

AI at the world's patent offices: from experimentation to infrastructure

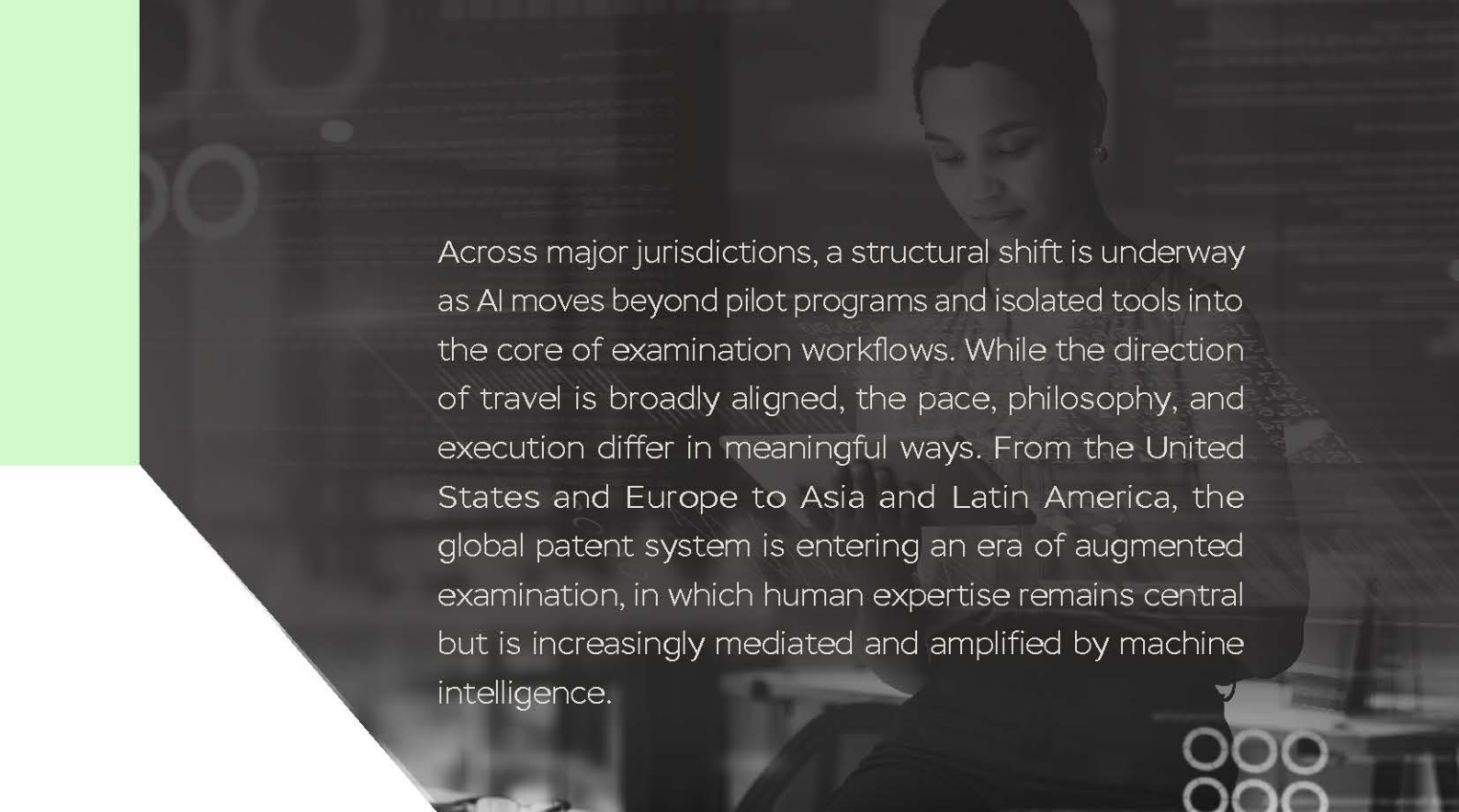
Artificial Intelligence is no longer a future consideration for patent offices. It is rapidly becoming embedded infrastructure.

