

July 29, 2024

The Honorable Katherine Vidal
Under Secretary of Commerce for Intellectual Property
and Director of the U.S. Patent and
Trademark Office
600 Dulany Street
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RE: Comments of ACT | The App Association on the U.S. Patent and Trademark Office’s Request for Comments Regarding the Impact of the Proliferation of Artificial Intelligence on Prior Art, the Knowledge of a Person Having Ordinary Skill in the Art, and Determinations of Patentability Made in View of the Foregoing¹

I. Statement of Interest

ACT | The App Association is a global policy trade association for the small business technology developer community. Our members are entrepreneurs, innovators, and independent developers within the global app ecosystem that engage with verticals across every industry. We work with and for our members to promote a policy environment that rewards and inspires innovation while providing resources that help them raise capital, create jobs, and continue to build incredible technology. App developers like our members also play a critical role in developing entertainment products such as streaming video platforms, video games, and other content portals that rely on intellectual property protections. The value of the ecosystem the App Association represents—which we call the app economy—is approximately \$1.8 trillion and is responsible for 6.1 million American jobs, while serving as a key driver of the \$8 trillion internet of things (IoT) revolution.²

The app ecosystem’s success, reliant on continued innovation and investment in connected devices and interfaces, hinges on the sufficiency of key legal and regulatory frameworks, including those surrounding the question of patent inventorship for artificial intelligence (AI) assisted inventions. Patents allow small business innovators to protect their investments in innovation, attract venture capital, and establish and maintain a competitive position in the marketplace. As more devices throughout the consumer and enterprise spheres become connected to the internet—often referred to as IoT—App Association members’ innovations will remain the interface for communicating with these devices.

AI systems have increased efficiency in the development of new technologies and products by reducing waste (i.e., cost and time), streamlining repeatable tasks, and optimizing solutions. AI tools have made it possible for innovators to reduce the number of technical tools used in invention creation and focus on training and instructing AI to yield outputs that anticipate consumer needs and lead to commercial success. For software developers, including App

¹ 89 FR 34217.

² ACT | The App Association, State of the App Economy (2022), <https://actonline.org/wp-content/uploads/APP-Economy-Report-FINAL.pdf>.

Association members, AI systems, particularly machine learning (ML) tools, have become invaluable to the invention creation process.

Software developers have learned how to work alongside AI to improve the invention creation process and further train a new generation of strong software developers. ML tools can learn repeatable tasks and detect common mistakes, issues, and risks in the software development process that would otherwise require manual intervention. Software developers use AI to run quality assurance checks that reduce the chance of human bias and error and the potential for disrupting production timelines because a critical mistake was not diagnosed early enough. While we may be able to anticipate AI systems being able to write code independently, this is not our reality today. AI tools are invaluable to the coding process but not without human instruction. In fact, even where human intervention is needed less, AI tools will never truly work alone without direction from software developers. AI supports human processes and reduces time spent on simple but time-consuming tasks so that innovators can increase productivity. Past invention creation, AI used for software as a service (SaaS) or used in other maintenance of software has already proved to be instrumental in receiving feedback from consumers, diagnosing issues, and providing solutions in real time.

The App Association places AI inventions into three overarching categories: (1) a primary AI invention; (2) an alternative application of an AI invention; and (3) inventions developed solely by AI. The App Association considers the first category to be the baseline AI invention; the second group contains applications of AI to additional contexts; and the final grouping is meant to demonstrate unpredictable outcomes produced by AI itself.

A baseline AI invention is AI technology used to improve machine capability or work as an algorithmic method. These inventions can be delineated, declared, and evaluated in a way equivalent to software inventions. Therefore, no disputes arise with traditional methods of patent owners declaring and disclosing specific practices of their AI invention. Thus, the App Association sees no new and significant challenges that arise with this type of AI invention and significant patentability requirements. Alternative applications of AI inventions may increase challenges around subject matter eligibility. The App Association is confident that a combination of existing laws, guidance from past experiences with computers and the internet having many additional applications, and an assessment is made with conclusions based on concrete foundations as opposed to edge use cases will address these patent applications. The final category of AI is an invention solely developed by a machine and has no human involvement. We note our continued support for the USPTO's appropriate clarification that an AI machine does not qualify as an inventor under the Patent Act, which is reinforced by the U.S. Court of Appeals for the Federal Circuit in *Thaler v. Vidal*.³

II. Impact of AI on Prior Art

The patent system runs into issues of patentability where the application of AI is less definite and measurable. For small businesses, the U.S. patent system, while providing resources and concessions for smaller patent applicants, is difficult to navigate with limited financial and legal resources. This is why the App Association consistently advocates for stronger emphasis on examiner training and narrowed guidance on complex evaluations, including subject matter eligibility.

