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January 13, 2023

The Honorable Katherine K. Vidal
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office
600 Dulany Street
Alexandria, VA 22314

RE: Comments in Response to 87 FR 63044 “Expanding Admission Criteria for Registration To Practice in Patent Cases Before the United States Patent and Trademark Office,” FR Doc. 2022-22569.

Dear Director Vidal:

Invent Together appreciates the opportunity to submit comments on the scientific and technical requirements to practice in patent matters before the United States Patent and Trademark Office (USPTO).

Invent Together is an alliance of organizations, universities, companies, and other stakeholders dedicated to understanding the diversity gaps in invention and patenting and supporting public policy and private initiatives to close them.¹

The Inventor Diversity Gaps

The USPTO and leading researchers have found that women, people of color, and individuals with lower incomes patent inventions at significantly lower rates than their representation in the population:

- *The gender gap:* Less than 13% of all inventors who hold a U.S. patent are women.² Men-owned businesses are twice as likely as women-owned businesses to hold a patent.³ Women hold only 5.5% of commercialized patents.⁴
- *The race gap:* Black individuals are three times less likely to become inventors than white individuals.⁵ Black and Hispanic male college graduates patent at half the rate of white male college graduates.⁶
- *The income gap:* Children in the top 1% of family income are 10 times more likely to patent in their lifetimes than children in the entire bottom half of family income.⁷

Research has also found that the United States dramatically trails China and South Korea in the percentage of women inventors.⁸

The Benefits of Inventor Diversity

Greater diversity in invention and patenting would create significant opportunities for individuals and families. Inventors tend to earn higher wages than the general population, with the majority of inventors (63 percent) in the top 10 percent of all earners.⁹ Patents also help



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businesses—especially small businesses and startups owned by women and people of color—access capital, attract customers and licensees, and create jobs. Startups that obtain a patent employ an average of sixteen more new employees after five years compared to startups that do not obtain a patent.¹⁰ Women-owned businesses with patents pending have average revenues more than sixteen times higher than women-owned businesses without any intellectual property (IP).¹¹

Diversity in IP is also crucial to the strength of the U.S. economy. The USPTO has determined that IP-intensive industries account for more than 40% of U.S. economic activity and support 63 million jobs—44% of the U.S. workforce. Increasing participation in inventing and patenting by underrepresented groups would increase annual U.S. GDP by almost \$1 trillion,¹² quadruple the number of American inventors,¹³ and result in new and different inventions.

The Barriers to Inventor Diversity

There are several obstacles to achieving this bright future for individual inventors and the broader economy. The barriers to equitable participation in inventing and patenting include: a lack of exposure to inventing; insufficient access to education, mentorship, and capital; entrenched bias and discrimination; and “gatekeepers” who may hinder access to patenting. This comment focuses on how the USPTO can address the last barrier through continued attention to the admission criteria for the registration examination.

The Relationship Between Inventor Diversity and Patent Bar Diversity

Research demonstrates that more individuals from historically underrepresented groups may patent when they can retain patent attorneys who look like them, understand them, and can relate to them.¹⁴ However, only 20% of patent attorneys are women, 5% are people of color, and 2% are women of color.¹⁵

In a recent study, the Institute for Women’s Policy Research (IWPR) interviewed twenty-one inventors, including five men and sixteen women, eleven of whom were women of color, about their experiences patenting inventions.¹⁶ Several of the women interviewed reported experiencing challenges when dealing with patent attorneys.¹⁷ For example, some women reported feeling talked down to by men attorneys and others said they felt more comfortable working with women attorneys.¹⁸ One interviewee shared the following anecdote:

There was a time where we were sitting with lawyers...and then there was a point where they were explaining something to us and we were trying to explain something back to them. It was really frustrating because we understand what they were saying. They didn’t understand what we were saying, but they keep repeating the same basic information to us as if we didn’t understand it.¹⁹

Similarly, one Latina inventor suggested she only works with women patent attorneys because they are easier and “better” to work with.²⁰ The men inventors reported no such challenges or preferences.²¹



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Legal jargon and the technical language associated with an invention can make effective attorney-client communication difficult, particularly between individuals with different backgrounds and experiences.²² Because inventions are born of experiences, and because identities affect lived experiences, patent attorneys from historically underrepresented groups may bring additional substantive expertise on goods that cater to customers from those groups, which can aid in the drafting of claims. They may also be able to develop valuable client relationships with robust and effective communication, which can in turn help inventors feel more comfortable with the patenting process, and produce the evidence necessary for the attorney to draft a successful patent application.

All attorneys who wish to become patent practitioners must meet scientific and technical requirements set by the USPTO. As one former USPTO Director said, “The USPTO evaluates the criteria for applicants to sit for the registration examination on an ongoing basis in order to ensure fairness in the process and that patent practitioners who represent inventors are qualified, understand the technology, and able to effectively communicate with inventors regarding the technical features of the invention(s).”²³ Meeting these goals will require the USPTO to take a careful look at its admission criteria to ensure that qualified individuals from historically underrepresented groups are not excluded.

