

Diversity in Patent Law

A DATA ANALYSIS OF DIVERSITY IN THE PATENT PRACTICE BY TECHNOLOGY BACKGROUND AND REGION

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The practice of law remains one of the least diverse professions in America. Not only are men overrepresented in the practice of law, but they outnumber women in equity partner positions nearly five to one (see fig. 1).¹ In addition, around 90 percent of equity partners are white, while approximately 9 percent of equity partners are racially diverse minorities.² Worse yet, of the approximately 9 percent of racially diverse minorities holding equity partner positions, only one-third are racially diverse women.³

Demographic	2L Summer Associates	Associates	Of Counsel	Nonequity Partners	Equity Partners	All Partners	All Lawyers
White/Caucasian	66.39%	73.38%	85.93%	89.77%	89.87%	89.30%	81.69%
Asian American	13.13%	11.99%	5.25%	4.21%	3.73%	3.86%	7.70%
Hispanic/Latinx	7.55%	5.46%	3.41%	3.33%	2.62%	2.81%	4.08%
African American/Black	7.76%	4.83%	3.06%	2.45%	1.94%	2.08%	3.45%
Multiracial	3.81%	3.24%	1.44%	1.23%	0.76%	0.89%	2.02%
Alaska Native/American Indian	0.25%	0.18%	0.20%	0.21%	0.14%	0.16%	0.17%
Native Hawaiian/Pacific Islander	0.14%	0.08%	0.05%	0.06%	0.03%	0.04%	0.06%
Openly LGBTQ	5.61%	4.01%	2.16%	2.02%	1.90%	1.93%	2.90%
Individuals with Disabilities	0.35%	0.55%	0.64%	0.57%	0.44%	0.48%	0.53%
All Racial Minorities	32.63%	25.78%	13.41%	11.49%	9.21%	9.83%	17.48%
All Women	51.37%	46.47%	39.96%	30.11%	21.64%	23.93%	36.16%
Women of Color	19.27%	14.58%	7.05%	5.06%	3.08%	3.61%	9.00%

Figure 1. 2019 Vault/MCCA Law Firm Diversity Survey overall law firm demographics.

The statistics become even grimmer when we examine patent attorneys. The patent bar requires a hard science background, such as a degree in engineering, chemistry, physics, or biology. The science, technology, engineering, and mathematics (STEM) field has unquestionably been dominated by men, particularly in the areas of computer science, electrical engineering, and mechanical engineering.

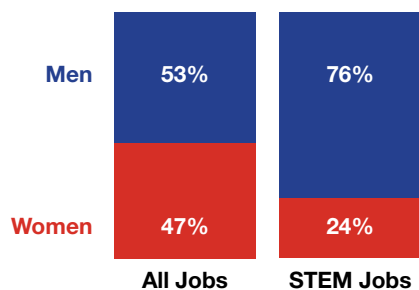


Figure 2. *Women in STEM: 2017 Update* gender shares of total and STEM jobs, 2015.

In 2017, the U.S. Department of Commerce released a report examining the STEM workforce.⁴ Not surprisingly, men are significantly overrepresented with respect to jobs in STEM (see fig. 2).

