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Artificial Inventor?

Patentability of inventions generated by artificial intelligence under European Patent Law.

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Abstract

We are entering an era that some describe as the Fourth Industrial Revolution, triggered by the development of artificial intelligence. Considering the impact that developments in artificial intelligence have had, and will continue to have on society, discussions have arisen on the implications for the patent system. The DABUS case highlights that the inventorship status under European patent law can only be assigned to natural persons. As a result, a natural person must be designated as the inventor for an invention to be eligible for patent protection. Artificial intelligence is increasingly used within pharmaceutical drug development, and thus, queries arise as to whether the current legal framework is sufficient to handle inventions generated by artificial intelligence.

This thesis aims to assess whether inventions generated by AI are patentable under European patent law. As the development of artificial intelligence is challenging the traditional concepts of inventorship, this thesis uses a legal dogmatic method to examine the discussions made on the topic by the European Patent Office and national patent offices in Germany and the United Kingdom. To analyse future risks with the current legal framework, and discuss possible solutions, the objectives of patent law are analysed. These objectives are moreover applied in the context of AI generated inventions and discussed in the light of patent protection within drug development.

This thesis concludes that neither the European Patent Office nor any of the member states of the European Patent Convention allow for artificial intelligence systems to obtain inventorship status. However, one of the objectives of patent law is to provide incentives to stimulate future innovation. If artificial intelligence systems are completely excluded from the legislation on inventorship, uncertainty arises as to whether the patents for inventions generated by AI are valid. In turn, incentives to invest in innovative research risk weakening, having consequences for research sectors such as drug development. Therefore, this thesis concludes that new legislative measures are needed to protect inventions if a natural person cannot be designated as the inventor. The solution of extended guidelines to the European Patent Convention is presented, as well as the solution of a new legislative framework that operates alongside the already existing European Patent Convention. This would reflect the invention in a more accurate way, while still attributing the rights following the inventorship status to humans.

Sammanfattning

Utvecklingen av artificiell intelligens har utlöst vad som av vissa beskrivs som den fjärde industriella revolutionen. Mot bakgrund av den påverkan som utvecklingen inom artificiell intelligens har och förväntas få på samhället har diskussioner uppstått kring konsekvenserna för patentsystemet. DABUS-målet belyser att uppfinnarstatus enligt europeisk patenträtt endast kan tilldelas fysiska personer. Följaktligen måste en fysisk person utses som uppfinnare för att en uppfinning ska kunna erhålla patentskydd. Samtidigt blir användningen av artificiell intelligens allt vanligare inom läkemedelsutvecklingen, vilket väcker frågor om huruvida det nuvarande rättsliga ramverket är tillräckligt för att hantera uppfinningar som skapats genom artificiell intelligens.

Syftet med denna uppsats är att bedöma om AI genererade uppfinningar är patenterbara enligt europeisk patenträtt. Eftersom utvecklingen inom artificiell intelligens utmanar traditionella uppfattningar om uppfinnarskap, tillämpar uppsatsen en rättsdogmatisk metod för att analysera de diskussioner som förts i ämnet. Bland annat behandlas diskussioner inom Europeiska patentverket samt hos de nationella patentverken i Tyskland och Storbritannien. För att analysera framtida risker kopplade till det nuvarande rättsliga ramverket och diskutera möjliga lösningar undersöks även patenträttens bakomliggande ändamål. Dessa tillämpas därefter på AI genererade uppfinningar och diskuteras mot bakgrund av patentskydd inom läkemedelsutvecklingen.

I uppsatsen konstateras att varken Europeiska patentverket eller någon av medlemsstaterna till den europeiska patentkonventionen tillåter att system för artificiell intelligens tilldelas status som uppfinnare. Ett av patenträttens centrala syften är emellertid att skapa incitament för att stimulera framtida innovation. Om systemen för artificiell intelligens helt utesluts från regleringen om uppfinnarskap uppstår osäkerhet kring giltigheten av patent för AI genererade uppfinningar. Detta riskerar i sin tur att försvaga incitamenten att investera i innovativ forskning, vilket kan få betydande konsekvenser för forskningsintensiva sektorer såsom läkemedelsutveckling. Uppsatsen drar därför slutsatsen att nya lagstiftningsåtgärder krävs för att skydda uppfinningar i situationer där ingen fysisk person kan utses till uppfinnare. Som möjliga lösningar presenteras dels utökade riktlinjer till den europeiska patentkonventionen, dels ett nytt lagstiftningsramverk som fungerar parallellt med den redan befintliga konventionen. Ett sådant system skulle återspegla uppfinningens faktiska tillkomst samtidigt som de rättigheter som följer av uppfinnarstatus fortsättningsvis tillskrivs människor.

Abbreviations

AI	Artificial Intelligence
CJEU	Court of Justice of the European Union
EPC	European Patent Convention
EPO	European Patent Office
EU	European Union
EUIPO	European Union Intellectual Property Office
DPMA	German Patent and Trademark Office
ICJ	International Court of Justice
BoA	Board of Appeal of the European Patent Office
PCL	Patent Cooperation Treaty
MML	Machine Learning Patent
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UKIPO	United Kingdom Intellectual Property Office
UPC	Unified Patent Court

1 Introduction

1.1 Background

> I regard it as the major domestic challenge, really, of the sixties, to maintain full employment at a time when automation, of course, is replacing men.[1]
>
> - President John F. Kennedy

In 1956, McCarthy organised a small group of scientists for the Dartmouth Summer Research Project on Artificial Intelligence, described as the birth of this field of research.[2] The conference was built on the idea that every aspect of learning, or any other aspect of intelligence, can in principle be described with such precision that a machine can be designated to simulate it.[3] In the proposal for the conference, AI was defined as follows: "For the present purpose, the artificial intelligence problem is taken to be that of making a machine behave in ways that would be called intelligence if a human were so behaving".[4]

Since the 1956 conference, AI has advanced rapidly. We are living in a period of rapid technological advancement, which is referred to by some as the Fourth Industrial Revolution.[5] The first three industrial revolutions are associated with the invention of the steam engine, electricity, information and communications technology.[6] Now the Fourth Industrial Revolution builds on the Third, defined by the integration of technologies that blur the boundaries between the physical, digital and biological spheres.[7] All the previous industrial revolutions have had a measurable impact on society, in terms of productivity, the labour market, and

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[1] John F. Kennedy Presidential Library and Museum, 'News Conference 24' (1962) <https://www.jfklibrary.org/archives/other-resources/john-f-kennedy-press-conferences/news-conference-24> Accessed 25 March 2026.
Dartmouth, 'Artificial Intelligence (AI) Coined at Dartmouth': <https://home.dartmouth.edu/about/artificial-intelligence-ai-coined-dartmouth > Accessed 11 March 2026.

[3] J. McCarthy, M.L.. Minsky, N. Rochester and C.E. Shannon, 'A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence', *Stanford University* (1955): pp. 2 < http://jmc.stanford.edu/articles/dartmouth/dartmouth.pdf > Accessed 11 April 2026.

[4] Ibid 11

[5] A. Cuntz et al., 'Artificial Intelligence and Intellectual Property: An Economic Perspective' *WIPO Economic Research Working Paper No 77* (2023): pp. 5 < https://www.wipo.int/edocs/pubdocs/en/wipo-pub-econstat-wp-77-en-artificial-intelligence-and-intellectual-property-an-economic-perspective.pdf> Accessed 11 April 2026.

[6] Ibid.

[7] K. Schwab, 'The Fourth Industrial Revolution: what it means and how to respond'. *World Economic Forum* (2016) < https://www.weforum.org/stories/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/ > Accessed 8 April 2026.

on the innovation activity itself.[8] The Fourth Industrial Revolution appears to be no exception.

Several examples demonstrate that the use of AI systems not only assists in inventing new products and services, but it is also a new method for inventions.[9] Similar arguments apply to creativity. AI is a new method for generating creative works; it will increase productivity in the creative process and lead to new forms of creative works.[10] Thus, the question arises as to how inventions generated by AI should be protected under intellectual property law to create the necessary incentives for investment, and how this protection might differ from that available under the current patent system. WIPO (2023) distinguished four definitions of AI inventions, of which the fourth is relevant to this essay as it concerns inventions created by AI.[11] AI generated inventions are defined as "inventions [or creations] made autonomously by AI, without human input".[12] This category includes inventions or creations that are the result of AI systems that require only minor human input to invent or create something new. A prominent example is the widely debated DABUS system created by Stephen Thaler, which will be discussed in more detail.[13]

One area where AI systems have demonstrated significant potential in the innovation process is drug development.[14] By utilising deep learning, researchers can now make use of large and diverse datasets for tasks such as designing new molecules, predicting compound properties, and planning chemical syntheses.[15] In this drug development context, AI can automate significant parts of the innovation process by generating and testing hypotheses based on prior observation, interpreting experimental results to refine these hypotheses and repeating this cycle.[16] One example illustrating the use of AI in drug discovery is AI Eve.[17] AI Eve contributed to drug discovery by screening existing compounds and identifying triclosan, a common toothpaste ingredient, as a potential treatment for drug

[8] Ibid.
[9] A. Singla et al., 'The innovation challenge: Good ideas are harder to find'. *McKinsey* <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-next-innovation-revolution-powered-by-ai> accessed 20 May 2026.
[10] A. Cuntz et al., (2023) pp. 5.
[11] World Intellectual Property Organisation. 'AI Inventions'. *WIPO Conversation, IP and Frontier Technologies (*2024): pp. 1-9 <https://www.wipo.int/edocs/pubdocs/en/wipo-pub-rn2023-11-en-ai-inventions.pdf> accessed 6 April 2026.
[12] Ibid. pp. 4.
[13] A. Cuntz et al., (2023) pp. 7.
[14] A. Ramalho, 'Intellectual property protection for AI-generated creations Europe, United States, Australia and Japan' (1st ed. Routledge, 2022) pp. 81.
[15] N. Brow 'Artificial Intelligence in Drug Discovery' (1st ed. Royal Society of Chemistry 2020) pp. 4-6.
[16] University of Cambridge, 'Artificial Intelligent Robot Scientist 'Eve' Could Boost Search for New Drugs'. *Phys Org* (2015) < https://phys.org/news/2015-02-artificially-intelligent-robot-scientist-eve.html> accessed 16 April 2026.
[17] University of Cambridge, 'AI 'scientist' finds that toothpaste ingredient may help fight drug-resistant malaria'. *University of Cambridge* (2018) < https://www.cam.ac.uk/research/news/ai-scientist-finds-that-toothpaste-ingredient-may-help-fight-drug-resistant-malaria> accessed 3 May 2026.

resistant malaria. By generating and testing its own hypotheses and building on the results, Eve was able to drive parts of the scientific discovery process herself and uncover new treatment options.[18] Replicating this process at the same pace would be impossible for humans.[19]

As expected, the use of artificial intelligence has rapidly gained ground within the pharmaceutical industry. [20] When more companies employ these tools, as illustrated by the pharmaceutical company Novo Nordisk‘s partnership with OpenAI earlier this year, questions arise as to whether this could have legal consequences affecting their rights to the innovations.[21]

1.2 Purpose and Research Questions

This thesis aims to explore the implications of the increasing use of artificial intelligence in the inventive process, particularly within drug development. In the near future, artificial intelligence may have advanced to such an extent that it can invent things without human input. Questions as to whether the existing patent framework is sufficient to protect these inventions emerge. If the current framework proves insufficient, further questions arise as to how the law should adapt to provide appropriate legal protections for these inventions generated by artificial intelligence. Ignoring the challenges posed by the development of AI would appear naive. Hence, this thesis will explore possible solutions for when the current patent framework lacks guidance on how these inventions should be assessed. The practical consequences of current patent law for AI generated inventions will further be discussed and compared with the underlying objectives of the patent system. To serve this purpose, the following questions will be addressed, divided into one overarching research question and two additional research questions:

> Can artificial intelligence systems be designated as the inventor under European patent law, more specifically, under the European Patent Convention?

