October 15, 2021

Andrew Hirshfeld
Commissioner for Patents, Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office
United States Patent and Trademark Office
600 Dulany Street
Alexandria, Virginia 22314

RE: *Comments of ACT | The App Association on the U.S. Patent and Trademark Office's Patent Eligibility Jurisprudence Study [Docket No. PTO-P-2021-0032]*

Commissioner Hirshfield:

ACT | The App Association hereby provides comments in response to the United States Patent and Trademark Office's (USPTO) request for comments on its study regarding the current state of patent eligibility jurisprudence in the United States, and how the current jurisprudence impacted investment and innovation, particularly in critical technologies like artificial intelligence, precision medicine, diagnostic methods, and pharmaceutical treatments.

The App Association represents thousands of small business innovators located throughout the United States. These companies drive competition and innovation across consumer and enterprise use cases. App Association members both hold and license patented technologies and rely on a fair and consistent patent ecosystem and are directly impacted the USPTO's approach to patent rights and litigation. In its relatively short existence, the app industry serves as the driving force in the rise of smartphones, tablets, and other internet-connected devices and markets.[1] Today, the app economy is a $1.7 trillion ecosystem led by U.S. companies, of which over 80 percent are startups or small businesses, employing over 5.9 million Americans.[2] The growth of this vital ecosystem is expected to continue; worldwide consumer spending in mobile apps is projected to reach $171 billion by 2024, more than double the $85 billion from 2019.[3]

[1] The App Association, State of the App Economy 2018 (Apr. 2018), https://actonline.org/2018/04/16/state-of-the-app-economy-report-highlights-american-leadership-in-the-950-billion-app-economy/.

[2] *Id.*

[3] Sarah Perez, Mobile app spending to double by 2024, despite economic impacts of COVID-19, TechCrunch (Apr. 1, 2020), https://techcrunch.com/2020/04/01/mobile-app-spending-to-double-by-2024-despite-economic-impacts-of covid-19/.

The app ecosystem's success, reliant on continued innovation and investment in connected devices and interfaces, hinges on the sufficiency of key legal frameworks that underlie them. 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 the internet of things (IoT) – App Association members' innovations will remain the interface for communicating with these devices.[4] Because small business viability directly correlates to fairness and predictability in the patent system, unscrupulous efforts by patent litigants to exploit the system undercut innovation.

I. Impacts that small business innovators have experienced as a result of the current state of patent eligibility jurisprudence in the United States

The American Intellectual Property Law Association reported that patent infringement cases with less than $1 million at risk could still face an average cost of $400,000 to get through the discovery process of the claim, which is only a fraction of the entire proceeding.[5] For small business technology developers, these costs raise a significant barrier for patent litigation, leaving them more likely to accept an unreasonable license rather than fight the case. Many App Association members have limited resources for litigation and rely on the Patent Trial and Appeal Board (PTAB) process for an efficient and fair means to settle some patent disputes. The inter partes review (IPR) process should provide a much-needed resource for small businesses that do not have the ability to withstand years of expensive federal court litigation. App Association members often find themselves accused of patent infringement in a district court far from their place of business despite having no realistic connection to such districts. For these small businesses, even the prospect of facing one or more patent infringement trials as part of a litigation strategy, particularly in a remote or unexpected venue, can represent an "end of life" event.[6] Uncertainty and inconsistency in the application of patent eligibility criteria reduces investment because of the granting of low-quality patents even if found invalid after expensive litigation that small developers are financially unable to support. The cost of defending infringement accusations from holders of these low-quality patents, despite a high likelihood that many are patent ineligible, greatly limits progress in app development. Small enterprises may be forced to abandon development and sale of a product from the mere threat

[4] Morgan Reed, Comments of ACT | The App Association to the National Telecommunications and Information Administration regarding The Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things, ACT | The App Association (June 2, 2016), http://actonline.org/wp-content/uploads/NTIAComments-on-IoT-Regulations.pdf.

[5] AIPLA, Report of the Economic Survey, at p. 37 (2015) http://files.ctctcdn.com/e79ee274201/b6ced6c3-d1ee-4ee7-9873-352dbe08d8fd.pdf.

