AIIN AN IP WORLD

What, when, how, where?



ISSUE II | AUTUMN 2023 EDITION

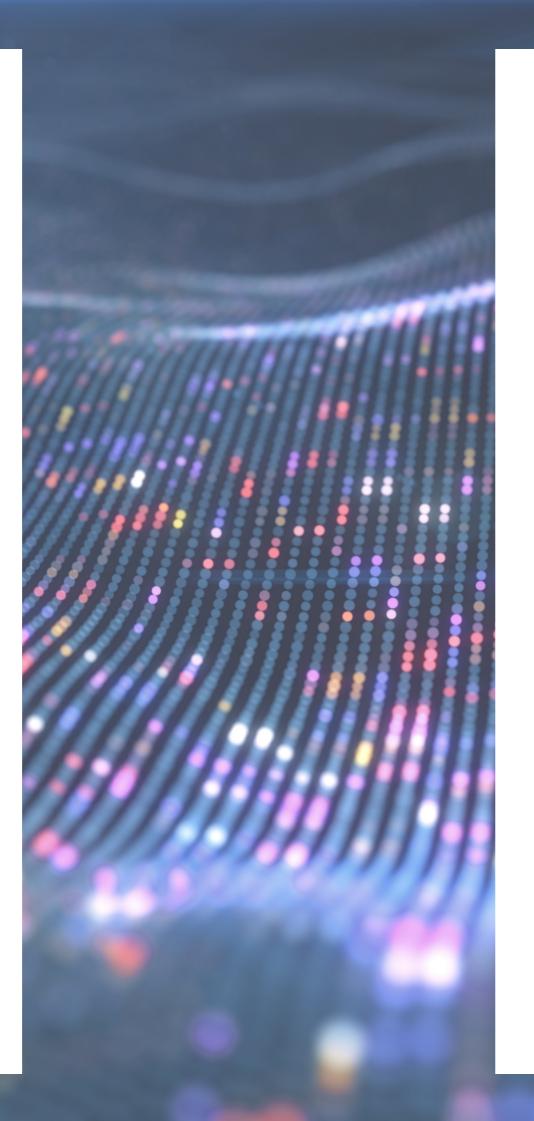


AT A GLANCE

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FROM THE EDITORS

Welcome to the second edition of Reddie & Grose's Artificial Intelligence (Al) newsletter. As Al continues to revolutionise industries, it presents both exciting opportunities and unique challenges for inventors and intellectual property experts.

Al refers to the development of computer systems that can perform tasks typically requiring human intelligence. These systems use algorithms and large amounts of data to analyse, interpret, and process information, enabling them to recognise patterns, make predictions, and adapt their behaviour based on feedback.

Given the speed of advancements in AI, it is of paramount importance for the patent system to both incentivise and regulate the development of new AI technologies. This rapid pace of AI development has led to significant complexities in protecting Alrelated inventions through patents. Patenting Al technology can be a daunting task due to several reasons. Firstly, AI is often built upon a combination of pre-existing algorithms, models, and data, making it challenging to establish the novelty and inventiveness required for patentability. Secondly, the dynamic nature of AI systems means they can continuously evolve, raising questions about the stability and scope of patent protection. Furthermore, Al technology may involve complex ethical and legal considerations, such as data privacy and bias, which further complicate the patenting process.

Whilst the patentability challenges associated to Al inventions may seem insurmountable, it is important to note that many emerging technologies have faced and overcome issues in the patent prosecution process. For example, there are numerous granted patents for software inventions, which themselves pose complex issues in the prosecution stages.

In this edition we focus on the rise of AI chatbots as well as reporting on updates from the UKIPO and EPO about AI inventions. We begin with an overview of AI at the EPO. Connor Crickmore, Lizzie Alexander and Ben Hipwell provide commentary on the patent trends and statistics at the EPO in the field of Al in 2022. As Al continues to permeate all aspects of industry, they discuss data relating to the rapid increase in the amount of Al-related patent applications filed at the EPO. The piece provides a valuable insight into grant rates and the distribution of cases among different fields of technology. Isabel Valdes and Simon Lud examine Al chatbots. Isabel focusses on whether we should employ the use of GPTs in the patent drafting process, whilst Simon discusses a decision made by The German Federal Patent Court on a digital conversation generation method. The insight gives a valuable indication of the best practices for patenting AI chatbots in Germany.

Ben Hipwell's article provides an update from UKIPO regarding new guidance on Al inventions. In the insight, he reports on the second UKIPO consultation on Al and IP in recent years and what this entails for the patent and copyright systems.

The question of whether AI can be designated as the sole inventor for a patent application has been widely discussed following the DABUS case (which we have previously reported on here.) Connor Crickmore reports on the EPO's decision on the DABUS appeal and the implications for patentees.