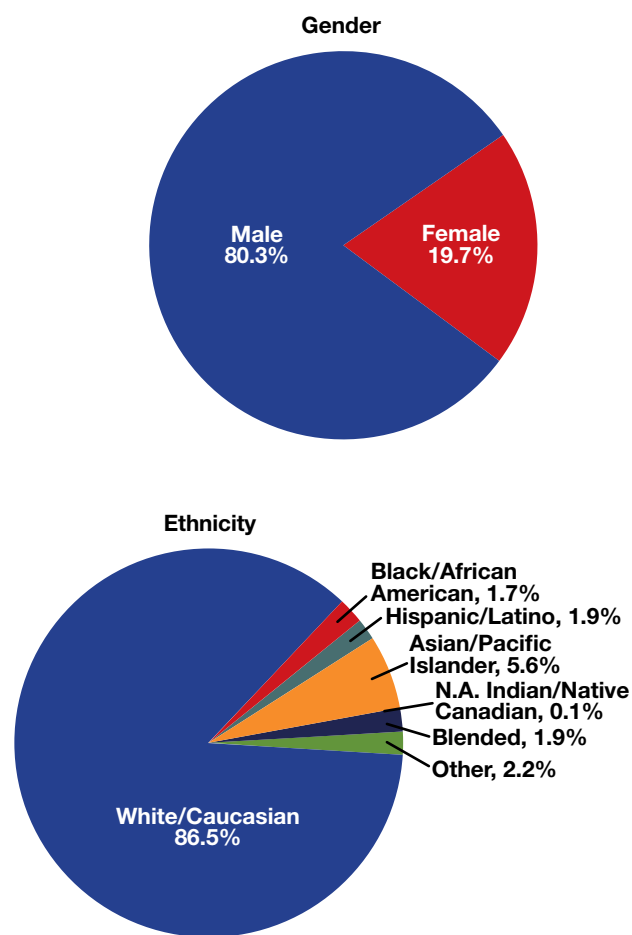


Figure 3. *AIPLA 2019 Report of the Economic Survey* background of all surveyed intellectual property attorneys.

While many organizations have undertaken surveys to evaluate the diversity issue with respect to the general practice of law, granular diversity data with respect to the patent bar remains scant. Historically, the surveys that have been conducted with respect to the patent bar have failed to identify relative breakdown by traditional technology backgrounds, such as computer science, mechanical engineering, electrical engineering, chemical engineering, and biotechnology. For example, the American Intellectual Property Law Association (AIPLA) *2019 Report of the Economic Survey* provides a general gender and ethnicity breakdown with respect to all intellectual property attorneys, including trademark and copyright attorneys (see fig. 3).⁵ However, it does not provide data regarding gender and ethnicity breakdowns exclusively for the patent bar. Moreover, it does not include more detailed data regarding gender and ethnicity breakdowns with respect to technology backgrounds specific to patent prosecution.

Having data regarding the breakdown of diverse candidates in specific technology backgrounds became important to our firm, Harrity, as it launched its Minority Firm Incubator program. The Minority Firm Incubator program was developed to address the disparity in equity positions in law firms and provide diverse candidates the opportunity to establish their own patent practices. Specifically, the goal of the Minority Firm Incubator was to launch minority-owned patent law firms focused on patent prosecution and preparation in the electro-mechanical arts. We were interested in understanding how patent practitioner registrations break down in terms of specific technical backgrounds as well as a breakdown of diverse classes of lawyers in particular geographic regions and the evolution of diversity in the patent practice over time.

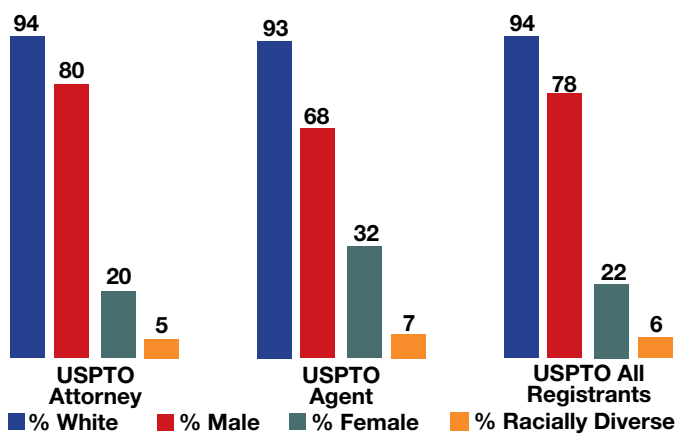


Figure 4. Overall diversity trends among USPTO registrants.

