

# WOMEN IN STEM: PERCEPTIONS VS. REALITIES

By Laurie A. Shuster, Editor-in-Chief

In the decades since women began entering the workplace in large numbers in the 1960s and '70s, women have steadily increased their representation in science, technology, engineering, and mathematics, or STEM, jobs. According to the U.S. Census Bureau, women made up just 8% of STEM workers in 1970. By 2019 that percentage had grown to 27%.<sup>1</sup>

And the rate of growth is increasing. The National Science Foundation reports that between 2011 and 2021, the number of women in the STEM workforce increased 31%, while the number of men increased just 15% over the same period.<sup>2</sup>

What's more, women are increasing their representation among leadership ranks across the corporate world in general. According to a 2023 study conducted by the IBM Institute for Business Value,<sup>3</sup> the number of employers who have made advancing women into leadership

roles a business priority increased significantly just between 2021 (25%) and 2023 (45%). By 2023, many companies had introduced formal networking organizations for women (61%), created career development paths for women (78%), and required diversity training for managers (65%), the report stated.

With all this good news, it would be easy to assume that gender equity in the working world, and STEM in particular, has been achieved.

But women in STEM say the reality is very different from the perceptions. Although there are too many challenging and often false perceptions to address in one place, it is worth examining a handful of key assumptions facing many women engineers and technologists and comparing those with what the data, the experts, and the day-to-day lived experience of women in STEM show to be the reality.

## **PERCEPTION:** Bias against women in STEM workplaces no longer exists.

This is the overarching assumption from which many other perceptions flow. After all, workplace discrimination based on gender, race, ethnicity, and other measures of identity was outlawed by the Civil Rights Act in 1964. So, it can be easy to assume that all workplace bias has been erased.

## **The Reality**

In fact, in 2018, half of all women in STEM jobs experienced some form of gender bias at work, according to the Pew Research Center report, "Women and Men in STEM Often at Odds Over Workplace Equity."<sup>4</sup> And the study found that the problem was more acute in majority-male workplaces, which

describes many if not most STEM environments. According to the study, the vast majority — 78% — of women in majority-male STEM workplaces say they have experienced gender discrimination at work.

These biases take the form of being treated as though they are not competent, receiving less support from senior

leaders than a man doing the same job, being passed over for the most important assignments, and being denied promotions, among others, the report states.

According to multiple research studies<sup>5,6</sup> conducted over the past eight years by WorkLife Law, now known as the Equality Action Center, or EAC, at the University of California College of

- the Law, San Francisco, or UC Law SF, women face five types of bias at work:
- The prove-it-again bias: women must prove their expertise repeatedly to get the same levels of respect and recognition as men
  - The tightrope bias: women must navigate a narrow range of acceptable behaviors without being viewed as “too feminine” or “too masculine”
  - The maternal wall bias: women are viewed as less competent or committed to work if they have children
  - The tug-of-war bias: women are often viewed negatively if they publicly support other women
  - Isolation bias: Black and Latina women are more often excluded from socially engaging with colleagues or choose to keep to themselves to maintain their authority.

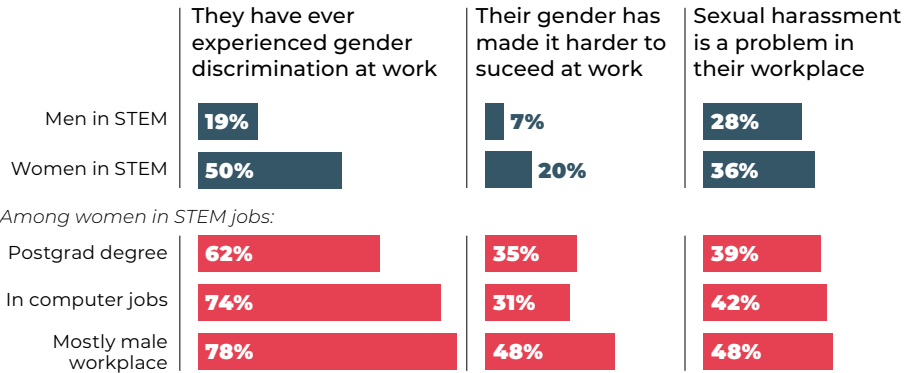
The EAC reports that these biases affect every aspect of women’s success in engineering, including their sense of belonging, their career satisfaction, and their pathways to promotions.

Joan C. Williams, J.D., the Sullivan Professor of Law at the UC Law SF and the founding director of the EAC, said these biases have persisted for years, and most are not improving or improving only marginally.

“In terms of the prove-it-again bias — the sense that women are not a great fit for science and that women of color are even a poorer fit — we don’t find that diminishing over time,” she said. “In terms of the tightrope bias — the sense that white men just need to be authoritative and ambitious, but everyone else needs to find ways to be authoritative and ambitious that feel comfortable to people whose sense of what is appropriate is deeply shaped by gender bias — we don’t find that changing either, unfortunately.”

