

How is AI Affecting Invention and Patentability

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1. Introduction

Throughout history, the worlds of patents and other forms of intellectual property (IP) have had to constantly adapt to changes in technology and society. Major shifts in how the world operates, driven by innovations such as motorized transport, air travel, television, computers, the internet, and wireless communication, have not only expanded the scope and speed of information but also transformed the way society communicates and adopts innovations.

The rise of artificial intelligence (AI) is yet another pivotal moment, undoubtedly impacting many aspects of life for many people. Patents and other forms of IP are just one example, and this document analyses a key issue that this new advance raises – the patentability of inventions in which AI has played a part. Iprova is the world’s only AI-assisted invention company, and we recognise that this is a key issue our clients will seek guidance and insight on. This issue is the main focus of this document.

2. The evolution of invention through tools

Since the beginning of time, humans have advanced their civilizations through new inventions. Some result from deep thinking about a problem and creating a theoretical solution. These are based solely on the knowledge they have absorbed and their intuition about how different pieces of knowledge could be combined to produce a new invention. Such inventions are relatively rare, and even if they work well in theory, they still need to be tested and refined in practice. Most inventions, however, develop through a mix of knowledge, intuition, and the capabilities offered by other inventions or scientific discoveries.

In the early stages of human development, the materials used for inventions (the “enablers”) were mainly wood and/or stone and were quite simple. As societies advanced, new inventions were created using tools made of metals like copper and iron. The sophistication of these inventions increased accordingly. With enabling technologies, such as the Bessemer converter (which allowed for the mass production of steel), steam engines, and especially the discovery of electricity, a significant leap forward occurred. These groundbreaking advances led to the creation of many inventions still in use today, usually in more developed forms. The light bulb, the internal combustion engine, and the telegraph are just three examples of key developments that these advances helped to improve.

Fast forward to the computer age and digital systems. While the invention of devices and services that utilized these new advances was often hugely significant—such as mobile phones, notebook computers, and Bluetooth connectivity, which are just a few examples from everyday life—it is the applications that run on these devices that might be even more important. Before the invention of the printing press by Gutenberg, inventors primarily learned about new

inventions and scientific discoveries through word of mouth, which is a local and inefficient way of communicating. The introduction of the printing press allowed for much more efficient communication on a global scale, making the sharing of advances that lead to invention and the inventions themselves much more efficient and widespread. The dawn of the computer age and communication networks, which enable the internet, have made the sharing of advances even more efficient, at a scale and speed previously unimaginable.

With the computer age came the ability to quickly process large amounts of data, perform highly complex calculations, and, perhaps most importantly, evaluate how different permutations, options, or variations would or should perform or interact. With this newfound potential to estimate these interactions, tools were developed that either facilitated or, at the very least, accelerated scientific discoveries that lead to new inventions. These tools are now integrated into the operations of companies across a wide range of sectors, and their outputs are essential for both daily functioning and the development of new innovations.

In many cases, once a discovery or invention is made, another invention often becomes inevitable, as it's only a matter of time before one or more people gather the necessary knowledge and combine it in the appropriate way. In the past, it might have taken years or even decades to bring together the right pieces of knowledge because communication, especially across different fields, was slow and unreliable. While the invention might still have been inevitable, an inventor in one country could reach the key point several months or even years before a rival in another country. Today, with communication methods becoming ever more efficient, days or even hours matter, so the speed of invention is now crucial. It has always been important, but the likelihood of delays introduced by serendipitous connections of information has significantly decreased.

As computers have become even more powerful, the advent of AI has introduced a new set of tools that enable the creation of new inventions. AI and related technologies allow for the use of complex algorithms to analyze massive amounts of data and, importantly, to identify and help connect “inventive signals.” Although highly significant, the arrival of AI is just the latest in a series of major changes that have taken place over the centuries.

3. Disruptive technologies

In an educational context, the term “disruptive” usually has negative connotations, but in the world of invention, it definitely denotes a positive impact, because it opens up new possibilities. Quite often, this is used in terms of functionality, but it can also mean improvements in key factors such as speed, cost, and efficiency.

However, every disruption to the established status quo means that ways of operating often have to be rethought, and what was previously either taken as read or deemed impossible must now be viewed through a different lens. The tools create options and processes that were not

previously feasible or considered. Almost every major disruptive technology ever introduced has raised questions about whether inventions in this technology field should be patentable. Before the term “software tools” appeared in the dictionary, patent law did not consider the possibility of using software tools to help create inventions.

AI is the latest disruptive technology that has emerged and needs to be considered. While AI is relevant to invention creation, and plays a significant role, it is particularly the area of generative AI that raises many issues. These issues are the subject of global debate across industry, patent authorities, governments, and the media.

