

**UNITED STATES
PATENT AND TRADEMARK OFFICE**



**Patent Public Advisory Committee
Quarterly Meeting**

**Progress and Potential:
A profile of women inventors on U.S. patents**

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May 2, 2019

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Motivation & objective

- **Women comprise a small minority of patent inventors.**
- **Harnessing untapped inventive talent spurs innovation and drives economic growth.**
 - The current gender gap in innovation would shrink by half if girls were exposed to female inventors to the same degree as boys are to male inventors in their childhood (Bell et al. 2017).
- **This report, released in February 2019, examines U.S. women inventors named on U.S. patents granted from 1976 through 2016.**
 - How many U.S. women participate in the U.S. patent system?
 - In what technological areas do women patent?
 - Where are women inventors located?

Methodology

- USPTO does not regularly collect demographic information on inventors.
- To study women's participation in patenting, inventors must be classified as men or women based on their names.
- Starting with unique inventor IDs from PatentsView (www.patentsview.org) and specialized name-origin databases, our report uses a name-to-gender attribution model.
- We make two novel methodological contributions:
 - Leverage the origin of an inventor's last name to classify the inventor's gender using his/her first name
 - Focus on the percentage of inventors who are women ("women inventor rate") rather than the share of patents with a female inventor

Share of patents vs. share of inventors

- Share of patents with a female inventor: The percentage of patents granted in a given year with at least one female on the inventor team.
- Women inventor rate: The percentage of all unique inventors granted a patent in a given year that are women.



