

U.S. INTERVENTION ON PATENTABILITY ISSUES RELATING TO ARTIFICIAL INTELLIGENCE AT THE USPTO.

- The USPTO has been actively engaging with the innovation community and experts in Artificial Intelligence (AI) to promote the understanding and reliability of intellectual property rights in relation to AI technology. Additionally, the USPTO is working to ensure that appropriate IP incentives are in place to encourage further innovation in and around this critical area.
- The USPTO also participates in numerous global activities related to AI. On a multilateral level, the USPTO represents the U.S. government on AI-related activities at WIPO and the Organization for Economic Cooperation and Development. Additionally, the USPTO engages in cooperation directly with other intellectual property offices, both one-on-one, for example through bilateral exchanges on the patentability of AI inventions, and multilaterally in groups like the IP5 Taskforce on New Emerging Technologies and AI.
- In October of this year, the USPTO issued two reports addressing artificial intelligence issues. Specifically, our office issued a report titled “Public Views on Artificial Intelligence and Intellectual Property Policy” and a report from the USPTO’s Office of the Chief Economist titled “Inventing AI: Tracing the diffusion of artificial intelligence with U.S. patents”. Both reports can be found on the Artificial Intelligence page of our website, [uspto.gov](https://www.uspto.gov).
- AI patent applications pose certain unique and interesting questions. For example: What level of detail is necessary in a patent disclosure as to the structure and functioning of the algorithm that underlines a new AI tool? Or under what circumstances, if any, could a machine “conceive” of an invention? Or could a machine be named as a co-inventor? These latter two distinctions become gray when machines are able to create based on human programming.
- As such, the first of the two reports attempts to begin addressing these, and similar, questions, by reporting on feedback we have received from our users in

response to several requests for comments, or RFCs, on patenting AI inventions. The RFCs sought feedback from our stakeholders on a variety of patent policy issues related to AI.

- Specifically, the RFCs requested user responses to various questions such as:
 - What are the elements of an AI invention?
 - What are the different ways that a natural person can contribute to the conception of an AI invention and be eligible to be named as an inventor?
 - Do current patent laws and regulations regarding inventorship need to be revised to take into account inventions where an entity or entities other than a natural person contributed to the conception of an invention?
 - Are there any patent eligibility considerations unique to AI inventions?
- The RFCs also sought input on AI issues related to other types of intellectual property such as trademarks and copyrights.
- In general, across all IP topics, a majority of public commenters expressed a general sense that the existing U.S. intellectual property laws are calibrated correctly to address the current evolution of AI. However, commenters also appear to be split as to whether any new classes of IP rights would be beneficial to ensure a more robust IP system. Further, a majority of commenters felt that current USPTO guidance, especially on patent subject matter eligibility and disclosure of computer-implemented inventions, is equipped to handle advances in AI. Also, most public commenters agreed that the growing ubiquity of AI would affect how the USPTO and courts would assess the legal hypothetical standard of a “person having ordinary skill in the art,” this standard being critical to the determination of whether a patent right should issue.
- The second report attempts to gauge the potential impact of AI. One indicator of such an impact is the nature and diffusion of AI technologies through patents. As the primary form of legal protection for inventions, patents can reveal whether AI

technologies are growing in volume and whether they are diffusing across a broad spectrum of technical areas, inventors, companies, and geographies.

- There were certain key findings of note:
 - AI is increasingly important for invention, and is diffusing broadly across technologies, inventor-patentees, organizations, and geography.
 - In the 16 years from 2002 to 2018, annual AI patent applications increased by more than 100%. Over the same period, the share of all patent applications that contain AI grew from 9% to nearly 16%.
 - Patents containing AI appeared in about 9% of all technology subclasses used by the USPTO in 1976 and spread to more than 42% by 2018.
 - The percentage of inventor-patentees who are active in AI started at 1% in 1976 and increased to 25% by 2018.
 - Most of the top 30 AI companies are in the information and communications technology sector. However, AI diffusion is occurring widely across all technical areas. For example, inventor-patentees are using AI in technologies ranging from fitness training and equipment to agriculture.
- Again, the full reports are available on our website, [uspto.gov](https://www.uspto.gov).
- The USPTO continues to be very interested in learning more about what the other IPOs are doing with respect to AI and having further discussions on the topic.