Williams said the maternal wall bias may not be as severe in engineering as it is in, for example, the legal profession, which demands very long hours on a regular basis. But it can be significant in high-tech companies, which expect

**MOST WOMEN IN STEM JOBS IN MAJORITY-MALE WORKPLACES, IN COMPUTER JOBS OR WITH POSTGRADUATE DEGREES SAY THEY HAVE EXPERIENCED DISCRIMINATION AT WORK**



Note: Respondents who gave other responses or who did not give an answer are not shown.  
Source: Survey of U.S. adults conducted July 11–Aug 10, 2017. “Women and Men in STEM Often at Odds Over Workplace Equity,” Pew Research Center.

**HALF OF WOMEN IN STEM JOBS SAY THEY HAVE BEEN DISCRIMINATED AGAINST AT WORK**

	MEN	WOMEN	WOMEN non-STEM
Ever experienced any of these types of discrimination	19%	50%	41%
Earned less than a woman/man doing the same job	6%	29%	24%
Were treated as if they were not competent	4%	29%	22%
Experienced repeated, small slights	4%	20%	16%
Received less support from senior leaders than a woman/man doing the same job	9%	18%	15%
Felt isolated in their workplace	5%	11%	8%
Been passed over for the most important assignments	4%	9%	10%
Been turned down for a job	4%	7%	7%
Been denied a promotion	4%	6%	7%

Note: Experience of gender-related discrimination based on combined responses to eight items. Respondents who gave other responses or who did not give an answer are not shown.  
Source: Survey of U.S. adults conducted July 11–Aug. 10, 2017. “Women and Men in STEM Often at Odds Over Workplace Equity,” Pew Research Center.

after-hours socializing, such as “playing Nerfball at 10 p.m.

“That is not a business activity,” she said. “But if it is a requirement for success, you are going to pretty effectively bleach mothers out of your labor pool very quickly.”

Only one bias has improved in the past several years, she said. “The tug-of-war bias, which was never as prevalent as the other biases were, has gotten somewhat (better) to considerably better as women attain a firmer hold on power,” Williams said.

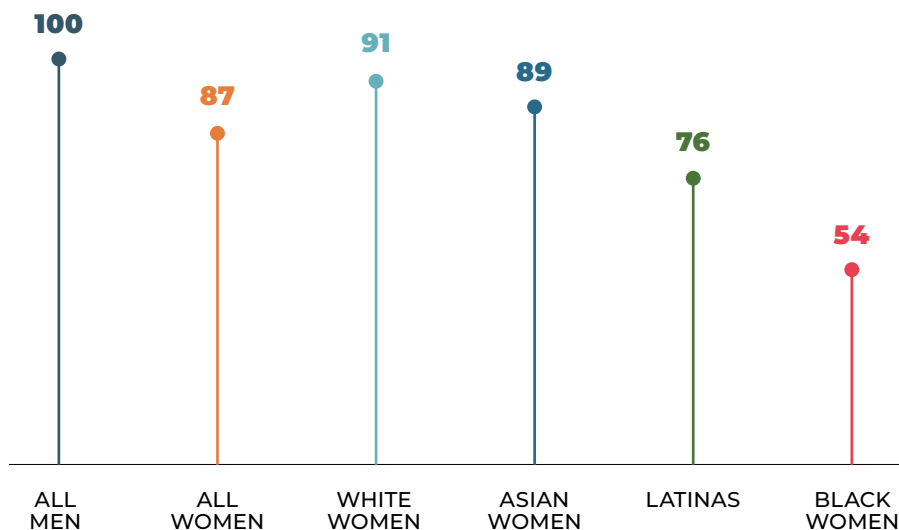
**PERCEPTION:** There aren't enough women in the pipeline to provide a diverse candidate pool from which to hire or promote. And those who enter often do not stay.

This is an often-heard argument for why there aren't as many women Ph.D.s and academic leaders in STEM, nor as many women in management and leadership positions in STEM companies.

## WOMEN LOSE THE MOST GROUND AT THE FIRST STEP UP TO MANAGER

Ratio of promotions to manager for men vs. women

For every 100 men promoted to manager, far fewer women are promoted



Source: "Women in the Workplace 2023." McKinsey & Co. and Lean In, 2023.

## The Reality

This is one area that, at first glance, seems to be improving. Women are studying STEM and graduating with STEM degrees at higher rates than ever, now making up 44% of STEM workers with bachelor's degrees or higher, according to *EconoFact*, a publication of the Edward R. Murrow Center for a Digital World at The Fletcher School at Tufts University.<sup>7</sup>

And according to the 2021 Pew Research Center report "STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity,"<sup>8</sup> women earned more than half — 53% — of all STEM college degrees in 2018.

But women are still underrepresented

in many engineering fields of study. In the same report, women were found to have earned 85% of the STEM bachelor's degrees in health-related fields in 2018, but just 22% of the engineering degrees and 19% of the computer science degrees. "In fields where women have been especially scarce, there have been incremental gains over the past decade," the report states. "The share of women earning a degree in engineering is up 2 points since 2014 at the bachelor's and master's level."

