should be encouraged. It is therefore essential that the patent system considers AI-devised inventions. However, the current patent regime is outdated and inapplicable to AI-generated inventions. AI-devised inventions are the product of the collaboration of multiple stakeholders as well as machines. The current patent law system does not recognise this multiplayer and cumulative environment of AI-devised inventions. Thus, the most preferred option is to protect AI-devised inventions through a new type of protection. The

⁷² NOLAN, p. 1.

⁷³ The Story of AI in Patents, World Intellectual Property Organization (WIPO), <https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1055.pdf>, accessed 20.12.2021.

⁷⁴ NOLAN, p. 10.

⁷⁵ NOLAN, p. 10.

new sui generis right should protect AI-devised inventions as well as AI algorithms and trained AI for a shorter term than human-made inventions. The criteria for granting the new right could be analogous to the current requirements for a patent, in which the interpretation of the inventive step in relation to AI-devised inventions, particularly the person skilled in the art needs to be adjusted to the unique circumstance in the AI inventive process. Therefore, I encourage the UK Government to address the questions and problems arising from AI and the patent law and implement rules for AI-devised inventions. After all, we must deal with the fact that humans invent not only inventions but also inventors.

Annex - Response form

After you have read the consultation document, please consider the questions below. There is no expectation or requirement that all questions are completed. You are welcome to only answer the questions that are relevant to you, your business or organisation.

A copy of this response form is available to download from GOV.uk.

There are two sections on this form:

A. Questions arising from this consultation

B. Information about you, your business or organisation

When you are ready to submit your response, please email this form and any other supporting documentation to Alcallforviews@ipo.gov.uk.

The closing date for responses is at 23:45 on 7 January 2022.

The options for computer generated works, text and data mining and patent inventorship are summarised in the following tables.

Computer generated works	
Option 0	Make no legal change
Option 1	Remove protection for computer-generated works
Option 2	Replace the current protection with a new right of reduced scope/duration

Text and Data Mining (TDM)	
Option 0	Make no legal change
Option 1	Improve licensing environment for the purposes of TDM
Option 2	Extend the existing TDM exception to cover commercial research and databases
Option 3	Adopt a TDM exception for any use, with a rights holder opt-out
Option 4	Adopt a TDM exception for any use, which does not allow rights holders to opt out

Patent Inventorship	
Option 0	Make no legal change
Option 1	“Inventor” expanded to include humans responsible for an AI system which devises inventions
Option 2	Allow patent applications to identify AI as inventor
Option 3	Protect AI-devised inventions through a new type of protection

Section A

Copyright – computer generated works (CGW)

1. *Do you currently rely on the computer-generated works provision? If so, please provide details of the types of works, the value of any rights you license and how the provision benefits your business. What approach do you take in territories that do not offer copyright protection for computer-generated works?*
2. *Please rank these options in order of preference (most to least preferred) and explain why.*
3. *If we introduce a related right for computer-generated works, as per option 2, what scope and term of protection do you think it should have? Please explain how you think this scope and term is justified in terms of encouraging investment in AI-generated works and technology.*
4. *What are your views of the implications of the policy options and of AI technology for the designs system?*
5. *For each option, what are your views on the risk that AI generated works may be falsely attributed to a person?*

Copyright – text and data mining (TDM)

6. *If you license works for TDM, or purchase such licences, can you provide information on the costs and benefits of these? For example, availability, price-point, whether additional services are included or available, number and types of works covered by the licence etc.*
7. *Is there a specific approach the government should adopt in relation to licensing?*
8. *Please rank the options in order of preference (most to least preferred) and explain why.*
9. *If you have experience of the EU exception with opt out for rights holders, how has this affected you?*
10. *How would any of the exception options positively or negatively affect you? Please quantify this if possible.*

Patents

11. *Please rank these options in order of preference (most to least preferred) and explain why?*
12. *Would the changes proposed under Options 1, 2 and 3 have any consequential effects on the patent system, for example on other patentability criteria?*

For options 1 and 2:

13. *If UK patents were to protect AI-devised inventions, how should the inventor be identified, and who should be the patent owner? What effects does this have on incentivising and rewarding AI-devised inventions?*

14. *In considering the differences between options 1 and 2, how important is it that the use of AI to devise inventions is transparent in the patent system?*
15. *Would the UK adopting option 2 affect your global patent filing strategy, if so, how?*

For option 3:

16. *What term and scope of protection should a new right offer?*
17. *What should the criteria for grant of a new right be and why? Particularly should it:*
 - a) *Replicate the current requirements for a patent?*
 - b) *Set a different bar for inventive step?*
 - c) *Be an automatic or registered right?*

General

18. *What role does the IP system play in the decision of firms to invest in AI?*
19. *Does the first mover advantage and winner-take-all effect prevail in industries adopting AI? How would this affect the impact of the policy options proposed on innovation and competition?*
20. *How does AI adoption by firms affect the economy? Does the use of AI in R&D lead to a higher productivity?*
21. *Do the proposed policy options have an impact on civil society organisations? If so, what types of impacts?*

Section B: Respondent information

A: Please give your name (name of individual, business or organisation).

██████████

B: Are you responding as an individual, business or on behalf of an organisation?

- 1) Business – please provide the name of your business
- 2) Organisation – please provide the name of the organisation
- 3) Individual – please provide your name

Individual – ██████████

C: If you are responding on behalf of an organisation, please give a summary of who you represent.

D: If you are an individual, are you?

- 1) General public
- 2) An academic
- 3) A law professional
- 4) A professional in another sector – please specify
- 5) Other – please specify

██

E: If you are responding on behalf of an organisation, are you?

- 1) An academic institution
- 2) An industry body
- 3) A licensing body
- 4) A rights holder organisation
- 5) Any other type of organisation - please specify

F: If you are responding on behalf of a business or organisation, in which sector(s) do you operate? (choose all that apply)

- 1) Agriculture, forestry and fishing
- 2) Mining and quarrying
- 3) Manufacturing – Pharmaceutical products
- 4) Manufacturing – Computer, electronic and optical products
- 5) Manufacturing – Electrical equipment
- 6) Manufacturing – Transport equipment
- 7) Other manufacturing
- 8) Construction
- 9) Wholesale and retail trade; repair of motor vehicles and motorcycles
- 10) Transportation and storage
- 11) Information and communication – Publishing, audio-visual and broadcasting
- 12) Information and communication – Telecommunication
- 13) Information and communication – IT and another Information Services
- 14) Financial and insurance activities
- 15) Real estate activities
- 16) Scientific and technical activities
- 17) Legal activities
- 18) Administrative and support service activities
- 19) Public administration and defence
- 20) Education
- 21) Human health and social work activities
- 22) Arts, entertainment and recreation
- 23) Other activities – please specify

G: How many people work for your business or organisation across the UK as a whole? Please estimate if you are unsure.

- 1) Fewer than 10 people
- 2) 10–49
- 3) 50–249
- 4) 250–999
- 5) 1,000 or more

H: The Intellectual Property Office may wish to contact you to discuss your response. Would you be happy to be contacted to discuss your response?

Yes, I would be happy to be contacted.

I: If you are happy to be contacted by the Intellectual Property Office, please provide a contact email address.

[REDACTED]

J: Would you like an acknowledgement of receipt of your response? Yes/No

Yes.