50% of patents with at least one female inventor



50% of patents with at least one female inventor

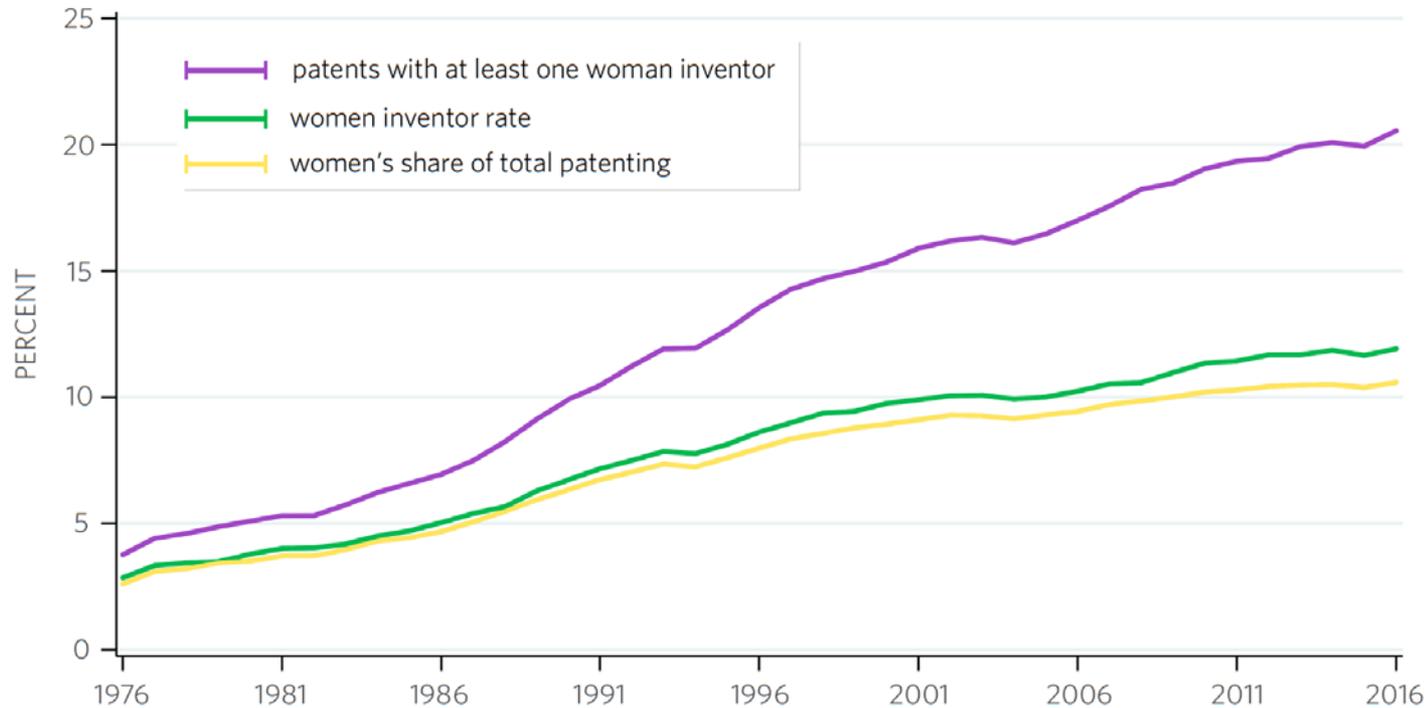


50% women inventor rate

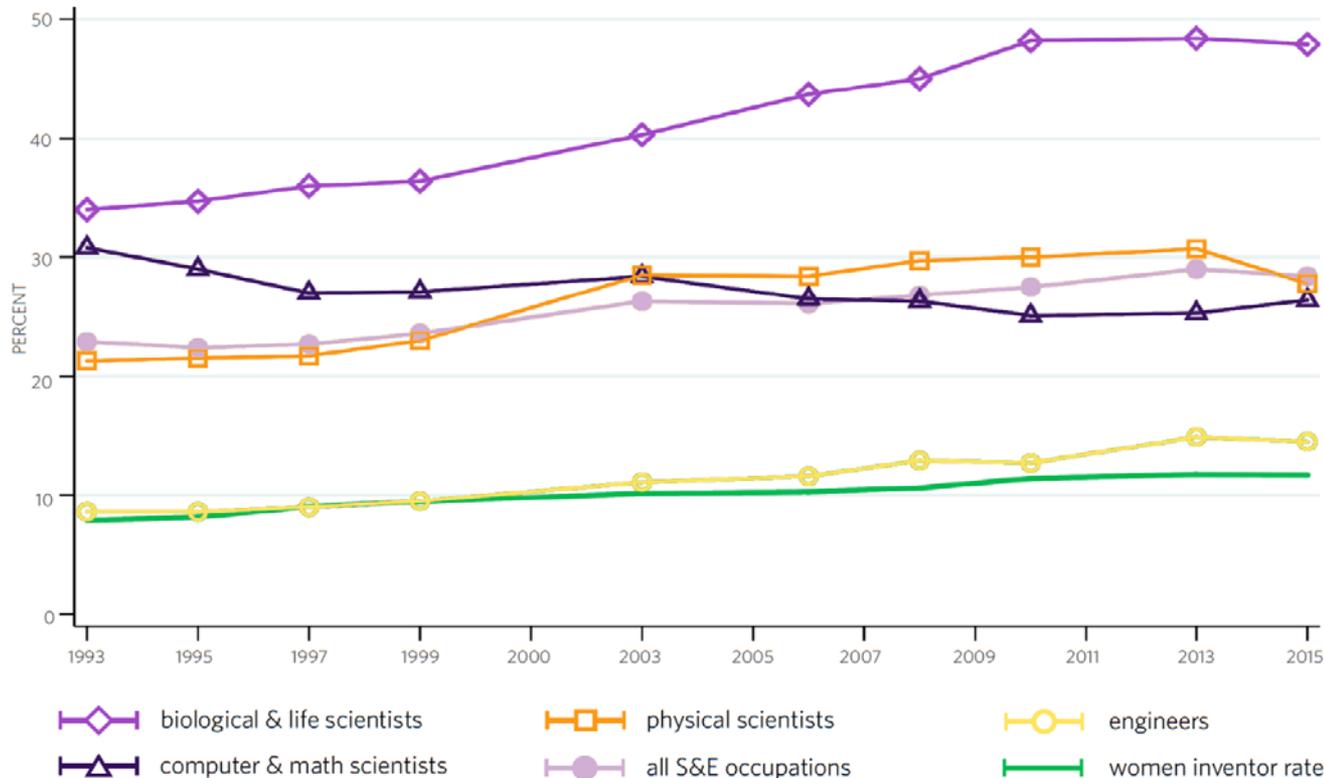