And the problem may not be as much with the pipeline as it is with retention and promotion once women are hired, according to "Women in the Workplace 2023,"<sup>9</sup> a study by McKinsey & Co. and

Lean In. The report describes this as a broken rung at the very low end of the leadership ladder. "For the ninth consecutive year, women face their biggest hurdle at the first critical step up to manager," the report states. "This year, for every 100 men promoted from entry level to manager, 87 women were promoted. And this gap is trending the wrong way for women of color: This year, an average of 73 women of color were promoted to manager for every 100 men, down from 82 women of color last year. As a result of this 'broken rung,' women fall behind and can't catch up," the report states.

What causes the break in the rungs? "Women are often hired and promoted based on past accomplishments, while men are hired and promoted based on future potential," the report states.

Jessica Milli, Ph.D., is the founder of Research 2 Impact, which conducts quantitative and qualitative research on social and economic issues impacting women and people from historically marginalized groups. She said "subtle forms of discrimination and bias" are responsible for driving women out of the STEM workforce early or keeping them from moving up. These include being talked over in meetings, having others take credit for their ideas, being expected to engage in office housekeeping, and being overlooked for promotions. "Those behaviors have substantial and profound impacts on the mindsets and attitudes of women who experience them but then also in their career trajectories," she said. "They can be less productive at work, less likely to seek out help and engage with co-workers and managers, and less trusting of managers. They might not want to stay with their employer very long because they don't get the support that they need to deal with these issues."

## PERCEPTION: As an early-career professional, I have never directly experienced gender bias, so it must be a thing of the past.

Once they have their degrees and enter the workforce, women in STEM may not experience blatant gender bias or harassment at first. They may therefore assume that gender bias either no longer exists or does not apply to them.

### The Reality

Experts say bias may not become evident until the later stages of a woman's career. "Very junior women tend to really hit the prove-it-again bias when they start to see who gets promoted," said Williams of UC Law SF. "Often, they see young men being promoted on their potential, whereas they're not."

It may also be the case that as biases have become less blatant, they have become more difficult to spot. Microaggressions can be easy to overlook, but they add up, experts say. According to "Women in the Workplace 2023,"<sup>9</sup> the most common microaggressions women experience are not getting credit for their ideas, having their judgment ques-

tioned, and being interrupted or spoken over. Others include being mistaken for someone more junior or for someone else of their same race or ethnicity, and having others comment on their appearance and emotional state.

In fact, bias is the most likely reason women opt out of science careers, according to Williams. She and her colleagues conducted a study in conjunction with the Association of Women in Science in which they surveyed 557 women scientists and interviewed 60 of them. Her 2015 paper for *Harvard Business Review* on the study, "The 5 Biases Pushing Women Out of STEM,"<sup>10</sup> revealed that two-thirds of the women scientists had experienced the

prove-it-again bias, more than a third experienced pressure to play a traditionally feminine role, and roughly half received backlash for displaying stereotypically masculine behaviors like speaking their minds directly or being decisive. Nearly two-thirds of scientists with children faced bias against parenthood.

And the effect of those biases is cumulative. "There are computer simulations that show that if you build just a 5% bias into, for example, performance evaluations, you can start out with 50% men and 50% women, and by the time you have eight iterations of (those performance reviews), you have only 8% women left. And the biases we have found are often much larger than 5%."

## WOMEN WITH TRADITIONALLY MARGINALIZED IDENTITIES FACE MORE MICROAGGRESSIONS AT WORK

ALL MEN	ALL WOMEN	LGBTQ+ WOMEN	WOMEN WITH DISABILITIES		WHITE WOMEN	ASIAN WOMEN	LATINAS	BLACK WOMEN
MICROAGGRESSIONS								
Challenges to competence								
14%	21%	26%	32%	Others get credit for their ideas	21%	17%	15%	22%
17%	23%	33%	39%	Their judgment is questioned	24%	16%	17%	27%
5%	9%	11%	14%	They've been mistaken for someone more junior	9%	8%	6%	9%
10%	22%	30%	35%	They're interrupted or spoken over more than others	22%	19%	19%	24%
Demeaning and "othering"								
2%	5%	13%	12%	Others comment on their appearance	5%	3%	5%	6%
6%	12%	21%	25%	Others comment on their emotional state	12%	7%	10%	13%
10%	14%	23%	25%	They're criticized for their demeanor	15%	9%	14%	18%
2%	4%	6%	6%	They're confused with someone else of the same race/ethnicity	2%	14%	6%	15%
3%	4%	5%	5%	They feel judged because of their accent	2%	7%	10%	8%
5%	7%	8%	9%	Others make assumptions about their culture	2%	17%	16%	13%

BETTER EXPERIENCE

WORSE EXPERIENCE

Source: "Women in the Workplace 2023." McKinsey & Co. and Lean In, 2023.