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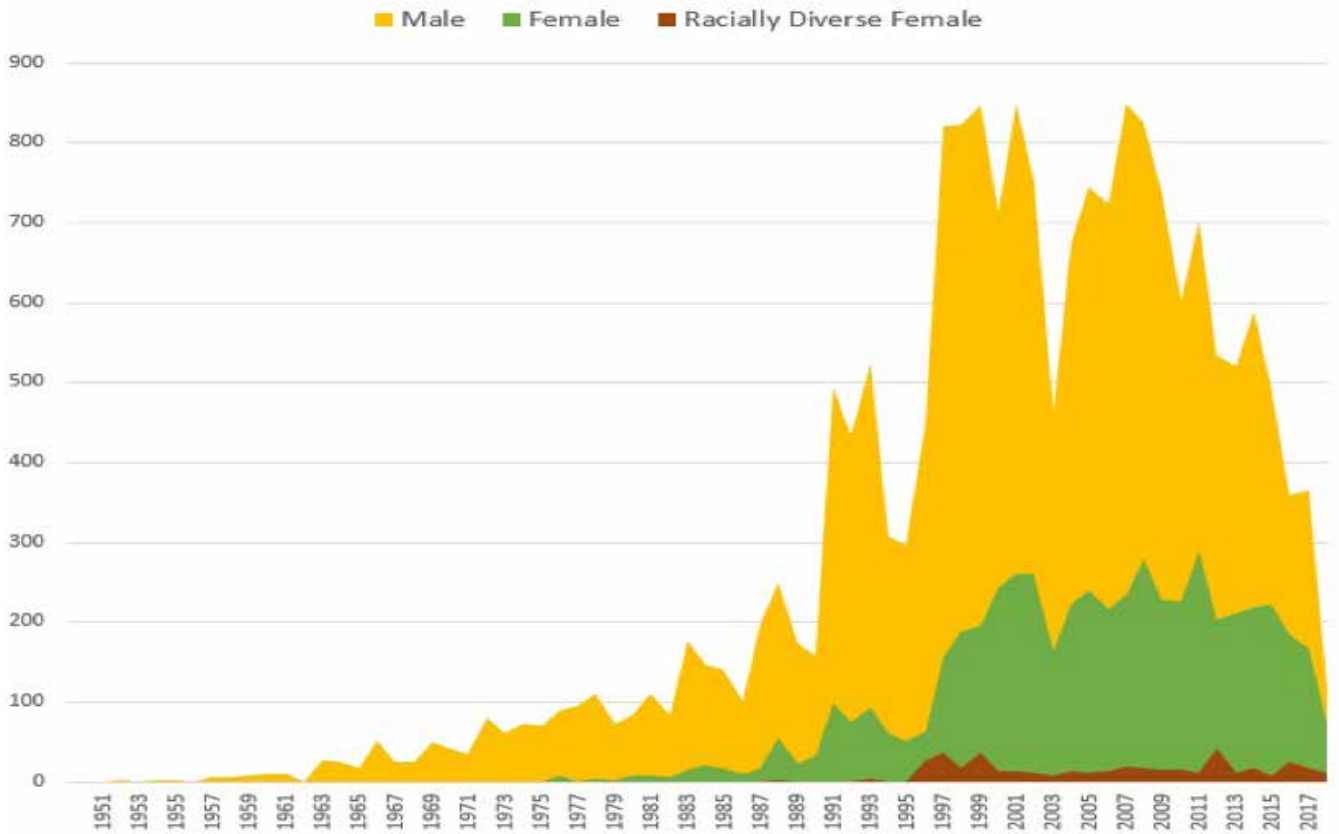


Figure 5. Historical gender breakdown of patent registrations by year, including racially diverse female registration information.

Overview of the Data

In order to get a broader sense of the diversity of patent practitioners overall, we hired a data collection firm to gather gender, race, and technical background for all U.S. Patent and Trademark Office (USPTO) registered practitioners based on their LinkedIn profile and professional online

presence.⁶ Currently, there are 47,228 registered patent practitioners in the U.S. Of those registered practitioners, we obtained diversity statistics with regard to 24,589 practitioners. Although this collection technique was not ideal, it is currently the most complete data available for registered patent practitioners.