The additional research questions are:

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[18] Ibid.
[19] A. Ramalho (2022) pp. 81.
[20] A.L. Sequeria, F. Tsang, ‘Emerging Legal Terrain: IP Risks from AI’s Role in Drug Discovery’. *Fenwick* (2024) < https://www.fenwick.com/insights/publications/emerging-legal-terrain-ip-risks-from-ais-role-in-drug-discovery> accessed 15 April 2026.
[21] E. Ohlen, ‘Novo Nordisk partners with OpenAI as AI drug discovery hopes mount’. *CNBC* (2026) < https://www.cnbc.com/2026/04/14/novo-nordisk-openai-ai-drug-discovery-healthcare-nvo.html > accessed 17 April 2026.

1. How have patent applications designating artificial intelligence systems as the inventor been approached by patent offices, both EPO and the national patent offices in the United Kingdom and Germany?

2. Can the integration of artificial intelligence in drug development processes affect the patentability of these inventions, and if so, are there any potential solutions?

1.3 Delimitations

Artificial intelligence raises several issues relating to patent law. However, if a study covers an unreasonably large set of rules, the study can easily tend to become too descriptive.[22] This thesis is therefore limited to examining the impact of artificial intelligence on the concept of inventorship. The focus will be on the legal framework governing the European patent system, specifically the definition of inventorship under the European Patent Convention. Other legal systems will generally be excluded, except where necessary to provide context for relevant case law.

The decision to focus this thesis on the concept of inventorship within the framework of European patent law is motivated by the *Brussels effect,* presented by Professor Anu Bradford. Unlike other forms of global influence, the *Brussels effect* relies on market forces to make the EU standard the global standard, as international companies voluntarily apply the rules to their global operations.[23] Thus, the EU exercises a unique power to transform global markets, including its ability to set standards in fields such as artificial intelligence.[24] Although the European Patent Organisation is an international organisation and operates independently from the EU, it works closely with the European Union on different matters, including the unitary patent.[25] However, the unitary patent and the Unified Patent Court will not be discussed in this thesis. The Unified Patent Court is common to 18 EU Member States for which the agreement on a patent court entered into force on 1 June 2023.[26] However, there are no cases from the Unified

[22] R. Lavin, 'Är den förvaltningsrättsliga forskningen rättsdogmatisk?' (Förvaltningsrättslig tidskrift nr 3, 1989) pp. 123.
[23] A. Bradford, 'The Brussels effect: how the European Union Rules the World' (Online ed. Oxford Academic, 2019) pp. xiv-xv.
[24] C. Siegmann & M. Anderljung, 'The Brussels Effect and Artificial Intelligence: How EU regulation will impact the global market'. *Centre for the Governance of AI* (2022) < https://cdn.governance.ai/Brussels_Effect_GovAI.pdf> accessed 22 May 2026.
[25] European Patent Office, 'Co-operation with international organisations outside the IP system' < https://www.epo.org/en/about-us/services-and-activities/international-european-cooperation/organisations> accessed 22 May 2026.
[26] Unified Patent Court, 'About the Unified Patent Court' < https://www.unifiedpatentcourt.org/en#:~:text=The%20UPC%20is%20a%20Court%20common%20to,entered%20into%20force%20on%201%20June%202023> accessed 1 April 2026.

Patent Court concerning inventorship yet. This thesis will therefore focus on the EPO's decisions on inventorship and AI.

While artificial intelligence affects several areas of intellectual property law, this thesis will focus exclusively on patent law. The impact of AI on copyright law will, for example, not be included within the scope of this thesis. Furthermore, this thesis will not answer the question of whether AI is currently capable of autonomous invention. The thesis will rather focus on the premise that artificial intelligence is rapidly advancing, and that the legal system must be prepared to address the implications if AI can invent without human input.

Patent applications relating to inventions generated by DABUS have been filed in several jurisdictions. Given the focus on European patent law, particular attention will be paid to the application before the European Patent Office (EPO). In addition, decisions in the United Kingdom and Germany will be discussed as examples from national courts, as both countries are member states of the EPO.[27] Although a patent related to DABUS was granted in South Africa in 2021, this jurisdiction will not be examined in detail, since the country is not a member state of the EPO.[28]

Finally, this thesis places particular emphasis on the application of artificial intelligence in drug development. Pharmaceutical innovation represents one of the areas in which AI systems have demonstrated the greatest impact, as it can accelerate the discovery of new treatments. Furthermore, the pharmaceutical sector is highly dependent on patent protection to secure investments and incentivise innovation.[29] Therefore, the inclusion of drug development provides a specific context in which the general challenges associated with AI and inventorship under the European Patent Convention can be explored.

1.4 Methodology and Materials

To answer the questions of this thesis, the legal dogmatic method is applied as a central methodological approach. The dogmatic method interprets and defines the current legal framework based on established sources of law, including

[27] European Patent Office, 'Member states of the European Patent Organisation' < https://www.epo.org/en/about-us/foundation/member-states> accessed 1 April 2026.
[28] R. Abbott, 'Patent'. *The Artificial Inventor Project* (2025) < https://artificialinventor.com/patent/> accessed 25 February 2026.
[29] M. Aleman, 'WIPO Sub-Regional Workshop on Patent Policy and its Legislative Implementation'. *World Intellectual Property Organization* (2013): pp. 8-9 < https://www.wipo.int/edocs/mdocs/patent_policy/en/wipo_ip_skb_13/wipo_ip_skb_13_t2.pdf> accessed 15 April 2026.

legislation, case law, and legal doctrine, to establish the applicable law.[30] By identifying and systematising the relevant legal framework, it becomes possible to use legal sources to analyse relevant law. This enables a discussion on *de lege ferenda* of the law.[31] In the thesis, the legal dogmatic method is used to examine the existing framework of European patent law and to analyse whether this regulation extends to inventions generated by AI. The analysis then proceeds to a thorough discussion on *de lege ferenda*, considering future abilities to protect AI generated inventions, specifically in the pharmaceutical field of drug development.

The thesis specifically analyses the relevant legal provisions and compares them with the fundamental justifications for patent law, such as stimulating innovation.[32] The paper further adopts a perspective on possible future developments in legislation for the protection of such inventions within the patent system. In addition to the legal dogmatic method, the law and technology perspective is applied.[33] Given that artificial intelligence is a rapidly evolving technological field, it is necessary to consider not only the legal framework itself but also the broader social and technical context in which it operates.[34] This approach is particularly relevant when analysing the objectives of patent law in connection with AI generated inventions.

The legal framework examined in this thesis is primarily based on international and regional sources. As the European Patent Convention is grounded in international cooperation, the interpretation of relevant legal instruments requires the application of principles of international law.[35] In this regard, the interpretative rules codified in the Vienna Convention on the Law of Treaties are applied.[36] According to Article 31, treaties shall be interpreted in good faith in accordance with the ordinary meaning of their terms, in their context, and in the light of their object and purpose.[37] The Articles of the Vienna Convention reflect customary international law and are therefore binding on States regardless of their ratification of the Convention.[38] Although the EPC is independent from EU law, it forms

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[30] C Sandgren, 'Är rättsdogmatiken rättsdogmatisk?.' *Tidsskrift for Rettsvitenskap 118 (4-5)*, 2006. pp. 651; J Kleineman, 'Rättsdogmatisk metod' in Nääv M and Zamboni m. (eds) *Juridisk metodlära*, (2nd edn. Studentlitteratur, 2018) pp. 21.
[31] Sandgren (2006) pp. 650-655.
[32] European Patent Office, 'Why do we have patents?' < https://www.epo.org/en/new-to-patents/why-do-we-have-patents> accessed 19 April 2026.
[33] A.M. Cutter & B. Gordijn (2009), 'Ethics, law, technology and policymaking.' *Studies in Ethics*, *Law*, *and Technology*, vol. 3.2, pp. 3-4.
[34] Ibid.
[35] European Patent Office, 'International treaties' < https://www.epo.org/en/legal/international-treaties> accessed 20 May 2026
[36] Art. 31 (1) of the Vienna Convention on the Law of Treaties reads "A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the of the treaty in their context and in the light of its object and purpose".
[37] Ibid.
[38] *Case Concerning the Arbitral Award of 31 July 2989 (Guinea-Bissau v. Senegal),* Judgment, ICJ. Reports 1991, p. 53, para 48.

part of the European patent framework. The EU methodology, therefore, becomes relevant when applying the legal dogmatic method. EU law can be separated into primary and secondary sources. Primary law consists of the EU's founding treaties and the Charter of Fundamental Rights of the European Union. Secondary law includes regulations, directives and decisions issued based on the founding treaties.[39] One example of secondary law relevant to this thesis is Regulation 2024/1689 (Artificial Intelligence Act). Furthermore, case law from the CJEU is another source of law within the EU.[40] When interpreting the law in these cases, the CJEU is known for employing a teleological interpretation method. This interpretation method aims at interpreting the law with an emphasis on its purpose and will be used in this thesis when discussing the practical consequences of the current patent law regime for AI generated inventions.[41]

The legal sources regulating European patents will constitute the central legal instrument of this paper. The European Patent Convention (EPC) is a multilateral treaty from 1977, establishing the intergovernmental organisation known as the European Patent Organisation.[42] The Organisation has legal personality and is represented by the President of the European Patent Office.[43] The European Patent Office (EPO) constitutes the executive body of the Organisation, responsible for administering the granting of European patents in accordance with the EPC, under the supervision of the Administrative Council.[44] Furthermore, the European Patent Convention regulates the granting of European patents for inventions.[45] Finally, the Boards of Appeal are a judicial instance before the EPO with the primary function of independently reviewing decisions issued by the EPO in accordance with the EPC.[46] Their case law demonstrates how the law should be interpreted and provides guidance on the application of the EPC.[47]

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[39] J. Hettne & O. Eriksson, 'EU-rättslig metod: Teori och Genomslag I Svensk Rättstillämpning' (2nd ed. Norstedts Juridik, 2011) pp. 41-42.
[40] Summaries of EU Legislation, 'Sources of European Law' (2022) < https://eur-lex.europa.eu/EN/legal-content/summary/sources-of-european-union-law.html> accessed 12 May 2026.
[41] J. Hette & I. O. Eriksson (2011) pp. 168.
[42] European Patent Office, 'Legal Foundations' < https://www.epo.org/en/about-us/foundation/legal-foundations> accessed 12 May 2026.
[43] Art. 5 of the EPC reads: "(1) The Organisation shall have legal personality. (3) The President of the European Patent Office shall represent the Organisation".
[44] Art. 4 of the EPC reads: "(1) A European Patent Organisation, hereinafter referred to as the Organisation, is established by this Convention. It shall have administrative and financial autonomy. (3) The task of the Organisation shall be to grant European patents. This shall be carried out by the European Patent Office supervised by the Administrative Council".
[45] Art. 1 of the EPC reads: "A system of law, common to the Contracting States, for the grant of patents for invention is established by this Convention".
[46] European Patent Office, 'Boards of Appeal' < https://www.epo.org/en/case-law-appeals > accessed 2 May 2026.
[47] European Patent Office, 'About the Boards of Appeal' < https://www.epo.org/en/case-law-appeals/organisation > accessed 2 May 2026.

Where necessary, national law is used as a complementary source. British and German patent acts, such as the United Kingdom's Patents Act 1977 c. 37 and Germany's Patent Act as published on 16 December 1980, are occasionally mentioned in Section 4.2 when referring to the decisions from their respective national courts. In addition, case law from these jurisdictions is included in relation to the question of whether AI generated inventions can receive patent protection and how the requirement of inventorship is interpreted in national law. These sources provide a comparative perspective and illustrate different legal approaches. Finally, legal doctrine is used to present and analyse existing scholarly views on the subject. As the issue of AI generated inventions is relatively recent, much of the relevant literature has emerged following the first patent applications involving the DABUS system in 2019.[48] For example, Daria Kim wrote an article to clarify the notion of AI generated inventions in 2020.[49] Although there currently does not exist much legal initiative to amend the European patent legislation, legal scholars have discussed the potential challenges and risks posed by artificial intelligence if patent law is not adapted to reflect the technological advances.[50] This approach will be adopted by this thesis, focusing on ensuring that the objectives of patent law are fulfilled.

The material used in this paper is not limited to traditional legal sources. The European perspective on the issue throughout the discussion, as well as the practical example of drug development, has been used to anchor the theoretical discussion in the practical reality. Sources considered include studies on artificial intelligence, reports and positions from WIPO, statistical reports, analytical articles and literature presenting different perspectives on the subject.[51] Overall, the subject has been examined from several different angles to create a coherent picture in the conclusion.[52]

Finally, the AI tools DeepL and ChatGPT have been used for translation purposes.