**PERCEPTION:** The requirements to get ahead in engineering are the same for everyone.

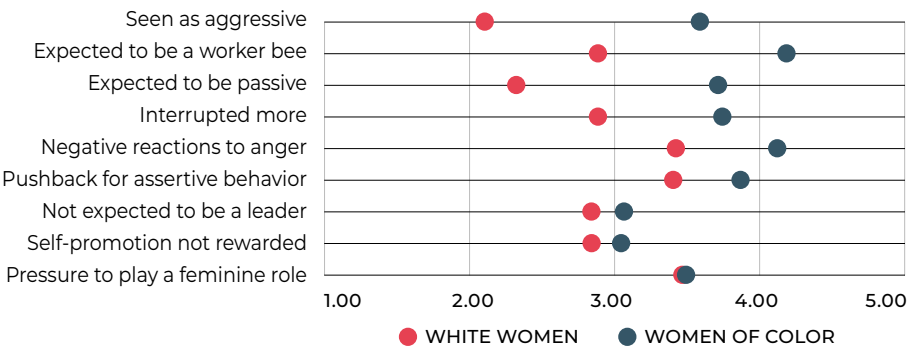
Once women get to a certain point in their careers, they often want to move up to the managerial level and beyond. They may assume that engineering is based on meritocracy, that hard work and personal accomplishments will automatically be rewarded. As long as women achieve their goals and exhibit their leadership skills, they will be given — and can take advantage of — the same opportunities for upward mobility as men.

**The Reality**

When it comes to skills that are often believed to be required for upward mobility — assertiveness, self-assurance, and decisiveness — women in engineering often find themselves damned if they do and damned if they don't. Women say they are perceived as pushy or bossy if they are assertive, whereas their male colleagues exhibiting the same behaviors are viewed as confident and self-assured. On the other hand, if women are not assertive, they are deemed not to have leadership potential.

In the EAC report “Climate Control: Gender and Racial Bias in Engineering,”<sup>11</sup> a 2016 study conducted with the Society of Women Engineers, Williams and her co-authors put numbers to these discrepancies. All women engineers were found to be less likely than white men to say they could behave assertively (51% versus 67%) or show anger without pushback (49% versus 59%). Women were more than twice as likely (33%) as white men (16%) to report pressure to let others take the lead and to do more “office housework,” such as finding a time everyone can meet, taking notes, or planning office parties (55% versus 26%). And women were far less likely to report

**TIGHTROPE BIAS**



Source: “Pinning Down the Jellyfish: The Workplace Experiences of Women of Color in Tech.” WorkLife Law Center at the University of California College of the Law, San Francisco, April 2022.

**PERCENTAGE AGREEMENT WITH TIGHTROPE QUESTIONS: COMPARISONS BETWEEN WOMEN ENGINEERS, ENGINEERS OF COLOR, AND WHITE MALE ENGINEERS**

QUESTION	% Women	% People of Color (POC)	% White Men	Women-White Men Diff	POC-White Men Diff
“Being vocal about my work and accomplishments is rewarded.”	62%	63%	64%	-2.2%	-1.0%
“I am expected to be a ‘worker bee,’ which means I should work hard, avoid confrontation, and not complain.”	50%	58%	48%	2.5%	9.9%***
“People at work see me as a leader.”	81%	80%	85%	-3.5%	-4.5%
“I feel free to express anger at work when it’s justified.”	49%	45%	59%	-9.3%***	-14.2%***
“As compared to my colleagues in a comparable role with comparable seniority and experience, I am more likely assigned to high-profile tasks or work teams.”	50%	47%	61%	-10.9%***	-14.8%***
“I seldom receive pushback when I behave assertively.”	51%	49%	67%	-16%***	-17.7%***
“I feel pressure to let others take the lead.”	33%	39%	16%	17.1%***	23.8%***
“I have had the same access to desirable assignments as my colleagues.”	65%	55%	85%	-19.6%***	-30.4%***
“I am interrupted at meetings more than my colleagues.”	45%	45%	16%	29.1%***	28.3%***
“As compared to my colleagues in a comparable role with comparable seniority and experience, I more often do office housework – finding a time everyone can meet, taking notes at a meeting, planning office parties, etc.”	55%	52%	26%	29%***	26.1%***

\*\*\*p<0.001

Source: “Climate Control: Gender and Racial Bias in Engineering?” The Society of Women Engineers and the WorkLife Law Center at the University of California College of the Law, San Francisco, 2016.



having the same access to desirable assignments as men (65% versus 85%).

The expectation that women be assertive, but not too assertive, and feminine, yet not too feminine, is even more pronounced for women of color, according to the 2022 EAC report “Pinning Down the Jellyfish: The Workplace Experiences of Women of Color in Tech.”<sup>12</sup> (This report includes among women of color those who identify as Black, Latinx or Hispanic, East Asian, South Asian, Southeast Asian, multiracial, and Indigenous.) In this report, Williams and her co-authors found that women of color face unspoken expectations that they be deferential rather than ambitious and authoritative. They were 17.9 percentage points more likely to report being interrupted and 13.3 percentage points more likely to get negative reactions to justified anger than white women, the report stated. Black women, in particular, were more likely than white women to be seen as aggressive yet expected to be passive, to experience pushback for assertiveness, and to be expected to be more traditionally feminine, the report states.