[6] *E.g.*, Laura Lorek, Silicon Hills, *Patent Trolls Threaten to Bankrupt Companies and Stifle Innovation*, (May 30, 2013) http://siliconhillsnews.com/2013/05/30/patent-trolls-threaten-to-bankrupt-companies-and-stifle-innovation/ (noting one company estimating that ninety percent of its litigation costs are spent defending patent infringement allegations); see also Coleen Chien, *Patent Assertion and Startup Innovation* (Sept. 5, 2013), https://www.newamerica.org/oti/policy-papers/patent-assertion-and-startup-innovation/ (describing venue-shopping as a systemic and repeated issue for successful startups).

of litigation because they lack the resources necessary to properly defend themselves to get these patents struck down through either the USPTO or the courts.

When enacting the America Invents Act (AIA), Congress prioritized establishing "a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs."[7] Congress recognized "a growing sense that questionable patents [were] too easily obtained and are too difficult to challenge;"[8] and sought to "provid[e] a more efficient system for challenging patents that should not have [been] issued" and to "establish a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs."[9] Small businesses, the main drivers of the U.S. economy, were at the core of Congress' decision to enact the AIA.

Uncertainty around patent eligibility for software inventions allowed for the proliferation of low-quality patents, and led to inconsistent rulings on patent validity across different courts and even between different panels of the Federal Circuit. The application of the current rules on patent eligibility are unworkable, and this is affecting patents outside of those traditionally considered at risk under the *Alice*/*Mayo* framework, such as software and business methods. For example, in *Am. Axle & Mfg. Inc. v. Neapco Holdings, 966 F.3d 1347 (Fed. Cir. 2020)*, the court denied an *en banc* hearing on an invalidated claim for a method of reducing vibrations in a shaft. In *Yu v. Apple Inc., 2020 WL 1429773 (N.D. Cal. 2020),* the court invalidated a patent on a digital camera sensor arrangement. This limiting of American economic activity across an increasing number of sectors is detrimental to the growth of the U.S. economy in general. Overall diminished patent quality and doubt around the validity of a number of existing patents limits the ability of patent owners to make full use of their patents and makes it harder for independent app developers to avoid litigation when making use of abstract ideas. The potential cost of a lawsuit means that even when a patent that is likely found invalid is asserted, an app developer's only option is to accede to the patent owner's demands.

Current patent eligibility jurisprudence also harms the public by depriving them of the benefits of inventive activity that would occur under a clearer framework. This directly conflicts with the purpose of the patent system to "promote the progress of science and the useful arts."[10] Easy and inexpensive access to healthcare diagnostics is harmed by the unclear and evolving standard for patents on diagnostic methods.

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

[8] *Id*. at p. 39 (2011).

[9] *Id*.

[10] U.S. Const art. I, sec. 8, cl. 8.

II. Impacts of the current state of patent eligibility jurisprudence in the United States on emerging technologies

The App Association appreciates USPTO raising questions related to the current state of subject matter eligibility jurisprudence in the United States; its impact on the global strength of U.S. intellectual property; and the U.S. economy in areas of emerging technology. Below, we provide specific responses to some of the categories raised by USPTO.

Artificial Intelligence

Under the current framework, it is unclear what aspect of an artificial intelligence (AI) system is patentable. Artificial intelligence is an important field of invention, as recognized by the U.S. government's inclusion of AI on the list of Critical and Emerging Technologies.[11] The uncertainty around both the ability to get a valid patent on AI inventions, and the threat of lawsuits from issued but potentially invalid patents on various aspects of AI, reduces inventive activity in this space.

The App Association urges USPTO to consider what defines a "genuine inventor" and what will be necessary to determine if an AI technology is patentable. AI inventions tend to be viewed as tools that can be utilized in a variety of applications. Individuals who contribute to the conception, training, or applications of the AI may all receive consideration as AI inventors. However, making the determination about which specific person should hold the patent rights will be based on the facts surrounding the AI invention or application. USPTO should recognize these issues and carefully examine them in its AI-related efforts.

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.

However, 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.[12] In contrast to an AI algorithm, machine learning uses data analysis to produce analytic or mathematic

[11] *National Strategy for Critical and Emerging Technologies*, White House (Oct. 15, 2020).

[12] *See* Machine Learning, DEEP AI, (last visited Feb. 13, 2020) https://deepai.org/machine-learning-glossary-and-terms/machine-learning (defining machine learning as teaching a computer how to learn and act without explicit programming).

models that may not be in a format that is digestible for human beings. The inability to demonstrate how the results of machine learning came about contributes to the confusion of how to handle machine learning in the context of patent protections. AI patent evaluators may face greater obstacles when looking at claim and disclosure requirements. Despite this concern the App Association recognizes that if an AI patent applicant can (1) make use of and (2) show proof that they possessed the invention at the time of filing then the patent may still be granted. Generally, applicants with complicated or 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. The App Association is confident that existing laws can address these patent applications with AI components due to past experience with computers and the internet having many additional applications. We urge USPTO to ensure that such an assessment is made with conclusions based on concrete foundations as opposed to edge use cases.