1.5 Current State of Research

The question of legal protection for creations generated by artificial intelligence remains relatively new. As a result, the academic research in this field is still

[48] R. Abbott, 'Patent'. *The Artificial Inventor Project* (2025) < https://artificialinventor.com/patent/> accessed 2 May 2026.
[49] D. Kim. "AI-Generated Inventions: Time to Get the Record Straight' *GRUR International, vol. 69(5) Oxford Academic* (2020) pp. 443-456.
[50] See e.g. T. Kempas, 'A note on artificial intelligence and intellectual property in Sweden and the EU.' *Stockholm Intellectual Property Law Review,* vol 3.1 (2020), pp. 54-65 & A. Nordberg (2022) pp. 161-180.
[51] See e.g. A. Cuntz et al., (2023).
[52] A. Peczenik, 'Juridikens allmänna läror', *Svensk Juristtidning* (2005), pp. 251.

limited compared to other areas of intellectual property law. Much of the existing discussion has focused on the "input" side of artificial intelligence, and the "output" side concerning inventorship and protection of AI generated inventions has received less attention.[53] For example, Adam Buick has addressed the issue of how AI models must be trained on quantities of data often composed by copyright material.[54] This issue has moreover been addressed in the AI Act, where a requirement to disclose information on the contents of AI training data has been included.[55] Nevertheless, the increased development and use of generative AI have led to a growing number of articles and reports addressing the relationship between artificial intelligence and intellectual property. Existing research has begun to explore how AI generated outputs interact with established legal frameworks, more specifically, patent law. For example, scholars such as Daria Kim have in '*AI Generated Inventions: Time to Get the Record Straight',* contributed to clarifying the concept of AI generated inventions and their implications.[56] Meanwhile, Tobias Kempas and Ana Nordberg have discussed the challenges that artificial intelligence poses for the concept of inventorship within European patent law.[57]

The decisions on DABUS have become a central reference point in the legal debate, illustrating the limitations of the current European patent framework. Existing research has largely focused on the formal legal question of whether an artificial intelligence system can be recognised as an inventor, and on the implications of maintaining a strict human inventorship requirement. However, there is a notable lack of studies that combine the legal analysis of inventorship in AI generated inventions with a practical context. How AI interact with patent law is particularly evident in the context of pharmaceutical innovation and drug development, as AI systems are increasingly used to generate and refine potential inventions. This paper previously noted that AI has demonstrated significant potential in accelerating drug discovery and generating new solutions, raising important questions regarding patent protection and incentives for innovation.

Consequently, this thesis aims to address the gap in existing research by integrating a legal analysis of inventorship, as illustrated by the DABUS case, with a

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[53] R. Abbott, 'The Artificial Inventor Project'. *WIPO Magazine* (2019) < https://www.wipo.int/en/web/wipo-magazine/articles/the-artificial-inventor-project-41111> accessed 17 April 2026.
[54] A. Buick, 'Copyright and AI training data – transparency to the rescue?' *Journal of Intellectual property & Practice, vol. 20, no. 3* (2025) pp. 182.
[55] Art. 53(1)(a) of the AI Act reads: "Providers of general-purpose AI models shall draw up and keep up-to-date the technical documentation of the model, including its training and testing process and the results of its evaluation […]". Art 53(1)(c) of the AI Act reads: "Providers of general-purpose AI models shall put in place a policy to comply with Union law on copyright and related rights […]".
[56] D. Kim, (2020) pp. 443-456.
[57] T. Kempas, 'Artificiell intelligens och immaterialrätt' (1st ed. Nordstedts Juridik AB, 2023) pp. 122–139; A. Nordberg (2022) pp. 161–180.

practical perspective from the industry of drug development. When the academic discussion on artificial intelligence and patent law expands, a need for research that bridges doctrinal legal research with practical technological examples arises.

1.6 Structure of the Thesis

The thesis begins in Chapter 2 with a presentation of the technical foundations necessary for analysing the role of artificial intelligence in patent law. This includes an overview of how artificial intelligence is defined, how such systems are created and key concepts such as artificial neural networks and autonomy. These elements provide the necessary background for understanding how AI systems operate within an inventive context. Furthermore, Chapter 3 then outlines the legal framework governing patent law, with a particular focus on the concept of inventorship. It examines the requirement that an inventor must be a human person and discusses the extent and nature of human involvement required in the inventive process. Chapter 3 also contains a statistical perspective, with trends in patent applications in relation to inventions related to AI and whether such inventions meet existing patentability requirements.

Chapter 4 examines the DABUS case and how it has been dealt with across different jurisdictions. It begins with an analysis of the approach taken by the European Patent Office and is followed by a comparative overview of decisions from selected national jurisdictions, the United Kingdom and Germany. This chapter illustrates how different jurisdictions address AI generated inventions and highlights similarities and differences in their legal reasoning. Finally, Chapter 5 addresses the thesis's central research questions concerning the role of AI in the concept of inventorship under European patent law. The discussion comments on the implications of the current legal frameworks and reflects on potential risks and solutions when excluding artificial intelligence from inventorship status. The thesis concludes with a summary of the main findings and presents conclusions based on the arguments and materials discussed throughout the study.

1.7 Terminology

In parts of the existing research literature, a distinction is made between inventions developed with the assistance of AI systems and those generated autonomously by AI without human involvement beyond the development of the system itself. The former category is referred to as *AI assisted inventions*, while the latter is described as *AI generated inventions.* This distinction is particularly relevant in the context of Chapter 3, where the requirement of human inventorship under

the European Patent Convention is examined, as well as in the subsequent analysis of whether a natural person can be identified as having made an intellectual contribution to the invention. Where the distinction is not decisive for the discussion, the broader term *AI related inventions* is used to encompass both categories.

For reasons of linguistic variation, certain terms are used alternatively when referring to inventorship and related concepts. However, within the legal analysis, the term *inventor* is used in accordance with its specific meaning under Article 60(1) of the European Patent Convention and related provisions. As discussed in Chapter 3, this concept presupposes a natural person who has made an independent and intellectual contribution to the invention.[58] Other terms are used only in cases where they do not risk creating confusion regarding this established legal definition.

Where Swedish terminology is addressed, direct translations are not always applied. Instead, the terminology used reflects the concepts as they are understood within the relevant legal framework. For example, the term *inventor* is used consistently in line with the wording of the European Patent Convention and the practice of the European Patent Office, while corresponding Swedish terminology (*uppfinnare*) is employed where national sources are referred to. Similarly, references to *intellectual property law* correspond to the broader concept of *immaterialrätt*. However, this terminology is mainly reflected in the footnotes when referring to sources written in Swedish.

[58] B. Domeij, 'Patentavtalsrätt'– Licenser, Överlåtelser och Samägande av Patent' (2nd. ed. Norstedts Juridik AB, 2010) pp. 101.

2 Artificial Intelligence

2.1 Definition

According to Alan Turing in 1950, a machine can be said to show intelligence if a human interrogator, after posing some written questions, cannot tell whether the written answer comes from a human or a computer.[59] Other experts, including Stuart Russel and Peter Norvig, have proposed other definitions of AI, which, e.g. emphasise the ability to act rationally.[60] However, there is said to be no universal definition of AI.[61] The Swedish innovation agency Vinnova has defined the concept as the ability of a machine to replicate intelligent human behaviour.[62] For this thesis, AI is primarily relevant insofar as it can perform tasks requiring intelligence, which makes Vinnova's definition sufficient.

2.2 Creation of AI

An AI system is based on an algorithm, which is a set of mathematical instructions in the form of a software program that instructs the computer's hardware, e.g. the physical components of the computer, to perform a specific task.[63] AI systems can be designed in various ways to perform a task that, if performed by a human, would require intelligence. The artificial intelligence of interest for this thesis refers to artificial neural networks (ANN), a computational model inspired by the human brain.[64] An essential understanding of this is required to discuss this issue further.

2.2.1 Artificial Neural Networks ("ANN")

The ability of AI systems to learn and improve from large datasets without explicit programming can be attributed to machine learning.[65] Machine learning can be distinguished from traditional computer science in that, instead of

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[59] A.M. Turing, 'Computing Machinery and Intelligence'. *Mind 49* (1950) pp. 433-460.
[60] S.J. Russell & P. Norvig, 'Artificial Intelligence – A Modern Approach' (3rd ed. Prentice Hall Series in Artificial Intelligence, 2010) pp. 1-5.
[61] M.U. Scherer, 'Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies'. *Harvard Journal of Law & Technology* vol. 29, no. 2 (2016) pp. 359.
[62] Vinnova, 'Artificiell Intelligens i svenskt näringsliv och samhälle'. *Vinnova* (2018) pp. 28 < https://www.vinnova.se/contentassets/55b18cf1169a4a4f8340a5960b32fa82/vr_18_08.pdf?cb=20180509133156> accessed 20 February 2026.
[63] R. Abbott, 'The Reasonable Robot – Artificial Intelligence and the Law' (1st ed. Cambridge University Press, 2020) pp. 27.
[64] D. Kim (2020) pp. 451.
[65] V. Piuri, S. Raj, A. Genovese, R. Srivastava, 'Trends in Deep Learning Methodologies – Algorithms, Applications and Systems' (1st ed. Academic Press, 2021) pp.1-36.

programming how a computer should perform a task, an algorithm is used to produce an 'internal state‘ that is continuously configured as new data is added to the system. That way, the computer can design its own rules without the programmer's instructions on which patterns the computer should identify.[66] And the larger the volume of data available to the algorithms, the greater the learning capacity of the AI system. [67] However, it is important to note that the idea that the computers are learning does not imply that computer systems are replicating the cognitive systems thought to be involved in human learning, but rather the capability of changing their behaviour to enhance their performance through experience.[68]

Artificial neural networks (ANN), occasionally also referred to as models for deep learning, are a computational tool inspired by the structure and functioning of the human brain.[69] An ANN is composed of a large number of simple elements, known as neurons or perceptrons. Each neuron performs basic computations and passes its results to other neurons arranged in interconnected layers. Through this layered structure, a neural network can address a wide range of problems, provided it has sufficient training data and computational resources.[70] Deep learning is characterised by the system having access to enormous volumes of data, which enables it to perform complex tasks, such as driving self-driving cars. Another famous example is Google’s AI system, AlphaGo, which defeated the world champion in the Chinese board game Go in 2016.[71]

As of today, AI systems based on Artificial Neural Networks (ANNs) are constrained by their respective algorithms. They can only perform actions that they have been explicitly instructed to perform through their programming. Even when an AI system modifies its algorithm after being exposed to new data, it does so in a manner consistent with its original programming. The system is therefore predictable in the sense that, in each situation, it will always act according to the rules prescribed by its code. Consequently, an ANN-based system cannot be considered autonomous, since the code governs the actions taken in each situation. However, Daria Kim argues that this does not mean that an AI system

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[66] N. Shemtov, ‘A study on inventorship in inventions involving AI activity’. European Patent Office (2019): pp. 9-10 < https://link.epo.org/web/Concept_of_Inventorship_in_Inventions_involving_AI_Activity_en.pdf> accessed 10 March 2026.
[67] See e.g. SOU 2018:25, *Juridik som stöd för förvaltningens digitalisering*, pp. 212.

[68] H. Surden, ‘Machine Learning and Law’, *Washington Law Review,* vol. 89 (2014) pp. 87.

[69] H.R. Maier et al., ‘Exploding the myhts: An introduction to artificial neural networks for prediction and forecasting’. *Environmental Modelling and Software*, vol. 167 (2023) pp. 1.
[70] D. Bergmann, ‘What is deep learning?’ *IBM Think* (2026) <https://www.ibm.com/think/topics/deep-learning#763338456> accessed 10 March 2026.
[71] T. Kempas (2023) pp. 30-31.

will always produce the same results. It is common to introduce random elements into the processes, but this does not grant it autonomy. It merely means that the system has been programmed to make decisions that include a random component with certain predefined limits.[72]

Thus, while today's systems based on artificial neural networks are still constrained by human programming, the rapid development of AI technology suggests that these limitations may not remain static. As AI systems become increasingly advanced, the line between programmed behaviour and autonomous decision-making may become more difficult to define.

