The theme of International Women's Day this past March may have been "gender parity," but at the rate things are going, women won't file as many patents as men in a single calendar year until nearly 2100, according to the Institute for Women's Policy Research.

But thanks to research from Washington University in St. Louis, published June 18 in *Technology and Innovation, Journal of the National Academy of Inventors*, a blueprint is emerging to help technology transfer offices (TTOs) support women inventors in academia to protect, patent and commercialize their lab findings to help to support their institutions and, potentially, society at large.

"Programming aimed at women innovators can enhance the engagement of female creators in technology transfer activities," said Nichole Mercier, managing director of Washington University's Office of Technology Management (OTM).

For the study, Mercier and her colleagues looked at the number of invention disclosures and patents filed by Washington University female faculty members, both before and after the creation of the Women in Innovation and Technology program. The program, which is run through OTM, was started in 2014 with the aim of increasing female faculty participation in technology transfer.

"There is a very real trend in what we have seen since we started this program," Mercier said.

Twenty-seven percent more women faculty members had interacted with OTM between 2013-16 than in the three previous years, and the number of patents filed on behalf of women faculty increased by nearly 129 percent.

In 2011, about 30 percent of the university's faculty at Washington University School of Medicine in St. Louis and at the School of Engineering & Applied Science were women, but less than 4.5 percent of them were represented on invention disclosures, as compared with 11 percent of male faculty. By 2016, 4.7 percent of all female faculty members had contributed to such disclosures.

Mercier and co-authors Varsha Ranjit, a former graduate student who earned her master's in public health from the Brown School in 2017, and Robert J. Reardon, senior business manager at OTM, cited several potential reasons for the discrepancy in transfer technology activity between men and women, even as the number of female faculty continues to grow.

According to the study, women may have different risk profiles, fewer industry connections, and they may be less likely to consider lab work as ready for technology transfer at the same stage when a man would start interacting with a TTO.

"Sometimes, if women don't have the language of commercialization, they tend not to engage," Mercier said, "and, critically, their networks aren't as robust as their male counterparts."

There are also some of the same challenges that will be familiar to many women, no matter their field: biology and family engagement will impact women differently than men. The researchers cited a study of female doctorate students who said mothers in the academy were less likely to patent because of child-rearing and household chores.

But women are just as interested in learning about commercializing their lab work, Mercier said, citing 2007 research by Fiona Murray and Leigh Graham. Once a woman has secured her first patent, she is more likely to re-engage with a TTO, narrowing the gap between men and women in technology transfer.

The Women in Innovation and Technology program addressed the challenges in order to increase female faculty's involvement with technology transfer in several ways, offering:

- invites to female scientists to participate in
technology transfer and commercialization of academic work;
• an educational component;
• internal network of female peers that engage in technology transfer; and
• an external network of community individuals and peers at other institutions who can serve as mentors, facilitators or just points of engagements.

"We are still one of the few universities that has a program dedicated to tracking female engagement," Mercier said. More universities will need to understand the trends specific to their faculty in order to narrow the gap and promote gender parity in the technology transfer field.

"TTOs must critically understand how women participate in technology transfer activities at their own institution," she said, "and seek to enhance participation with purposeful direction," Mercier said.