4. Generative AI

In most countries/jurisdictions, a human person must be listed as the inventor for a patent to be granted. The DABUS case, where an “AI machine” was listed as the inventor in a patent application, was initiated in 2019 and has tested this principle globally. The increased use of generative AI, such as ChatGPT and Gemini, has heightened interest in the case, which is still (as of January 2026) the subject of legal discussion in multiple countries. Many patent offices have rejected the DABUS patent application because they require a human to be listed as the inventor. In some countries, the courts and legislators are examining whether and, if so, under what conditions, AI-assisted inventions are patentable.

Iprova has always used the latest technology in its Invention Studio platform and is at the cutting edge of research in applying Natural Language Processing (NLP), Large Language Models (LLMs), and other types of machine learning (ML) for invention creation. Once the technology was sufficiently developed, Iprova took the opportunity to incorporate LLMs into its platform and subsequently named its invention platform Invention Studio, with the current version being Invention Studio 3. Understandably, potential customers have started asking whether patents filed for inventions, enabled by Iprova’s new software, might face validity challenges on the basis that the patented inventions were deemed to have been created by an “AI machine”, meaning that Invention Studio 3 would therefore need to be listed as an inventor on the patent application.

These concerns are completely valid and understandable. However, we believe the short answer is that inventions created with Invention Studio 3 are not generated autonomously by AI software but are created by humans using the software as a tool. As a result, the inventors on patents protecting these inventions are humans and not an “AI machine”. We, therefore, believe that inventions enabled by Iprova’s software fulfil the patentability requirements in the patent laws of most countries, which specify that inventors listed on patent applications must be humans.

We will clarify this by explaining in greater detail how Iprova’s invention process works and how humans control this process to arrive at an invention concept.

5 The Iprova Process

When a customer uses Invention Studio 3, they follow the same process as Iprova's own invention team when they use Invention Studio 3 to develop invention concepts for clients. The key steps in the process are as follows:

5.1 The user/inventor defines:

- i. The technical domain in which they are working, including descriptions of one or more systems concerned; and/or
- ii. The technological problem(s) that they are trying to solve. This requires them to describe each problem or select which problem(s), among several generated by the software, they want to solve.

The one or more problem descriptions are then used as the primary inputs to Invention Studio 3. However, the inputs can later be refined and adjusted to ensure that the invention concepts meet the requirements.

5.2 Based on these inputs, the software:

- i. Delivers an ontology representing the target invention area.
- ii. Delivers relevant invention triggers.
- iii. Generates possible technical connections to solve the stated problems and/or enable a new use case using relevant invention triggers.

These could be considered as the initial, unscreened/unfiltered ideas that come out of a brainstorming session.

5.3 The user then explores the invention triggers. This includes both those that are delivered directly and also those which are delivered through the generated connections.

5.4 The user can then use this information to create inventions. This can be achieved either by:

- i. Using, further developing, expanding, building upon, and adding to the connections suggested by the system; or
- ii. Creating their own connections with the information provided.

5.5 The user typically repeats the above steps multiple times, refining the inputs to the system as their understanding of the area grows and as their interest in particular problems or sub-areas deepens. The user thus works with the software to drive the exploration into user-selected or user-suggested directions.

6 Patentability

The outline of this process illustrates that an invention is not generated autonomously by Iprova's software at the push of a button. Instead, it is primarily a human-based activity, which is supported and facilitated by the Iprova software.

The user/inventor:

- i. Defines the problem.
- ii. Analyses invention triggers.
- iii. Refines the inputs if necessary.
- iv. Explores the triggers.
- v. Develops invention concepts for selected triggers.

Iprova's software provides useful and novel outputs, but can only do this on the basis of the user's inputs. The user then refines these outputs.

If the user files a patent for an invention created based on outputs from Invention Studio 3 in one or more countries, the patent offices in those countries will examine whether that invention fulfills the patentability requirements. Based on, for example, the criteria of the European Patent Office (EPO), an invention must:

- i. Be in a technical field.
- ii. Be novel.
- iii. Involve an inventive step (not be obvious).
- iv. Be susceptible to industrial application; and (most relevant in this case).
- v. Have a natural person (i.e. a human) as the inventor.

The United States Patent Office (USPTO) has similar requirements for an invention to be patentable. For a patent to be issued, an invention must meet four conditions:

- i. Able to be used (the invention must work and cannot just be a theory).
- ii. Have a clear description of how to make and use the invention.
- iii. Be new, or "novel" (something not done before).
- iv. Be "non-obvious" (as related to a change to something that has already been invented).

In August 2022, the US Federal Circuit held that, under the United States Patent Act, the term "inventor" must be a human being. This ruling means that no patent protection can be obtained for inventions where the sole inventor is an AI system.

Based on the invention processes outlined above, Iprova believes that inventions enabled by the use of Invention Studio 3 are primarily created by humans and not autonomously by "AI machines." Therefore, any patents filed for such inventions should not be rejected for failing the patentability criteria solely because Invention Studio 3 was used in the process of creating these

inventions. They may be rejected for many other reasons, but being inspired by Invention Studio 3 should not be one of them.