[72] D. Kim (2020) pp. 446-447.

3 The Concept of Inventorship

The European Patent Convention constitutes the foundation of the European Patent System and allows for patent protection issued by the EPO in several European countries. The principle of national treatment allows inventors to originate from any of the signatories of the Paris Convention or the TRIPS agreement, filing straight to the EPO or via the PCT.[73] However, A European patent granted by the European Patent Office must be validated in each contracting state where patent protection is sought.[74] As experts predict a future in which AI processes replace most human inventive activity as increasingly likely, an understanding of the inventorship requirement under European Patent Law thus becomes important.[75] Artificial intelligence systems now perform tasks traditionally associated with the cognitive function of the human brain.[76] Hence, the concept of inventorship ought to be clarified.

3.1 The Objectives behind Patent Protection

To assess whether AI generated inventions are compatible with the European patent framework, the objectives of patent law should be considered. The European Patent Convention was signed in 1973, at a time when autonomous artificial intelligence was not a matter of concern.[77] Hence, the Convention contains no explicit guidelines for inventions created without human inventive activity. The aims that patent law is intended to fulfil thus become an important starting point for interpretation. Two conflicting interests within patent law are manifested in the inventor's or owner's interest in having exclusive control over the rights to the invention and the public interest in gaining access to the invention to promote

[73] Paris Conventions for the protection of Industrial Property, 'Contracting Parties' *WIPO* < https://www.wipo.int/en/web/treaties/ip/paris/index> accessed 30 April 2026; World Trade Organisation, 'Members and Observers' < https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm> accessed 30 April 2026; European Patent Office, 'Member states of the European Patent Organisation' < https://www.epo.org/en/about-us/foundation/member-states> accessed 20 April 2026; WIPO, 'PCT-The International Patent System' < https://www.wipo.int/en/web/pct-system> accessed 30 April 2026.

[74] European Patent Office, 'European Patents and the grant procedure' (2022) pp. 12 < https://link.epo.org/web/european_patents_and_the_grant_procedure_2022_en.pdf> accessed 22 May 2026.

[75] R Abbott, 'I Think, Therefore I Invent: Creative Computers and the Future of Patent Law', *Boston College Law Review* Vol. 57:1079 (2016) pp. 1082.

[76] D. Westman, 'Den fjärde industriella revolutionen – en immaterialrättslig introduktion', *Nordiskt Immateriellt Rättsskydd* (2019/1) pp. 145.

[77] European Patent Office, 'Convention on the Grant of. European Patents (European Patent Convention' < https://www.epo.org/en/legal/epc/2020/convention.html> accessed 12 April 2026.

innovation.[78] To analyse the objectives behind these conflicting interests, a couple of theories used in doctrine to justify patent protection will be explained.

From a natural rights perspective, the inventor is regarded as having a legitimate moral claim to the product of intellectual labour.[79] The invention is understood both as economically valuable information and as the materialisation of personal effort and creativity. Patent protection is thus a recognition of the inventor's entitlement to have natural property rights over the results of their minds. This theory originates from John Locke's labour theory, based on the idea that an inventor who has invested labour into creating something should own the results.[80]

However, the utilitarian theory argues that patent protection is justified because exclusivity functions as a legal incentive for innovation and development. According to this theory, social institutions should be designed to maximise social welfare.[81] As innovation often requires investments, the absence of legal protection would allow competitors to exploit the commercial value of inventions without taking on the initial risk of the invention. This would undermine the incentives to invest in innovative development.[82] Accordingly, utilitarian theory holds that patents incentivise innovation and disclosure by granting inventors temporary exclusive rights, which in turn stimulates future innovation.[83] Additionally, this theory is connected to an economic point of view of having a regulatory framework that protects patents.[84] Once intellectual property is disclosed, the cost of using and distributing it is often low. Thus, inventors may receive no compensation or only a small compensation for the efforts and investments they put into the invention, whilst others benefit from the invention at a minimal cost.[85] European patent law therefore grants inventors a temporary exclusivity over their inventions, stretching over two decades.[86] This enables the inventor to share the invention with the public, and in exchange for disclosing the invention, the inventor is granted a temporary exclusive right that allows them to recoup their investment and earn revenue.[87]

These theoretical approaches demonstrate that patent protection is not only used to reward the inventor or owner of the patent. The right to patent is also used to

[78] T. Kempas (2020) pp. 78.
[79] A. Ramalho (2022) pp. 85.
[80] Ibid.
[81] D. Guellec, 'Patents as an Inventive to innovate', in: *Guellec, Dominique & Van Pottelsberghe de la Potterie, Bruno (eds), The Economics of the European Patent System: IP Policy for Innovation and Competition* (1st ed. Oxford Academic, 2007) pp. 49.
[82] Ibid. pp. 50.
[83] A. Ramalho (2022) pp. 86.
[84] J. Cubert & R. Bone, 'The law of intellectual property created by artificial intelligence', in: *Barfield, Woordrow & Pagallo, Ugo (eds.) Research Handbook on the Law of Artificial Intelligence* (1st ed., Edward Elgar publishing, 2018) pp. 413.
[85] Ibid.
[86] Art. 63(1) of the EPC reads: "The term of the European Patent shall be 20 years from the date of filing of the application".
[87] J. Cubert & R. Bone (2018) pp. 413.

promote continued innovations and development in society. With artificial intelligence increasingly driving innovation, we must question whether the inventorship requirement for granting patents still align with the objectives of the patent system.

3.2 The Human Inventorship Requirement

The requirements on inventorship under the European Patent Convention do not differ depending on whether the invention was invented through artificial intelligence or not.[88] According to European law, patents may be granted for new inventions that differ from existing inventions, considering what was known at the filing date of the patent application.[89] Many AI generated inventions can be said to meet these requirements.[90] The growing ability of AI systems to develop technical solutions has therefore not primarily called into question the concept of e.g. novelty, but rather the traditional view of the inventorship concept itself. The debate surrounding AI generated inventions should therefore focus on whether existing patent law can accommodate inventions that fall outside the traditional definition of inventorship.

Considering this context, it could be considered reasonable to question the restrictions on granting patents for autonomous AI generated inventions that are set out in European patent law. Under current legislation, "the right to a European patent shall belong to the successor in title", which refers to any person who made the invention, or to whom the inventor's rights have been transferred.[91] The legislation states that the inventor's right, i.e. the right to obtain a patent, belongs either to the person who invented the technology for which the patent is claimed or to another person who has acquired the right from the inventor.[92] Currently, the right belongs to the inventor. However, inventorship status may only be attributed to natural persons, while patent rights may be transferred to legal

[88] Art. 81 of the EPC reads: "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".
[89] See e.g. Art. 52 (1) and Art. 54(1) of the EPC. Art. 52(1) of the EPC reads: "European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application". Art. 54 (1) of the EPC reads: "An invention shall be considered to be new if it does not form part of the state of the art".
[90] See e.g. R. Abbott, 'The Artificial Inventor Project' *WIPO Magazine* (2019) < https://www.wipo.int/en/web/wipo-magazine/articles/the-artificial-inventor-project-41111> accessed 17 April 2026.
[91] Art. 60 (1) of the EPC reads: "The right to a European patent shall belong to the inventor or his successor in title. If the inventor is an employee, the right to a European patent shall be determined in accordance with the law of the State in which the employee is mainly employed; if the State in which the employee is mainly employed cannot be determined, the law to be applied shall be that of the State in which the employer has the place of business to which the employee is attached".
[92] T. Kempas, 'Artificiell intelligens och immaterialrätt' (1st ed. Norstedts Juridik AB, 2023) pp. 124-125.

persons.[93] Case law and literature additionally clarify that the inventor must be a natural person.[94] Therefore, an AI system, which is neither a natural nor a legal person, cannot be an inventor nor acquire inventor's rights within the meaning of the law. Consequently, the regulation makes it impossible to grant patents for autonomously AI generated inventions under European patent law, if the artificial intelligence system is to be designated as the inventor.

The previous conclusion is supported by the EPO in the cases EP18275163 ("Food Container") and EP18275174 ("Devices and Methods for Attracting Enhanced Attention"). In both cases, an artificial intelligence machine called "DABUS" was indicated as the inventor.[95] The EPO rejected the patent applications on the grounds that only natural and legal persons are eligible to act within the framework of the EPC system and emphasised that the regulations on inventorship refer only to natural persons.[96] The EPO further addressed the possibility of acquiring rights to inventions generated by AI systems, stating that an AI system cannot be an employee and cannot assign nor transfer any rights.[97] The rejection of the patent application in the DABUS case will be examined in more detail below.

3.3 What kind of Human Contribution is Required?

The above raises the question of when an AI generated invention can be considered to have a human inventor under European Law. The general starting point is that the human inventor's contribution to an invention must be of both an independent and intellectual nature.[98]

The requirement that the inventor's intellectual contribution must be independent is related to the fact that co-inventors are each entitled to an equal share of the patent or patent application. If an invention has been created by several people, each person who has made an independent and intellectual contribution to what distinguishes the invention from known technology may claim the right to be named as an inventor.[99] Such co-operation does not exist when a natural person

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[93] Ibid.
[94] See e.g. B.G. Nilsson & C. Holtz, 'Patentlagen – en kommentar och en jämförelse med EPC och PCT' (1st ed. Jure Förlag AB, 2012), pp. 28; B. Domeij (2010) pp. 99; Rule 19(1) sentence 3 of the EPC's Implementing Regulations reads: "The designation shall state the Family name, given names and country and place of residence of the inventor, contain the statement referred to in Article 81 and bear the signature of the applicant or their representative".
[95] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, Point I-II.
[96] Ibid. Point V (a).
[97] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, Point V(b); T. Kempas (2023) pp. 125-126.
[98] See e.g. J. Hygen Meyer, 'Hvem sjal anses som oppfinner eller medoppfinner?', *Nordiskt Immateriellt Rättsskydd* (2011/1) pp. 4; B. Domeij (2010) pp. 101.
[99] B. Domeij (2010) pp. 100-101.

exploits an AI system in their creative and inventive activities, and the question of independence should not be raised in these instances.[100]

The first issue in cases involving partially autonomous AI inventions is therefore whether the human contribution can be regarded as intellectual. That means that the contribution must consist of a mental process that led to novel aspects of the invention that differ from other inventions.[101] The literature, however, is divided on what kinds of human intellectual contributions are sufficient to establish human inventorship when an AI system has been used to solve a technical problem. Schuster argues that human activities, including the input of data and information about desired outcomes, can be understood as primarily instructing the AI system to solve the technical problem. Such human activity is not, according to him, sufficiently inventive to be regarded as the inventor.[102] In contrast, Abbott argues that a person who instructs an AI system to solve technical problems and thereby formulates and structures the problem in a way that requires inventive skill should be considered an inventor. Abbot further argues that a person who recognises the relevance of the AI system's output should qualify as an inventor. However, in certain innovation processes based on AI, the circumstances may be such that no human can be considered the inventor.[103]

Kempas, however, argues that a human evaluation and understanding of the practical applicability of a technical solution constitutes a sufficient intellectual contribution for the partially autonomous AI generated invention to be patentable. He argues that this view is compatible with Schuster's position that human training and use of an AI system do not constitute a sufficient inventive contribution. According to Kempas, the inventor, is therefore not primarily the person who provided the AI system with the tools to solve the problem, but rather the person who interprets the AI system's output and recognises its practical relevance.[104] At the same time, AI systems are increasingly becoming more advanced. Some predict that AI systems will soon be able to independently create, design and submit an almost unlimited number of patent applications to patent authorities.[105] Kempas argues that in the hypothetical case in which an AI system, without significant human guidance, creates an invention and explains the invention's technical effect, characteristics and implementation in a patent application, it would

