

# Request from WIPO's Standing Committee on the Law of Patents

**The concept of inventorship under the European Patent Convention and its application to inventions by artificial intelligence.**

TOP (iv) how jurisdictions around the world address the issue of artificial intelligence (AI) inventorship through jurisprudence, legislation and practice.

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## Background

The International Bureau of the World Intellectual Property Organization (WIPO) invited<sup>1</sup> the European Patent Office (EPO) to provide input for an overview of how jurisdictions around the world address the issue of artificial intelligence (AI) inventorship through jurisprudence, legislation and practice. The invitation was issued following a decision by the [thirty-fourth session of the Standing Committee on the Law of Patents](#) to compile such an overview. In this context, member states and regional patent offices were invited to submit information on their general approach to the concept of inventorship, including employee inventors and joint inventors, as well as the application of that concept to inventions by AI.

### 1. Introduction

While there is no one universally accepted definition of AI, it is usually described as intelligence demonstrated by a machine, in particular producing behaviours perceived as intelligent by humans. From the EPO's perspective, AI is a broad subfield of computer science that covers many different computational models for solving data analysis problems. Since 2017, the EPO has observed a sharp rise in the number of AI-related patent applications, which reflects AI's role as one of the main drivers of the fourth industrial revolution.<sup>2</sup>

The EPO maintains a dialogue with the EPC contracting states, other IP institutions and users to ensure transparency and legal certainty in the area of AI. The dialogue centres on topics such as inventorship and the convergence of formal aspects of examination practice. Since 2018 the EPO's annually revised Guidelines for Examination feature specific chapters related to AI, providing transparent and clear information to all European patent system users. In 2018, the EPO also conducted a [consultation](#) with EPC contracting states on questions related to patenting AI, including inventorship. This was followed by an [academic study](#) on the issue of inventorship in inventions involving AI, which was published in 2019. Inventorship was also among the topics discussed by the world's five largest patent offices (the IP5) in the context of developments in new emerging technologies and artificial intelligence ([NET/AI](#)). It was also discussed with WIPO in the framework of the [WIPO Conversation](#) on Intellectual Property and Frontier Technologies.

As for the general concept of inventorship under the European Patent Convention (EPC), the EPO's Legal Board of Appeal confirmed that an inventor must be a person with legal capacity in 2021, marking the first final decision on this topic to be issued globally.

Together with its users and international partners, the EPO facilitates legal certainty in matters relating to patents and AI, including inventorship, substantive patent law and best practices.

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<sup>1</sup> Invitation by letter dated 7 December 2022 (C. 9141)

<sup>2</sup> This trend is exemplified by the intensive patenting activity in the area of quantum computing, as demonstrated in the [EPO Insight Report on Quantum computing](#) (January 2023).

## 2. Inventorship

### 2.1. Legal framework under the EPC

The EPC does not explicitly define the term "inventor", but it grants a particular status to the inventor. The inventor holds the right to the invention, which they can transfer to a different person, natural or legal ([Article 60 EPC](#)). The inventor also has the right to be mentioned as such in the patent application and patent, if they wish to be mentioned ([Article 62 EPC](#), [Rule 20\(1\) EPC](#)).

The applicant has an obligation to designate the inventor in the patent application ([Article 81 EPC](#)) by indicating their family name, given names and country and place of residence. If the applicant is not the inventor or is not the sole inventor, they must file a statement of the origin of the applicant's right to the invention ([Rule 19\(1\) EPC](#),<sup>3</sup> [Article 81 EPC](#)). However, in proceedings before the EPO, the applicant is deemed to be entitled to exercise the right to a European patent ([Article 60\(3\) EPC](#)). This is why the EPO does not verify the accuracy of the designation of inventor ([Rule 19\(2\) EPC](#)).

The decision on who made the invention - and, consequently, on entitlement to a European patent under [Article 60\(1\) EPC](#) - is taken by national courts. They apply both national laws and the EPC, for example, when determining entitlement to employee inventions ([Article 60\(1\) EPC](#)). Decisions issued by national courts are binding on the EPO ([Article 61 EPC](#) in conjunction with [Article 60\(1\) EPC](#), [Rule 19\(2\) EPC](#), [Article 9\(1\)](#) Protocol on Jurisdiction and the Recognition of Decisions in respect of the Right to the Grant of a European Patent ([Protocol on Recognition](#))).

### 2.2. DABUS applications at the EPO

In 2018, two applications naming an AI system, DABUS, as inventor ([EP 18 275 163](#) and [EP 18 275 174](#)) were filed with the EPO. They were also filed with 16 other patent offices around the world: Australia, Brazil, Canada, China, Chinese Taipei, Germany, India, Israel, Japan, Korea, New Zealand, Saudi Arabia, South Africa, Switzerland, United Kingdom and the United States. The applications were filed either directly or via a [PCT application](#). The applicant argued that the claimed devices, a fractal-shaped food container and a light beacon, were independently created by the AI system.

The EPO Receiving Section refused the "DABUS applications" in November 2019 with written decisions ([EP 18 275 163](#) and [EP 18 275 174](#)) issued in January 2020, reasoning that the EPC requires that the inventor is a natural person; and that since AI systems have no legal personality, the owner of an AI system cannot be its successor in title.

The applicant filed appeals against these decisions. On 21 December 2021, the EPO Legal Board of Appeal [announced](#) its decision and published detailed reasons for it in July and August 2022 ([J 8/20](#), [J 9/20](#)). The Board confirmed that the EPC clearly requires the designated inventor to be a person with legal capacity. The purpose of the designation of inventor is to protect the rights of the inventor. Since AI systems have no rights, they may not be designated as inventors in patent applications.