The final category of AI is an invention solely developed by a machine and has no human involvement. For patentability purposes, the App Association would not consider the machine as an inventor. Instead, the inventor would be the machine programmer. Machine programmers created the AI to resolve a human-defined issue that could not have been produced without human questioning. While this topic may need more thought in the distant future after further development of AI, we believe that this issue can be set aside during this request for comment period.

USPTO should consider a variety of elements 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.

Other computer-related inventions (e.g., software, business methods, computer security, databases and data structures, computer networking, and graphical user interfaces)

Innovation in computer-related inventions is restricted by the proliferation of low-quality patents of questionable validity. Uncertainty caused by existing jurisprudence increases the legal costs for small inventors. Computer related inventions combine numerous abstract ideas to create the applications that consumers use on a daily basis. Small app developers cannot afford to go through the legal process to invalidate patents on these abstract ideas, even when there may be a strong case for invalidation. This is particularly burdensome in light of PTAB's *Fintiv* rule, allowing patent owners to avoid the inter partes review (IPR) process by engaging in parallel district court litigation. Small enterprises are not able to begin IPR proceedings in anticipation of potential litigation.

III. An Inter Partes Review system operating as Congress intended is vital to the app economy's growth and job creation

Abusive patent litigation is increasing and alongside forum shopping as a result of changes made to the IPR system. Defending against frivolous litigation is prohibitively expensive and more costly than an IPR.[13] Compared to last year, Patent Assertion Entities (PAE) litigation has grown substantially.[14] Moreover, the Western District of Texas has seen an increase in PAE cases since the precedential *NHK Spring Co. v. Intri-Plex Techs., Inc.* decision.[15] This resurgence of behavior that necessitated the creation of IPR should send a strong signal that the USPTO's current policies are ineffective and stray from Congress' envisioned role.

Unfortunately, over the last few years USPTO has taken a series of actions that impose requirements rejected by Congress in the AIA and that serve to reduce IPR's effectiveness. For example, USPTO implemented changes to the rules of practice for instituting review on all challenged claims or none in IPR, post-grant review (PGR), and the transitional program for covered business method patents (CBM) proceedings before the PTAB in accordance with *SAS Institute Inc. v. Iancu*. As part of this change, USPTO amended the rules to eliminate the presumption in favor of the petitioner for a genuine issue of material fact created by testimonial evidence submitted with a patent owner's preliminary response when deciding whether to institute an IPR, PGR, or CBM review. This rule change shifts PTAB's process to unduly favor patent owners, significantly reducing due process for PTAB petitioners. Further, it appears that USPTO has failed to meet the requirements of the Administrative Procedure Act in proposing this rule change.

The App Association is significantly concerned with a the rapidly growing string of "discretionary denials" from PTAB in which USPTO has chosen to ignore the statutory deadline allowing an IPR to be brought within one year after service of the complaint upon a petitioner. In conflict with congressional intent, USPTO has substituted its own policy preference and directed the "discretionary denial" of timely-filed IPR petitions if the district court dockets an early trial date in a parallel infringement suit. This practice results in meritorious petitions being denied on extra-statutory grounds and adds cost, complexity, and uncertainty that Congress specifically sought to avoid by adopting a simple, clear one-year time bar. These discretionary denials under Section 314(a) have grown exponentially over the past three years and are on track to double yet again this year, and routinely deny timely-filed IPR petitions, leaving invalid patents in force to be litigated. Such policy changes most negatively impact minority-founded and -operated small businesses that demonstrably experience more difficulties in launching and growing new businesses in the digital economy.

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[13] Britain Eakin, *PTAB Discretionary Denials Harming Patent System, Atty Says*, LAW360, (Dec. 1, 2020), https://www.law360.com/articles/1332942/ptab-discretionary-denials-harming-patent-system-atty-says.

[14] *Litigation on the Rise: Number of New Cases Filed by Patent Assertion Entities*, ENGINE (Nov. 9, 2020), https://www.engine.is/s/Pae-stats-Diagram_Jan-Oct-2020.pdf.

[15] *See NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752 (Sept. 12, 2018), *see also* Scott McKeown, *Texas Plaintiffs More Likely to Side-Step PTAB?*, PATENTS POST-GRANT, (Apr. 7, 2020), https://www.patentspostgrant.com/texas-plaintiffs-more-likely-to-side-step-ptab/.