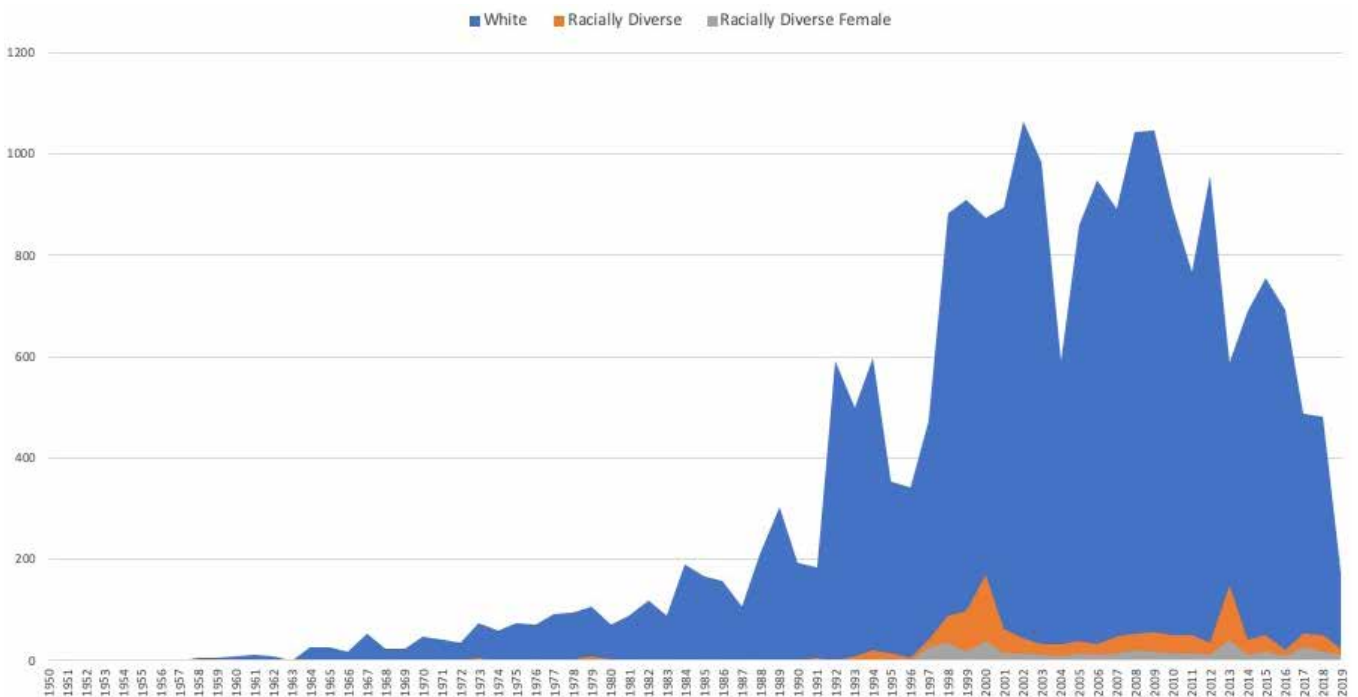


Figure 6. Historical racial breakdown of patent registrations by year, including racially diverse female registration information.

Rank	State	Women	Racial Minorities	Racially Diverse Women	Average Diversity Score
1	MD	27.53	11.08	5.70	14.77
2	OK	28.92	7.23	3.61	13.25
3	GA	24.43	9.93	2.12	12.16
4	IA	30.21	4.17	2.08	12.15
5	MA	30.41	4.10	1.87	12.13
6	DE	29.41	4.20	0.84	11.48
7	NJ	24.03	6.72	2.09	10.95
8	CA	24.25	6.00	1.53	10.59
9	MO	22.73	5.88	2.14	10.25
10	WA	24.18	4.60	1.34	10.04

Figure 7. Top 10 most diverse states for patent practitioners.

Rank	State	Women	Racial Minorities	Racially Diverse Women	Average Diversity Score
50	ID	6.56	3.28	0.00	3.28
49	UT	10.57	2.44	1.08	4.70
48	AL	17.65	0.00	0.00	5.88
47	NV	13.33	5.00	1.67	6.67
46	KY	18.99	1.27	0.00	6.75
45	SC	18.33	3.33	0.83	7.50
44	NH	18.75	3.75	0.00	7.50
43	LA	16.25	5.00	1.25	7.50
42	KS	17.95	3.85	1.28	7.69
41	AZ	18.57	3.93	0.71	7.74

Figure 8. Bottom 10 least diverse states for patent practitioners.

Gender Diversity

Overall, women make up 21.8 percent of USPTO registered attorneys and agents (see fig. 4). Of those women, 75.6 percent are attorneys and 24.4 percent are agents. The breakdown for male registrations shows a slightly higher percentage of registered patent attorneys than women, with 85.7 percent of men registered as attorneys and 14.3 percent registered as agents.

