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Patent Due Diligence in the AI Era

By Rob Maier
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Artificial intelligence is reshaping patent practice from two directions at once. New patents covering machine learning and related technologies are issuing at a pace of tens of thousands each year, steadily enlarging the body of rights a company developing AI products may need to account for in assessing patent infringement risk for new product releases.

At the same time, AI-assisted tools have transformed the work of mining those patents and measuring them against a product in development, helping to compress weeks of analysis into days. The same technology that is filling in the patent landscape is making that landscape far easier to see.

What has changed most is the timing. An engineering team weighing several different ways to build a product will eventually ask whether any of those approaches runs into another company's patents. The answer to that question previously took long enough that the question was seldom raised until late in the process, after the design was already fixed. Given the power of new AI tools, that question can now be answered while design choices are still open, making the outcome of the analysis more useful, practical advice, rather than a verdict.

Courtesy photo

Rob Maier

This article reviews the rapid growth of the patent landscape in artificial intelligence, the signs that a wave of AI patent disputes is now emerging, what it now takes to map the AI patent landscape in a way that is useful and actionable, and why the most valuable moment to do so now comes earlier in the product development life cycle than many companies may appreciate.

The Rapid Growth of AI Patents

AI patent filings have increased sharply over the past few years, and that growth is not simply a function of more companies entering the field.

The World Intellectual Property Organization reports that 37,808 patent families in generative artificial intelligence were published worldwide in 2025, compared to approximately 14,000 just two years earlier. See WIPO, Patent Trends Update in GenAI, Technology SPARK Report Series, WIPO Pub. No. 1089.3/26 (2026). Furthermore, patent applications generally remain confidential for eighteen months after filing, 35 U.S.C. §122(b), so the most recent filings are still not public, and will not be for some time. Thus, given the trends,

the landscape of AI patent applications is almost certainly larger (and perhaps far larger) than what is currently visible.

Several forces are driving this growth in AI patenting. The first is the sheer scale of investment in the field, which has drawn filings from established technology companies, startups and universities alike, and both domestic and foreign filers. The second is the Patent Office's own approach to examination.

Under current leadership, the agency has recalibrated how it evaluates software and machine learning patent claims in patent applications. Examiners have been reminded that the mental process category of unpatentable abstract ideas "is not without limits," see Charles Kim, Memorandum, Reminders on Evaluating Subject Matter Eligibility of Claims Under 35 U.S.C. 101, USPTO (Aug. 4, 2025); Director John Squires has declared the agency "open for business, especially for the technologies of tomorrow," *see* John A. Squires, Remarks at Patent Signing Ceremony, USPTO (Sept. 23, 2025); and an Appeals Review Panel the Director joined has warned that "categorically excluding AI innovations from patent protection in the United States jeopardizes America's leadership in this critical emerging technology." Ex parte Desjardins, Appeal No. 2024-000567 (P.T.A.B. Sept. 26, 2025).

By this spring, the agency reported that it had "rightly welcomed more new applications" under this new guidance. See Press Release, USPTO Turns the Corner on Unexamined Patent Application Backlog Reduction, USPTO (Apr. 10, 2026).

The third force driving this increase in patenting is the drafting process itself, which has become faster and more efficient as AI-assisted tools take hold in patent preparation and prosecution workflows. The same is happening on the examining side, where the Patent Office has said it is "steadily releasing robust AI tools to assist our examiners." USPTO Turns the Corner, supra. These trends show no sign of letting up, and the AI patent landscape will surely keep expanding.

The Coming Wave of Assertions

Disputes over AI patents in the past have been fairly limited, but that is changing. A wave of patent infringement cases related to AI technologies has now begun to arrive. The number of complaints filed in U.S. district courts since January 2015 that assert at least one patent that refers to machine learning, neural networks, large language models, or artificial intelligence has risen from just 8 cases in 2015 to 124 cases in 2025, according to data from Docket Navigator.

Additionally, that data suggests that the number of such cases filed in 2026 may reach an all-time high. Notably, the increase in AI patent litigation has also included a glut of new cases directed at data centers—a core area of investment and development powering the AI boom.

The numbers are not surprising. Technology cycles tend to produce patents first and litigation later, and the current rise almost certainly marks the beginning of that upward curve rather than its peak. Indeed, as just one recent benchmark, the modern smartphone era arrived in the early 2000s, but the number of patent infringement suits directed to smartphones did not begin climbing in earnest until after 2010.

If AI follows the same trend, the litigation now beginning to appear is only the tip of the iceberg. That prospect raises a practical question for any company building AI technologies: how can companies best identify, and address, third party patent risks before they present a problem?