In recent years, researchers and policymakers have suggested the USPTO’s admission criteria have historically excluded qualified women from the patent bar. A 2020 paper by Mary Hannon argued that the USPTO’s criteria systemically excluded qualified women from the patent bar by not including among the Category A enumerated degrees certain degrees more common among women (e.g., biological sciences and product design) and by including certain arbitrary requirements (e.g., ABET accreditation for computer science programs).²⁴ Senators Mazie Hirono (D-HI), Thom Tillis (R-NC), and Chris Coons (D-DE) wrote to the USPTO in December 2020 regarding the criteria, asking the USPTO to look into and address Hannon’s contentions.²⁵ USPTO responded by not only answering the Senators’ letter, but committing to evaluate the patent bar requirements to ensure that they are up to date and do not discourage applications from women or other underrepresented groups.²⁶

Invent Together commends the USPTO for its swift response to the Senators’ letter, 2021 modifications to the admission criteria,²⁷ solicitation of stakeholder input, and continued attention to this important issue. In addition to our general comments above, please see below for responses to select questions from the request for comments.

- 1. Should the Office review applicant degrees and add commonly accepted Category B degrees to Category A on a predetermined timeframe, e.g., every three years?**

Yes.

Although candidates who do not automatically qualify under Category A may qualify under Category B or C, qualifying under those categories carries additional burdens, including



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additional documentation and potentially more coursework. To reduce burdens for qualified applicants, it is important to keep Category A up to date, including by adding commonly accepted Category B degrees to the Category A degree list.

Invent Together believes that the USPTO should regularly review the scientific and technical qualification requirements for patent bar examination registration to ensure that they do not exclude qualified individuals from historically underrepresented groups. Conducting this gap analysis on a predetermined timeframe (e.g., every two years) will ensure greater transparency and accountability in the USPTO's ongoing efforts to evaluate the admission criteria and modify them as needed.

2. Should the Office accept Bachelor of Science degrees in computer science under Category A from an accredited United States college or university regardless of whether the degree program is ABET accredited?

Yes.

Category A should include Bachelor of Science degrees in computer science from an accredited United States college or university regardless of whether the degree program is ABET accredited. As Hannon and the Senators' letter point out, several of the top-ranked computer science programs in the United States, including the programs at Carnegie Mellon University, Stanford University, and University of California – Berkeley, are not ABET accredited.²⁸ Computer science degree earners from these institutions should certainly not be excluded from admission under Category A.

* * *

Thank you for the opportunity to share our views on the admission criteria for the registration examination and the importance of diversity among patent practitioners. Invent Together looks forward to continuing to work with the USPTO to promote diversity and inclusion in inventing and patenting.

Sincerely,



Holly Fechner
Executive Director
Invent Together

¹ A list of Invent Together's partners can be found here: <https://inventtogether.org/about/>.

² USPTO, PROGRESS AND POTENTIAL: 2020 UPDATE ON U.S. WOMEN INVENTOR-PATENTEES 3 (2020), <https://www.uspto.gov/sites/default/files/documents/OCE-DH-Progress-Potential-2020.pdf>.



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³ ELYSE SHAW & CYNTHIA HESS, INST. FOR WOMEN’S POL’Y RSCH., CLOSING THE GENDER GAP IN PATENTING, INNOVATION, AND COMMERCIALIZATION: PROGRAMS PROMOTING EQUITY AND INCLUSION (2020), https://iwpr.org/wp-content/uploads/2020/10/C471_Programs-promoting-equity_7.24.18_Final.pdf.

⁴ Jennifer Hunt et al., *Why Don’t Women Patent* 1 (Nat’l Bureau of Econ. Rsch., Working Paper No. 17888 2012), <https://www.nber.org/papers/w17888>.

⁵ Alex Bell et al., *Who Becomes an Inventor in America? The Importance of Exposure to Innovation* 2 (Nat’l Bureau of Econ. Rsch., Working Paper No. 24062 2019), https://www.nber.org/system/files/working_papers/w24062/w24062.pdf.

⁶ JESSICA MILLI ET AL., INST. FOR WOMEN’S POL’Y RSCH., EQUITY IN INNOVATION: WOMEN INVENTORS AND PATENTS (2016), <https://iwpr.org/wp-content/uploads/2020/12/C448-Equity-in-Innovation.pdf>.

⁷ Bell et al., *supra* note 5.

⁸ EUR. PATENT OFF., WOMEN’S PARTICIPATION IN INVENTIVE ACTIVITY: EVIDENCE FROM EPO DATA (2022), [https://documents.epo.org/projects/babylon/eponet.nsf/0/7A4224E289AA190BC12588EF0035BD67/\\$File/womens_participation_in_inventive_activity_2022_en.pdf](https://documents.epo.org/projects/babylon/eponet.nsf/0/7A4224E289AA190BC12588EF0035BD67/$File/womens_participation_in_inventive_activity_2022_en.pdf).

⁹ Ufuk Akcigit & Nathan Goldschlag, *Measuring the Characteristics and Employment Dynamics of U.S. Inventors* (Ctr. for Econ. Stud. Working Paper No. CES-22-43, 2022) <https://www2.census.gov/ces/wp/2022/CES-WP-22-43.pdf>.

