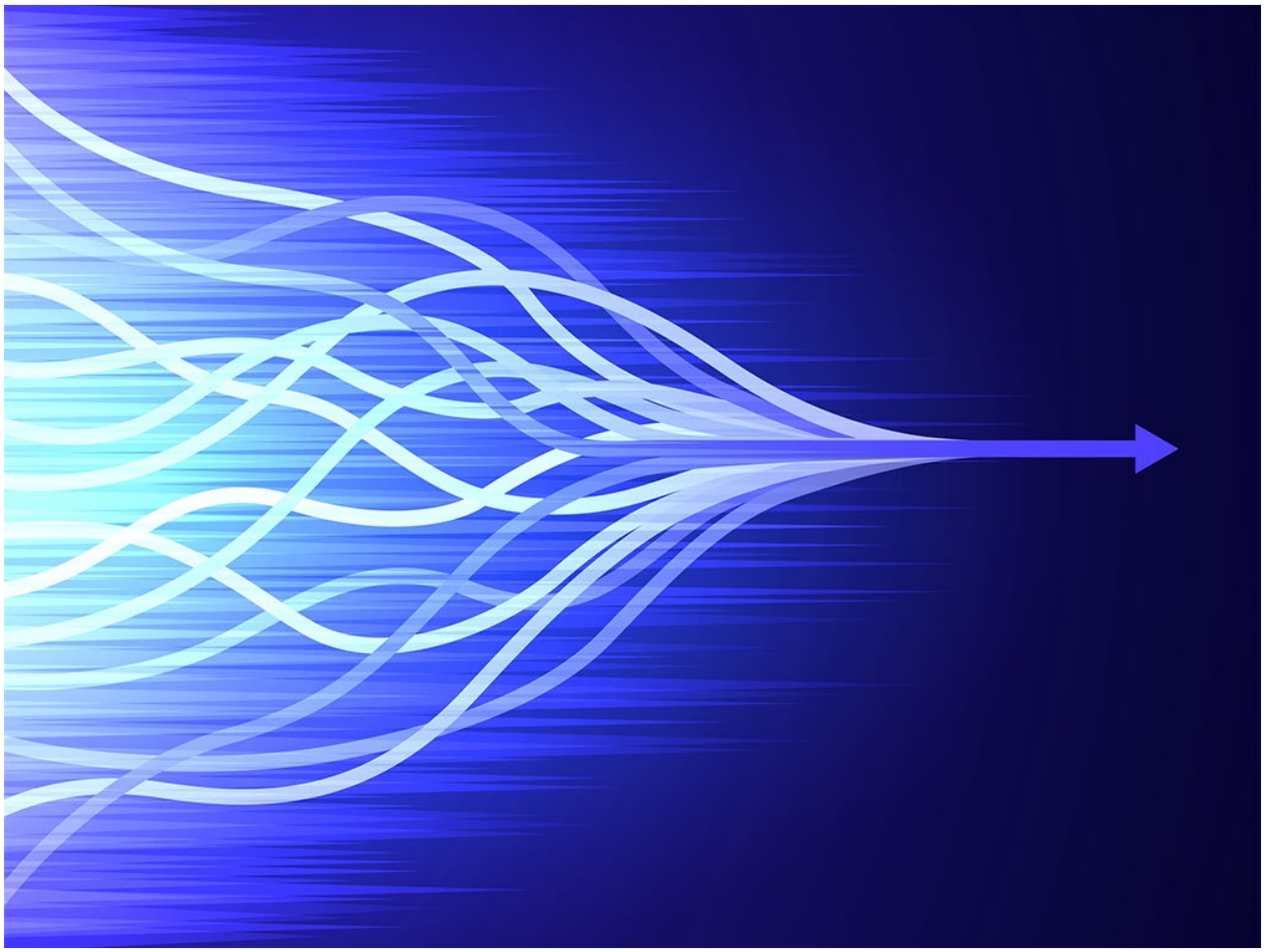
Europäisches Patentamt
European Patent Office
Office européen des brevets

Convergence of practice

Common practice as regards the examination of computer-implemented inventions and artificial intelligence

March 2023



Common practice as regards the examination of computer-implemented inventions and artificial intelligence