Although USPTO registration data is available as early as 1950, female registrations were virtually nonexistent until the early 1980s, with the first significant jump in registrations among women occurring in 1989 and gradually increasing until 2013 (see fig. 5). Data shows that the period from 2008 to 2009 is the only time in USPTO registration history where male registrations decreased while female registrations increased. That year, 74.6 percent of registrants were men, while 25.4 percent were women. In 2017, the highest percentage of women were registered with the USPTO than any other year. In that year, 33.9 percent of all registrations were female. Given that women account for more than 50 percent of law school entering classes, there is still a long way to go toward leveling the field.

Racial Diversity

Since 1950, less than 6 percent of all USPTO registrants have been racially diverse (see fig. 6). Throughout the 1970s and 1980s, an average of 1.7 percent of registrants per year were racially diverse. During the 1990s, that average increased to approximately 4 percent of registrants each year. Despite significant increases in 2000 (16.2 percent increase) and 2013 (20.1 percent increase), the average USPTO registration for racial minorities since 2000 has hovered around 6.5 percent.

Among racially diverse women, the numbers are significantly worse. In fact, there are more patent attorneys and agents named “Michael” in the United States than there are racially diverse women. Currently, only 1.7 percent of all registered patent attorneys and agents are racially diverse women. From 1950 until 1999, an average of 0.2 percent of USPTO registrations each year were racially diverse women, with the first being registered in the late 1980s. Since then, those numbers have improved only slightly, with an average of 2.2 percent of registrants being racially diverse women since 2000.

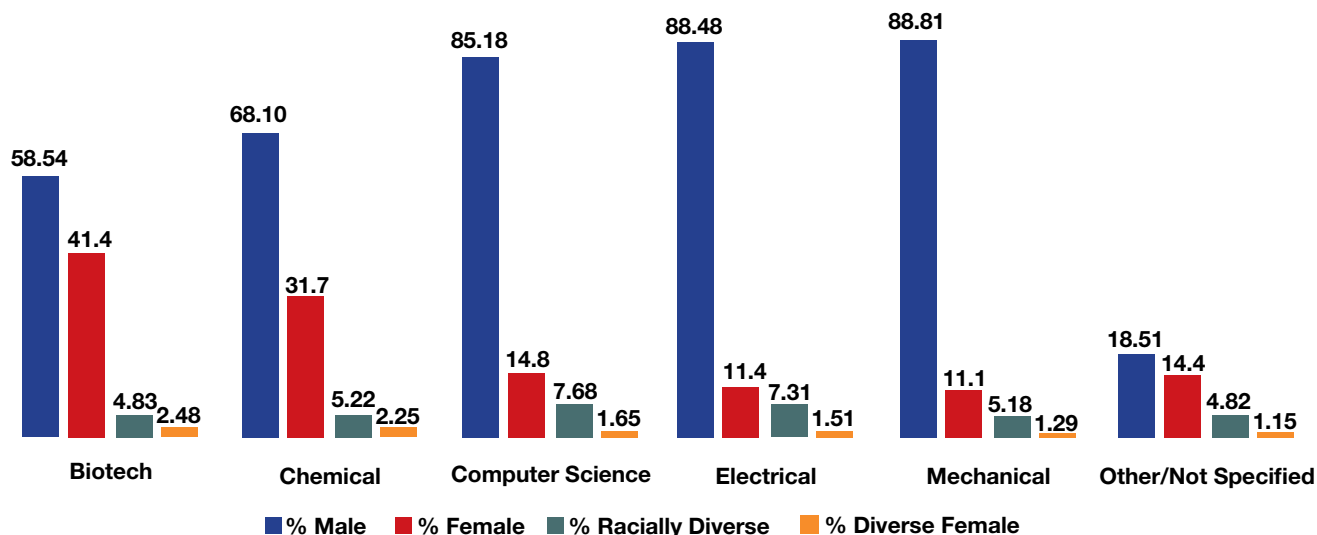


Figure 9. Diversity representation in patent practice areas.