Mark Bentall & Isabel Valdes

MEET THE TEAM...



NICK REEVE

PARTNER, ELECTRONICS & SOFTWARE

Nick has over 20 years of experience drafting and prosecuting applications for software related inventions, including sensing and control devices, artificial intelligence and IoT related developments, wireless and telecommunication systems, financial payments systems and block chain, and innovations in quantum computing.

nick.reeve@reddie.co.uk



SIMON LUD

PARTNER, ELECTRONICS & SOFT WARE

Simon is a German and European Patent Attorney drafting and prosecuting applications in the electrical and electronics fields. Specialising in quantum computing, telecommunication technology, network-, cloud-, or computer-implemented inventions, with an emphasis on artificial intelligence and blockchain technology.

simon.lud@reddie.co.uk



JULIE RICHARDSON

PARTNER, ELECTRONICS & SOFT WARE

Julie has over 20 years of experience drating and prosecuting applications with a patent focussed practice covering a wide range of technologies within the electronics, electrical devices and computer implemented invention fields.

julie.richardson@reddie.co.uk



DALE CARTER

PARTNER, TRADE MARKS

Dale Carter has extensive experience in managing trade mark portfolios. He advises clients on a broad spectrum of contentious and non-contentious trade mark matters, including brand creation, trade mark clearance searches, strategic trade mark filings, trade mark disputes and settlement agreements.

dale.carter@reddie.co.uk



MARK BENTALL

EDITOR, SENIOR ASSOCIATE, ELECTRONICS & SOFT WARE

Mark has patents experience in mechanical, electrical and electronic fields including telecommunications, integrated circuits, software and business methods. He has drafted IoT and AI based patent applications and prosecuted the applications in countries around the globe.

mark.bentall@reddie.co.uk



CHRISTOPHER SMITH

SENIOR ASSOCIATE, ELECTRONICS & SOFT WARE

Chris has drafted and prosecuted applications for patents all over the world for individual inventors and multinational corporations, in a diverse range of technical fields within the electronics, electrical devices and software fields. Chris is particularly interested in the emerging body of case law on the patentability of Al inventions.

christopher.smith@reddie.co.uk



LIZZIE ALEXANDER

ASSOCIATE, ELECTRONICS & SOFT WARE

Lizzie works in the electronics, electrical devices and computer implemented invention fields. She has particular experience handling patents in AI and related fields, such as computer vision and image analysis, including their applications in areas such as autonomous vehicles.

lizzie.alexander@reddie.co.uk



CONNOR CRICKMORE

ASSOCIATE, ELECTRONICS & SOFTWARE

Connor handles patents in the electronics, electrical devices and software. Recently, he has drafted and prosecuted numerous patent applications relating to artificial intelligence for a UK based autonomous vehicle start-up.

connor.crickmore@reddie.co.uk



BEN HIPWELL

ASSOCIATE, ELECTRONICS & SOFT WARE

Ben has experience handling patents in mechanical, electronic and software fields. Ben has drafted and prosecuted patent applications related to both core-Al and applied-Al inventions for a wide range of clients. He also has first-hand experience of machine learning algorithms attained during his PhD.

ben.hipwell@reddie.co.uk



ISABEL VALDES

EDITOR, TECHNIC AL ASSISTANT, ELECTRONICS & SOFT WARE

Izzy works on patents in the electronics, electrical devices, and software team. She has a degree in Physics with Astrophysics and has recently been involved in prosecuting patent applications relating to fiber optics.

isabel.valdes@reddie.co.uk

ISSUE TWO | AI IN AN IP WORLD

REDDIE & GROSE

YEAR IN REVIEW: ARTIFICIAL INTELLIGENCE AT THE EPO IN 2022

In this article, we explore patent trends and statistics at the European Patent Office (EPO) in the field of Artificial Intelligence (Al). In our previous insight in 2021, we saw how the rate of filing European Al patent applications had dramatically increased since 2015.

We also highlighted a corresponding increase in patent applications being granted. We have revisited and updated the patent filing and grant data at the EPO, and the apparent outlook still remains promising.

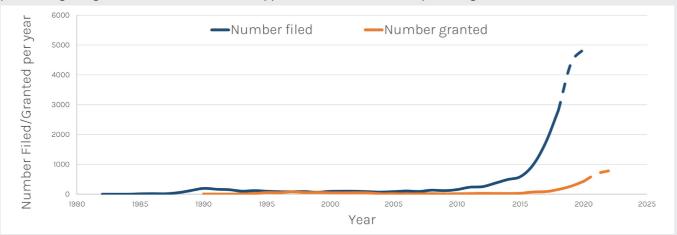


FIGURE 1: NUMBER OF EUROPEAN PATENT APPLICATIONS FILED/GRANTED PER YEAR IN THE FOUR AI CPC CLASSIFICATION GROUPS.