³ See *Thaler v. Vidal*, No. 21-2347 (Fed. Cir. 2022).

While we believe that providing examiners with ample sources for prior art leads to strong patent issuance, disclosures on AI-assisted or AI-generated inventions must be uniquely examined. If human conception is the threshold for inventorship, which must have a “definite and permanent” idea to allow a person of ordinary skill in the art to “...reduce the invention to practice, without extensive research or experimentation,” then all steps in the examination process should consider this point.⁴ Since the concept of human authorship is presumed in the United States Constitution and properly interpreted through U.S. jurisprudence, this understanding should also be read into 35 U.S.C. 102.

Therefore, the treatment of AI-generated and non-AI-generated disclosures should come down to human contribution and the ability to reduce such information to practice, without extensive research or experimentation. If the human contribution requirement is satisfied, then there may be a cause to consider this information as a prior art. If not, then considering this information as prior art would interfere with the purpose of the patent system to incent human innovation. This analysis would similarly aid a patentability determination. We also note that projects that purposefully publish AI-generated information that otherwise would be patentable are directly disrupting the U.S. patent system by disallowing innovators to apply for patents with claims consisting of that information (ex. allpriorart.com). In addition to undercutting individual U.S. inventors from securing patents that underlay critical products, this type of effort would force inventors to seek strong patent protections from international patent systems that do not treat such information as prior art.

If a party submits to the USPTO a printed publication or other evidence that the party knows was AI-generated, the party should at least reasonably disclose the information that it knows regarding its AI-generated components. A party that intentionally withholds information from the USPTO should be held liable. A party should not have a general duty to determine if a work is AI-generated if they are unaware of this fact after base-level research. This requirement would be unduly burdensome on the smallest innovators. Rather the USPTO should equip patent examiners with the appropriate tools and training to determine whether a disclosure is AI-generated. The likelihood that AI systems produce incorrect information should have no bearing on a determination of prior art. Since AI-generated patents do not survive a patentability analysis unless it satisfies the human intervention requirement, AI-generated disclosures should not have a presumption of operability or enablement. If a determination of prior art is based on human contribution and the ability for a person of ordinary skill in the art to reduce such information to practice, the volume of AI-generated disclosures should have no bearing on patentability, although the accessibility of prior art will depend on tools available to the public. For small innovators, the inability to locate relevant disclosures could have significant bearing on the ability to innovate.

III. Impact of AI on Person Having Ordinary Skill in the Art

While AI has sophisticated the development of technologies and may even become vital to this process, the law is clear that an individual for purposes of inventorship is a “natural person.”⁵ The purpose of the U.S. patent system is to incent natural persons in the publication and commercialization of inventions to advance the public good, as contemplated by Article 1, Section 8, Clause 8 of the United States Constitution. Therefore, it is proper to conclude that

⁴ See *Borroughs Wellcome Co. v. Barr Laboratories, Inc.*, 40 F.3d 1223, 1227 (Fed.Cir.1994).

⁵ See *Thaler v. Vidal*, No. 21-2347 (Fed. Cir. 2022), cert. denied, No. 22-919 (U.S. Apr. 24, 2023); see In re Application of Application No. 16/524,350, United States Patent Office, <https://www.uspto.gov/sites/default/files/documents/16524350.pdf>.

the term “person” in the assessment for a person having ordinary skill in the art (PHOSITA) presumes or requires that the “person” is a natural person. AI systems and other technical tools do not differ in a significant way when applied to the creation of an invention. AI systems only differ from other technical tools in that they are self-learning and self-directed. However, these features do not amount to the “conception” needed to satisfy requirements to receive a patent under the United States Patent Act.⁶ The advancement of AI systems over time does not change this fact. Since “conception” is defined in relation to the inventor,⁷ and an inventor has been interpreted by courts to be a “natural person,” AI cannot be considered an entity that can “conceive” of an invention for purposes of patent inventorship. AI solely remains an efficient tool in the invention process until and unless the Supreme Court of the United States or the United States Congress addresses this question further. An AI system may be necessary to build the end product but cannot complete its development without human intervention. Therefore, AI systems and other technical tools do not differ with regards to determining the inventorship of a patent. While we can image how AI will be used in the future, we only have the knowledge to understand its ability now. As the courts or Congress decide to visit this issue, we urge USPTO to seek industry input again to determine how to develop and continuously update detailed and robust guidance on AI.