By State

In assessing diversity among U.S. states for patent practitioners, we looked only at states with 50 or more registrations. We gave each state an average diversity score by averaging the percentage of women registered in the state, the percentage of racial minorities registered in the state, and the percentage of racially diverse women registered in the state. An average diversity score of approximately 40 would show equal distribution of race and gender. Every state on the list of registered practitioners falls well below that mark (see figs. 7–8).

Considering all-time USPTO registrations, the most gender-diverse states are Massachusetts, with 30.4 percent female practitioners; Iowa, with 30.2 percent female practitioners; Delaware, with 29.4 percent female practitioners; Oklahoma, with 28.9 percent female practitioners; and Maryland, with 27.5 percent female practitioners. The most racially diverse states are Maryland, with 11.1 percent racially diverse practitioners; Georgia, with 9.9 percent racially diverse practitioners; Texas, with 7.3 percent racially diverse practitioners; Oklahoma, with 7.2 percent racially diverse practitioners; and Virginia, with 7.2 percent racially diverse practitioners. Looking at racially diverse women, the highest percentage of patent practitioners are found in Maryland, with 5.7 percent racially diverse female practitioners; Oklahoma, with 3.6 percent racially diverse female practitioners; Missouri, with 2.1 percent racially diverse female practitioners; Texas, with 2.1 percent racially diverse female practitioners; and Georgia, with 2.1 percent racially diverse female practitioners. As you can see, the most diverse states are spread throughout the U.S., while the least diverse states are found primarily in the Southeast and Western parts of the country.

By Technology Area

Although there are some patent practice areas where women are well represented (i.e., biotechnology and chemistry), other areas continue to lack significant diversity (see fig. 9). Considering all-time USPTO registrations, electrical and mechanical engineering practice areas have the fewest women practitioners. In particular, women account for only 11.4 percent of patent practitioners having a technical background in electrical engineering and only 11.1 percent of patent practitioners having a technical background in mechanical engineering. In contrast, women practitioners with biotechnology backgrounds are close to reaching parity with men, with women comprising 41.4 percent of registrants having that technology background. Despite this encouraging statistic, biotechnology is the worst technology area for racial minorities, with 95.2 percent of registrants being white.

For patent firms seeking to increase diversity in their practice, the data is troublesome. Out of the gate, there is less than 15 percent of diverse registered practitioners in the areas of computer science, electrical engineering, and mechanical engineering, as compared generally to the gender parity that exists among attorneys entering the practice of law (e.g., 51.4 percent women at the 2L summer associate position). As registered practitioners move along their career paths, there will be inevitable attrition, as reported in the *Vault/MCCA Law Firm Diversity Survey* report (see fig. 1). Accordingly, it will be

difficult for firms that practice in the areas of computer science, electrical engineering, and mechanical engineering to improve their diversity efforts, particularly at the partnership level, given that the diversity numbers are dismal at the start.

Future Surveys and Data Collection

It is imperative that we work to get a complete picture of diversity in the patent practice. Because there is currently no method of self-identification among USPTO registrants, the first step to improving patent practitioner diversity is engaging the patent community to help identify the problem. For example, although the USPTO provides the ability for a practitioner to indicate whether they are diverse, being categorized as diverse in law applies to both women and racial minorities, with no distinction between the two. Therefore, this data is skewed. We believe that the USPTO should provide specific diversity categories, as identified in the *Vault/MCCA Law Firm Diversity Survey* report (see fig. 1).

Data can also be collected through practitioner surveys conducted by patent bar associations, such as the AIPLA and Intellectual Property Owners Association (IPO). While the AIPLA *Report of the Economic Survey* collects extensive statistics with regard to diverse categories of individuals, it does not highlight statistics for those lawyers falling into more than one diverse category, such as African American women. In order to get a truly representative view of patent professionals in the United States, we recommend that the AIPLA *Report of the Economic Survey* include statistics particular to African American women and other intersectional groups, much like the statistics included in the *Vault/MCCA Law Firm Diversity Survey* report (e.g., “women of color” are given their own demographic category).