And while many companies say they want leaders who establish inclusive, team-oriented atmospheres — skills women are often seen as best at — doing so can actually stifle women’s upward mobility, according to Susan Colantuono, an author, speaker, and founder of several leadership organizations for women, including Be Business Savvy, a women’s training and resources organization. In a blog titled “Let’s Stop Talking About ‘Female’ Leadership Traits,”<sup>13</sup> on the website for Leading NOW, a research organization she founded and has since retired from, Colantuono writes: “The problem with focusing on these supposedly female leadership traits is that they end up pigeonholing women into middle management, where people are indeed paid to develop teams to get things done. And while middle management is a fantastic career choice, it can turn into something of a holding pen for talented women who want to move up the career ladder but don’t have the opportunities — or even the inter-company status — to do so.”

## A Woman’s Path to Leadership



An attendee of a talk given by Susan Colantuono once told her a story about a woman in the technology industry that illustrates just how much difference a woman leader can make in the equity of a workplace. “There was a reorganization in her company, and she and a man were given the same job but in two different business units — same level, same job responsibilities, etc. And after about a year, the woman’s team ended up being about 50–50, women and men. The man’s team was 100% men.”

Both would say they hired the best people for the job, she said.

Colantuono has authored two books on leadership skills for women, delivered a TEDx Talk called “Closing the Gender Gap at the Top,” founded several leadership organizations that have trained thousands of women, and recently launched Be Business Savvy, which offers resources and courses for women seeking leadership roles at all levels of their careers. In an interview with *SWE Magazine*, she said one of the primary reasons women struggle to rise to top leadership levels is that there are three components to leadership — but women are often aware of only two of them.

Those three components are being good at your job, being able to lead others to achieve significant accomplishments, and understanding the business side of the company. “Women and men equally have the capacity in all three areas,” she said. “The women who have become Fortune 500 or S&P 500 CEOs demonstrate that. They aren’t unicorns.”

The third component, developing business expertise, includes understanding the company’s overarching goals, its place in the market relative to its competitors, and its financial position and targets for the future. However, most company leaders only communicate the need for the first two aspects of the formula — individual excellence and coaching others to achieve. At some point, men seem to recognize that they need business and financial acumen to climb the corporate ladder, but many women do not. “Men are mentored by other men who see their potential, and they are guided into the core of the business rather than the periphery,” she explained. Conversely, women who receive mentoring and coaching are often taught how to have more confidence or manage work/life balance, she said.

Women who have set their sights on higher leadership positions must explicitly ask for the professional training they need to become experts in their company’s business and development affairs, Colantuono said. “We would be living in an ideal world if managers gave mentoring that was equally focused on engaging other people and being a partner in the business. But they don’t,” she said. “Given that, it becomes incumbent upon women to develop enough savvy to ask for mentoring on business, financial, and strategic acumen.”

Colantuono emphasized that it is absolutely an employer’s responsibility to offer training in business skills to men and women equally. But when that doesn’t happen, women need to advocate for those opportunities.

“I have been doing this work since 1972, and organizations haven’t changed,” she said. “So, I’m putting my money on women!”



Hear Susan Colantuono discuss leadership tips for women on Diverse: A SWE Podcast, Episode Ep 277: Business Savvy Tips for Women Engineers With TED Speaker Susan Colantuono. Scan this code, visit [swe.org/podcast/](https://www.swe.org/podcast/), or find the episode wherever you listen to your favorite podcasts.

**PERCEPTION:** Women are too involved in family and home life to work as many hours and be as devoted to their jobs as men.

As workers look to take the next step up the corporate ladder, they face the expectation that they will work longer hours and be more dedicated to their employers. Women, however, face the assumption that because they are more often the family caretakers and household managers, they will work fewer hours and be less committed to their careers than men.

The Reality

Women often work as many hours as men and are just as ambitious.

And even when women do take time away from the typical 9-to-5 work schedule to deal with personal issues, they make up that time, data show.

According to the Bureau of Labor Statistics' American Time Use Survey Summary,<sup>14</sup> men employed full time work an average of 8.66 hours on weekdays compared with 8.25 hours for women. But women working full time work 5.64 hours on weekends and holidays compared with 5.51 hours for men.

Even when women choose the flexibility of remote work, they work more hours, according to an April 9 article in *Newsweek*, "Women Are Working Longer Hours From Home Than Men."<sup>15</sup>

In or out of the office, Williams said, "We found in our study of tech that women of color were simply doing more work than their colleagues. This is partly because in (high-tech) startups, women, and especially women of color, are handed over DEI (diversity, equity, and inclusion) to do on top of their regular jobs. Sometimes women are handed over all of HR (human resources) to do on top of their regular jobs.

