

TACKLING THE GENDER AND RACIAL PATENTING GAP TO DRIVE INNOVATION

Lessons from Women's Experiences

KEY FINDINGS

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Innovation is a hallmark of American culture, fostering societal growth and development while also stimulating the economy. In the innovation process, women and people of color are woefully underrepresented as inventors. Yet greater diversity of perspectives and lived experiences among inventors will improve the chances that we discover and create solutions to some of the most pressing issues of our time. This document summarizes the key findings from [*Tackling the Gender and Racial Patenting Gap to Drive Innovation: Lessons from Women's Experiences*](#), a briefing paper that examines the challenges women inventors face at the intersections of race and gender throughout the innovation and patenting process.

This research is based on 21 in-depth interviews with inventors—16 women and 5 men—who discussed their experiences at each stage of the patenting process. Of the 16 women inventors, 11 were women of color, including six Asian or Pacific Islander women, two Black women, and two Latina women. The interviewees represented 14 different industries and were from 10 different states. They had a range of experiences in academia, corporate environments, and with entrepreneurial endeavors.

SYSTEMIC BARRIERS TO INNOVATION AND PATENTING

- **Women's Underrepresentation in STEM and Other Patent-Intensive Fields:** Almost all interviewees attributed the lack of diversity in innovation at least in part to women's underrepresentation in STEM fields generally. Most of the women interviewed spoke about the barriers women face when entering STEM fields. They also mentioned that White men dominate their fields and leadership positions within organizations and companies, and garner more attention for their inventions.
- **Work-Life Balance:** Seven women and one man discussed work-life balance issues for women. As women shoulder the most household and caregiving duties, these responsibilities negatively impact women's career prospects, opportunities for advancement on patent-intensive career paths, and their ability to patent as independent entrepreneurs.
- **Stereotypes, Discrimination, and Bias:** Every woman inventor shared multiple personal instances of or discussed other women's stories of gender or racial bias in their careers and during the patenting process. These experiences included sexual harassment. Women also spoke about not feeling welcome in patenting spaces, because they were often the "only" woman or woman of color in the room.

LACK OF FORMAL EDUCATION ON THE PATENTING PROCESS

- **Disadvantages Faced by White Women and Women of Color:** None of the inventors interviewed had any formal education on patenting or innovation as part of their high school, undergraduate, or graduate education. From a young age, White women and women of color are less likely to be exposed to or drawn into STEM classes and accelerator programs. Without formal education, inventors do not know where to find resources and may fall behind those who were exposed to innovation at an earlier age.
- **Lack of Understanding about the Patenting Process:** Initial negative feedback or rejection from the U.S. Patent and Trademark Office discourages many women inventors from pursuing their patents. Yet, initial rejections often help inventors to revise their claims and re-submit a stronger application. Without the knowledge and resources to invest in following through on the patenting process, women miss out on the opportunity to refine their ideas and secure a patent for their inventions.

INFORMAL EDUCATION AND MENTORING

- **Mentors Provide Critical Information and Resources:** Given the lack of formal education, mentors are the main source of knowledge about the patenting system. Mentors invest time and resources to guide young inventors through the fundamentals of patenting and connect new inventors to networks and other supports.
- **Women Work Harder to Build Networks and Find Mentors:** Only two women interviewees reported having easy access to networks and mentors who are fluent in patenting, compared to all five men. Without access to mentors, many women inventors had to teach themselves about patenting through online searches or existing patents and spent more time and energy on learning the process.

GATEKEEPERS TO PATENTING: THE QUALITY OF NETWORKS AND ADVOCATES MATTER

- **Supervisors and Advisors:** Women need sponsors who are “in the room” when decisions are made about who gets to be on a patent. For women of color specifically, mentors are harder to come by, and few have other women of color to look to as successful role models in the patenting and innovation space. Women interviewees reflected on experiences of being left off a patent or added as an author depending on the willingness of their superiors who advocated for them.
- **Patent Attorneys:** Due to differences between legal jargon and the technical language associated with an invention, inventors and patent attorneys often have difficulty communicating effectively. Quality intellectual property attorneys are expensive but necessary to ensure a high-quality patent. Additionally, women reported feeling talked down to by men attorneys they worked with and others said they felt more comfortable working with women attorneys.
- **Technology Transfer Offices:** In academia, technology transfer offices connect faculty inventors to the resources they need to file a patent. However, technology transfer offices are motivated by the potential for profit and tend to prioritize inventions from faculty with a proven track record in patenting and commercializing their ideas. Additionally, while the office absorbs most of the time and energy invested in the patent application and covers the financial costs, the university owns the patent, not the inventor. Several women experienced bias when working with technology transfer offices. This bias privileges established academics, who are more likely to be White men, and disadvantages newer academics, many of whom are women.

PATENTING CHALLENGES, AND THE SUPPORTS NEEDED TO OVERCOME THEM, DIFFER BY SECTOR

- **Academia:** Inventors have limited opportunities to benefit financially from their patents unless they purchase the license back from their university. This can be a costly process and disadvantages White women and women of color as they are more likely to lack the networks or resources needed to purchase their intellectual property from the university. Also, depending on one’s field, patents are often not valued as highly as academic papers when being considered for tenure or other advancement opportunities, which disincentivizes women, who often have more demands on their time, from pursuing the patent.
- **Corporate:** Understanding office politics in corporate settings is necessary for new inventors, especially women, as they must go beyond their immediate supervisor and develop relationships with other inventors and patent attorneys willing to advocate and support new inventors. Women interviewees emphasized the importance of identifying networks and mentorship opportunities early on in their careers given that many work in men-dominated settings.
- **Startup/Entrepreneurship:** The main challenge for inventors is funding. Given the high cost of patent attorneys, the cost of defending intellectual property rights, and the lack of venture capital investments and seed money that go to startups led by White women and women of color, women are less likely to have the capital needed to patent and commercialize their ideas.

CONCLUSION AND RECOMMENDATIONS

Despite the challenges faced as technical experts in men-dominated settings, many women gain valuable experience and prestige from filing patents. Patenting may also assist with personal growth and pursuing one's passion in their field. However, the challenges outweigh the benefits in many circumstances and create constant obstacles for women in patent-intensive fields. These obstacles are amplified for women of color, who face challenges at the intersection of both race and gender in settings dominated by mainly White men.

Based on the findings of this report, recommendations for promoting gender and racial diversity in innovation and patenting include:

- Promoting early exposure to STEM for girls and young women from diverse backgrounds;
- Developing formal curricula on the patenting process;
- Tackling systemic racial and gender bias and discrimination;
- Investing in child care and work-life balance supports;
- Increasing support and funding for accelerator programs for women;
- Increasing access to quality patent attorneys;
- Increasing flexibility in governmental grant funding; and
- Increasing funding for women, particularly women of color, for innovation and patenting.

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