[100] T. Kempas (2023) pp. 130.
[101] B. Domeij (2010) pp. 101.
[102] W. M. Schuster, 'Artificial Intelligence and Patent Ownership', *Washington and Lee Law Review,* vol. 75, no. 4 (2019) pp. 1959-1960
[103] R. Abbott, 'The Artificial Inventor Project' *WIPO Magazine* (2019) < https://www.wipo.int/en/web/wipo-magazine/articles/the-artificial-inventor-project-41111> accessed 17 April 2026.
[104] T. Kempas (2023) pp. 134.
[105] S. Yanisky-Ravid & X. Liu, 'When Artificial Intelligence Systems for ProduceInventions: An Alternative Model for Patent Law at the 3A Era', *Cardozo Law Review*, vol. 39:2215 (2018) pp. 2228.

be difficult to consider any human as the inventor under the current European legislation.[106]

3.4 Statistics on Patents

The increasing autonomy of AI systems, combined with the requirements of who can be considered an inventor, suggests that issues surrounding inventorship may give rise to discussion. Given this context, the latest patent statistics provide further insight into the accelerating pace of patent applications and the growing importance of computer technology within the European patent system. In 2024 alone, innovators worldwide filed 3.7 million patent applications, representing a 4.9% increase compared to 2023 and the fastest annual growth since 2018.[107]

This long-term trend in the number of patent applications worldwide has been steadily rising, reflecting the faster pace of innovation globally. Between 2010 and 2024, the number of patent applications almost doubled, rising from just under 2 million to 3.7 million.[108]

In 2023, which is the latest year with complete data, given the delay between filings and publication, computer technology was the most frequently cited technology in published patent applications worldwide, accounting for 13.2% of the total. This was followed by electrical machinery, measurement technology, digital communications and medical technology.[109] Together, these five sectors increased their share of total applications from 29.4% in 2013 to 37.4% in 2023, largely driven by the rapid expansion of computer related innovations. Computer technology showed an annual growth rate of 10.3% over this period, significantly exceeding the other four areas. Notably, it was the only technology sector to achieve double-digit growth between 2013 and 2023. [110]

Over the past five years, growth in computer technology has been driven primarily by innovations such as image recognition, machine learning and neural networks. Applicants from EPO member states consistently led this activity, although filings from Asia and the United States remained close behind. Growth in filings at the EPO from around the world remained strong, with AI related

[106] T. Kempas (2023) pp. 135.
[107] WIPO, 'Patent Highlights', *World Intellectual Property Indicators 2025: Highlights* (2025) pp. 9 < https://www.wipo.int/edocs/pubdocs/en/wipo-pub-941-17-2025-en-world-intellectual-property-indicators-2025.pdf> accessed 20 April 2026.
[108] Ibid.
[109] WIPO, 'Patent Highlights', *World Intellectual Property Indicators 2025: Highlights* (2025) pp. 17 < https://www.wipo.int/edocs/pubdocs/en/wipo-pub-941-17-2025-en-world-intellectual-property-indicators-2025.pdf> accessed 20 April 2026.
[110] Ibid.

inventions increasing by 10.6% compared to the previous year.[111] Over half of these AI related patent applications sill relates to data processing systems based on biological models, including artificial neural networks (ANN). These models, as described in the previous section, enable computers to process data in a way that is inspired by the structure and function of the biological brain.[112] Despite this increase in the number of AI related patent applications over the last few years, the EU can be perceived as restrictive compared to the US and China when it comes to granting patents for AI. [113]

3.4.1 How many AI related Patents meet the Requirements?

Based on the above, the subsequent question is therefore what AI related patents meet the requirements for patentability and why.

Article 83 of the EPC states that the patent application shall disclose the invention in a manner sufficiently clear and complete to enable a person skilled in the art to carry it out.[114] It is stated in the *Guidelines for Examination in the European Patent Office* that if there is a fundamental insufficiency in the invention to the extent that it cannot be carried out by a skilled person, this constitutes an irreparable failure to satisfy the requirements of Article 83. An instance mentioned as an example is artificial intelligence.[115] According to the aforementioned guidelines, Article 83 is not complied with if the mathematical methods and training data sets are not described in sufficient detail to enable a person skilled in the art to reproduce the invention without unreasonable effort.[116] Mere assertions are not sufficient for the requirement to be fulfilled, nor is comprehensive proof required. If the technical effect depends on specific characteristics of the training data set used, the characteristics required to reproduce the technical effect must be described, unless a person skilled in the art can identify them without unreasonable effort using common knowledge. However, there is no general requirement to disclose the training dataset itself.[117] In case law, there are instances where the Boards of Appeal have decided to refuse AI related patent applications due to

[111] European Patent Office, 'Insight into computer technology and artificial intelligence (AI)' < https://www.epo.org/en/about-us/statistics/patent-index-2024/insight-computer-technology> accessed 7 April 2026.
[112] Ibid.
[113] WIPO, 'Patent Highlights', *World Intellectual Property Indicators 2025: Highlights* (2025) pp. 27 < https://www.wipo.int/edocs/pubdocs/en/wipo-pub-941-17-2025-en-world-intellectual-property-indicators-2025.pdf> accessed 20 April 2026.
[114] Art. 83 of the EPC reads: "The European patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art".
[115] European Patent Office, *Guidelines for Examination in the EPO* (April 2026) Part F, Chapter II, 6, Att. 83, third point.
[116] Ibid.
[117] European Patent Office, *Guidelines for Examination in the EPO* (April 2026) Part G, Chapter III, 2, point 3.3.1.

insufficient disclosure.[118] In case T 0606/21 for example, the BoA rejected the patent application due to its lack of disclosure as to how the unspecified trajectory was generated and inputted.[119]

In terms of medical AI related patents (MML), there has been a substantial upward trend since 2014. The relevant proportion of granted applications for US and EPO patents in relation to the total number of applications indicates that the grant rate has increased from 48% in 2007 to 64% in 2012. That being said, there are a lot of pending applications, and consequently, the grant rate can only be estimated.[120] However, according to a study made by Mateo Aboy among others, a high proportion of medical machine learning (MML) patents in the US and EPO lack entire categories of technical description. According to the data shown in his article, less than 70% of the granted medical AI patents disclose specific details of the AI training, and out of the medical patents analysed, fewer than 30% disclosed information needed to assess the performance of at least one part of the claimed invention. Additionally, less than 25% disclosed mathematical details.[121] These figures indicate that, in most cases, essential elements needed to understand, evaluate, or reproduce the invention are completely absent. In effect, several medical machine learning patents fail to describe how the models operate, how it is implemented, or whether it works in practice. This widespread absence of disclosure suggests that many patents may fall short in ensuring that knowledge becomes accessible once the patent protection is granted.

[118] See e.g. Decision in T 1539/20 of the Legal Board of Appeal, of 24 November 2022, [unpublished] point. 3.2.4.
[119] Decision in T 0606/21 of the Legal Board of Appeal, of 28 February 2023, [unpublished] point 2.3.
[120] M. Aboy et al., 'Mapping the Patent Landscape of Medical Machine Learning, N*ature Biotechnology*, vol. 41 (2023) pp. 464-465.

[121] M. Aboy et al., 'The sufficiency of disclosure of AI inventions', *Oxford Academic*, *Journal of Intellectual Property Law & Practice,* Vol. 19, No. 11 (2024) pp. 840.

4 The Artificial Inventor Project

In 2018, an AI system known as DABUS (Device for the Autonomous Bootstrapping of Unified Sentience) was recognised by its creator for independently generating two innovations, a neural flame and a fractal container.[122] DABUS is described as a form of artificial general intelligence capable of imitating key aspects of human cognition, including perception, creativity, consciousness and emotional intelligence. The system can combine simple concepts into more complex ones, which sets up a chain of connections that reflects the expected outcomes of those ideas.[123]

Rather than being designed to address specific problems within a single domain, DABUS is described as a creative system that gathers and integrates knowledge from diverse fields of research and human activity.[124] Its creator, together with a group of legal scholars and patent attorneys, has initiated an international effort to secure intellectual property rights for inventions generated by AI without a traditional human inventor, thereby challenging existing definitions of patent law concerning the designation of inventor.[125]

This chapter analyses the ongoing attempts to patent the outputs of this DABUS system before the European Patent Office (EPO), with a focus on the decision from the legal board of appeal (BoA). Decisions concerning DABUS have also been issued on a national level in Germany and the United Kingdom. These cases are considered briefly to provide a context for a broader discussion on proposed legislative reforms concerning inventions without a clear human owner.

4.1 The EPO's view on DABUS as the Inventor

The European Patent Office (EPO) published its decision explaining its refusal of the two patent applications in which the artificial intelligence system, known as DABUS, was named as the inventor. These applications, EP 18 275 163 and EP 18 275 174, were filed in 2018 and rejected after oral proceedings in

[122] R. Abbott, 'Patent' *The Artificial Inventor Project* (2025) < https://artificialinventor.com/patent/> accessed 25 February 2026.

[123] Imagination Engines, 'DABUS Described' <https://imagination-engines.com/dabus.html> accessed 10 April 2026.

[124] Ibid.

[125] R. Abbott, 'The Artificial Inventor Project' *WIPO Magazine* (2019) < https://www.wipo.int/en/web/wipo-magazine/articles/the-artificial-inventor-project-41111> accessed 17 April 2026.

November 2019.[126] The decision was appealed, and in public oral proceedings held in December 2021, combining cases J 8/20 and J 9/20, the EPO's Legal Board of Appeal dismissed the applicant's appeal and upheld the EPO's decision.[127] These decisions remain unpublished, but the EPO has officially released some information and statements on their website.[128] The refusal was based on the finding that the applications did not comply with the European Patent Convention, which requires the designated inventor to be a human rather than a machine. In both cases, the applicant argued that he was entitled to the patent as the successor in title, claiming that, as the owner of the AI system, he automatically held any intellectual property rights generated by it.[129]

Under Article 81 of the EPC, a European patent application must identify the inventor. Where the applicant is not the inventor, or not the sole inventor, the designation must also explain the origin of the right to the European patent.[130] Rule 19 of the EPC further specifies that the inventor's designation must include their family name, given names, and the country and place of residence, and clarifies that the EPO shall not verify the accuracy of this information.[131] As for entitlement, Article 60(1) EPC established that the right to a European patent belongs to the inventor or their successor in title. In cases J 8/20 and J 9/20, the issue arose as to whether the applicant, named Stephen L. Thaler, could designate DABUS as the inventor and himself as the patent owner on the basis that he owned the AI and therefore was the inventor's successor in title.[132] While the precise legal nature of inventorship may be subject to debate, the European Patent Convention (EPC) requires that the patent application include the designation of an inventor. This requirement is assessed as a formal matter, prior to and independently from the substantive examination of the application, which means that the EPO is not required to verify the accuracy of the designation.[133] However,

[126]The decision of the Receiving Section on 25.11.2019 in the matter of the European patent application EP 18 275 163; The decision of the Receiving Section on 06.11.2019 in the matter of the European patent application EP 18 275 174.
[127] Decisions J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021 [unpublished].
[128] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021.
[129] Ibid., point III.
[130] Art. 81 of the EPC reads: "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".
[131] Rule 19(1-2) of the EPC reads: "(1) The request for grant of a European patent shall contain the designation of the inventor. However, if the applicant is not the inventor or is not the sole inventor, the designation shall be filed in a separate document. The designation shall state the family name, given names and country and place of residence of the inventor, contain the statement referred to in Article 81 and bear the signature of the applicant or their representative. (2) The European Patent Office shall not verify the accuracy of the designation of the inventor."
[132] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points II-IV.
[133] Ibid., point 4.6.3; A. Nordberg (2022) pp.160.

the EPO's Receiving Section refused both DABUS patent applications, objecting to the designation of inventor.[134]

The European Patent Office concluded that when interpreting the legal framework of the European patent system, including Article 81 and Rule 19(1) of the EPC, the inventor designated in a European patent must be a natural person. It also emphasised that a machine cannot transfer rights to the applicant.[135] Therefore, the claim that the applicant was the successor in title by owning the AI system did not meet the requirements of Article 81 and Rule 19(1) of the EPC in conjunction with Article 60(1) of the EPC.[136] The designation of an inventor is not merely a formality but carries legal implications, including the attribution of rights and the protection of the inventor's interests. These rights require legal personality, and since AI systems do not possess such status, they cannot fulfil the role of the inventor.[137]

Following the appeals in cases J 8/20 and J 9/20, the EPO's Legal Board of Appeal (BoA) upheld the decisions of the Receiving Section, responsible for examining the formal requirements of the patent applications, and confirmed the refusal of the patent applications EP 18 275 163 and EP 18 275 174.[138] It also rejected the auxiliary request, which argued that the patent ownership could be derived from ownership and creation of the alleged inventor, namely the AI system DABUS.[139] The reasons for BoA to reject the applications can be separated into two issues. The first question, relevant for the main request, was whether an applicant could designate an entity which is not a natural person as the inventor, and thereby satisfy the requirements set out in Article 81, first sentence of the EPC.[140] The second question concerned whether the creator of such an AI system could derive ownership over the invention, relevant for the appellant's auxiliary request.[141] This section will further analyse these arguments and grounds for the decision of refusal by the Legal Board of Appeal, by reference to arguments submitted on behalf of DABUS and Stephen L. Thaler.