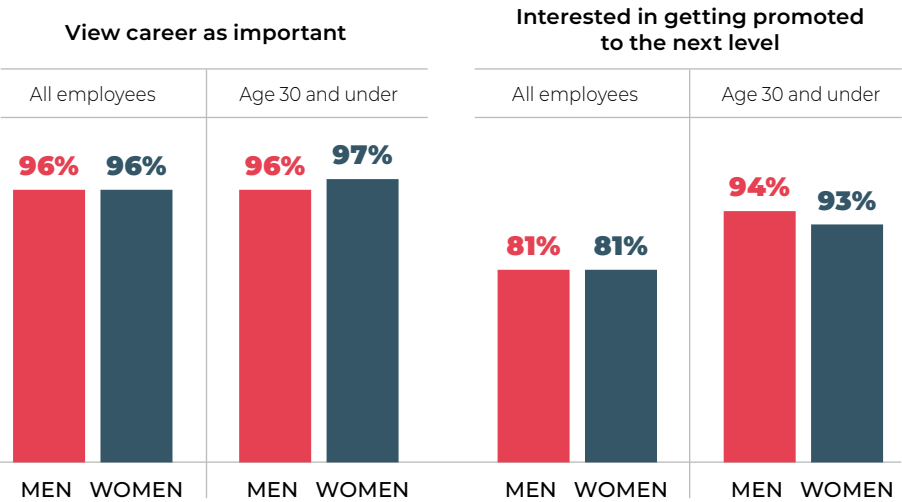
"And then their performance is assessed solely on what they have accomplished in their regular jobs. So, they have to work harder, and they get lower ratings because they were doing two jobs, one of which they weren't being paid for."

Despite this situation, women are every bit as ambitious and devoted to their careers as men, according to "Women in the Workplace 2023."<sup>16</sup> The study found that 96% of women view their careers as important and 81% are

interested in being promoted — the same percentages as men. "Women and men at the director level — when the C-suite is in closer view — are also equally interested in senior leadership roles," the report states.

WOMEN ARE JUST AS COMMITTED TO THEIR CAREERS AND ADVANCING AS MEN

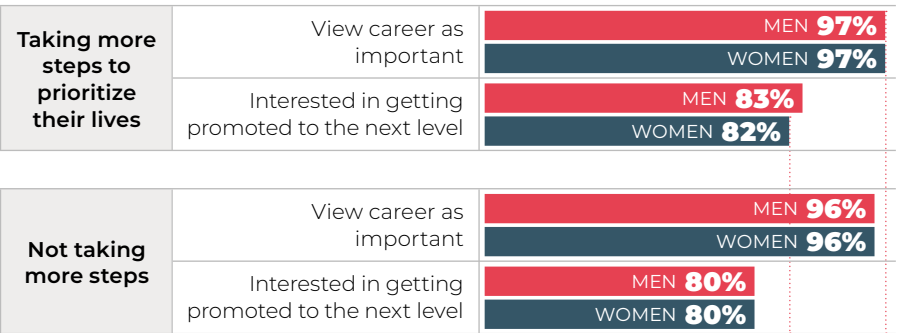
Percent of women and men and those 30 and under who say their career is important to them and they are interested in being promoted to the next level



Source: "Women in the Workplace 2023." McKinsey & Co. and Lean In, 2023.

WOMEN WHO ARE INVESTING MORE IN THEIR PERSONAL LIVES ARE JUST AS AMBITIOUS

Percent of women and men who are and aren't taking more steps to prioritize personal lives who see career as important and want to be promoted



Source: "Women in the Workplace 2023." McKinsey & Co. and Lean In, 2023.

## PERCEPTION: There are more women CEOs in general and in STEM than there used to be, so the path to the top must be gender neutral.

In June 2023, *Fortune*<sup>17</sup> reported that 52 CEOs, representing 10.4% of the Fortune 500, were women. That was a 12% increase from the year before, a 100% increase over the previous six years, and a 2,500% increase from 1998, *Fortune* reported. So the path to the very top can seem clear for all.

### The Reality

In the same article, *Fortune* reported that the number of women CEOs of Fortune 500 companies has stalled: The

rate remains at just 10.4%.<sup>17</sup> And women made up just 8% of CEOs in the S&P 500 last year, according to *CEO Magazine*.<sup>18</sup> Moreover, an S&P analysis<sup>19</sup> of 1,100

firms this year showed that women hold just one-quarter of the senior leadership roles that feed into the CEO role and less than one-third of junior leadership positions.

Work by the Institute for Women's Policy Research shows the problem is far worse for Black and Hispanic women. The institute's report, "Climbing the Leadership Ladder: Women's Progress Stalls,"<sup>20</sup> reveals that in 2018, Black women held 3.7% of all managerial positions and 1.4% of chief executive positions, and Hispanic women held 4.8% of managerial positions and 1.8% of chief executive positions.

