

# Future Paths For AI Inventorship After Justices' Thaler Denial

By **Anup Iyer** (September 25, 2023)

The U.S. Supreme Court's denial to hear the case of Thaler v. Vidal has put into sharp focus the evolving, legal landscape surrounding artificial intelligence and patent law.

This article examines the recent implications of the high court's April 24 decision not to hear Thaler v. Vidal, leaving the status of AI as a potential patent inventor unsettled.

It also outlines AI's growing role in research and development, the challenges in patenting AI inventions, and the changing dynamics between human and AI collaboration.

Finally, it offers an overview of international stances on AI inventorship and will underscore the critical ethical role humans play in AI-driven research.



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## Background

The denial of Stephen Thaler's petition by the Supreme Court in Thaler v. Vidal can be seen as a significant juncture in the narrative of AI's involvement in innovation. Thaler v. Vidal concerns the question of whether an artificial intelligence system can be listed as an inventor on a patent application.

Thaler filed patent applications crediting an AI system, DABUS, as the inventor, which the U.S. Patent and Trademark Office rejected, arguing that only natural persons can be inventors. An August 2022 decision by the U.S. Court of Appeals for the Federal Circuit had maintained that AI cannot be recognized as an inventor under U.S. patent law.

While the appellate court's decision has curtailed the progression of AI inventorship in patent law, its ripple effects on the future trajectory of AI-driven innovation, particularly in research and development-intensive sectors like pharmaceuticals, need closer examination.

## AI's Current Role In R&D

A ubiquitous presence even before the Supreme Court's decision, AI had already cemented its presence in R&D. From processing vast datasets, simulating complex biological processes to predictive modeling, AI's capabilities have significantly expedited research timelines and improved accuracy.

Indeed, the term "AI-assisted" isn't a glimpse into a distant future; it's today's reality. For example, in the telecommunications sector, AI has become indispensable, not just for enhancing user experiences but crucially for optimizing network performance, especially with the transition to 5G. In the world of e-commerce, the journey from product discovery to purchase is now largely orchestrated by AI algorithms.

They not only provide personalized product recommendations but also play a pivotal role in supply chain logistics and predicting consumer behaviors. Meanwhile, the financial technology landscape is almost unimaginable without AI.

Be it algorithms that dictate high-frequency trading strategies, tools that assess credit risks or platforms offering automated financial advising, AI is at the very heart of these innovations.

Each of these sectors exemplifies how human expertise collaboratively intertwines with AI's analytical prowess to advance the frontiers of technology.

### **The Movement Toward Autonomy in AI**

The natural progression from AI-assisted research is the transition to AI-autonomous innovation. With technological advancements, there's a plausible future where AI not only aids but also spearheads significant portions of R&D projects.

In the realm of computer networks, progression toward AI autonomy can be transformative. Consider the evolution of software-defined networking.

In a not-so-distant future, AI could not only manage real-time traffic allocation based on predictive algorithms but also autonomously redesign network topologies based on anticipated demands.

Such an AI system would constantly analyze vast amounts of data traffic, detect emerging usage patterns and reconfigure network parameters without human intervention. This means networks that can self-optimize, self-heal from disruptions and even self-expand based on predictive needs, representing a quantum leap from the current AI-assisted network configurations.

In sectors like pharmaceuticals, the shift from AI-assisted to AI-autonomous drug discovery can be equally pivotal. As AI learns to map molecular structures, predict biological responses and simulate drug interactions autonomously, we might witness AI creating drug compounds without human intervention.

The ramifications of such advancements could be multifold. Faster drug discovery cycles could result in more rapid responses to emergent health crises, such as new viral strains. Additionally, with the ability to analyze vast datasets at unparalleled scales, AI might uncover therapeutic potentials in compounds previously overlooked, leading to innovative treatments for chronic ailments.

The transition to AI-autonomous processes thus not only promises efficiency but also the possibility of breakthroughs that might have remained elusive to human researchers.

### **The Patent Paradox Post-Supreme Court's Decision**

Given the Supreme Court's stance on AI inventorship, a challenge arises. As we advance toward an AI-autonomous innovation era, who gets credited as the inventor? If a discovery is largely or entirely attributed to an AI's computations, under the current legal framework, it might not qualify for patent protection.

### **Impacts on Future Innovation**

#### ***Diminished Incentive for AI-Autonomous Research***

If organizations believe that they can't obtain patents for AI-autonomous inventions, there might be diminished enthusiasm or investment in developing fully autonomous AI systems

for R&D.

Beyond the direct economic implications of lacking patent protection, there's also the potential cultural impact within the R&D community. Scientists, engineers and innovators might perceive a ceiling on the value of autonomous AI-driven research, given that they could be working on projects without foreseeable legal protection.