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[134] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, Point V; The decision of the Receiving Section on 25.11.2019 in the matter of the European patent application EP 18 275 163; The decision of the Receiving Section on 06.11.2019 in the matter of the European patent application EP 18 275 174.
[135] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, point V.
[136] Ibid., point I; A. Nordberg (2022) pp. 161; European Patent Office,*' Letter concerning the inventor',* European patent application no. 18275163.6.
[137] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points V and 4.3.3.
[138] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, pp. 32; Art. 16 of the EPC reads: "The Receiving Section shall be responsible for the examination on filing and the examination as to formal requirements of European patent applications".
[139] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, point 4.4.2.
[140] Ibid., point 4.3.
[141] Ibid., point 4.4.

4.1.1 AI Systems as the Inventor

The Legal Board of Appeal stated in its reasons for decision concerning the main request on whether an applicant can designate an entity which is not a natural person as the inventor, that it was not allowable. Under the EPC, Article 81, the inventor must be a person with legal capacity. This follows from the ordinary meaning of the term *inventor*, which refers to a natural person who created an invention.[142] The BoA stated that this interpretation of the word *inventor* is confirmed by the EPC's wording and structure. Provisions referring to inventors consistently use terms such as *persons* or *legal predecessors*.[143] Article 60(1) grants the right to a European patent to the inventor, which presupposes legal capacity. Supporting rules, such as Rule 19 of the EPC, further reinforce this conclusion. Since there is no ambiguity in the text, the Legal Board of Appeal considered it unnecessary to rely on preparatory materials.[144]

The Receiving Section argued that names given to things cannot be equated with the names of natural persons. Names have an identifying function which enables the exercise of rights and forms part of an individual's legal personality. Therefore, merely identifying a machine by name does not satisfy the formal requirement for designating an inventor in a patent application.[145] Additionally, the BoA stated that, considering the purpose of Article 81 EPC, the rules on designation of the inventor aim primarily to establish and protect the inventor's rights, enable claims for compensation under national law, and provide a legal basis for entitlement to the application. These applications cannot be fulfilled if the inventor, as a machine, lacks legal capacity.[146] The Legal Board of Appeal further states that there is no evidence of subsequent practice or agreement among EPC contracting states that would justify interpreting the term *inventor* to include non-person entities. Relevant case law, such as the decisions of the UK Court of Appeal, supports the view that an inventor must be a natural person, including decisions from outside the EPC jurisdictions.[147]

The appellant's policy arguments regarding the general right of the public to know who the inventor is or how the invention was made were also dismissed by

[142] Ibid., point 4.7.3.
[143] Ibid., points 4.3.1-4.3.2; See e.g. Art. 60(2). Art. 60(2) of the EPC reads: "If two or more persons have made an invention independently of each other, the rights to a European patent therefor shall belong to the person whose European patent application has the earliest date of filing, provided that the first application has been published".
[144] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points 4.3.1 – 4.3.9.
[145] Ibid., point IV; A. Nordberg (2022) pp. 161.
[146] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points 4.3.1 – 4.3.3.
[147] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points 4.3.2 – 4.3.4.

the Legal Board of Appeal. There is no legal basis under the EPC of any such right, and such considerations are additionally not relevant to Article 83 EPC or to the rules on inventor designation. Moreover, disclosure of the inventor's identity depends on the inventor's own decision, and third parties have no rights in this regard.[148] Similarly, the appellant's arguments based on fairness did not justify allowing a machine to be named as an inventor. Applicants remain free to explain the role of a machine in the description of the invention, although this is neither required nor prohibited by the EPC.[149] Accordingly, the Receiving Section was correct to raise an objection under Article 90(3) EPC, since the EPO is entitled to verify that the designated inventor meets the requirements of the EPC.[150]

In conclusion, the application did not comply with Article 81, first sentence of the EPC and Rule 19 (1) of the EPC, because a machine cannot qualify as an inventor. For this reason alone, the main request on whether the AI system could be designated as the inventor was refused, and the Board did not find it necessary to examine compliance with Article 81, second sentence of the EPC.[151]

4.1.2 Ownership of the Invention

As previously mentioned, the EPC requires patent applicants to identify the inventor. In their respective submissions, the Receiving Section and the creator of DABUS agreed that the designation of an inventor is a formal requirement. However, they differed in how they characterised its significance.[152] According to the EPO, the designation of an inventor is not a mere formality but an essential procedural prerequisite. Without it, the patent application cannot proceed to examination.[153] Therefore, the inventor must be designated for an application to be examined, and that inventor must, as previously concluded, be a natural person.

In the DABUS applications, the AI system's owner claimed to have obtained the right to the European patent as the inventor's successor in title, arguing that ownership of the system itself entailed all intellectual property rights generated by the AI. This auxiliary request was based on the argument that Article 81, first sentence EPC, which states that the European patent application shall designate the inventor, does not apply where the application concerns an invention that a human did not create.[154] The Legal Board of Appeal accepted this line of

[148] Ibid., points 4.3.5 – 4.3.6.
[149] Ibid., point 4.3.7.
[150] Ibid., point 4.3.8.
[151] Ibid., points 4.3.1 – 4.3.9.
[152] Ibid., pp. 1-13.
[153] Ibid., point 4.2.3.
[154] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points 4.4.1.

reasoning. The provisions on the designation of the inventor were intended to confer specific rights on human inventors. Accordingly, it may be argued that where no human inventor can be identified, the *ratio legis* (purpose) of Article 81, first sentence of the EPC does not apply. However, where the inventor and the applicant differ, Article 81, second sentence of the EPC requires a statement indicating the origin of the applicant's right to the European patent. This requirement applies regardless of whether the invention was created by a human or by a machine.[155]

According to the statement submitted with the auxiliary request, the appellant had derived the right to the European patent from being the owner and creator of the machine.[156] This statement was, by the Legal Board of Appeal, considered as insufficient to bring the appellant within the scope of Article 60(1) of the EPC. In particular, the statement did not identify a legal situation or transaction by which the appellant could be regarded as the successor in title to an inventor within the meaning of the EPC. Therefore, the auxiliary request failed to meet the requirement of Article 81, second sentence of the EPC, in conjunction with Article 60(1) of the EPC, and was refused by the Legal Board of Appeal.[157]

Given the European Patent Office's position that only natural persons can be inventors and that only inventors or their successors in title may hold a patent, the issue of whether an AI can transfer rights becomes irrelevant. If the AI is not recognised as the inventor, it cannot assign or transfer the economic right to an invention. The EPO's Receiving Sections addressed this issue further than the BoA did, concluding that machines lack legal personality and therefore cannot own or transfer property rights.[158] However, as noted earlier, patents must be validated in the contracting state where the patent is sought, and questions governed by national law include whether the transfer of rights is valid or not.[159] Accordingly, the European Patent Office can only dismiss the possibility of ownership after identifying and assessing the applicable legal framework. However, neither the European Patent Conventions nor the various national jurisdictions provide a clear or definitive answer as to whether intellectual property generated by AI or automated systems should remain in the public domain or be subject to appropriation by someone. [160]

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[155] Ibid.
[156] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points 4.4.2.
[157] Ibid.
[158] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points II and V(b).
[159] Ibid., point 4.2.2.
[160] See Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, points 4.2.2; A. Nordberg (2022) pp. 173.

4.2 National Patent Offices

Several comparable DABUS patent applications for the same inventions have been filed before national patent offices, with arguments tailored to domestic patent laws and other provisions of the respective legal systems. This has resulted in numerous decisions by patent offices and courts, two of which will be discussed in this section. As with the EPO, these debates have focused on whether an AI system can satisfy formal legal requirements, notwithstanding the absence of a human inventor who can be identified as such.[161]

4.2.1 The United Kingdom's View on DABUS as the Inventor

Applications filed at the United Kingdom Intellectual Property Office (UKIPO) were rejected on the basis that neither DABUS nor its creator satisfied the statutory requirements relating to inventorship and entitlement.[162] In particular, the UKIPO concluded that a machine could not qualify as an inventor.[163] The decision was appealed to the High Court, which upheld the UKIPO's reasoning, emphasising that the provisions of the Patents Act 1977 are clear on requiring that an inventor must be a natural person.[164] While dismissing the appeal, the Court acknowledged the potential policy implications for AI generated inventions. However, the Court emphasised that it could interpret the law but cannot itself legislate.[165] The case was appealed to the Court of Appeal and dismissed in 2021, as the judges agreed that an inventor must be a person.[166] Nevertheless, opinions differed regarding the legal consequences of not fulfilling these requirements.[167] Lady Justice Elisabeth Laing LJ concluded that:

> Whether or not thinking machines were capable of devising inventions in 1977, it is clear to me that that Parliament did not have them in mind when enacting this scheme. If patents are to be granted in respect of inventions made by machines, the 1977 Act will have to be amended.[168]

The case eventually reached the UK Supreme Court in 2023, where the appeal was dismissed.[169] The Court confirmed that, under the Patents Act 1977, an

[161] R. Abbott, 'Patent' *The Artificial Inventor Project* (2025) < https://artificialinventor.com/patent/> 20 April 2026.
[162] U.K. Patent Applications GB 18168909.4 and GB1818161.0.
[163] [2020] EWHC 2412 (Pat), para 7.
[164] [2020] EWHC 2412 (Pat), paras 35-36 and 50; The Patents Act 1977 c. 37, section 13(2).
[165] [2020] EWHC 2412 (Pat), paras 22-23.
[166] [2021] EWCA Civ 1374. para 97.
[167] [2021] EWCA Civ 1374. paras 105-112.
[168] [2021] EWCA Civ 1374. paras 103.
[169] [2023] UKSC 49, para. 99.

'inventor' must be a natural person and not a machine.[170] It further held that the creator of the AI system was not entitled to the patents merely by virtue of owning the AI system, as the law requires any entitlement to derive from a human inventor.[171] The Court also rejected arguments based on property law, including the doctrine of accession, finding no legal basis for transferring rights from a machine to its owner.[172] Consequently, because the appellant had failed to identify a legally recognised inventor or established entitlement to the patent, the Supreme Court found that the UKIPO had been correct to treat the applications as withdrawn.[173]

These decisions demonstrate that the concept of inventorship under the United Kingdom's patent law regime remains limited to natural persons. However, the discussion on technological developments and whether the Patents Act 1977 would have to be amended to include AI generated inventions was brought up by Lady Justice Elisabeth Laing LJ. The different Courts further emphasised that allowing artificial intelligence systems to qualify as inventors would require legislative amendments, not judicial interpretations of the law.

4.2.2 Germany's View on DABUS as the Inventor

The German Patent and Trademark Office (DPMA), in response to similar patent applications, rejected two parallel patent applications in which the artificial intelligence system DABUS was identified as the inventor.[174] The applications were rejected on the grounds that according to sections 6 and 37 of the Patents Act, only a natural person can be an inventor.[175] The case was appealed, and the Federal Patent Court confirmed that under German law, only a natural person may be named as inventor.[176]

The Federal Court of Justice (Bundesgerichtshof) upheld this decision in full in 2024.[177] It reaffirmed that inventorship is limited to natural persons and cannot be attributed to AI systems. Referring to its established case law, the Court

[170] [2023] UKSC 49, para. 56.
[171] [2023] UKSC 49, para. 63 and 94-95.
[172] [2023] UKSC 49, para. 87-89.
[173] [2023] UKSC 49, para 93-99.
[174] Decision in DE 10 2019 128 120/DE 10 2019 129 136) of the German Patent and Trade Mark Office (*Deutsches Patent und Markenamt*) [unpublished]; [2024] X ZB 5/22, para 6.