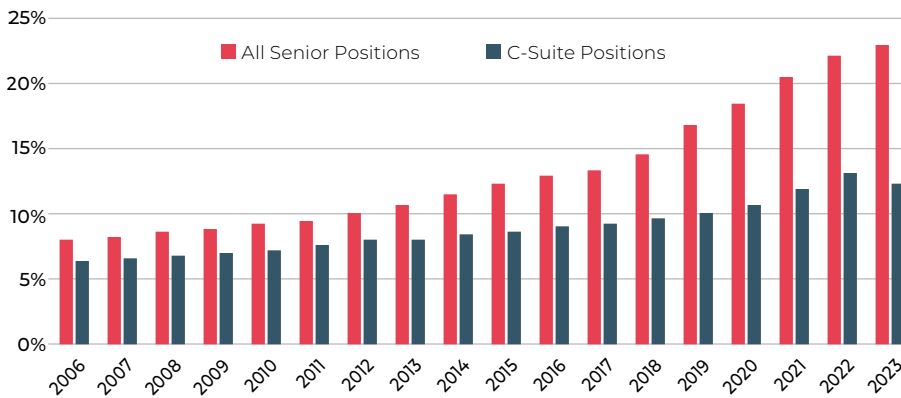
Dr. Milli, a co-author of the institute's report, said, "I think we've lost some of the urgency to act. We're getting distracted by the fact that we do have more women in these leadership positions now. There is this false perception that we have fixed (the problems).

"Where the challenges exist now are in some of the more subtle barriers women face every day in the workforce."

A report from Dr. Milli's company buttresses the others, finding that women are more likely to take on office housekeeping roles, be talked over in meetings, and have their ideas co-opted by others. The 2024 report, "The Role of Trust in Advancing Equity in Innovation,"<sup>21</sup> by Research 2 Impact, states that more than 70% of women, regardless of race or ethnicity, reported frequent negative experiences in the workplace. And Black women, at 80%, were the most likely to report such experiences.

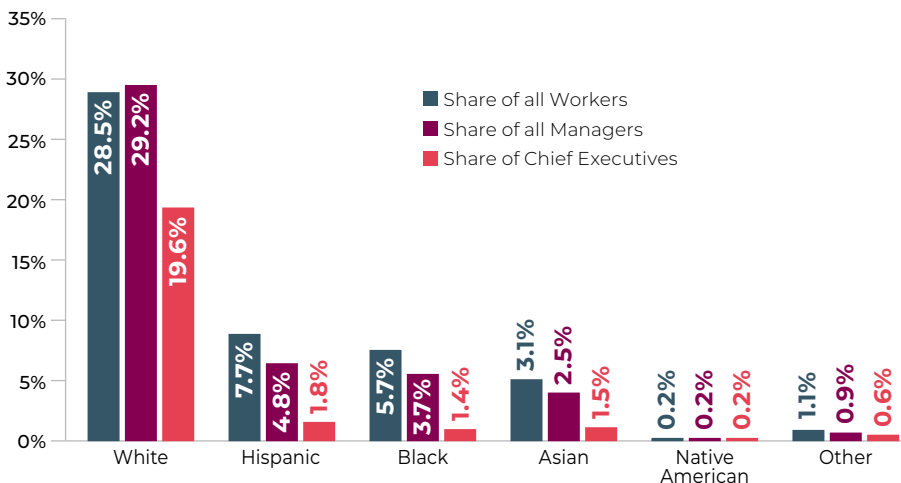
"When a Black woman is advocating for herself and being assertive, that's seen in a very negative light," Dr. Milli said. "Whereas if a white man is doing the same thing, that is seen as the sign of a very good leader."

### WOMEN'S REPRESENTATION AMONG SENIOR LEADERSHIP POSITIONS, S&P GLOBAL TOTAL MARKET INDEX



Source: S&P Global Market Intelligence Quantamental Research. Data as at 03/04/2024.

### SHARE OF WOMEN IN THE WORKFORCE BY RACE/ETHNICITY AND LEVEL OF LEADERSHIP, 2018



Note: Data are limited to nongovernment workers, aged 16 and older, and include wage and salary employees working in the private sector or at nonprofits, as well as self-employed workers.

Source: IWPR analysis of data from the 2018 American Community Survey (Integrated Public Use Microdata Series, version 9.0).



**PERCEPTION:** Once they get to the top, women help other women succeed. There's an assumption that as women rise through the ranks of STEM careers, they will reach back to support and empower other women.

The Reality

In fact, this may or may not be the case, depending on how far along the company is toward embodying equity. A woman who believes she is fighting for the lone spot reserved for a woman at her company may not be able to help other women without jeopardizing her own position, experts say. “In my experience, women pioneers are at risk if they are seen as helping other women,” Colantuono said. “A lot of the Fortune 500 women CEOs talk about not being comfortable being advocates for women. Until they leave! Then they are all speaking everywhere to women.”

But while they are in their positions, she said, “They invest so much energy in dealing with the toxicity around them that it is hard to also be pulling women up behind.”