And, what about companies considering M&A activity in the AI space, and looking to take on new businesses, and the associated patent infringement risk that come with them? Fortunately, the same tools accelerating the wave of AI patent filings are also adding speed

to the patent due diligence process that is an important part of both product development and M&A evaluation.

From Patent Data to Practical Guidance

The availability of new AI tools is also having a significant impact on the important work of due diligence in patent matters, often undertaken as part of product development (to assess the risk that a new product release might draw a patent infringement claim from a third party), or as part of corporate M&A transactions (to assess risk that the acquired company could be a target of third party patent claims). Patent diligence tasks that once took weeks or months can now be done far faster, using various AI tools and workflows.

For all the capability of the current AI tools, there is still no single-button solution that performs patent due diligence end to end, analyzing the patents and returning effective guidance on its own. At least for now, the most effective approach is to combine several tools and resources, each doing what it does best.

Established commercial patent databases remain the most reliable source for the patent information, supplying decades of curated bibliographic data, verified legal status, and assignee and family records. Specialty patent analytics platforms can be used to understand patent structure, including claim dependencies, priority chains, and patent file histories. General purpose and more specifically trained artificial intelligence large language models can be best used for reading and summarizing unstructured and extensive technical materials.

The most effective results come from workflows that combine these tools well, and then applying patent practitioner experience, knowledge and judgment.

Used correctly, AI tools can help to more quickly and efficiently perform the grunt work that previously required much of the time in any due diligence process; attorney time can then be better spent using judgment and experience on a more targeted and relevant set of information. The end result is that actionable conclusions and advice can be reached in a fraction of the time, and at a fraction of the cost.

Analysis as a Guide Rather Than a Gate

The guidance that can be provided by a patent due diligence process is most valuable early on during product development—before a design is fixed, and while a design can still be modified to navigate around any third party patents of concern. The Federal Circuit has long treated the public nature of patents and the ability to design around a competitor's patents as a benefit of the patent system—a feature, not a bug—describing the incentive to do so as one that brings a steady flow of innovation to the marketplace.

WIPO in its guidance places the clearance step before the design stage, observing that "it is easier to make changes while you are still working with concepts and early designs and have not committed to a specific design yet." *WIPO*, Tool 5: Freedom to Operate (2024).

Surveying a patent landscape of significant size once required weeks or months of preparation and analysis. WIPO, Guidelines for Preparing Patent Landscape Reports, WIPO Pub. No. 946, at 42 (2015) ("the generation of a PLR is a time intensive and expensive endeavor, and it is embarked upon since an organization is preparing to make a significant monetary or headcount investment").

However, because the groundwork can be laid in a matter of mere days using AI tools, a diligence review can be run at the product concept stage, while a product development team is still selecting from among candidate designs. At that point, the use of AI in patent due diligence can help to add value in guiding product design from the beginning.

There are three lines of inquiry that can be useful as part of such a process. The first relates to the industry landscape. Where in the technical field are patent claims dense, and where are they sparse? Which technical approaches to a given problem have been heavily claimed, by whom, and over what period?

The second line of inquiry concerns competitors and other third parties in the relevant field. Which portfolios relate to the various paths under consideration for the product or service in question? Which companies have been filing patent applications steadily in the relevant space, and which patent holders have asserted rights before?

The identity and characteristics of the holder of patent rights can present very different practical considerations: for example, a university foundation that cannot be countersued, a direct competitor with competing products at stake, and a large product company that would rather trade licenses than litigate, each implicate different risks and strategies for addressing patents of concern.

The third line of inquiry is the company's own patent portfolio. What patents does the company already hold, and where does the company portfolio cover the product roadmap (and where does it not)? Existing rights may already cover an approach under consideration, or they may reveal that the path with the fewest third party obstacles is also the one where the company has protected nothing of its own.

Analyzed together, these three inquiries can provide a development team with a ranked view of which development paths are open, which are contested, and which the company is already positioned to defend. A company armed with that information at the design stage is then better positioned to benefit the most from that information.

Moreover, this same analysis can benefit the company in assessing where it should focus its own patenting efforts. The end result can be the creation of a dense patent position in what was open ground—or ground that is projected to be a critical area of development in the industry—leading in the end to a highly strategic patent portfolio.

Conclusion

The patent landscape in artificial intelligence will continue to develop, and the disputes that follow will surely increase over time. For in-house counsel, the developments described here can nonetheless be welcome developments, and can allow legal departments to adjust and improve their processes for handling patent due diligence.

The same technology that is adding complexity and risk to those operating in AI is also turning a familiar compliance exercise into something considerably more valuable to businesses. These processes can ultimately guide companies in determining where they can build freely, where they should proceed with care, and where there may be greenfield worth claiming for themselves.

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