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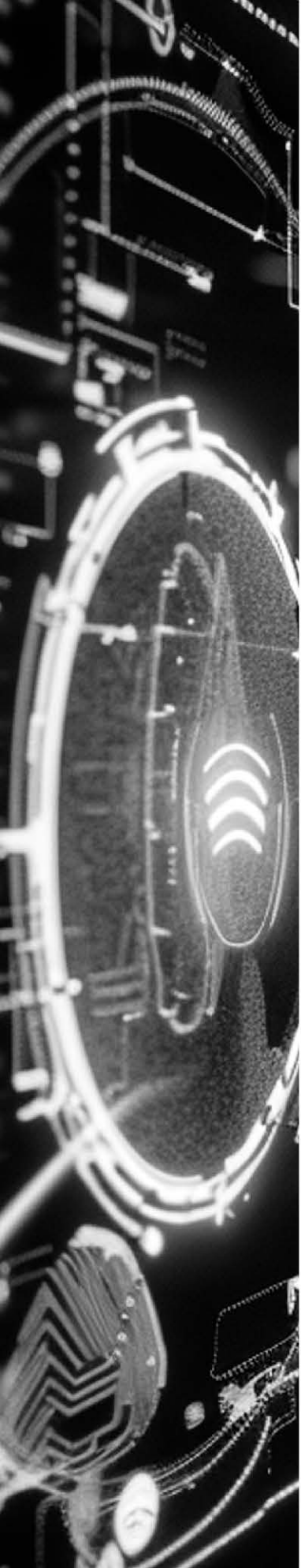
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Across major jurisdictions, a structural shift is underway as AI moves beyond pilot programs and isolated tools into the core of examination workflows. While the direction of travel is broadly aligned, the pace, philosophy, and execution differ in meaningful ways. From the United States and Europe to Asia and Latin America, the global patent system is entering an era of augmented examination, in which human expertise remains central but is increasingly mediated and amplified by machine intelligence.


The **United States Patent and Trademark Office** offers one of the clearest examples of a pragmatic, execution-driven approach. Rather than anchoring its efforts primarily in high-level strategy, the USPTO has focused on deploying tools that directly affect examination practice. Systems such as **SimSearch** allow examiners to identify semantically related prior art in utility patent applications, while **DesignVision** applies computer vision to the analysis of design patents. The Office has also explored AI-driven pre-examination search through its **ASAP!** pilot, testing how early-stage automation can improve efficiency before substantive review even begins.



What distinguishes the USPTO is not only the deployment of these tools, but also its recognition that AI reshapes the broader patent ecosystem. Its issuance of guidance on the use of AI by practitioners reflects an understanding that the effects of AI extend beyond internal workflows and into how applications are drafted, prosecuted, and evaluated. In this sense, the USPTO is not merely experimenting with AI. It is actively integrating it into both institutional practice and stakeholder expectations.

The **European Patent** has taken a different, more systemic approach. Under its Strategic Plan 2028, AI is framed as a core component of institutional modernization rather than a set of discrete tools. The EPO emphasizes the integration of AI into classification systems, prior art search, and workflow management, including the allocation of cases among examiners. It has also begun exploring the use of large language models trained on internal patent data, signaling a long-term investment in knowledge-driven systems.

Throughout its communications, the EPO consistently stresses a human-centric approach. AI is positioned as a means of supporting examiners, not replacing them. Compared to the USPTO, the EPO places less emphasis on individual product announcements and more on building a durable, integrated digital infrastructure that will support examination for years to come.




In Asia, several patent offices are advancing AI adoption through distinct but equally significant models. The Korean Ministry of Intellectual Property stands out for the breadth of its implementation. AI is used across patent search and classification, image-based analysis for trademarks and designs, automated translation, and even user-facing services such as chatbots. The Ministry has also begun exploring domain-specific large language models tailored to patent examination. This level of integration suggests a strategic objective that goes beyond efficiency gains, pointing instead toward a fully digitalized intellectual property system in which AI supports both internal processes and external interactions.

The **Japan Patent Office** has adopted a more structured and incremental approach. Through its updated AI Action Plan, the JPO is advancing the use of AI in prior art searches and image-based retrieval while carefully assessing the role of generative AI in administrative and examination contexts. The emphasis is not on rapid deployment, but on reliability, predictability, and governance. This reflects a broader institutional preference for controlled implementation, particularly in light of the uncertainties associated with emerging AI technologies. By proceeding deliberately, the JPO seeks to ensure that innovation does not come at the expense of legal certainty.

China's National Intellectual Property Administration presents yet another model, characterized by scale and speed. CNIPA reports extensive use of AI in prior art



The page features a decorative background with a dark, futuristic aesthetic. On the left, there is a vertical strip of blurred digital data and light trails. On the right, there are several floating, semi-transparent panels displaying various data visualizations, including bar charts, line graphs, and circular gauges. The overall theme is technology and data analysis.

retrieval, examiner assignment, image recognition for designs and trademarks, and the automated detection of formal deficiencies. It has also introduced systems such as real-time machine translation and tools described as AI academic assistants and legal advisors. These developments are closely tied to performance outcomes. The Office highlights reduced examination timelines and positions its system as among the fastest globally.

The emphasis in China is less on governance frameworks and more on efficiency, throughput, and scale. AI is treated as a key enabler of capacity in a system that processes a very high volume of applications. This approach reflects different institutional priorities, but it also underscores the transformative potential of AI when deployed aggressively.