¹⁰ Joan Farre-Mensa et al., *What Is a Patent Worth? Evidence from the U.S. Patent “Lottery”* 3 (Nat’l Bureau of Econ. Rsch., Working Paper No. 23268 2018), https://www.nber.org/system/files/working_papers/w23268/w23268.pdf.

¹¹ EMMA WILLIAMS-BARON ET AL., INST. FOR WOMEN’S POL’Y RSCH., INNOVATION AND INTELLECTUAL PROPERTY AMONG WOMEN ENTREPRENEURS: A REPORT ON WOMEN’S BUSINESS OWNERSHIP (2018), https://iwpr.org/wp-content/uploads/2020/10/C472_Report-Innovation-and-Entrepreneurship-9.6.18-clean.pdf.

¹² Lisa Cook, Webinar on The Economic and Social Implications of Racial Disparities for Princeton Univ. (June 8, 2020), <https://bcf.princeton.edu/wp-content/uploads/2020/11/Combined-Slides-10.pdf>.

¹³ Bell et al., *supra* note 5.

¹⁴ See, e.g., Elaine Spector, *5 Hiring Strategies for Diversifying the Patent Bar*, LAW360 (Mar. 1, 2021), <https://www.law360.com/articles/1359154/5-hiring-strategies-for-diversifying-the-patent-bar>; ELYSE SHAW & HALIE MARIANO, INST. FOR WOMEN’S POL’Y RSCH., TACKLING THE GENDER AND RACIAL PATENTING GAP TO DRIVE INNOVATION: LESSONS FROM WOMEN’S EXPERIENCES (2021), https://iwpr.org/wp-content/uploads/2021/07/Tackling-the-Gender-and-Racial-Patenting-Gap_FINAL38.pdf; How I Built This with Guy Raz, *Spanx: Sara Blakely* (2017), <https://podcasts.apple.com/us/podcast/spanx-sara-blakely/id1150510297?i=1000396023160>.

¹⁵ Elaine Spector, *Ensuring Women and Diverse Candidates in the Patent Bar: We Must Address the Root of the Problem*, IPWATCHDOG (Mar. 15, 2021), <https://www.ipwatchdog.com/2021/03/15/ensuring-women-diverse-candidates-patent-bar-must-address-root-problem/id=130896/>.

¹⁶ SHAW & MARIANO, *supra* note 14.

¹⁷ *Id.* at 11–12.

¹⁸ *Id.* at 12.

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.* at 11–12.

²² See *id.*



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²³ Letter from Andrei Iancu, Dir., USPTO, to Mazie Hirono, Thom Tillis, and Christopher Coons, Senators, U.S. Senate (Jan. 19, 2021), at 3, <https://www.ipwatchdog.com/wpcontent/uploads/2021/01/USPTO-response-to-Sens.-Hirono-Tillis-Coons-letter-01192021-1-2.pdf>.

²⁴ Mary T. Hannon, *The Patent Bar Gender Gap: Expanding the Eligibility Requirements to Foster Inclusion and Innovation in the U.S. Patent System*, 10 I.P. THEORY 1 (2020), <https://www.repository.law.indiana.edu/ipt/vol10/iss1/1>.

²⁵ Letter from Mazie Hirono, Thom Tillis, and Christopher Coons, Senators, U.S. Senate, to Andrei Iancu, Dir., USPTO (Dec. 11, 2020), <https://www.ipwatchdog.com/wp-content/uploads/2020/12/2020.12.11-Letter-to-PTO-re-Patent-Bar-Gender-Gap.pdf>.

²⁶ Letter from Andrei Iancu to Mazie Hirono et al., *supra* note 23, at 1.

²⁷ *USPTO Moves Ahead with Changes to Patent Bar Registration*, IPWATCHDOG (Sept. 23, 2021), <https://ipwatchdog.com/2021/09/23/uspto-moves-ahead-changes-patent-bar-registration/id=137960/>; Administrative Updates to the General Requirements Bulletin for Admission to the Examination for Registration to Practice in Patent Cases Before the United States Patent and Trademark Office, 86 Fed. Reg. 15467, 15467 (Mar. 23, 2021), <https://www.regulations.gov/document/PTO-P-2021-0005-0001>; Administrative Updates to the General Requirements Bulletin for Admission to the Examination for Registration To Practice in Patent Cases Before the United States Patent and Trademark Office, 86 Fed. Reg. 52652, 52652 (Sept. 22, 2021), <https://www.federalregister.gov/d/2021-20378>; USPTO OFF. OF ENROLLMENT AND DISCIPLINE, GENERAL REQUIREMENTS BULLETIN FOR ADMISSION TO THE EXAMINATION FOR REGISTRATION TO PRACTICE IN PATENT CASES BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE (2022), https://www.uspto.gov/sites/default/files/documents/OED_GRB.pdf.

²⁸ Hannon, *supra* note 24, at 12, 14–15; Letter from Hirono et al. to Andrei Iancu, *supra* note 25, at 3.