[175] See [2024] X ZB 5/22 para 29-48; D. Kim, 'The Paradox of the DABUS Judgement of the German Federal Patent Court', *GRUR International*, vol. 71(12) *Oxford Academic* (2022) pp. 1162; Patent Act as published on 16 December 1980 (Federal Law Gazette 1981 I, p. 1), sections 6 & 37; Civil code in the version promulgated on 2 January 2002 (Federal Law Gazette [Bundesgesetzblatf] I p. 42, 2909; 2003 I p. 738, section 1.
[176] [2024] X ZB 5/22, para 16.

[177] [2024] X ZB 5/22, pp. 2.

emphasised that inventorship presupposed a human creative contribution and legal capacity, thereby excluding machine systems regardless of their capabilities.[178] At the same time, the Court clarified that the use of artificial intelligence does not preclude human inventorship. A natural person may be designated as an inventor where their contribution significantly contributes to the overall success of the invention. However, contributions that are insignificant or made under supervision do not meet the requirements.[179] Additionally, regarding the appellant's application naming himself as the inventor who used DABUS, the Court confirmed that this wording is acceptable. The Court found that the application clearly identified a human inventor in the applicant while treating DABUS solely as a tool, noting that it was not listed as a co-inventor, but only as a means used by the applicant.[180] The Court referred to the state of scientific knowledge and argued that a system that searches for technical teachings without human input does not exist. It remains possible to identify the human contribution and derive inventorship status from this through a legal assessment. Hence, the applicant should, according to the German Federal Court of Justice, name at least one natural person as the inventor even if he thinks the AI made the main contribution to the invention.[181]

This judgment from the German Federal Court of Justice confirmed that while artificial intelligence may assist the creation of an invention, it cannot replace the requirement for a human inventor. Inventorship under German patent law remains exclusively reserved for natural persons.[182] The decision further reflected an attempt from the Court to balance technological developments with the requirement of inventorship reserved for natural persons. Hence, the reasoning relied on the state of technology, and no discussions of possible advancements in technology were presented. However, the reference to current scientific knowledge suggested that the Court sought to highlight the possibility of an AI model that could search for technical problems without human input. Unfortunately, this is not a discussion the Court continued to pursue.

[178] [2024] X ZB 5/22, paras 21, 30, 37 and 41.

[179] [2024] X ZB 5/22, paras 32-38.

[180] [2024] X ZB 5/22, paras 62-65.

[181] [2024] X ZB 5/22, paras 40-44.

[182] See e.g. [2024] X ZB 5/22, paras 21-24 and 26-42.

5 Call for Change?

5.1 Reflections on the Legal Position

The previous chapters have shown that, under the current European patent framework, only a natural person may be recognised as an inventor. Through the DABUS decisions, both the European Patent Office and the national patent offices in the United Kingdom and Germany have confirmed that only a natural person can fulfil the legal role of inventor, regardless of how independently it may have contributed to the invention. However, patent law does not exist separately from the technological environment it is meant to regulate. Patent law and its objectives must be understood in the practical context in which it operates, including the context of AI.[183] As artificial intelligence systems are increasingly described as part of a Fourth Industrial Revolution, the question arises as to whether the consequences of the current legal position remain compatible with the broader function of patent protection.[184] The practical implications of the interpretation made by the EPO should therefore be compared to the effects of that decision and the underlying objectives of patent law.

A strict interpretation of the human inventorship requirement means that inventions generated autonomously by AI risk being left without patent protection. Such inventions may instead fall into the public domain upon disclosure, with the practical consequence that commercially valuable inventions may be freely exploited by the public. This leaves the actors who invested in developing and training the artificial intelligence systems at risk of being left without any exclusive right to the result. Given the different decisions in the DABUS case, little has been discussed by the courts on how the law might be interpreted considering emerging new technology. Instead, the rulings have focused on what the law currently permits, and not how it should be adapted to changes due to artificial intelligence.[185]

As shown earlier in this thesis, pharmaceutical innovation is one of the areas in which artificial intelligence systems have demonstrated considerable potential in processes that would otherwise require extensive human resources. At the same time, the pharmaceutical sector is heavily dependent on patent protection due to

[183] P. Björkwall, 'The Many Faces of Patents: Implications for Legal Analysis'. *Nordiskt Immateriellt* Rättsskydd (2015/4) pp. 397.
[184] D. Westman (2019/1) pp. 150.
[185] L. Adde & J. Smith, ´Patent pending; the law on AI inventorship'. *Journal of Intellectual Property Law & Practice*, Vol. 16, No. 2 (2021) pp. 98.

substantial investments and commercial risk associated with bringing new drugs to the market. Furthermore, this relates to one of the objectives of patent law, that the protection of patents aims to incentivise investments to promote new inventions. If inventions generated through increasingly autonomous artificial intelligence are not protected properly, it may directly affect the willingness to invest in technologies and pharmaceutical companies that are expected to drive future medical innovation.

In the decisions on the DABUS cases, the courts decided on what the current wording of patent law permits. Attention was not given to discuss whether the existing concept of inventorship should be sustained, or whether the technological developments within artificial intelligence require new considerations on AI in patent law. This opens to the fundamental issue of whether the law, as interpreted today, can deal with inventions that do not fit within the current structure of patent law. On this note, this chapter goes beyond the arguments in the DABUS cases and focuses on the questions that were answered, but also the questions that remain unanswered.

5.2 The Legal Position and Its Limits

5.2.1 The Concept of Legal Personality

It was concluded by the EPO's Receiving Section in the DABUS case that indicating the name of a machine does not fulfil the requirement of a patent to designate an inventor.[186] The requirement to designate an inventor serves an identifying function as the inventor must be capable of being recognised as the holder of rights and obligations connected to the invention. Additionally, the right to be named inventor is connected to interests attached to inventorship, which presupposes a subject that can be legally identified.[187] However, whether the identifying function of a name limits inventorship to natural persons may be questioned. Companies, foundations and other registered entities are often identified as legal persons and holders of rights and obligations in a legal context through, e.g. names.[188] Hence, the use of a name is not unique to natural persons but serves a broader purpose of legal identification. The attention from the EPO on the inventor's name as an argument for limiting inventorship to natural persons can therefore be questioned.

[186] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, Point IV.
[187] A. Nordberg (2022) pp. 163–164.
[188] Ibid.

Another argument presented by the EPO in the DABUS case is that an artificial intelligence system cannot have rights because it lacks legal personality.[189] So far, no artificial intelligence system has been granted legal personality in Europe. The EPC does not contain rules defining legal personality, nor rules concerning what entities are considered subject to rights.[190] Instead, it refers such matters to applicable national law through the principle of national treatment.[191] However, since this matter is determined by national law and not on a European level, it opens up to the possibility that some jurisdictions might consider artificial intelligence systems as subject to legal personality in the future. Saudi Arabia has, for example, granted citizenship to a humanoid robot with artificial intelligence in 2017.[192] Although the details about the citizenship are unclear, the point remains that it is a possibility that AI systems may be considered as subjects of rights and obligations by certain jurisdictions. Furthermore, it has been stated in European case law that entities can be subjects of rights and obligations despite their lack of legal personality. The CJEU has, e.g. stated that they generally include all entities engaged in economic activity within its scope and imposes obligations on them irrespective of their legal status.[193]

The AI Act, a regulation proposed by the European Commission and entered into force in 2024, lays down harmonised rules on issues related to the development of artificial intelligence.[194] However, it does not mention anything about legal personality for AI systems, but rather regulates obligations for providers and users of artificial intelligence systems in the union.[195] In 2020, the European Parliament approved a resolution on recommendations on civil liability for artificial intelligence, where paragraphs 6 and 7 explicitly state that it is not necessary to give legal personality to AI systems as they are nearly always a result of someone else building, deploying or interfering with the systems.[196]

In summary, although the European patent framework does not currently recognise legal personality for AI systems, other jurisdictions may adopt a different view. The CJEU implies that legal personality does not have to be a requirement

[189] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, Point II.
[190] A. Nordberg (2022) pp. I63.
[191] See e.g. Art 58 of the EPC; Article 2 of the Paris Convention for the Protection of Industrial Property, 1883; Article 3 of the Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex IC of the Marrakesh Agreement Establishing the World Trade Organisation, 1994.
[192] C. Weller, 'A robot has just been granted citizenship of Saudi Arabia' *World Economic Forum (*2017) < https://www.weforum.org/stories/2017/10/a-robot-has-just-been-granted-citizenship-of-saudi-arabia/> accessed 30 April 2026.
[193] *Klaus Höfner and Fritz Elser v. Macrotron GmbH (*Case C-41/90), Judgment, CJEU, European Court reports 1991, p. 1–01979, para. 21.
[194] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act).
[195] See e.g. Artificial Intelligence Act (2024) para 59-60.
[196] European Parliament resolution of 20 October 2020 with recommendation to the Commission on a civil liability regime for artificial intelligence (2020/2014(INL)), paras 6-7.

to be a subject of legal consequences. Hence, it is not completely unthinkable that an entity without legal personality could be designated as the inventor of an invention. As mentioned in the introduction, DABUS has been recognised as the inventor in South Africa, but not in a country within the EU.

5.2.2 The Concept of Legal Capacity

The BoA declared in J 0008/20 that "under the EPC, the designated inventor has to be a person with legal capacity".[197] According to the Legal Board of Appeal, a person with legal capacity presupposed a natural person, making references to both the historical assumptions behind the drafting of the Convention as well as the meaning of the term inventor itself. In its reasoning, the Board noted that the linguistic definitions consistently describe an inventor as a person who invents something and found no indication that the EPC employs the concept in any special or expanded sense.[198] This interpretation was further reinforced by the wording in the provisions of the Convention. For example, Article 60(1) of the EPC grants the right to the European patent to the inventor, thereby presupposing an entity with legal capacity capable of holding and transferring rights.[199]

Accordingly, the requirement that only natural persons may be designated as inventors appears not merely as a technical procedural formality, but as a mechanism that preserves the legal position of individual human creators within the patent system. Maintaining this interpretation ensures the rights of individual scientists and employees to be recognised for their intellectual contributions. This protective dimension can also be understood in a broader context. The Paris Convention introduced the right to be named inventor as an international principle of law in 1934 through Article 4ter.[200] The broader idea reflected in the provision that there is a personal interest in recognition is also further included in more modern legislation. For example, Article 17(2) of the EU Charter of Fundamental Rights sets out protection for intellectual property.[201] Hence, the naming of an inventor is not merely an administrative requirement but a manifestation of attribution of rights traditionally associated with natural persons. A legislative solution intended to address the role of artificial intelligence in patent law should

[197] Datasheet for the decisions in J 8/20 and J 9/20 of the Legal Board of Appeal, of 21 December 2021, Point 4.3.1.
[198] Ibid., points 4.3.1-4.3.2.
[199] Art. 60(1) 1st sentence of the EPC reads: "The right to a European patent shall belong to the inventor or his successor in title".
[200] Article 4*ter* of the Paris Convention for the Protection of Industrial Property, 1883; G.H.C. Bodenhausen, 'Guide to the Application of the Paris Convention for the Protection of Industrial Property' (1st ed. WIPO Knowledge Repository, 1968), pp. 64.
[201] Art. 17(2) of the EU Charter of Fundamental Rights reads: "Intellectual property shall be protected".

therefore not undermine the patent system's intention to reward and incentivise human innovation.

Recognising artificial intelligence as the inventor of inventions risks creating an environment, within e.g. research, where patent applicants designate AI as the inventor instead of the human researcher. Such development would undermine the attribution of rights of the scientific researchers to recognition, and risk that inventors would gradually be replaced by their tools. Additionally, many advanced artificial intelligence systems are developed and owned by third-party software providers.[202] Hence, questions concerning entitlement to patent ownership would be raised if artificial intelligence were to be recognised as an inventor by patent law. The current requirement of human inventorship can therefore be regarded as a protective measure against the watering down of the rights associated with the term inventorship.