10% women inventor rate

Forty-year trends of women in U.S. patenting



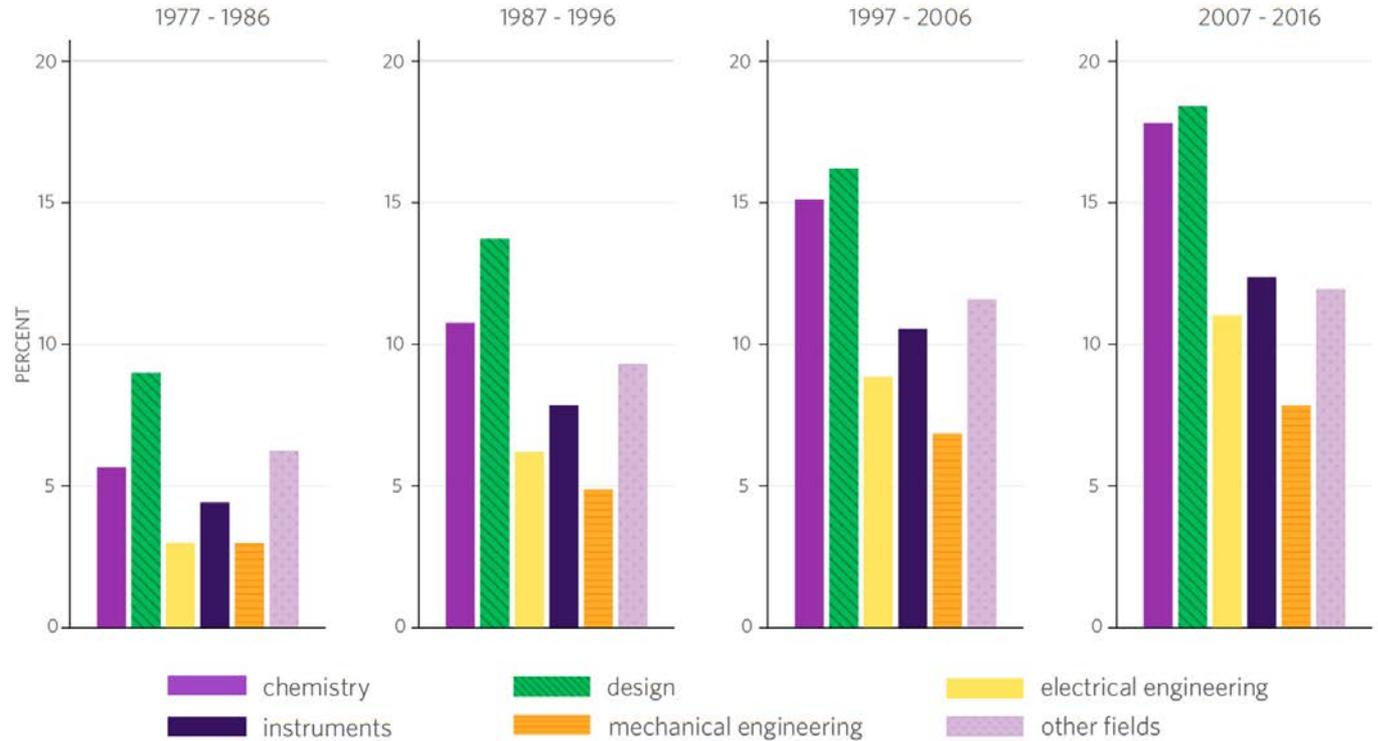
Women in science and engineering occupations vs. patent inventors