Having due regard to the patentability and sufficiency of disclosure requirements enshrined in the EPC and the corresponding national laws of EPC contracting and extension states;

Considering the aim of establishing a common understanding of terms and a recommendation for a common practice in the area of examination of computer- implemented inventions and artificial intelligence;

Aiming at ensuring a consistent application of the common practice, in particular with regard to the use of the terms "computer-implemented invention" (CII), "artificial intelligence" (AI) and "computer program", the exclusion of mathematical methods as such from patentability, the contribution of mathematical methods to a claimed invention's technical character, clarity of claims related to CIIs and AI, and the assessment of sufficiency of disclosure;

Noting that any common practice will be implemented on a voluntary basis; and

Recognising that patents are available for any inventions in all fields of technology and that this principle shall apply equally to newly emerging technologies (without prejudice to further developments in case law);

The Administrative Council of the European Patent Organisation at its meeting on 22 March 2023 approved the following common practice as regards examining CIIs and AI:

CIIs, AI and computer programs

- While some jurisdictions have definitions for the terms "CII", "AI", and "computer program", there is no need to adopt formal definitions; those terms have the meaning normally given in the art by the skilled person. That meaning is as follows:
  - A computer program is a set of instructions executed by programmable hardware.
  - A CII is an invention involving at least one feature that is implemented by a computer program.
  - AI is intelligence demonstrated by a machine, in particular producing behaviours perceived as intelligent by humans. AI includes, for example, machine learning and neural networks the behaviour of which is largely determined by learning from data.

Exclusions from patentability

When examining CIIs and AI-related inventions, offices take into account that:

- Patent protection is available in all fields of technology, including newly emerging technologies which involve AI.
- Subject-matter lacking technical character is excluded from patentability.
- Mathematical methods, when claimed as such, lack technical character.
- AI is not excluded from patentability if it provides a technical contribution.

- Computer programs are not excluded from patentability if they produce a technical effect going beyond the mere implementation of instructions on a computer.

Contribution to technical character and/or inventive step

- Mixed-type inventions comprise both technical and non-technical features, the latter being features which, when taken in isolation, are excluded from patentability. Offices acknowledge that, in the context of an invention as a whole, such non-technical features,
- e.g. mathematical steps related to AI, can contribute to the technical character of the invention and thus support patentability.
- The contribution to technical character made by mathematical methods employed by AI- related inventions is currently assessed by offices in the same way as the contribution of mathematical methods to CIIs.
- In the assessment of obviousness, offices may assume that the common general knowledge of the skilled person comprises commonly known AI tools.

Sufficiency of disclosure

- Offices apply the general sufficiency of disclosure requirements to all inventions, including CIIs and AI-related inventions.
- When AI relies on mathematical methods, the mathematical methods must be disclosed in sufficient detail so that the invention can be reproduced by the person skilled in the art.
- Where training datasets are used in machine learning algorithms and contribute to bringing about a technical effect, the characteristics of the training datasets required for reproducing this technical effect may need to be disclosed (or be common general knowledge). There is, however, generally no need to disclose specific training datasets,
- e.g. the ones employed by the inventors.

Clarity of claims

- Offices acknowledge that there is no need for mandatory formulations for "computer program" claims.
- If general-purpose computer hardware alone is not enough to execute all the method steps referred to by a claim to a computer program, and the claim fails to recite additional technical means necessary for performing the steps, offices may consider that the claim lacks clarity or support by the description.
- The meaning and the technical character of AI-specific terms is assessed by offices in the context of the subject-matter defined in a claim as a whole.

1. Background

Work on convergence of practice as regards the examination of CIIs and AI was launched with adoption of the Strategic Plan 2023 and following the favourable opinion given by the Committee on Patent Law at its 51st meeting (CA/PL 14/19). In accordance with the working method established by the Committee, a working group, namely Working Group 6 – Examination practice of CII and AI, was set up.

A call for interest was sent out in January 2022, following which 23 EPC contracting states and 1 extension state indicated their interest in participating in the Working Group. The Working Group's composition was as follows: Austria (AT), Bosnia and Herzegovina (BA), Bulgaria (BG), Croatia (HR), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Hungary (HU), Italy (IT), Latvia (LV), Montenegro (ME), the Netherlands (NL), Norway (NO), Poland (PL), Romania (RO), San Marino (SM), Spain (ES), Sweden (SE), Turkey (TR), the United Kingdom (GB), the epi, BusinessEurope and the European Patent Office (EPO).