The graph shows all European patent applications and granted patents in the following Cooperative Patent Classification (CPC) classifications groups:

G06N 3/xx – Computer systems based on biological models

G06N 5/xx – Knowledge-based models

G06N 7/xx – Specific mathematical models

G06N 20/xx – Machine Learning

The dashed sections of the trendlines show the changes since our previous insight. The rapid increase in AI applications at the EPO continues, with almost 5000 applications filed in 2020 alone (filing data for 2021 and 2022 is not yet available, as it takes 18 months for patent applications to be published).

Obtaining a granted patent in Europe can take several years, which is why the number of granted AI applications is currently considerably lower than the number being filed each year. However, the number of AI applications being granted continues to increase.

In 2022, 786 European patents were granted for Al-related inventions, up from 683 in 2021 and 433 in 2020. Given the increased number of Al applications being filed, we expect those being granted to continue to increase year-on-year.

The number of granted applications each year does appear to be easing up. This could be due to the saturation of the examining capability or perhaps that many of the applications filed could have been somewhat speculative, and are struggling to meet the patentability requirements.

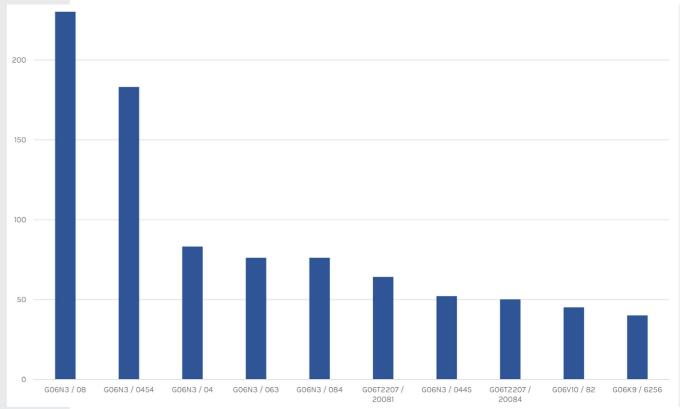


FIGURE 2: MOST COMMON FIELDS OF TECHNOLOGY FOR AI APPLICATIONS PUBLISHED IN 2022.

Core AI (developments in AI algorithms themselves) makes up the majority of applications. It should however be noted that this may partly be due to the nature of the CPC classification system – there is a wider range of applied AI classifications. Four out of the top five most common fields of technology relate to methods of training AI models, and developments of the algorithms themselves including new model architectures.

An interesting entry is the physical realisation of models. This field of technology generally relates to electronic (or other) hardware used to create physical Al models such as neural networks that exist outside of a computer processor. Recent examples include memristive neural networks being developed by IBM, HP and others to develop computer chips that can perform massive calculations with low power consumption and small chip area.

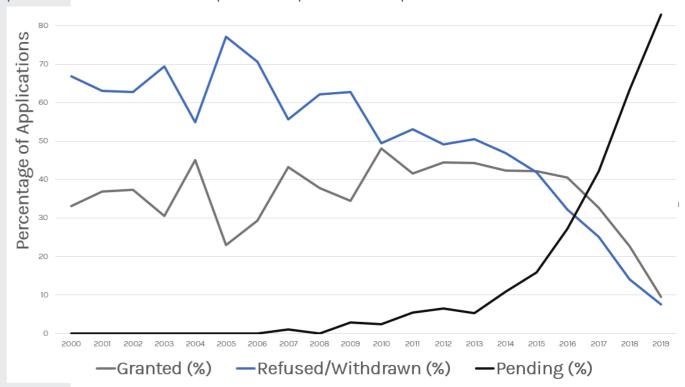


FIGURE 3: PERCENTAGE OF APPLICATIONS FILED BETWEEN 2000 AND 2019 WHICH HAVE BEEN GRANTED, REFUSED AND PENDING IN THE FOUR CPC

As the number of AI patent applications continues to increase, we expect to see an increase in the grant rate. We anticipate that the consistency of decisions should stabilise as patent examiners become more familiar with applying the law across a broad range of AI inventions.

Figure 4 demonstrates the year-on-year grant rates for Al applications which have reached an outcome, over 45% of applications have been granted in total over this period, and the increasing trend is evident.