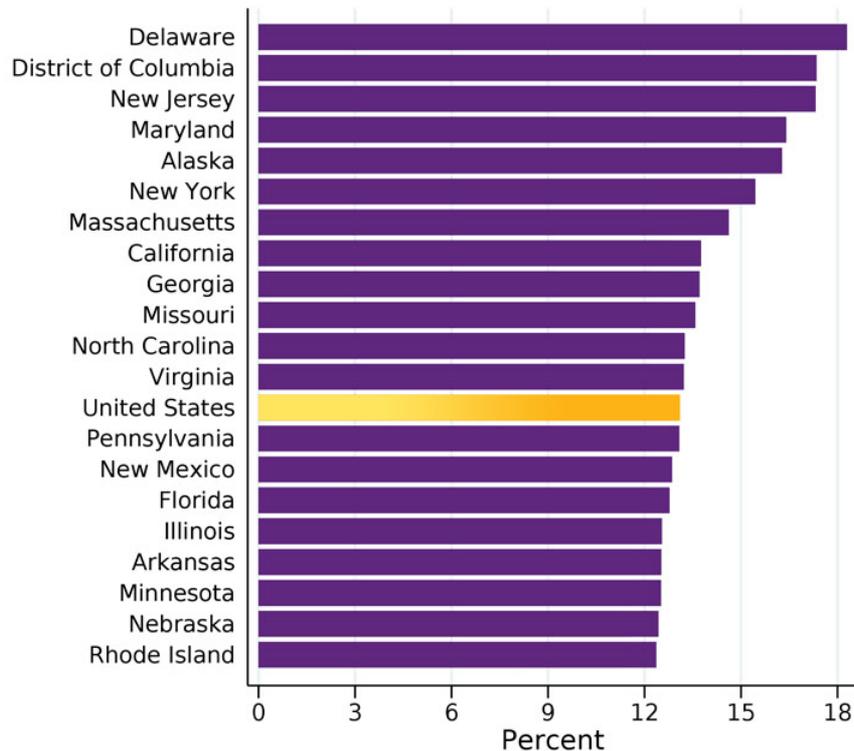
Across nearly all science occupations, women participate at a much higher rate than they invent patented technology.

Women inventor rate by technology

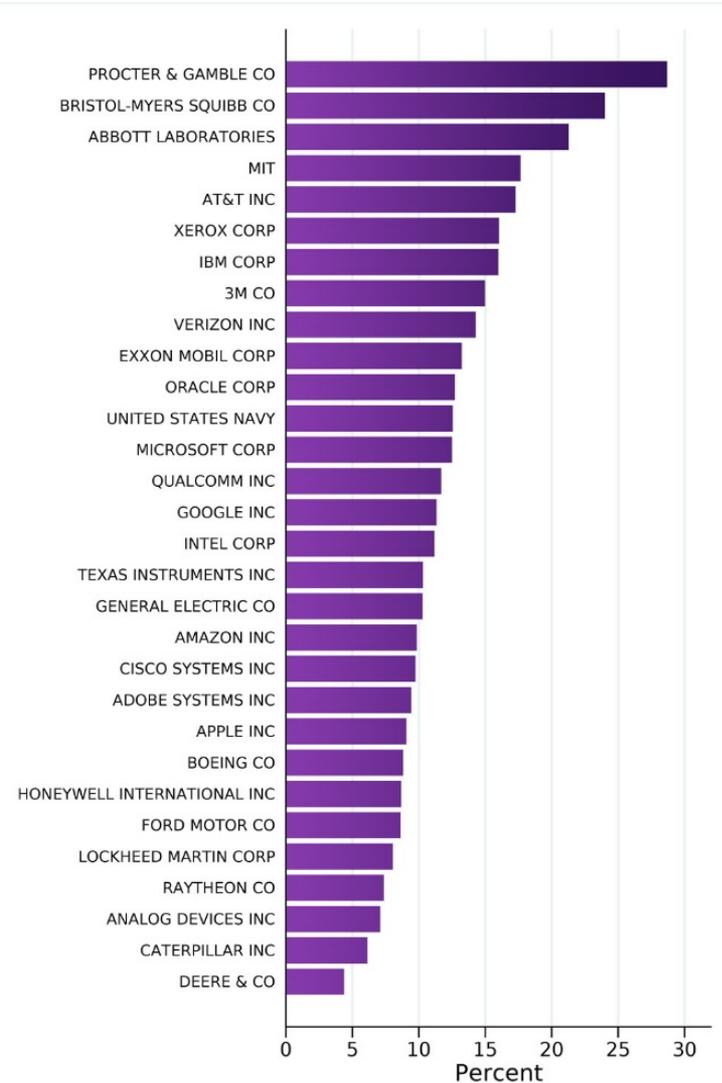
Women are specializing in technology fields and sectors where female predecessors have patented rather than entering male-dominated fields or firms.