In “Pinning Down the Jellyfish,” Williams and her colleagues reported there are three reasons that women may feel threatened by the idea of helping other women. “Collective threat occurs when someone is worried that the poor performance of a group member will reflect poorly on them. Competitive threat occurs when someone is worried that the great performance of a group member will make them look worse in comparison. Favoritism threat occurs when someone is worried that if they support another group member, it will look like favoritism,” the report states.

“If you look and see a very specific demographic at the top of your organization,” Williams said, and it’s all or mostly men, “some women are going to say, ‘Well, I’m going to join the boys. That’s the path to success.’ And that

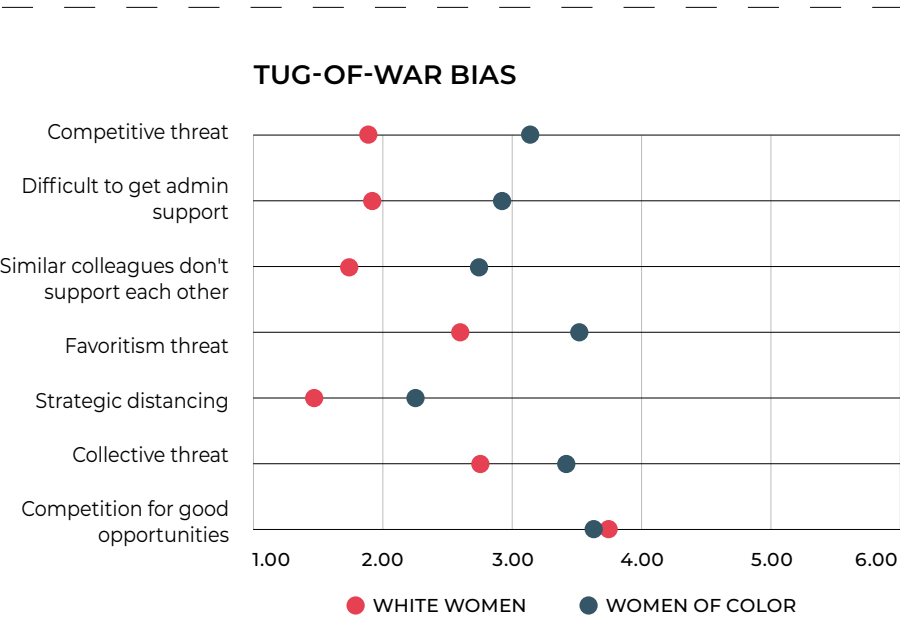
is a tried-and-true path. It is one that works.

“But I do feel that the tug-of-war bias, which was never as prevalent as the other biases were, has gotten somewhat to considerably better as women attain a firmer hold on power,” she said.

Colantuono said women in senior leadership positions often *do* help other women; they just may not promote the fact that they are doing so. “There was a study a while ago that showed that when there is a woman at the top of an organization, two things happen: More women get into senior leadership and pay equity advances.”

And if they are uncomfortable reaching out to women in a public way, women leaders can help other women in less obvious ways, Colantuono said. They can use the usual channels of coaching and information sharing. “A lot of men can’t see women’s qualifications. Other women can. In those organizations that are still mostly men and women are pioneering through, [they can] use the normal processes for hiring or mentoring to help other women grow and develop,” she said. “Inside the organization, the most important thing they can do is to not be fearful of developing other women in the context of what’s seen as normal.” (For more advice from Colantuono on how women can get ahead, read “A Woman’s Path to Leadership” on p. 33.)

In organizations that are further along their journey toward equity and fairness, Colantuono said, “You expect women at all levels to be contributing to internal women’s initiatives, to be advocates for wage equity, and more visible things.



Source: "Pinning Down the Jellyfish: The Workplace Experiences of Women of Color in Tech." WorkLife Law Center at the University of California College of the Law, San Francisco, April 2022.

## THE WAY FORWARD

The perceptions and realities discussed here represent only a small segment of the experiences of women in STEM and do not, in and of themselves, point to a way forward. But there is reason to hope for improvement. “To a certain extent, having diverse representation at all levels of leadership can help to address some of these challenges, presumably because women and people of color have experienced these things,” Dr. Milli said. “They know that they are taking place, and they can be more proactive in creating cultures within their organizations that don’t tolerate those types of behaviors.”

And the best way to do that, Colantuono said, is to remain in the field and move up the corporate ladder whenever possible. “Women will hear things like, ‘You’re so good with people: you should go into HR.’ Or, ‘You’re so good with people: you should go into marketing.’

“I always say to women: ‘You’re so good with people: strive to become the CEO! Because you can benefit the most people — inside the organization, in the community where you’re located, [within] your customers — if you’re the CEO. You can work with more people and impact more lives with the more influence you get.’ ✨

For lengthier and more complete discussions of the issues facing women in STEM, see the annual State of Women in Engineering issues of *SWE Magazine*. Past issues are available at [swe.org/swe-magazine/past-issues/](https://swe.org/swe-magazine/past-issues/).

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