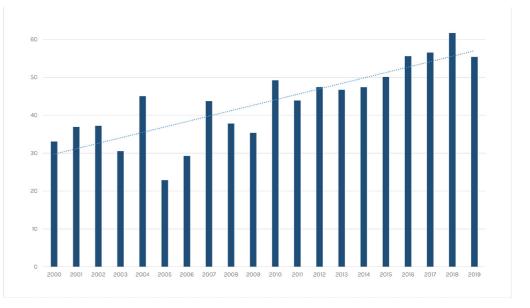


FIGURE 4: PERCENTAGE OF APPLICATIONS, FILED BETWEEN 2000 AND 2019 WITH AN OUTCOME, WHICH HAVE BEEN GRANTED.

The increase in patent filings and grant rates will continue to result in an overall rise in granted patents year-on-year. We note, however, that as a large number of applications filed in the last 5 years are still pending, it is possible that these applications which are taking longer to grant have a higher chance of being refused.

Lastly, it is worth remembering that even though grant rates appear to be increasing, a patent application can serve many purposes. Although the main purpose is to try to obtain a monopoly right, some applicants may be filing speculative applications in disruptive technologies as a starting point for business negotiations.

Summary

In summary, the outlook seems positive for Al innovators, in patent terms at least. Our insights show that Al applications are skyrocketing, and grant rates are on the rise. We hope to see the EPO continuing to view Al-related inventions more favourably.

At Reddie and Grose, we have a wealth of experience seeking legal protection, especially UK and European patents, for Al-related inventions. Get in touch to explore how we can help you protect your innovations.

ISSUE TWO | AI IN AN IP WORLD

THE RISE OF CHATGPT: CONSIDERATIONS FOR THE PATENT DRAFTING PROCESS

With the advent of ChatGPT, talk has turned to whether or not the bots are coming for our jobs. As industries become more reliant upon and integrated with artificial intelligence, the intellectual property industry finds itself at a technological juncture. We must be mindful and consider the implications of AI technologies, such as ChatGPT, on the patent system. This raises the query for inventors and patent attorneys alike: "should we be using ChatGPT to draft patents?" In this article, I aim to explore some of the key considerations when navigating the patent prosecution process at the dawn of ChatGPT.

ChatGPT is a large language model (LLM) launched by OpenAl in November 2022, based on the GPT (Generative Pre-trained Transformer) architecture. The model is trained using a large quantity of publicly available text data (such as that found in books, articles and websites). Like all LLMs, ChatGPT learns to predict the next word in a given sentence through developing an understanding of language patterns, grammar and contextual relationships.

The obvious place to start for this article was to consult the model itself:

Isabel:

"Should I use ChatGPT to write my patent application?"

ChatGPT:

"While ChatGPT can be a helpful tool for generating ideas and providing general information, it is not recommended to solely rely on it for writing a patent application. Writing a patent application requires a comprehensive understanding of intellectual property law, technical expertise in the specific field of the invention, and attention to detail.

ChatGPT may not have access to the most up-to-date legal requirements or industry-specific knowledge beyond its September 2021 knowledge cutoff. Patent applications need to be precise, accurate, and tailored to the specific invention, which may require the expertise of a patent attorney or a patent agent who can understand the nuances of the invention and properly draft the application."

The response highlights a limitation in the LLM's capabilities worth consideration. Namely, at the time of writing (July 2023), the current version of ChatGPT has been developed using data valid up until September 2021. Therefore, it cannot be relied upon to provide responses that encapsulate any developments in legal requirements or industry-specific knowledge beyond September 2021. If an inventor uses ChatGPT to draft a patent application, it would require further legal input from a patent attorney to ensure the information is accurate and in line with the Law. Furthermore, a patent professional will anticipate potential issues the application may face during prosecution (potentially in respect of current advancements in the field) and draft the application with these in mind. This level of nuance does not appear to be possible with the knowledge limitations placed on ChatGPT.

Another pitfall of using ChatGPT in the drafting process becomes obvious when one considers the requirements for an invention to be patentable in the UK: amongst other requirements, the claims must be new (novel) and demonstrate an inventive step. Novelty and inventive step are assessed by identifying differences between the invention and the state of the art. The UKIPO defines the state of the art as "all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public". As mentioned above, it is through use of information "available to the public" that the model is trained. Therefore, it appears ChatGPT is inherently incapable of drafting new and non-obvious claims as it only has the functionality to produce text based on known knowledge (the antithesis of a novel, inventive concept).

The key message to inventors who want to seek patent protection for their invention is not to publicly disclose it before obtaining a filing or priority date. In this regard, there have been concerns raised over Open Al's privacy policy and the ramifications for patentees relating to this.

OpenAl's privacy policy (updated 23 June 2023) states that Open Al may use personal information for a number of purposes, such as developing new programs and services, which could amount to a public disclosure.

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Accordingly, there is a high risk that using ChatGPT to draft your patent application (and therefore disclosing your invention via 'personal information') could count as a public disclosure and hence render any subsequently filed patent application as unpatentable, because the requirements for novelty are not met.