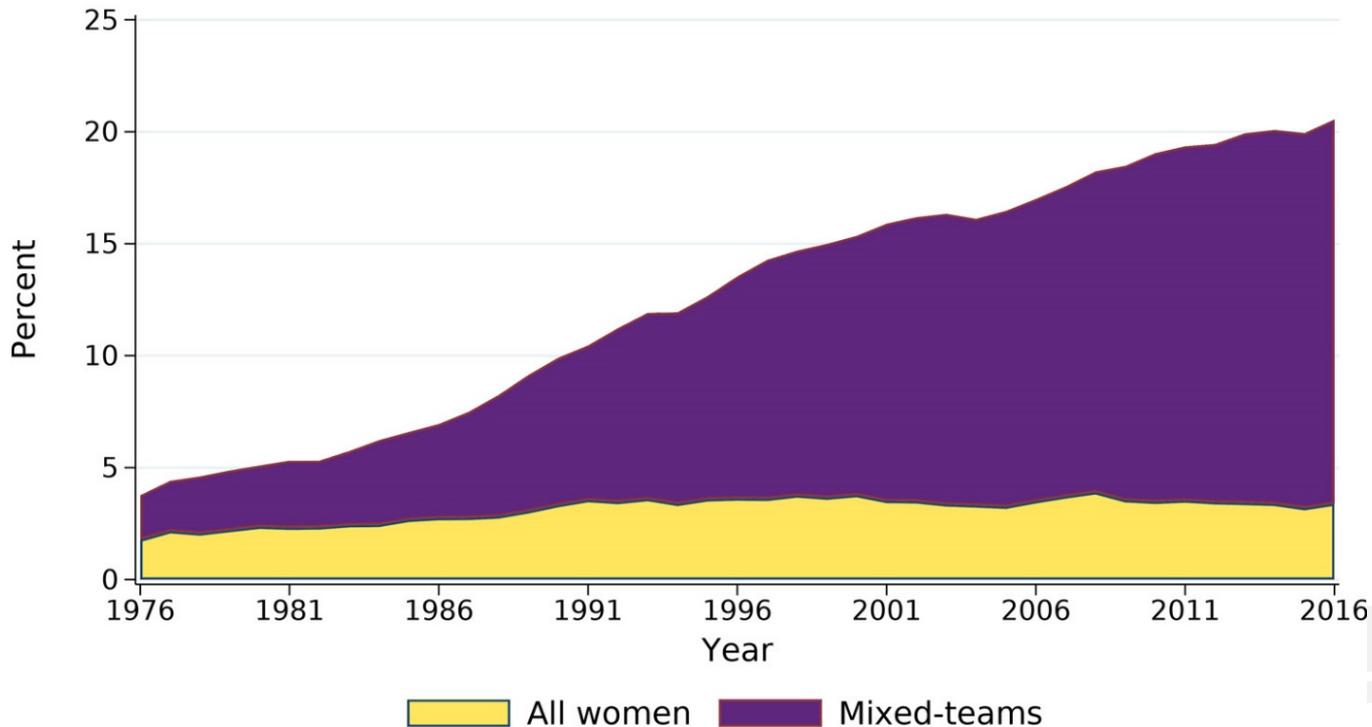
Women inventor rate by state (top 20)