However, the objections to accepting artificial intelligence systems as the inventor are not only a formal requirement that the inventor must have legal capacity. The concept of inventorship also reflects a policy choice to identify the person to whom the rights of attribution and entitlement to the patent are connected, determined by analysing the invention itself. Patents aim to protect inventions, not theories or ideas. The inventorship status is therefore reserved for those who are directly connected to identifying the technical problem and developing the inventive concept underlying the invention. Hence, theoretical contributions do not in themselves justify recognition as inventorship but require identification of the natural person who is connected to the inventive process that is sufficiently direct and clear to justify the legal attribution of inventorship.[203]

5.3 De Lege Ferenda

Several questions are left unanswered in relation to AI generated inventions within the European Patent framework, as shown by the previous sections of this thesis. While the legal position is that only a natural person may be designated as an inventor under the EPC, the Convention provides no solution for possible future situations in which no human person can be identified as having developed the inventive concept of the invention. However, AI systems exist, and they are changing the innovation process. Their existence should be considered and discussed more within the concept and objectives of inventorship under patent law. Although it may be argued that legislative change is unnecessary if it is still possible to search for a human inventor in an AI generated invention, such an

[202] See e.g. the previously mentioned collaboration between Novo Nordisk and OpenAI.
[203] A. Nordberg (2022) pp. 170–172.

approach does not address situations in which human inventorship is claimed to meet the formal patent requirements rather than reflect the actual realities of the inventive process. Additionally, artificial intelligence may advance to the point where it will be increasingly difficult to attribute an invention generated by AI to a natural person. This section will therefore discuss possible future alternative solutions regarding how the patent system may address and regulate these inventions when the inventor is unknown, or inventorship cannot be attributed to a human.

When an invention is generated through artificial intelligence, the invention runs a potential risk of falling outside the patent system and being excluded from legal protection. The EPC currently does not provide alternative solutions to address AI generated inventions, apart from rejecting the examination of the patent application or accepting the designation of a human who did not come up with the creative conception of the invention.[204] Hence, the issue remains. As of today, most jurisdictions have refused patent applications that designate an artificial intelligence system as the inventor.[205] In the wake of these decisions, specialised law firms have advised clients whether to file patent applications in the name of the human responsible for developing the AI system or to ensure a sufficient degree of involvement in the inventive process. This can include having a natural person monitor experiments and provide feedback to the system, thereby enabling the person to claim inventorship over the eventual innovation.[206] For reference, Stephen Thaler has been listed as the inventor in published patents relating to inventions that, according to later reports, were generated primarily or exclusively by Thaler's AI system.[207] Hence, the current legal framework risks encouraging a strategic attribution of inventorship, rather than ensuring transparency concerning how the invention was generated. Simultaneously, the need for adapting patent legislation to the realities and development of artificial intelligence has been advocated by scholars, such as Abbott.[208]

The consequences of maintaining the current legal framework are not only associated with the formal requirements of inventorship. If AI generated inventions cannot be assured proper protection within the patent system, there is a risk that valuable technical developments will fall into the public domain, which would be problematic. Entities making substantial investments into research driven by

[204] A. Nordberg (2022) pp. 176; Art 90(2) of the EPC reads: "If a date of filing cannot be accorded following the examination under paragraph 1, the application shall not be dealt with as a European patent application".
[205] R. Abbott, 'Patent' *The Artificial Inventor Project* (2025) < https://artificialinventor.com/patent/> accessed 20 April 2026.
[206] Pintas, 'DABUS: A Case Study on Patent Law' (2022) < https://pintas-ip.com/dabus-a-case-study-on-patent-law/> accessed 3 May 2026.
[207] R. Abbott (2016) pp. 1085; T. Kempas (2023) pp. 135.
[208] R. Abbott (2020) pp. 71–92.

AI risk losing the exclusivity required to get a return on those investments. Additionally, the absence of alternatives to patenting AI generated inventions creates new opportunities to challenge patents developed with AI assistance, based on the inventor's designation. Section 3.4 shows that the application of medically related patents filed to the EPO has increased, potentially due to the use of artificial intelligence within the field. In the pharmaceutical sector, where research and development costs are high, and patent exclusivity remains one of the most important mechanisms for securing return on investment, this is particularly significant. Patent law aims to promote the disclosure of information on inventions for the benefit of society, stimulate investments in inventive activity and foster innovation. Hence, the threat of reduced investments in sectors that heavily rely on patent protection to secure investments indicated that a reform may be called for. Accordingly, the reality of artificial intelligence under the current patent legislation seems not to be aligned with the legal objectives of the European patent law. This highlights the importance of clear guidance on patent protection and the use of AI, as uncertainty may undermine the moral right of attribution of scientists and researchers assisted by artificial intelligence. On this note, solutions ought to be discussed.

The first alternative solution builds on the assumption that most patents remain patentable, even when the main contributions during the inventive process have been made by artificial intelligence. It refers to the current legislation under the European Patent Convention and calls for further rules and guidelines as the use of artificial intelligence in the inventive process increases. This approach has already been called for in the Biotech Act, proposed by the European Commission in December 2025. Chapter VI of the proposed Act encourages the adoption and integration of AI in actions supporting biotechnology in order to foster innovation, but states that guidance ought to be issued on the use of AI across the lifecycle of the medical product.[209] In recognising that AI is an integral part of the process of medical products, including drugs, the European Commission addresses that there is growing legal uncertainty as technology is advancing. One advantage of the solution on additional guidelines on AI is that it preserves the current structure of the EPC while acknowledging that AI's involvement may be different in each case. The new rules and guidelines should recognise the different contributions made by humans in developing the AI system and require disclosure of the involvement of the AI systems in the inventive process. The aim would be to clarify issues of attribution and ownership of the invention. Additionally, the purpose would be to ensure that the level of involvement by artificial intelligence in the invention process can be considered when assessing whether

[209] Proposal for a Regulation of the European Parliament and of the Council on establishing a framework of measures for strengthening the Union's biotechnology and biomanufacturing sectors (2025/0406(COD)) (European Biotech Act), Chapter VI.

the requirements for patentability are met. This is particularly important when assessing requirements such as inventive step, for example.[210] However, as this solution builds on the European Patent Convention, it only works effectively if a natural person can be identified as the inventor. In cases where the human contribution barely exists or only consists of supervision over the artificial intelligence, this solution risks preserving the current situation.

The second alternative solution would be to introduce a regulation or legislative framework for protecting inventions without an apparent human inventor. As discussed in section 5.2.2, even though legal personality and legal capacity can be given to entities that are not natural persons, the purpose of designating an inventor is to protect the inventor's right to attribution and economic compensation. Therefore, rather than granting artificial intelligence the legal capacity to be recognised as the inventor within the current system, an alternative legislative framework would have to operate alongside the current patent system. It would provide protection as well as broaden the rights of attribution when needed, without necessarily associating the rights of attribution with economic rights to the invention. This framework would apply to AI generated inventions with no human inventor, but also to inventions in which the main contributions to the invention's technical solution were made by a group rather than a single person. The solution would allow moral rights of attribution to be ascribed to AI systems, without automatically conferring the economic rights traditionally associated with patent ownership. [211] As artificial intelligence systems cannot own property rights, a solution where artificial intelligence would be the owner of a patent would never be suggested. Additionally, such amendments would have no obvious benefits, as the prospect of owning a patent would not motivate an AI.

The main advantage of this second alternative solution is that it would enable the legal framework to better reflect how the invention was invented, whilst giving the legislator flexibility to adapt the economic protection to the human. Unlike the first alternative solution and the current definition of inventorship, this solution is not strict in limiting inventorship to only humans where such inventorship would be questioned. Instead, it would enable a distinction between someone who takes credit as an inventor for the work of an AI and an inventor who invented without the use of AI. Hence, the rights of the traditional human inventors would be protected. However, this solution would require a more significant legislative amendment to the current EPC framework and would be more challenging to implement.

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[210] Art. 56 1st sentence of the EPC reads: "An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art".
[211] A. Nordberg (2022) pp.178-179.

In summary, both alternatives seek to protect AI generated inventions and prevent them from existing in the legal grey zone. The first alternative offers continuity of the existing legal structure of the EPC and offers a response to disclosure and guidance on inventorship. Additionally, the second approach offers a solution for the possible future scenario where no human may be identifiable as the inventor. In both cases, the risks of maintaining the current legal position of the EPC are highlighted.

6 Conclusion

This thesis has aimed to assess whether artificial intelligence systems can be designated as inventors under the European Patent Convention. The purpose was also to analyse the legal consequences following the increased use of AI within drug development. As demonstrated, neither the EPO nor its member states' jurisdictions allow for AI systems to be considered as inventors under their patent law regimes. Furthermore, the current legal framework is not equipped to facilitate a definition of inventorship that includes artificial intelligence systems. Although technological developments enable AI systems to contribute to inventive processes in ways which by some would be described as autonomous, the definition of inventor within the European Patent Convention remains limited to natural persons.

Based on the interpretation of Article 81 of the EPC in conjunction with Rule 19 of the EPC, as well as Article 60 of the EPC, the requirement to identify the inventor serves not merely an administrative purpose. It also presupposed that the inventor has legal personality and can hold rights and obligations connected to the invention. As confirmed by the Receiving Section of the EPO and the Boards of Appeal, the designation of an inventor serves a legal function to protect the inventor's rights. Since artificial intelligence systems lack legal personality, as confirmed by the BoA in the DABUS case, the system cannot own or assign rights and hence not be designated as the inventor. Consequently, the identification of AI systems as inventors is not compatible with the overall legal framework of the EPC. The analysis further shows that the interpretation of the term inventor under the EPC is not limited to the European Patent Office but is reflected in patent offices on a national level as well. The United Kingdom's Supreme Court and the German Federal Court both confirmed that inventorship is exclusively reserved for natural persons.

However, this thesis further discusses the practical implications of the current legal framework as the use of artificial intelligence within the innovation process increases. As the EPC does not mention what happens to the patent if no natural person can be designated as the inventor, the question risks falling into a regulatory void. This becomes significant in the pharmaceutical field, more specifically within drug development, where artificial intelligence is used to help develop new treatments. As the number of patent applications discovered with the assistance of artificial intelligence is increasing, the question of inventorship now concerns innovations in one of the sectors most dependent on patents. The pharmaceutical industry is highly dependent on patent exclusivity to recoup investments,

as it requires large investments in compounds that sometimes never reach the economic market. Patents, therefore, allow inventors to secure a period of market exclusivity sufficient to justify continued financial investments. If uncertainty arises as to whether an invention can be attributed to a human person, or whether the entitlement to the invention may be contested in the future, the incentives to invest in pharmaceutical innovation risk being weakened.

The integration of artificial intelligence in drug development may additionally create legal complexities extending beyond the formal requirement of naming an inventor. The first challenge arises regarding the inventive step requirement under Article 56 of the EPC. Artificial intelligence can process large amounts of scientific data to identify new variations of combinations of molecules. Can this be seen as inventiveness, or merely a predictable outcome of the computational routine? The human brain gathers information at a slower pace than the AI and comes up with new solutions based on what it has previously learned. How big is the procedural difference then between how a human brain and an AI system invents? Additionally, the integration of AI systems risks weakening the requirement of disclosure under Article 83 of the EPC. The analytical process of AI is more difficult and sometimes impossible to disclose, making the requirement challenging to fulfil. The law should address this issue and allow for a distinction in the inventorship requirement between inventions generated by AI and those generated without AI. In turn, this would clarify the legal framework in relation to the technological developments within AI. By contrast, if patent law in the future fails to allow protection for AI generated inventions, businesses may stop using AI to invent or conceal their involvement in the patent application. Such a scenario would have significant impacts on society in terms of, e.g., the development of new drugs. Additionally, a misleading description of who invented the invention risks undermining the inventorship requirement under European patent law. Clear guidelines on how to deal with inventions generated by artificial intelligence are therefore essential.

The discussions highlight that the challenge posed by AI stretches beyond the question of whether an artificial intelligence system can be designated as the inventor or not. The question arises as to whether the current patent framework can protect a new generation of inventions produced by increasingly autonomous computer systems. The conclusion is that European patent law requires further clarification on artificial intelligence. Additional guidelines or legal amendments should recognise the different contributions made by humans and require disclosure of the AI's contributions to the invention. This is of particular importance in the drug development sector. As the use of artificial intelligence increases, additional clarifications on the legal framework will be requested.

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