Unsurprisingly, PTAB's reserved approach to patent scrutiny has not gone unnoticed by PAEs. Abusive patent litigation, along with forum shopping, is increasing as a result of changes made to the IPR system. PAE litigation has grown substantially across districts,[16] and the Western District of Texas, in particular, has seen an increase in PAE cases since the precedential *NHK Spring Co. v. Intri-Plex Techs., Inc.* decision.[17] Defending against frivolous litigation is prohibitively expensive and more costly than an IPR.[18] The resurgence of behavior that necessitated the creation of IPR in the first place should send a strong signal that USPTO's policy changes over the last four years have been ineffective and stray from Congress' envisioned role.

Recent PTAB denials of legitimate and proper IPR petitions undermine progress made through the IPR. Increasing procedural burdens on IPR petitioners saddle them with higher costs and additional obstacles by forcing them to bring claims against invalid patent holders in court. USPTO's actions modifying IPR proceedings can be traced back as a direct contributor to the recent growth in the number of abusive suits brought by non-practicing entities.[19]

IV. The current state of patent eligibility jurisprudence on the United States' competitiveness and the global strength of U.S. intellectual property

The size of the U.S. market makes U.S. patents highly sought after by inventors around the world. Uncertainty about the ability to enforce an issued patent lowers the value of all issued U.S. patents, and inconsistency in the application of the *Alice/Mayo* framework makes inventors unsure that the patent they own has any value, thus increasing the risk to outside investors.

Discrepancies between another country's patent system that treats software patents in a consistent manner may become a reliable indicator of the value of an invention than when processed through the U.S. patent system. The above-discussed trends (and their impacts) with respect to patent eligibility, including PTAB processes, has decreased U.S. competitiveness by opening up the U.S. system to frivolous patent litigation and a less accessible means for efficient resolution. The United States can and should course correct its recent patent eligibility policy changes to support U.S. innovation and to reclaim its role as a model for other jurisdictions.

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[16] *Litigation on the Rise: Number of New Cases Filed by Patent Assertion Entities*, ENGINE (Nov. 9, 2020), https://www.engine.is/s/Pae-stats-Diagram_Jan-Oct-2020.pdf.

[17] *See NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752 (Sept. 12, 2018), *see also* Scott McKeown, *Texas Plaintiffs More Likely to Side-Step PTAB?*, PATENTS POST-GRANT, (Apr. 7, 2020), https://www.patentspostgrant.com/texas-plaintiffs-more-likely-to-side-step-ptab/.

[18] Britain Eakin, *PTAB Discretionary Denials Harming Patent System, Atty Says*, LAW360, (Dec. 1, 2020), https://www.law360.com/articles/1332942/ptab-discretionary-denials-harming-patent-system-atty-says.

[19] *Q3 2020 Patent Dispute Report,* UNIFIED PATENTS, (Sept. 30, 2020), https://www.unifiedpatents.com/insights/q3-2020-patent-dispute-report.

V. Conclusions and recommendations

As discussed above, the current state of patent eligibility increasingly impedes investment and progress in the app industry, and has a direct impact on small businesses across numerous areas on which USPTO has sought insight, including but not limited to their patent prosecution strategy and portfolio management; patent enforcement and litigation; research and development; ability to employ; ability to engage in procurement processes; marketing; their ability to obtain financing from investors or financial institutions; their investment strategy; their licensing of patents and patent applications; product development; sales, including downstream and upstream sales; innovation; and competition.

USPTO can, and should, take action to right the ship and support small business growth, as well as to reduce existing inequities faced by the small business innovator community. New USPTO leadership, and the Department of Commerce, should:

- Embody diversity and bring unique viewpoints to guide USPTO, advancing a more inclusive innovation ecosystem;
- Prioritize patent quality, ensuring that only valid patents issue and safeguard against the issuance or enforcement of low-quality patents;
- Commit to avoiding abusive patent litigation and behavior, namely though improving USPTO's tools that reduce risks for entrepreneurs of color (*e.g.*, PTAB); and
- Enable small business minority innovators to succeed by making the patent system accessible to entrepreneurs of color to attain and leverage their IP.

Sincerely,

Brian Scarpelli
Senior Global Policy Counsel

Leanna Wade
Policy Associate

ACT | The App Association
1401 K St NW (Suite 501)
Washington, District of Columbia 20005