Furthermore, even though the current version of ChatGPT is trained on knowledge up to September 2021, newer versions will be trained using updated data.

It is important for inventors and patent professionals to consider that data relating to an invention disclosed to ChatGPT via 'personal information', could be used to train the model and eventually be provided as an output to another user. This risk is palpable and accordingly, many tech giants have banned employees from using ChatGPT amidst fears that usage of the chatbot could result in the leak of confidential information.

This article has merely scratched the surface of a very interesting and quickly evolving technology. Therefore, with consideration to the above, whilst inventors should use ChatGPT to generate ideas where legal knowledge is not required, they must also heed ChatGPT's own recommendation that: "consulting with a patent attorney or agent will help ensure that your patent application is comprehensive, well-crafted, and meets the legal requirements for obtaining patent protection."

Isabel Valdes

REDDIE & GROSE

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PATENTABILITY OF AI CHATBOTS IN GERMANY

Artificial Intelligence (AI) chatbots that use foundational large language models (LLMs), supervised and reinforcement learning techniques are currently of high interest, but what about the patentability of such chatbots and systems?

Even before the current hype and therefore perhaps not particularly noticed, there was a very interesting and instructive decision by the German Federal Patent Court "Bundespatentgericht". In the decision 17 W (pat) 46/16, which dealt with a digital conversation generation method, the court denied the patentability of such text generating natural language methods which generate interactive dialogue steps and scripts on the grounds of a lack of technical character. The German Federal Patent Court stated that the subject matter of mimicking a human conversation was excluded from patent protection pursuant to Sec. 1 (3) No. 3 in conjunction with Sec. 1 (4) Patent Act.

Interestingly, in the appeal proceedings of the examination procedure, the applicant had not invoked the nowadays widespread use of such chatbot systems in the sense that program code is generated or at least reviewed and improved with the help of the chatbot systems. However, the patent application did not describe any of these now widespread applications of performance-enhancing program code generation using chatbot systems.

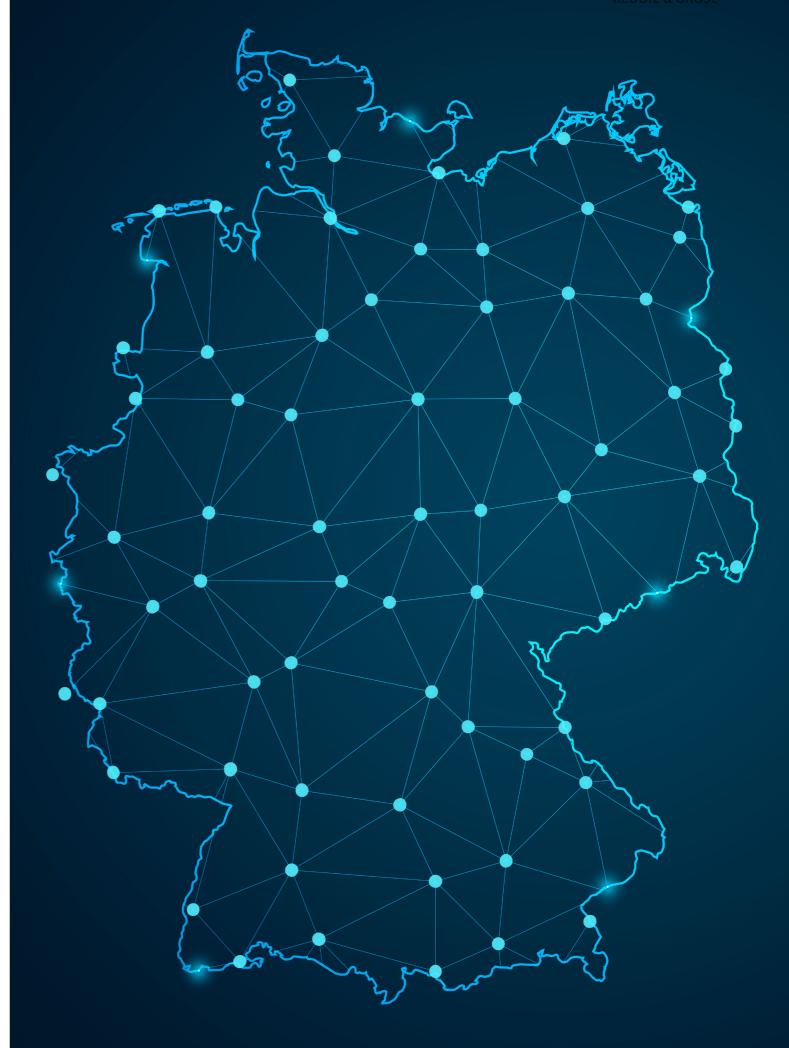
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Such a reference to these code-improving and performanceenhancing application scenarios would certainly have strengthened the argument for technical character. Generating technical program code instead of human-machine conversations would probably have been more likely considered as the solution of a technical problem by technical means. Also, according to European practice, generating improved program code might be considered technical, since for instance in G 1/19 reasons 115, it was confirmed that a computer software – including the underlying algorithm - may contribute to the technical character of a computer-implemented invention, in that the program code is adapted to the internal functioning of the computer or computer system/network. Also, in T 2147/16 of 7.9.2021, the Board stated that when an improved algorithm is implemented in practice and the load is reduced, the algorithm has a further technical effect and provides an improvement over the prior art.