On 10 March 2022, the EPO sent a questionnaire to the Working Group's participants. The answers were summarised in a document which then served as a basis for discussions in the Working Group.

The Working Group held five virtual meetings (on 18 May 2022, 6 July 2022, 28 September 2022, 23 November 2022 and 16 December 2022), giving due consideration to input from participating offices and observers. In its last meeting the Working Group agreed on a recommendation for a common practice as regards the examination of CIIs and AI (Annex 1) and also on explanatory remarks on the common practice, which are reproduced below (section V).

The Committee on Patent Law was provided with an update on the work of the Working Group at its 56th meeting on 15 November 2022.

In parallel to the discussions in the Working Group and in accordance with the methodology agreed by the Committee on Patent Law (see CA/PL 14/19, point 21), users were updated on the Working Group's progress on 10 March 2022 and 18 October 2022 via the SACEPO Working Party on Rules. To further broaden the scope of the consultation process, on 5 October 2022 the EPO held the third virtual platform on convergence of practice, where it informed users and offices of the Working Group's achievements up to then.

2. Explanatory remarks

The common practice for examining computer-implemented inventions (CIIs) and artificial intelligence (AI) aims to establish a common understanding of terms and outline a common practice among EPC contracting and extension states and the EPO for application on a voluntary basis.

The rapid expansion of AI in recent years is due to several interrelated factors: improvements in processing power, the development of powerful computing architectures specifically designed for AI applications, the availability of large volumes of data (critical for training AI models), and better AI core models and techniques (mostly neural networks and deep learning) that are application-agnostic and therefore easy to use in many fields of technology. This "out-of-the-box" property, when combined with big data, cloud computing, 5G or the internet of things, enables AI to solve technical problems in almost any domain. There has also been a rapid rise in the number of AI-related patent

applications. The desire for a common approach has arisen from all these considerations and has been discussed among participants in the light of their experience of examining applications in this area.

It is out of scope of the recommendation to harmonise the examination of CIIs and AI-related inventions. The recommendation is instead aimed at improving communication and co-operation between patent offices and facilitating how they might reuse each other's products. Even more importantly, it also aims to establish common ground for examining CIIs and AI-related inventions between EPC contracting and extension states and the EPO, and so help applicants successfully draft and prosecute applications in these areas throughout Europe.

The recommendation and its application by EPC contracting and extension states and the EPO is subject to future changes in practices and case law. AI-related case law in particular has not yet reached a mature state.

The recommendation first establishes that the EPC contracting and extension states and the EPO have a common understanding of what CIIs, AI and computer programs are.

As for exclusions from patentability, the recommendation clarifies that subject-matter lacking technical character is generally excluded from patentability. In the absence of features which make a technical contribution, subject-matter related to AI may be excluded from patentability.

The recommendation further establishes a common approach that involves offices considering whether non-technical features, e.g. mathematical steps related to AI, make a technical contribution. This common approach provides a basis for a line of argument that can be used when informing applicants of the outcome of the assessment. It should be noted that the recommended common practice does not specify the precise way in which a contribution to technical character and/or inventive step is to be assessed. Rather, the common practice clarifies that non- technical features can contribute to an invention's technical character when they interact with technical features to provide a technical solution. The common practice also clarifies that the knowledge of the skilled person, which is an important factor when deciding on inventive step, may include commonly known AI tools. Offices may therefore rely on this knowledge but are free to define it on a case-by-case basis.

In relatively new research and technology areas such as those involving AI, inventions may sometimes be highly speculative. As a result, patent applications in these areas may cause concerns about sufficiency of disclosure. Here, the recommended common practice stresses that when a technical effect depends on mathematical methods and training datasets, the level of detail in the application must be sufficient to reproduce this technical effect. This will encourage applicants to provide sufficient details when drafting such applications.

As regards clarity of claims, the recommended common practice provides guidance on when a computer program claim might lack clarity. It also highlights the need to consider a claim as a whole when determining the meaning of AI-specific terms.