Over time, this could shift the innovation landscape, diverting talent and resources from cutting-edge AI development to more traditionally protected avenues. The long-term ramifications could include slower technological progress, missed opportunities for breakthroughs and potentially ceding global leadership in AI innovation to regions with more accommodating legal frameworks.

### ***Shift in IP Strategies***

With the patent pathway potentially restrictive due to the *Thaler v. Vidal* outcome, businesses might reconsider their IP strategies. Instead of relying heavily on patents, which promote openness by publicly disclosing innovations in exchange for temporary monopolies, there may be a shift toward trade secrets to protect AI-generated inventions.

This approach would involve keeping the specifics of innovations confidential, effectively shrouding them in secrecy. While this might safeguard a company's competitive edge in the short term, it could have broader societal implications.

A significant move toward trade secrets can reduce public dissemination of knowledge, stifle collaborative innovation and create a fragmented landscape where knowledge is siloed within corporations.

Such a scenario might slow down the overall pace of technological advancements and deprive the public of valuable insights that could spur additional innovation.

### ***International IP Ramifications***

The debate around AI inventorship isn't confined to the U.S. It's a global discourse, and the spectrum of international responses to this issue is varied.

For instance, South Africa stands out as an exception, being the only jurisdiction to tentatively allow DABUS, the AI system in question in *Thaler v. Vidal*, to be listed as an inventor.

On the other hand, major players like the U.S., the European Patent Office, the U.K., China, South Korea and Japan have all firmly rejected Thaler's attempts for AI inventor recognition.

However, amid this largely binary divide, there are innovative compromises being explored. Germany, for example, initially floated a position wherein a human is listed as the primary inventor, with the AI system potentially being listed as a secondary inventor.

However, the German Federal Patent Court has since aligned its case law with the EPO and concluded that an artificial intelligence system cannot be acknowledged as an inventor in any part of a patent application.

As countries continue to grapple with this issue, businesses will undoubtedly take notice. Companies, especially those at the forefront of AI research, might gravitate toward

jurisdictions more accommodating of AI-generated innovations. This could lead to the rise of so-called patent havens, or countries tailoring their IP laws to attract global AI research.

Such shifts could have significant geopolitical implications, influencing global R&D investments, reshaping technological power centers and creating uneven innovation landscapes. There could also be concerns about inconsistencies in patent protections and enforcement, potentially leading to complex international legal challenges and disputes.

### ***Restructured Collaboration Between AI and Humans***

As the boundaries of AI's capabilities expand, the nature of human-machine collaboration in R&D will inevitably evolve. The role of AI is poised to transition from a supplementary tool to a more central, directive force in the research process. This shift, however, does not render the human role obsolete but rather redefines it.

In a landscape where AI can independently generate proposals, designs or even new chemical compounds, human experts might pivot to positions where they serve more as curators or final validators. Furthermore, as AI's influence grows, the ethical considerations surrounding its use become paramount.

While AI systems can analyze vast datasets and generate proposals, they might lack the nuanced understanding of human values, ethics and societal implications. Humans bring a moral compass to the research process, ensuring that AI-driven innovations align with societal norms and ethical standards.

In scenarios where AI might suggest solutions that tread on ethically gray areas, the human role as an ethical anchor becomes indispensable. It's a reminder that while AI can calculate, humans contextualize, grounding technological advancements in principles that prioritize the broader well-being of society.

Moreover, the human involvement becomes indispensable when we consider the broader societal impacts of technology. Innovations, even when created autonomously by AI, have ripple effects on communities, cultures and economies.

Humans, with their intrinsic understanding of societal norms, can foresee and navigate potential pitfalls, ensuring that technological advancements are holistic and beneficial. Beyond the practicalities of innovation, humans provide a point of accountability, a moral compass guiding AI operations within ethically sound boundaries.

This implies that while AI might produce a multitude of innovative solutions or ideas, it would be the human experts who assess, refine, and select the most promising or viable among them. They would ensure that AI-proposed solutions not only meet technical specifications but also align with ethical, societal and market considerations that AI might not fully grasp.

This model of collaboration ensures a human touch point at critical junctures, reinforcing trust in the output and maintaining a human-centric approach to innovation. By acting as the bridge between AI's computational prowess and real-world applications, humans would ensure that technology serves society in meaningful and ethical ways.

The denial by the Supreme Court to hear *Thaler v. Vidal* has set the stage for a complex interaction between AI, innovation and patent law. While AI continues to evolve, becoming an increasingly integral part of research and development, it faces a legal system rooted in

human-centric paradigms.

Navigating this intricately woven landscape requires not only an understanding of the technological advancements but also an ethical compass provided by human intervention. Therefore, the challenge lies in harmonizing these rapidly progressing elements in a way that sustains innovation while adhering to established legal norms and ethical considerations.

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