"THE COURT DENIED THE
PATENTABILITY OF SUCH
TEXT GENERATING NATURAL LANGUAGE METHODS
WHICH GENERATE INTERACTIVE DIALOGUE STEPS
AND SCRIPTS ON THE
GROUND OF A LACK OF
TECHNICAL CHARACTER"

In summary, when drafting patent applications for AI chatbots and generative artificial intelligence, technical embodiments such as generating, reviewing or debugging program code in various programming languages should be included in the claims and description, since such computer-implemented applications are sufficient to confer a technical character on the invention involved.

Simon Lud



REDDIE & GROSE

UKIPO RELEASES NEW GUIDANCE ON AI INVENTIONS

On 22 September 2022, the UK IPO published their long-awaited guidance on examination of Al-related patent applications (the full document can be found here). On the face of it the guidance note does not alter the threshold of patentability of Al inventions at the UK IPO, but rather gives some helpful insight as to where the threshold lies. As an accompaniment to the guidance note, the UK IPO have also provided some specific examples of Al inventions that will, or will not, be considered patentable.

One of the helpful contributions made by the guidelines is the division of Al-related inventions into two main categories: "Core Al" and "Applied Al", and the provision of illustrative examples of each for both patentable and non patentable scenarios. A core Al invention is defined as an Al invention that "does not specify any application or use-case for its Al features, and instead relates to an advance in the field of Al itself". An applied Al invention, on the other hand, is an invention that "applies Al techniques to a field other than the field of Al".

Protecting an AI invention in itself can be challenging in the UK, due to the exclusion from patentability of computer programs "as such". However, the UK case law on "technical effect" provides five "signposts" that might indicate an AI or computer program related invention is allowable. These are defined in AT&T/Cvon and later in HTC v Apple as follows:

i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;

ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;

iii) whether the claimed technical effect results in the computer being made to operate in a new way;

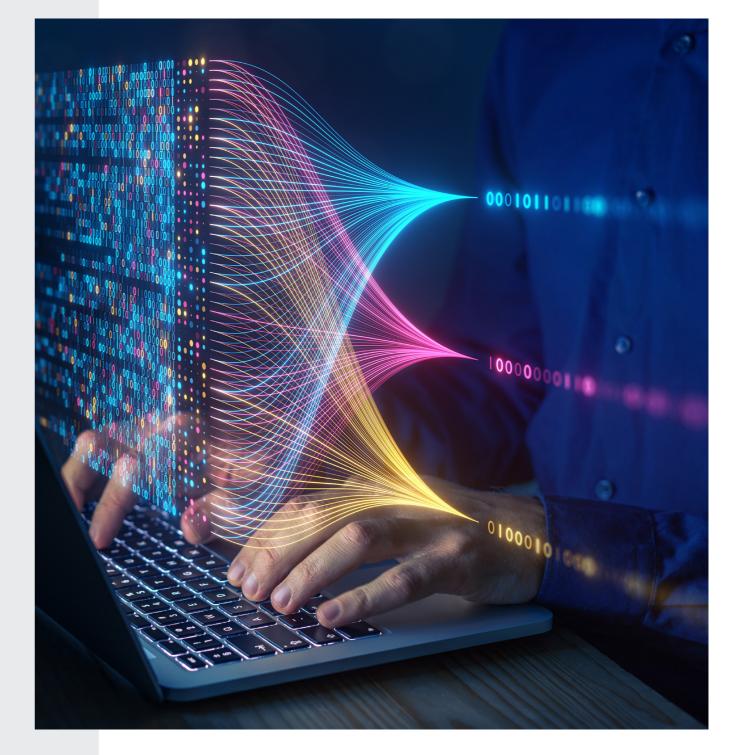
iv) whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer;

v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

It is already well-established that applied AI inventions are, in general, more likely to be patentable in the UK than core AI inventions, since by being applied to a process in the real world, they usually satisfy the first of the five signposts. However, the patentability of core AI inventions remains somewhat harder to grasp. In this regard, the new guidance helpfully sets out two scenarios in which the UKIPO considers a core AI invention may be patentable:

- 1. The invention defines a functional unit of a computer being made to work in a new way.
- 2. The invention defines a new physical combination of hardware within a computer, provided that it produces a technical effect within the computer that does not solely fall lie within excluded subject matter under section 1(2) UKPA 1977.

and provides a number of related illustrations. One example illustration of a "core Al" invention (described in scenario 16 of the guidelines) relates to a method of operating a neural network on a system with multiple processors, the method involving adjusting the clock frequency of each of the processors as required to ensure that each processor will finish processing a layer of the neural network at the same time. The identified contribution provided by the claimed method amounts to operating a computer in a new way (adjusting clock frequencies) to solve a technical problem (synchronising the neural network processing). The third "signpost" therefore indicates that this claimed method is not excluded from patentability in the UK.



The new guidance follows the consultation held by the UKIPO last year, during which the Office sought evidence and views on a range of options on how AI should be dealt with in the patent and copyright systems.

The moves by the EPO and the UKIPO to publish Al-focussed examination guidance in recent years have perhaps been motivated by the most recent meeting of the IP5 New Emerging Technologies and Artificial Intelligence (NET/AI) special task force, during which all five IP Offices acknowledged the need to provide more specific guidance on examination practices in this area. Increased cooperation between IP offices including the EPO and UKIPO will hopefully help both offices to quickly evolve and refine their approaches to deal with the boom in development of AI technology that we have witnessed over the last few years.

Ben Hipwell

THE EPO PUBLISHES DECISION ON THE DABUS APPEAL (J 08/20)

CAN AN AI BE AN INVENTOR IN A EUROPEAN PATENT APPLICATION?

As reported previously <u>here</u>, the European Patent Office (EPO) refused the so called DABUS applications (EP 18275163.6 and EP 18275174.3) for failing to meet the requirements of the European Patent Convention (EPC) because the applications designated an artificial intelligence (AI) as the sole inventor.

The decisions to refuse these applications were <u>appealed</u> last year, and earlier this week the Board of Appeal at the EPO issued its written decision for the appeal on the first of these applications, J 08/20, which can be found <u>here</u>.

The decision terminates this appeal and marks the end of the DABUS saga in Europe. Procedurally nothing has changed at the EPO. In order for Patent Offices to start accepting an AI as a designated inventor in their patent applications, a change in the law will be needed.

The Decision

In the decision, the Board of Appeal maintained the decision to refuse an application which names an AI as an inventor, because:

"the designation of the inventor does not comply with Article 81, first sentence, EPC. Under the EPC the designated inventor has to be a person with legal capacity".

Article 81 EPC states:

"The European patent application shall designate the inventor. If the applicant is not the inventor or is not the sole inventor, the designation shall contain a statement indicating the origin of the right to the European patent."

In other words, the Board of Appeal held that only a natural person can be designated as an inventor in a European patent application, under Article 81 EPC.

Although the designation of the inventor is merely a procedural act in the application process for a European patent, the Board of Appeal stated that "the EPO is entitled to verify that the designation identifies an inventor within the meaning of the EPC", i.e. verify that a human has been designated as inventor.

Further, although entitlement to and ownership of an invention is dealt with under the national law of each contracting state and not by the EPO, in the case that that inventor differs from the applicant the EPO will examine whether the statement provided by the applicant explaining how the applicant derived the right to file a European patent application for the invention refers to one of the situations allowed under Article 60(1)EPC. Specifically, an applicant can derive the right to the invention by virtue of being either the inventor's employer or the inventor's successor in title under Article 60(1)EPC. The Board of the Appeal stated that the EPO:

"does not need to assess whether, according to the relevant law, the applicant was de jure entitled to file the application, or if the relevant transaction or relationship was valid and really occurred. The examination is only a formal assessment: it does



not require the EPO to identify any applicable law, assess evidence, or examine whether a designation is accurate or true entitlement exists."

In this case, the applicant (appellant) stated that they had derived the right to the European patent as owner and creator of the AI machine alleged to have made the invention. The Board of Appeal argued that:

"This statement does not bring the appellant within the scope of Article 60(1) EPC. Indeed, it does not refer to a legal situation or transaction which would have made him successor in title of an inventor within the meaning of the EPC."

Therefore the Board of Appeal has concluded that neither of the formal requirements for designation of the inventor under Article 81 EPC were fulfilled by designating an AI as the inventor, and therefore it was correct for the application to be refused by the Receiving Division.