Moving to Latin America, AI adoption is also gaining momentum, with several patent and trademark offices beginning to incorporate practical applications into their systems. Mexico's Patent Office (IMPI), Chile's Patent Office (INAPI), and Uruguay's Patent Office (DNPI) have reported the use of AI-based systems for automated trademark searching. In Argentina, a 2025 decree sought to reform the patent office as part of a broader modernization effort, with the stated goals of reducing public spending, refocusing the agency's work on intellectual property services, and updating patent procedures through the use of new technologies, including AI.

Brazil's National Institute of Industrial Property (INPI) is at an earlier stage of adoption but is clearly moving in alignment with global trends. The INPI has already explored the use of AI in trademark examination, particularly in similarity analysis, and is developing tools to support searches in industrial design applications. It also plans to introduce AI-assisted prior art searches in patent examination. Academic and institutional discussions in Brazil consistently emphasize that these tools should assist examiners rather than replace them, reinforcing the human-in-the-loop paradigm observed in more mature systems.

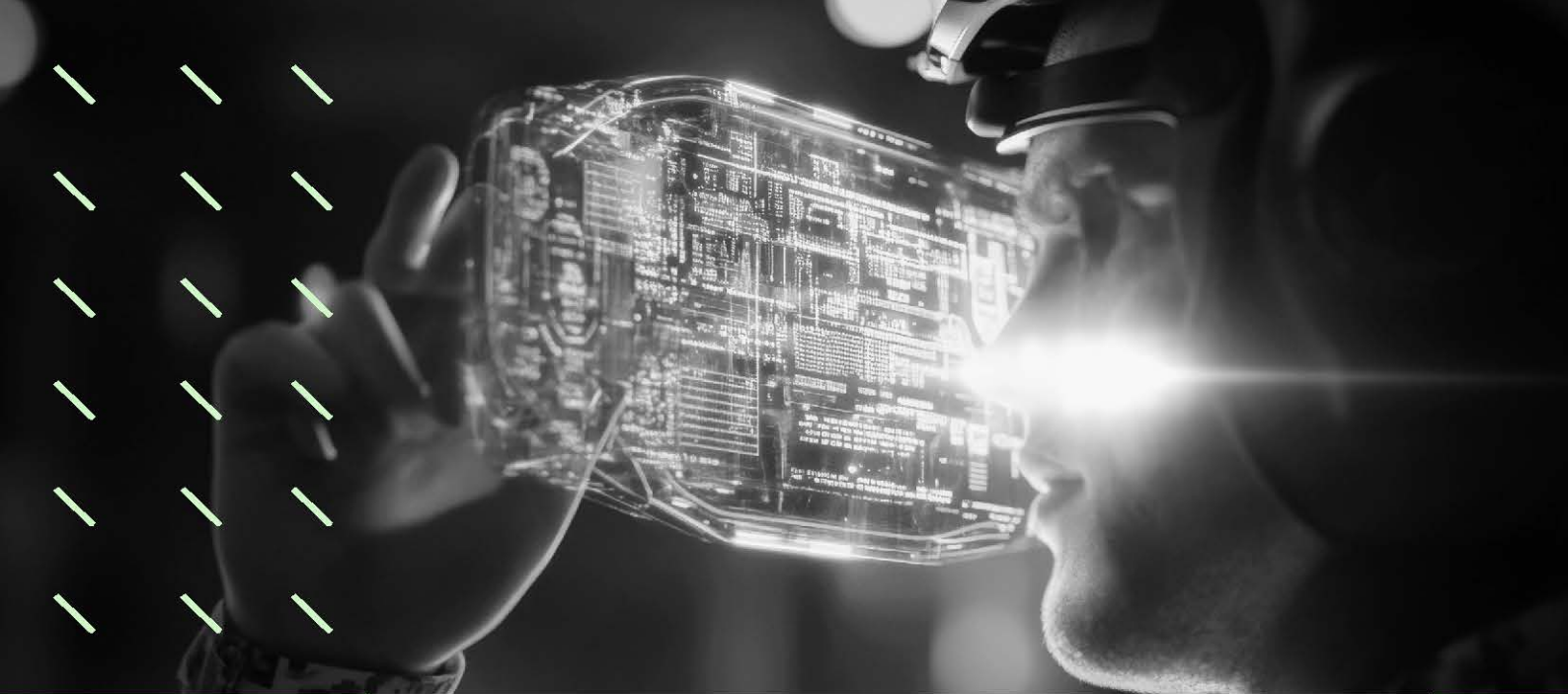
While infrastructure is still evolving, the direction is clear. The INPI is positioning itself to benefit from the same efficiencies and improvements in search quality that are already being realized in other jurisdictions. Its trajectory reflects a broader pattern of convergence within the global patent system.