The best way for the USPTO to determine which AI tools are commonly used and what tools are presumed to be known by PHOSITA is to analyze the disclosed tools and develop a report for examiners to have awareness. We similarly stress that routine stakeholder input is essential to make a detailed list that reflects the invention development process.

The availability of AI as a tool should not impact an analysis of whether something is well-known or common knowledge to a PHOSITA. This analysis should focus on if a claim can be reduced to practice by a natural person with ordinary skill and relevant knowledge in the particular art. Similarly, elements of an obviousness determination (ex. analogous art) should remain with modifications that consider how AI has advanced and converged fields for invention. Rationales to modify prior art, determining whether such modification yield predictable results, evaluating objective indicia for obviousness, and examining requirements for enablement and written description under § 112(a) should be examined on a case-by-case basis, considering that a PHOSITA has access to an equivalent AI used in the inventive process, or well-known and commonly used AI available in the relevant field. We note that an obviousness requirement is exceptionally important to prevent emerging technology, like new and advanced AI, from enabling the proliferation of simple, broad, or frivolous inventions that do not contribute to a narrow and purposeful patent system.

We note that the harm of low-quality patents enables abusive practices from patent holders, including in the context of standard-essential patents (SEPs), where certain SEP holders have been known to maliciously sue licensees for infringement in order to coerce them into licensing agreements that encompass unfair and unreasonable terms, including excessive licensing fees. Often, these SEP holders will refuse to license to entities higher in the supply chain, such as original equipment manufacturers (OEMs). Instead, they might license to end-product manufacturers, where they can extract the most value for their SEP. The ability for a SEP holder

⁶ The Manual of Patent Examining Procedure, Ninth Edition, Revision 07.2022, Chapter 2100, Section 2138.04, <https://mpep.uspto.gov/RDMS/MPEP/e8r9#/e8r9/d0e207607.html> (February 2023).

⁷ *Supra* note 4 (citing *Townsend v. Smith*, 36 F.2d 292, 295, 4 USPQ 269, 271 (CCPA 1930) (“Conception has been defined as ‘the complete performance of the mental part of the inventive act’ and it is ‘the formation in the mind of the inventor of the definite and permanent idea...”).

to refuse to license to some entities and not others cause uncertainties on indemnification in the supply chain.

The goal of establishing technical standards is to provide an efficient and interoperable base for technology developers to create new inventions across multiple market sectors. When a patent holder contributes their technology to a technical standard, they understand and agree that they are using their patent to enable reasonable access to the standard and provide SSOs with a commitment that they will license their SEPs on fair, reasonable, and non-discriminatory (FRAND) terms in order to gain access to a wider pool of licensees. Therefore, by contributing to the standardization process, a SEP holder understands and agrees to not unduly exclude competitors from a standard past requiring a FRAND license.

A trend of court decisions abroad, starting in the European Union (EU),⁸ have distorted the meaning of the FRAND commitment, creating an imbalance that heavily favors SEP holders by, for example, routinely enabling prohibitive orders (injunctions) for FRAND-committed SEPs. These decisions have enabled (and emboldened) SEP holders to systematically abuse their dominant market position as a gatekeeper to the use of the standard to attain supra-FRAND terms (a practice known as “hold-up”⁹). As another prominent example, some foreign courts have concluded that they can force a standards user to agree to a global SEP portfolio on FRAND terms set by the court or SEP holder on pain of a national injunction if the standards user does not agree to the license. In such decisions, the global SEP licenses at issue often include patents issued outside the court’s jurisdiction for which validity and essentiality have not been assessed. The precedent set by such decisions has done two things to the landscape of international standards: (1) allowed jurisdictions to exercise extrajudicial authority on patents outside their purview;¹⁰ and (2) encouraged certain SEP holders to forum shop to a more favorable jurisdiction to handle the outcome of their disputes when they are unable to force implementing standards users into unreasonable licensing terms, despite their FRAND obligation.

