Use this four-step framework to protect AI-assisted inventions in the US

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Inventors and their counsel must follow practical recommendations to secure rights to an invention that was created utilising an artificial intelligence system after the US Patent and Trademark Office recently released guidance on AI-assisted inventions.

The USPTO's recent guidance has important implications for in-house counsel and patent practitioners who are involved in the development and protection of AI-assisted inventions. They may need to create a new framework (or supplement their existing framework) when filing such patent applications to incorporate four specific steps:

- inquiring reasonably about inventive contributions by an AI system;
- documenting the contributions of each inventor and the AI system;
- attributing which inventor contributed significantly to the invention in contrast with the AI system; and
- identifying only natural-person inventors on the application data sheet, and the AI system they used within the body of the specification.

USPTO’s guidance

The guidance clarifies that only natural persons can be named as inventors (or joint inventors) on US patent applications and patents, consistent with the US Court of Appeals for the Federal Circuit decision in 2022 in *Thaler v Vidal*. However, the use of an AI system by a natural person does not preclude the person from qualifying as an inventor if the person contributes significantly to the conception of the claimed invention. The guidance thus treats AI as another tool in an inventor’s development arsenal.

The import of the guidance, beyond affirming the above principles of law, is to aid both inventors, and patent professionals, in determining whether a natural person's contribution is significant *enough* in light of contributions by the AI system to be listed properly as an inventor.The guidance additionally touches upon various aspects of patent practice implicated by the use of AI systems, such as the duties of disclosure and reasonable inquiry, the naming of inventors and applicants, and the benefit and priority claims to prior-filed applications.

Inquiry

Even before the filing of an application, a reasonable inquiry should be conducted to determine what contribution, if any, the AI system made to the proposed invention. Put another way, this inquiry should seek to uncover that the applicant has a reasonable basis to believe they have the right to a patent. The specifics of this investigation will vary based upon the technology (and environment) at issue, but a reasonable inquiry may include:

- asking questions about the AI system's role; and
- asking whether the natural persons involved contributed in a "significant" way to the invention.

Documentation

Once this first inquiry is complete, applicants should be careful to document the results to ensure there remains a record of each contribution by each proposed inventor, as well as the AI system. Many professional even today perform this step in the form of an inventorship memorandum, which outlines the contribution of the proposed inventors; this guidance adds the step of ensuring that an AI system's role is similarly documented. This will help show who conceived the invention or contributed significantly to the conception, and who merely recognised, reduced to practice, or supervised the AI system. This inquiry will also help avoid any potential inventorship disputes or errors that may arise during prosecution.

Attribution

Once this information has been collected, an actual determination of inventorship can properly be decided – including ensuring that an individual's use of an AI system does not preclude being named as an inventor. Inventorship of each claim in the patent application should be determined independent of the role of the AI system, focused on identifying which inventor contributed significantly to the claim at issue under the so-called "*Pannu* factors".

These factors are outlined by the Federal Circuit's 1998 decision, *Pannu v Iolab Corp*, and state that each inventor must:

1. contribute in some significant manner to the conception or reduction to practice of the invention,
2. make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and
3. do more than merely explain to the real inventors well-known concepts and/or the current state of the art.

If no natural person significantly contributed to a claim, the claim must be cancelled or amended, and as prosecution evolves, inventorship must continue to be tracked and updated. Practice will develop what counts as a "significant" contribution in the context of the use of an AI system, and where the line may be drawn between use of AI as a tool versus AI creation (of a non-patentable invention).

The guidance provides several "guiding principles" with respect to inventorship using AI systems, but these principles generally reduce to ensuring that the inventor either:

1. contributes significantly to an AI system's approach to a problem, such as by generating and modifying prompts, or training the AI for a particular purpose; or
2. takes the output from an AI system and adds a significant improvement over that output.

While the internal processing implemented by an AI system may generally not be susceptible to documentation, significant contributions to the input or the output of that system may supply a valid basis for inventorship.

Identify

When it comes to an application data sheet, the only inventors identified, of course, should be natural persons. Applicants have an ongoing duty of disclosure and candor to the patent office, and so the extent any information related to inventorship may be material to patentability, such information should be included in the application.

Practically though this duty, in the context of an AI system, will impart requirements beyond just listing natural persons in an application data sheet. The extent an AI system was involved in development of an invention, such involvement should be included within the body of the specification – this will help ensure, at least facially, that the applicant is being forthright in their

disclosure. Further, while applicants need not include *all* evidence to support their listed inventors in their application papers—especially as examiners presume that listed inventors are valid—applicants should be ready to provide necessary evidentiary support upon request by the examiner.

Conclusion

The USPTO's guidance is likely to be the first in a series of practical pieces of guidance—and likely case law disputes—to address the growing use of AI systems in product development. While applicants won't have all the answers immediately, there are some practical steps that can be implemented now to ensure that their inventions are afforded their proper protection.

The actions outlined above provide a framework for ensuring not only that the proper inventors are named (without naming AI as an inventor), but also perform an important record keeping function to support the long-term validity of an applicant's important intellectual development.

While the question of inventorship is vital during prosecution, these questions will also surely arrive in the context of litigation – with challenges to a patent's validity due to involvement of an AI system likely to be at the forefront of defendants' thoughts. Proper investigation and documentation can reduce the risk of such challenges and provide reassurance that inventions can not only be found patent eligible by the USPTO, but actually enforced in practice.

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