This issue has been highlighted in a past *Landslide* article entitled “Diversifying Intellectual Property Law: Why Women of Color Remain ‘Invisible’ and How to Provide More Seats at the Table.”⁷ This article aptly points out that much of the current data refers to minorities as one large group and does not differentiate women based on race, thereby ignoring the “double dose of race and gender bias in the workplace.”⁸

In addition, there is currently no data regarding the proportion of women and diverse candidates who rise to senior roles in patent firms, let alone data specific for particular technology areas. For example, the 2019 *Vault/MCCA Law Firm Diversity Survey* report provides overall law firm demographics for 2L summer associates, associates, of counsel, nonequity partners, and equity partners (see fig. 1). No such data exists for the patent bar at large. Diversity at senior level positions in the patent practice is an important metric, and data is imperative in this area.

Initiatives to Move the Needle

Many initiatives have been developed and continue to be developed to address the lack of diversity in law. However, increasing diversity among the patent profession presents a unique problem.

First, patent law requires a hard science degree. As such, the pipeline with respect to diverse candidates entering a STEM field needs to be addressed. Recognizing the importance of

these types of initiatives, the federal government has recently enacted the Building Blocks of STEM Act to address the lack of diversity in STEM programs.⁹ The law directs the National Science Foundation (NSF) to “award grants, on a competitive basis, to institutions of higher education or nonprofit organizations (or consortia of such institutions or organizations), to accelerate research efforts to increase understanding of the factors that contribute to the participation of young girls in STEM activities.”¹⁰ The law also directs the NSF to award grants “to develop and evaluate interventions in pre-K and elementary school classrooms that increase participation of young girls in computer science activities.”¹¹ This law is a great first step toward addressing a larger systemic issue with respect to girls in STEM programs, but it is up to professionals to do more. To be effective, professionals in the STEM field need to engage the community to help develop applicable programs to engage women and diverse candidates.

Second, for the women and minorities who have received a degree in engineering, chemistry, computer science, physics, or biological sciences, an effort should be made to educate those engineers and scientists about opportunities for pursuing a career in patent law. Oftentimes, women and minority engineers do not consider a career in law because they do not know that one exists. In fact, many engineers are unaware that a degree in engineering or a hard science provides them with the opportunity to sit for the patent bar exam. Most are also typically unaware that they can practice patent law without a law degree as a patent agent. More programs need to be established to educate these diverse engineers about the potential career options in this area.

With appropriate initiatives and government programs in place, we hope to see an increase in diversity in patent law. It is imperative that patent law firms attract diverse candidates, as studies have repeatedly shown that increasing diversity

increases a company’s bottom line. As noted in IPO’s white paper entitled *Economics of Diversity*, having a diverse workforce is correlated with higher revenues and increased market share.¹² Not only will your law firm profit more from diversity, but diversity also will improve the value of your workplace. ■

Endnotes

1. VAULT & MINORITY CORP. COUNSEL ASS’N, VAULT/MCCA LAW FIRM DIVERSITY SURVEY: 2019 REPORT 4 (2020), https://www.mcca.com/wp-content/uploads/2020/03/2019-Vault_MCCA-Law-Firm-Diversity-Survey-Report.pdf.
2. *Id.*
3. *Id.*
4. OFFICE OF THE CHIEF ECONOMIST, U.S. DEP’T OF COMMERCE, WOMEN IN STEM: 2017 UPDATE 3 (2017), <https://www.commerce.gov/sites/default/files/migrated/reports/women-in-stem-2017-update.pdf>.
5. AIPLA, 2019 REPORT OF THE ECONOMIC SURVEY 8 (2019).
6. The entire list of practitioners can be downloaded at <https://oedci.uspto.gov/OEDCI/practitionerRoster>.
7. J. Shontavia Johnson et al., *Diversifying Intellectual Property Law: Why Women of Color Remain “Invisible” and How to Provide More Seats at the Table*, LANDSLIDE, Mar./Apr. 2018, at 30, https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2017-18/march-april/diversifying-intellectual-property-law.
8. *Id.*
9. Pub. L. No. 116-102, 133 Stat. 3263 (2019).
10. H.R. REP. NO. 115-558, at 2 (2018).
11. *Id.* at 3.
12. JENNIFER CARTER ET AL., IPO WOMEN IN IP COMM., ECONOMICS OF DIVERSITY (2019), <https://ipo.org/wp-content/uploads/2019/03/FINAL-White-Paper-on-Economics-of-Diversity-1.pdf>.