IV. The Implications of AI That Could Require Updated Examination Guidance and/or Legislative Change

More clarity around how AI will impact what the USPTO will consider prior art and the necessity of AI to discover and examine prior art is important for small business innovators. We support more guidance and training for examiners and more resources for patent applicants. The App Association encourages USPTO’s alignment and collaboration with the Administration and other federal agencies with respect to AI and intellectual property (IP). The Blueprint for an AI Bill and the AI Risk Management Framework, and other AI policies and relevant laws already issued or in development (some sector-specific), should be appropriately deferred to in advancing broader AI policy goals that the USPTO’s remit.

⁸ See *Sisvel v Haier*, Federal Court of Justice, judgment dated 5 May 2020, Case No. KZR 36/17; see *Koninklijke Philips N.V. v. Wiko SAS*, Court of Appeal of The Hague, judgement dated 2 July 2019, Case No. C/09/511922/HA ZA 16-623.

⁹ Lemley, Mark A. and Shapiro, Carl, Patent Holdup and Royalty Stacking. 85 *Texas Law Review* 1991 (2007).

¹⁰ Bonadio, Enrico, Mohnot, Rishabh, Standard Essential Patents, Global Licensing Approach and the Principle of Territoriality (September 6, 2022), <https://patentblog.kluweriplaw.com/2022/09/06/standard-essential-patents-global-licensing-approach-and-the-principle-of-territoriality/>.

The App Association appreciates USPTO's efforts to engage with stakeholders on issues that affect AI and IP, and encourages its further development in all relevant areas, including patentability, specifications, disclosure, and data protection.

One area where the USPTO could clarify the use of AI systems is with regards to Section 101 patent subject matter eligibility. Clarifying Section 101 enables innovation and plays a critical role in weeding out low-quality patents that are routinely asserted against accused infringers, including startups and small businesses. The lack of definition on key terms in Section 101 has led to the current judicial framework retaining ambiguity around both the ability to get a valid patent on AI-assisted inventions and the threat of lawsuits from issued but potentially invalid patents on various aspects of AI.

There will always be AI patent invention use cases that will be more complicated due to the complexities that arise from AI machine learning (ML). ML occurs when a computer is taught to learn and react without direct instructions being programmed by design. In contrast to an AI algorithm, ML uses data analysis to produce analytic or mathematic models that may not be in a format that is digestible for human beings. The inability to demonstrate how the results of ML came about contributes to the confusion of how to handle ML in the context of patent eligibility. We support improving the Manual of Patent Examining Procedure (MPEP) guidance on patent subject matter eligibility to define and provide examples that clarify the "integration of a judicial exception into practical application" and "whether a claim amounts to significantly more than a judicial exception" as it relates to artificial intelligence (AI), computer-related inventions, and emerging technologies.

Relatedly, the App Association also calls on the USPTO to consider ways to improve its technical training of patent examiners. Today, the Patent Examiner Technical Training Program (PETTP) remains the USPTO's effort to train patent examiners on technical (as opposed to legal) matters. While we commend the USPTO for building a successful training program utilizing skilled volunteers that work to provide the technical training necessary for examiners to do their jobs, the App Association urges for a more formalized and curriculum-based approach to examiner training, akin to the proven legal training programs the USPTO provides to all its examiners. Further, the PETTP's subject matter should be constantly updated to keep pace with technological advances (e.g., today's PETTP omits key emerging technologies such as artificial intelligence).

The Manual of Patent Examining Procedure (MPEP) must address the unique nature of AI when applying the *Alice/Mayo* framework for improvements to the functioning of a computer, technology, or technical field. A variety of elements should be incorporated into the MPEP when evaluating and determining an AI invention's patent eligibility. Elements that deserve consideration during the patentability process include (1) the database structure that will train the AI; (2) the algorithm; (3) the method of training the algorithm; and (4) the outputs produced from the AI application. USPTO should use the existing requirements for software patentability as a starting point to identify necessary elements of patentable AI inventions and applications.