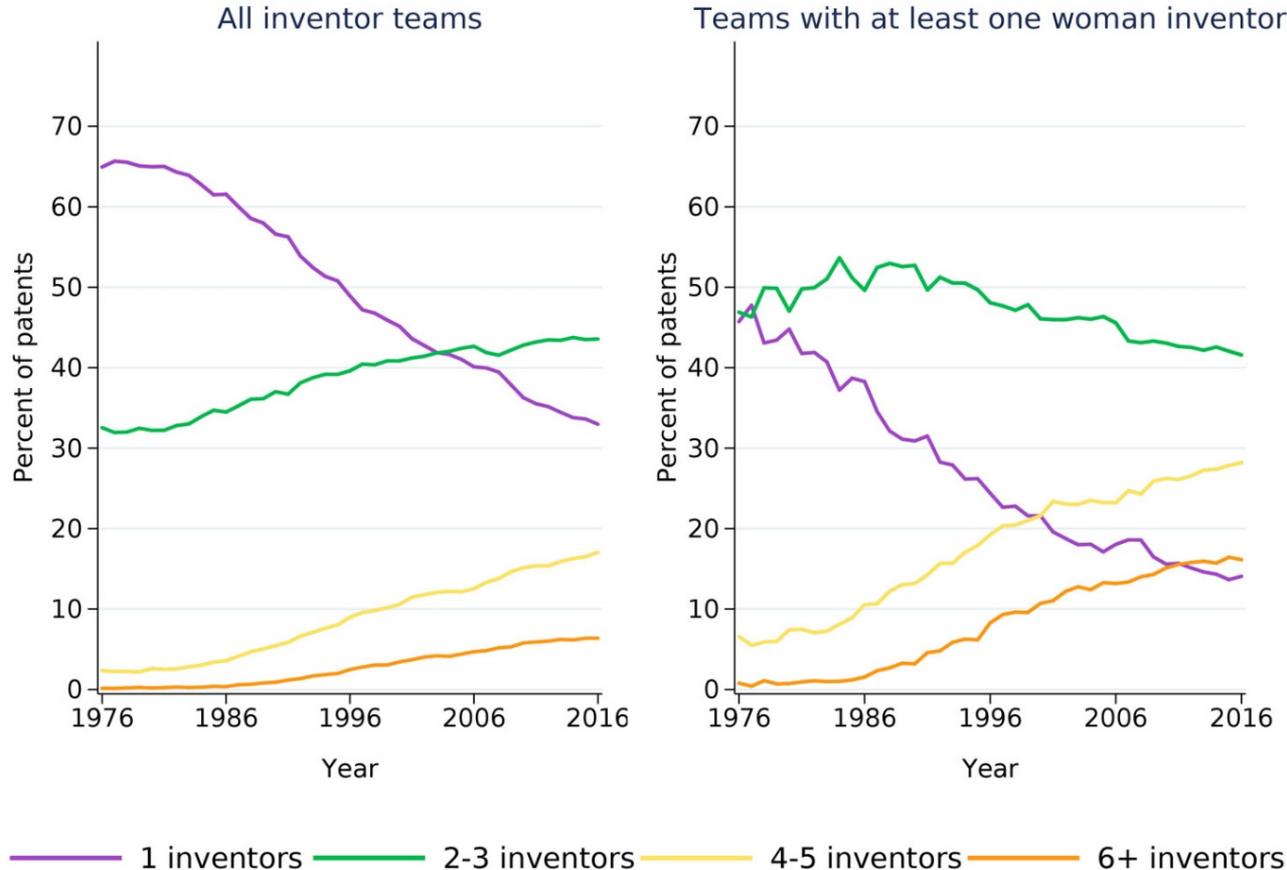
Women inventor rate at select top patent assignees, 2007-2016



Share of patents with at least one woman inventor by gender composition



Share of patents by inventor team size



Key findings

- Women comprise a small minority of patent inventors – only 12 percent of all inventors on patents granted in 2016.
- Women inventor rates do not reflect the gains in female participation in science and engineering occupations.
- Women inventors are concentrated in specific technologies – suggesting women specialize in areas where female predecessors have traditionally patented.

Key findings

- Women inventor rates are higher in technology-intensive states and those with larger female workforce participation.
- Businesses have the lowest women inventor rates among the various categories of U.S. patent owners.
- Women are increasingly likely to patent on large, gender-mixed inventor teams – highlighting the growing importance of understanding the relationship between gender and inventive collaboration.

Questions and comments

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