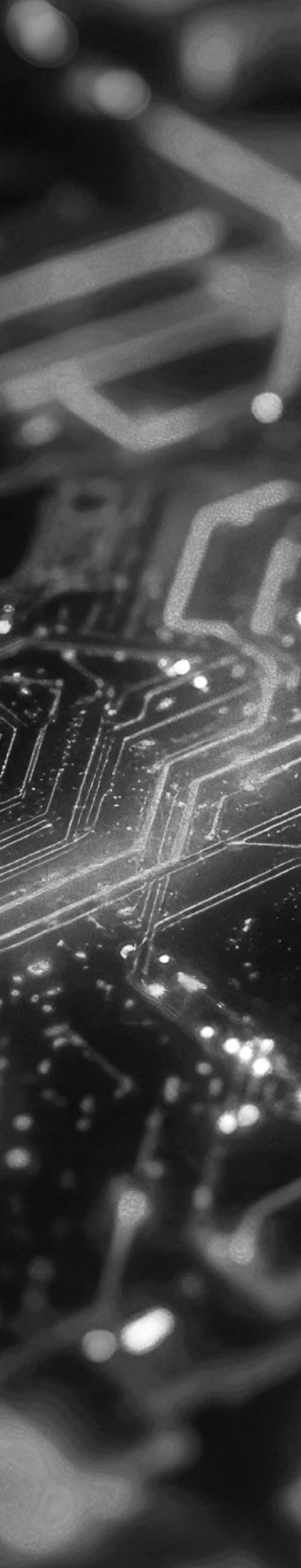
Taken together, these developments reveal a notable alignment in how AI is being deployed. Across jurisdictions, the primary use case remains prior art search and classification, where AI delivers immediate gains in productivity and coverage. Image recognition is becoming standard in design and trademark examination, enabling more precise comparisons of visual elements. Generative AI is beginning to enter the conversation, although its role remains experimental and carefully managed. Most importantly, all major offices maintain a consistent position on human oversight. Examiner judgment remains the final authority, and AI is framed as a support tool rather than a decision-maker.

At the same time, a growing concern has emerged among practitioners. As AI systems become more capable of identifying prior art, detecting similarities, and cross-referencing vast datasets, there is a perception that examination standards may become significantly more stringent. In trademarks and designs, where similarity assessments are central, and in patents, where prior art searches define the scope of protection, some fear that AI could lead to an environment of over-detection. Under this view, borderline cases that might previously have been allowed could now be rejected simply because machines are able to uncover connections that would have been impractical for human examiners to identify.



This concern is legitimate. AI fundamentally alters the informational baseline of examination. It expands the universe of accessible knowledge and reduces the likelihood that relevant references will go unnoticed. In doing so, it raises the effective threshold for novelty, distinctiveness, and inventiveness. However, this perspective captures only part of the picture.

The same technological shift that enhances examination also transforms creation. Inventors, designers, and brand owners are increasingly using AI tools to generate, refine, and differentiate their outputs. Applications are likely to become more sophisticated, more data-informed, and in some cases more strategically drafted in anticipation of AI-assisted examination. In other words, both sides of the system are evolving simultaneously.



The more accurate conclusion is not that AI will destabilize the system, but that it will recalibrate it. A higher level of rigor in examination is a likely outcome, but it will be matched by a corresponding increase in the sophistication of filings. At the same time, the efficiency gains enabled by AI point toward faster processing times, particularly in jurisdictions that have embraced these technologies more aggressively. The result is a system that is both stricter and faster.

For practitioners, this evolving landscape requires adaptation. Drafting strategies may need to become more robust, with greater emphasis on clearly distinguishing prior art and articulating inventive concepts. Arguments during prosecution may need to engage with closer and more nuanced references. At the same time, practitioners themselves can leverage AI tools to enhance search, drafting, and analysis, creating a more technologically balanced environment.

The central challenge moving forward is not technological capability, but governance. Questions of trust, explainability, and accountability will define the next phase of AI integration in patent offices. Stakeholders will expect that AI-assisted processes remain transparent and that decisions can be understood, justified, and challenged where necessary. Ensuring consistency between human reasoning and machine-assisted outputs will be essential to maintaining confidence in the system.

What is already clear is that AI is no longer peripheral to intellectual property administration. It is becoming part of its core infrastructure. The emerging model is not one of automation, but of augmentation, in which human expertise is extended through increasingly sophisticated tools. This transformation is already reshaping how patents, trademarks, and designs are examined across the globe. It is also setting the stage for a system defined by greater rigor, greater speed, and a new equilibrium between human judgment and machine intelligence.



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