As outlined above, we believe that the inventors of inventions enabled by the use of Invention Studio 3 are individuals who use the software. If they are named as inventors on a patent application, that will, of course, meet the EPO and USPTO requirements that the inventor must be a natural person.

In addition to the above-mentioned patentability criteria, in November 2025, the USPTO issued revised guidance on inventorship for AI-assisted inventions, i.e. inventions created with the assistance of AI systems.

The USPTO repeats that the same standard applies to all inventions, including AI-assisted inventions: only natural persons qualify as inventors on patent applications and granted patents. The same legal standard for determining inventorship applies to all inventions, regardless of whether AI systems were used in the inventive process.

The USPTO considers AI systems, including generative AI and other computational models, instruments used by human inventors. They are analogous to laboratory equipment, computer software, research databases, or any other tool that assists in the inventive process. Human inventors may use AI systems to provide services and generate ideas, but they remain tools assisting the human inventor who conceived the claimed invention.

The question of inventorship revolves around “conception,” which, according to the US Federal Circuit, is “the formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.” Conception is considered complete when “the inventor has a specific, settled idea, a particular solution to the problem at hand, not just a general goal or research plan.” In other words, it questions whether the human inventor knew all the limitations of the claimed invention so that it is so “clearly defined in the inventor’s mind that only ordinary skill would be required to reduce the invention to practice, without extensive research or experimentation.” The analysis of conception centers on the inventor's ability to describe the invention with particularity.

Iprova’s Invention Studio 3 is designed to assist a customer in creating inventions in accordance with the above guidance. However, these inventions can only be realised with significant contributions from the customer. As explained above, the user’s involvement in the AI-assisted invention process goes beyond simply defining the problem space where they desire to create inventions. This is because the user must also analyse and select the invention triggers generated by Invention Studio 3, and thereafter explore, further develop, and make additions to the selected triggers. This may also involve re-doing the whole process based on refined input to Invention Studio 3 to ultimately arrive at inventions considered valuable and potentially worth patenting and/or reducing to practice. Only after this entire process does the user have a complete solution in his mind for the problem at hand. So, the user of Iprova’s Invention Studio

3 is the human who conceived the invention and thus meets the inventorship criteria for AI-assisted inventions.

For the sake of completeness, we will also check the validity/patentability of inventions enabled by Invention Studio 3 against the other key patentability criteria as used by the EPO (this can be similarly used for the USPTO criteria):

- i. “be in a technical field” - Invention Studio 3 will generally seek to find technical solutions to a problem, and so any inventions will be in a technical field.
- ii. “be novel” - Invention Studio 3 has the functionality to conduct a novelty search for each invention concept generated. This search significantly increases the likelihood that the invention is indeed novel and should, therefore, meet the novelty criteria for any resulting invention to be patentable.
- iii. “involve an inventive step (i.e. not be obvious)” – The methodology for users of Invention Studio 3 is based on Iprova’s long and detailed experience in the invention field. This has resulted in over 10,000 inventions, many of which are the basis for filed or granted patents. Through the initial definition or selection of the problem, the very nature of invention triggers, and the subsequent analysis and fine-tuning, the resulting invention will be based, as a minimum, on combining a solution for a problem in one technical field with another solution for a problem in a different technical field. As a result, it is very unlikely to involve an obvious step for a person skilled in the relevant technical field, i.e. the technical field in which the user/inventor is working/specialising. For these reasons, it will not be obvious to a person skilled in the relevant art.
- iv. “be susceptible to industrial application” – Given that the problem has been defined and the outputs fine-tuned, it is highly likely that the resulting invention concepts will be able to be applied in an industrial scenario.

7 Conclusions

When analysed and considered, Invention Studio 3 can be summarised as:

“a tool developed by humans to help inventors make relevant and valuable inventions. It enables them to do so faster and in more diverse technology fields than would be possible if they relied solely on their individual specialist knowledge and understanding of their own technology field. It augments the human inventors’ efforts, but does not replace them. The capability of inventors to identify or select one or more problems, investigate potential areas to explore, and then develop solutions based on a chosen direction are indispensable elements in this process.”

On the basis of the above analysis, we believe that patents filed for inventions created with the assistance of Invention Studio 3 will not be rejected based on arguments that one or more of the patentability criteria or guidelines for AI-assisted inventions are not met. Although generative AI software was used to support the creative process, the resulting inventions are conceived solely by humans.

If you would like to explore in greater detail any of the topics covered in this document, please contact hello@iprova.com and we will be pleased to help you.

Key Takeaway:

Human inventors remain central to AI-assisted invention. AI tools such as Invention Studio 3 augment creativity and efficiency, but legal inventorship and patentability remain grounded in significant human contribution.