Patent examiners are facing greater obstacles when looking at claim and disclosure requirements. Generally, applicants with complex AI inventions should seek alternative ways of describing their invention to meet relevant patent eligibility requirements. After producing an AI invention there may be multiple applications of the AI within the sector. Inventors may find alternative uses to solve a different problem or to build from the AI to create a different invention. As such, technological advancements using AI applications should be evaluated for

their patentable characteristics and purpose as opposed to recognizing a former AI invention claim. When the *Alice/Mayo* framework is applied to AI inventions, an examiner should evaluate the practical application of AI in a claim by determining if the AI amounts to a “particular machine”¹¹ that integrates a judicial exception or adds significantly more. While tracking developments in other jurisdictions will remain important, we urge for U.S. leadership in patent policy, including with respect to AI inventorship questions.

The USPTO should also consider the threat of perpetual patenting machines on the U.S. patent system’s application and examination procedures. Laws, policies, and processes surrounding the use of AI systems are better positioned for purposes of analyzing invention creation than patent prosecution. AI algorithms, including large language models (LLMs) have the capabilities of learning how to efficiently undergo the patent application and examination process. While this process will reduce the friction between invention and receiving a patent for patent applicants, the use of LLMs in the patent application and examination process will surely lead to increased filings of patent applications at USPTO. Perpetual patenting machine-enabled bad actors may use LLMs to provide the USPTO with patent applications that are seemingly issuable but may include overbroad claims or otherwise provide for low-quality patents. Such low-quality patents can then be asserted against alleged infringers for profit, crippling U.S. innovation. As such, USPTO should be prepared to deal with an increased load of applications due to AI-driven perpetual patenting machines.

One solution is to equip patent examiners with tools and resources to identify and approach patent applications by AI systems. Patent examiners should be provided specific training that utilizes AI tools, including LLMs, to review patent submissions and identify AI-generated patent applications. Examiners should also be provided with procedural rules for analyzing the use of AI in the patent application and examination process.

The concern for perpetual patenting machines provides a broader justification for securing and strengthening post-grant proceedings at the Patent Trial and Appeals Board (PTAB). When enacting the America Invents Act (AIA) in 2011, Congress sought “to establish a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs.”¹² Congress also recognized “a growing sense that questionable patents [were] too easily obtained and are too difficult to challenge.”¹³ As AI systems, such as LLMs, become a heavily utilized tool for perpetual patenting, the potential for the issuance of low-quality and overbroad patents will likely increase. Small businesses, the main drivers of the U.S. economy, were at the core of Congress’ decision to enact the AIA, especially the *inter partes* review (IPR) process. IPR provides a more affordable and efficient recourse for businesses of all sizes to exercise their rights – whether defending the validity of their granted patent or challenging a granted patent. The IPR process allows App Association members to have a fair and dispassionate tribunal to first assess whether the patent used against them was properly reviewed and issued. Our members have limited resources for litigation, and the IPR process successfully provides a much-needed alternative for these small businesses that do not have the ability to withstand years of expensive federal court patent litigation that can easily cost millions of dollars. Low-quality patent holders, including many non-practicing entities (NPEs), often rely on the fact that many of these small businesses do not

¹¹ The Manual of Patent Examining Procedure, Ninth Edition, Revision 10.2019, Chapter 2100, Section 2106.05(b), <https://www.uspto.gov/web/offices/pac/mpep/mpep-2100.html> (June 2020).

¹² H. R. Rep. No. 112-98, pt. 1, p. 40 (2011).

¹³ *Id.* at p. 39 (2011).

have the capital to fight a case and use that to their advantage to force them into licensing arrangements accompanied with terms greatly benefiting the litigant. IPRs protect our members from some of the financial and temporal burdens associated with proceedings in front of Article III tribunals. Such proceedings are likely to be frivolously enforced against good faith innovators, including those operating with minimal resources. Therefore, a strong PTAB system is more crucial than ever to challenge the validity of low-quality patents and maintain the strength of the U.S. patent system. We urge USPTO to consider the potential harms to PTAB enabled by AI-driven perpetual patenting machines when considering modifications to the rules of practice for PTAB proceedings.

V. Conclusion

The App Association appreciates the opportunity to provide comments to USPTO regarding the impact of the proliferation of artificial intelligence on the US patent system. We look forward to continuing our support for a balanced and defined approach to AI.

Sincerely,



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