One argument that the applicant tried to run is that assuming that the Al is indeed the sole inventor, then the public has right to know "who the inventor is and how the invention was made". However, the Board was unconvinced by this argument, as under Rule 20 EPC an inventor can request not be mentioned on the public records. Therefore arguments insisting that an inventor needs to be known to the public cannot hold true.

Conclusions

This decision is unsurprising given the procedural assessment of inventorship made by the EPO. A judicial court may have considered the matter of inventorship and transfer of ownership to a legal entity in detail, and ruled on whether the Al was in fact an inventor. The EPO merely considered whether the patent application met the requirements of the European Patent Convention in its designation of an inventor and declaration of entitlement of the applicant to file a patent application. The courts of each contracting state would therefore be a more appropriate forum to rule on this matter.

Indeed, corresponding applications were filed in various countries and similar cases heard in the various different jurisdictions, as discussed here. With the exception of South Africa and a decision pending appeal in Australia, the remaining countries who have considered the matter have found that under the current law an Al cannot be designated as the inventor in a patent application.

The recent UK IPO AI consultation (discussed <u>here</u>) leaves the door open to change in the law in future in the UK. However, the current consensus favours the view that AI technology has not reached the point that an AI can truly be an inventor. Instead, a human operator will always needs to set up and train the AI and provide some impetus or input to spark an AI invention.

If technology were to reach a stage in the future where an Al could entirely autonomously invent, at that stage the law would likely need to change. This throws up various more philosophical

questions such as could an AI machine own property such as intellectual property? How could the right to the invention be transferred from an AI machine to a human applicant, given that a contract cannot be entered into with a machine at present? And would the patent system continue to fulfil its primary purpose of motivating innovation by allowing monetisation of inventions, given that money is of human concern and not of concern to an AI machine?

These questions are beyond the scope of this insight. They seem likely to be addressed in the future, however the author's view is that AI technology is still far from the stage where it is able to autonomously invent. A human will necessarily be involved to some extent who can therefore be considered to be the inventor.

Therefore for now the implementer of an Al which is involved in the creation of an invention should designate themselves as the inventor for any patent application.

In the DABUS cases, had the applicant simply designated themselves as inventor then there would have been no obstacle to examination of the patent application commencing at the EPO. Further the applicant could have requested that such an inventor designation was not included in the public record. The case is therefore an interesting test case to further the development of the law and raise publicity of the issue.

If you are a human inventor and have invented an AI related invention or produced an invention with the assistance of AI, you can (with the appropriate inventor designation) obtain granted patents in Europe, the UK and many other countries for your invention (as discussed in our previous insight). Please do get in touch if you would like any assistance from our experienced team in this area.

If you are an Al which has invented something autonomously without any human collaboration and you want to obtain patent protection for your invention, our advice to you is to find yourself a human business partner until the patent law catches up!

Connor Crickmore

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HERE TO HELP

At Reddie & Grose, our AI & IoT technology sector team are dedicated to all aspects of digital innovation. Our patent and design attorneys have extensive experience advising research and development departments, with a deep understanding of the key issues in an often complex legal and business environment. We help businesses in their due diligence and analysis of whether they are free to launch their products. We protect their innovations by preparing and prosecuting patent applications – building portfolios of rights to protect their commercial interests. We are skilled in assisting clients to enforce their patents and designs, filing oppositions and cancellation/revocation proceedings against third party rights, helping to defend our clients' position in infringement proceedings and defending clients' rights in oppositions and cancellation proceedings brought by third parties.

Our support of multinational clients is more than managing global patent portfolio and defending crown jewel IP rights. We understand that every stage of a product's development offers a unique challenge. Our experience working in established and emerging markets enables us to think beyond the law and devise patent strategies tailored to the commercial objectives of each client.

In our support of start-ups and SMEs, we have the commercial expertise to protect their innovation, ensure that their businesses are attractive to investors, ready for an IPO or perfectly placed to bring the next blockbuster to market. We pride ourselves on listening to our clients and offering expert and pragmatic advice that is tailored to our clients' needs. Avoiding a 'one size fits all' approach has allowed us to build up many valued long-lasting client relationships. We would be delighted to provide you with further information about our services and to organise a free initial consultation.

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CONTACT US

The contact details for the AI & IoT team leads are as follows:

MARK BENTALL mark.bentall@reddie.co.uk

NICK REEVE nick.reeve@reddie.co.uk

T + 44 (0)20 7242 0901

GENERAL ENOUIRIES

enquiries@reddie.co.uk

T + 44 (0)1223 360 350

MUNICH

Hopfenstrasse 8 80335 München Germany

T + 49 (0)89 206054 267

THE HAGUE

Schenkkade 50 The Hague Netherlands 2595 AR

T+(00)31 70 800 2162

REDDIE & GROSE LLP

www.reddie.co.uk

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