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<sup>3</sup> Since 1 April 2021, applicants are no longer required to indicate the full address of the inventor in the application, only their place of residence and country ([OJ EPO 2021, A3](#)).

Moreover, the Board stated that the designation of inventor under the EPC must indicate the inventor's successor in title if the application is not filed by the inventor themselves. It also clarified that the succession in title must be consistent with [Article 60\(1\) EPC](#), namely a transfer of a right from the legal predecessor to a legal successor. National courts deciding on entitlement under the Protocol on Recognition must apply [Article 60\(1\) EPC](#), and not the provisions governing entitlement to national patents. Consequently, while other forms of deriving the right to a patent might apply to domestic patent applications, the right to a European patent can be obtained only by succession in title as defined in [Article 60\(1\) EPC](#).

The Legal Board of Appeal stressed that how the invention was made plays no role under the EPC.

In the case in question, the applicant could not be considered as successor in title of an AI system because the latter did not have legal personality, and could not own or transfer any rights as a result. The Legal Board of Appeal confirmed that the EPO must examine the designation of the inventor, including the statement on the origin of the right to the patent, to assess its compliance with the EPC. The Board clarified that in this formal examination, the EPO must assume that the designation is factually correct since it is not required to assess whether the designation is true or accurate under applicable national law.

In the cases under appeal, the Legal Board of Appeal concluded that the designation of inventor, which indicated the applicant as the AI's successor in title, did not comply with the EPC. A statement that the applicant was the owner of the AI system-inventor did not meet the requirements of the EPC either because ownership does not amount to a succession in title under [Article 60 EPC](#).

Decisions J 8/20 and J 9/20 are the first final decisions in the world on the question of inventorship in patent law triggered by the filing of the DABUS applications. They provide legal clarity and certainty for European patent system users.

### **2.3. International understanding**

Open discussion and raising awareness are key elements of legal certainty. On the specific question of AI inventorship, the EPO is involved in a continuous dialogue with the EPC contracting states, the IP5 and other patent offices around the world, notably IP Australia. On 2 May 2023, the EPO will offer the opportunity for an open exchange on the topic of AI inventorship during an international [conference](#) on AI -related technologies, their regulatory framework and inventorship.

## **3. Enhancing legal certainty in AI patenting**

Decisions J8/20 and J9/20 clarified the concept of inventorship under the EPC, providing legal certainty for European patent system users.

Legal certainty is also well-established in substantive patent law and best practices in the examination of patent applications. The European patent system protects inventions in all areas of technology. Inventions in the area of AI belong to the category of computer-implemented inventions (CII) which, like all other inventions, are patentable if they have a technical character. According to the EPO's practice, all requirements that apply generally to determining patentability of CII also apply to AI.

### **3.1. Information for users and the public**

CII, including AI, are patentable in accordance with the well-established practice based on the case law of the EPO boards of appeal. This practice was confirmed by the EPO Enlarged Board of Appeal in decision [G1/19](#). The Guidelines for Examination in the EPO (Guidelines) are the main source of information on the EPO's practice. Since 2018, they contain a dedicated section on AI ([G-II, 3.3.1](#)). The Guidelines are annually revised and expanded in close co-operation with users to reflect the changes in technology and the guidance provided in the decisions of the EPO boards of appeal.

While the Guidelines are mainly aimed at examiners and patent system users, interested members of the general public can access more information on AI and patent-related aspects on a [dedicated section](#) of the [EPO website](#).

Following the well-received conferences on "[Patenting Artificial Intelligence](#)" in 2018 and "The role of patents in an AI driven world" in 2020, the EPO hosted an international conference on "Inventorship in patent law" on 16 May 2022. The next international [conference](#) on AI-related technologies, regulatory framework and inventorship, will take place on 2 May 2023.

### **3.2. Co-operation with the EPC contracting states**

In the interest of legal certainty for European patent system users, the EPO is working with the patent offices of EPC contracting states on several projects to promote the convergence of practice, notably on the formal aspects of examination practice of CII and AI.

Within this framework, the EPO, 23 EPC contracting states, one extension state and user organisations discuss administrative practices concerning the examination of CII and AI. A recommendation for a common practice, to be submitted for approval in early spring 2023, aims to establish common ground for examining CII and AI-related inventions between EPC contracting and extension states and the EPO, helping applicants to successfully draft and prosecute applications in these areas.

### **3.3. Co-operation with international partners**

In 2021 the EPO and the four other largest patent offices around the world (the IP5) agreed on a roadmap in the area of new emerging technologies (NET) and AI. The [IP5 NET/AI Roadmap](#) identifies four key areas for potential projects and initiatives in areas which benefit most from joint IP5 responses: statistics, classification, IT aspects/utilisation of NET/AI by the offices and legal matters. The first projects have already been launched and include, for example, an overview of examination practices for AI-related inventions in the area of legal projects. The EPO also actively participates in the [WIPO Conversation](#) on Intellectual Property and Frontier Technologies which facilitates international debate and reaching a common ground on questions relating to frontier technologies, including patents and AI.

Beyond its activities in international fora, the EPO continues to engage in bilateral co-operation. This has resulted in several studies on patenting CII co-published with the [Japan Patent Office](#), the [China National Intellectual Property Administration](#) and the [Korean Intellectual Property Office](#).