



Women in Data

Or are they?



The glass ceiling: Is it still there?

In 1986, an article in the *Wall Street Journal* discussed how invisible barriers seemed to prevent women from advancing in their careers past a certain level. The article included mention of the “glass ceiling,” a term first coined in 1978 by a woman named Marilyn Loden, a management consultant and workplace diversity advocate.¹

Before she died in 2022, she hoped that the glass ceiling would be a thing of the past. “I thought I would be finished with this by the end of my lifetime, but I won’t be,” Loden told *The Washington Post* in 2018. “I’m hoping if it outlives me, it will [become] an antiquated phrase. People will say, ‘There was a time when there was a glass ceiling.’”²

Unfortunately, more than 50 years after its introduction, the glass ceiling lives on at varying degrees in many countries across the world, including the United States. It is widely recognized as the metaphorical invisible barrier that prevents women from moving to higher roles in a corporate hierarchy dominated by men. For many women, the sky is still not the limit.

It starts at the top:
Women in the
board room





Around the world, progress at the highest levels of leadership is slow and gaps persist.

Women occupy just 20% of board seats globally and continue to be excluded from the highest levels of corporate leadership.³ The only stand out country is France, where more than 40% of board seats among French companies are now occupied by women.⁴ The 2022 Deloitte report "[Women in the Boardroom](#)" indicates that progress is happening, albeit slowly. At the current pace of women joining boards, the world is not expected to reach parity until at least 2045, more than 20 years from now.⁵

According to the most recent [Global Gender Gap Report](#) from the World Economic Forum, the 2022 results point to "a sustained stalling of gender parity." Closing gender gaps may remain an important driver of national prosperity. Countries that invest in all their human capital and make it easier for their populations to balance work and family life tend to be more prosperous.⁶

Isn't that what we all want? That requires further movement to eliminate the glass ceiling.

The pattern continues down the line: Women in data and STEM

The gender gap in technology is real. The [2022 Global Gender Gap Report](#) shows that in the technology industry, only 24% of leadership roles are held by women.⁷

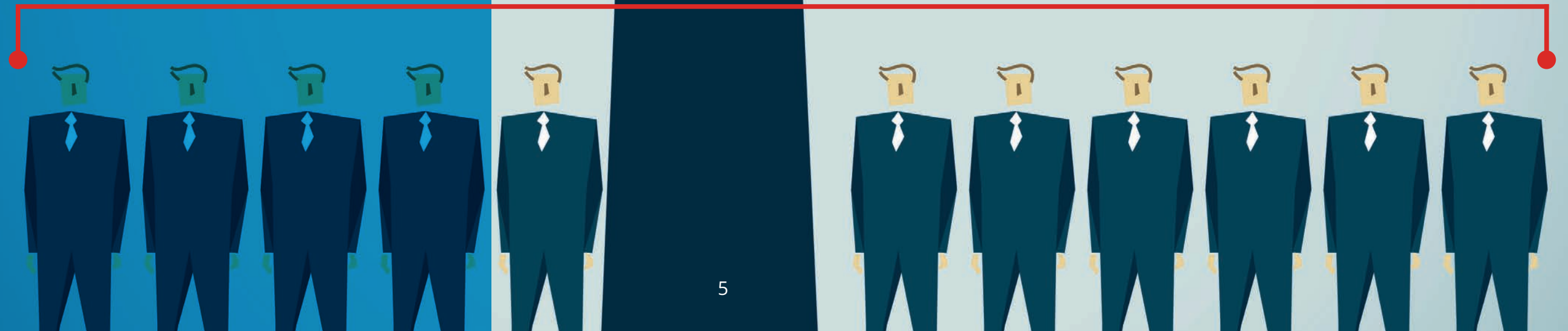
In the United States, despite making up nearly half of the US workforce, women are still vastly under-represented in the science, technology, engineering, and math (STEM) workforce, which also drives many careers in data. Women made gains—from 8% of STEM professionals in 1970⁸ to 35% in 2021—but men still dominated the field. Men made up 52% of all US workers but 68% of all STEM workers.⁹



Women rose to
35% in STEM
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For some women, the numbers are even worse

Women in general may be frustrated with the glass ceiling, and the lack of other women in their field of data, but for some women the numbers are likely even more frustrating. Of the 25% of women working in tech in 2020 in the US, Asian/Pacific Islander women represent only 7%, Black women 3%, and Hispanic women 2%.¹⁰

Take a closer look into the world of data positions. The [2022-2023 USA Diversity in Data Report](#) found that Women hold just 26 percent of data and analytics jobs in the United States.¹¹ The report also found that most of those are in entry level positions.¹² Not too long ago, in 2019, nearly one in four data teams reported having no women at all.¹³



But wait: Women can bring a unique perspective on data sets

Data is important to the modern world. From economic development to health care to education and public policy, numbers are used and relied upon to help allocate resources and make important decisions.¹⁴

Data is data is data, right? Well, not exactly.

Sometimes people fail to consider gender when selecting data sets for algorithms. And while the algorithms themselves aren't biased; the humans that write them may carry unconscious biases.¹⁵ In some cases, the data may not even be available to create an equal male to female data set especially when bias and discrimination is baked into older systems. For example, there was a time when women couldn't apply for a credit card on their own. If data was pulled from that dataset at that time, it would be exclusively male.

Women should have more seats at the data table. A more diverse workforce is better tooled to identify and remove AI biases as they interpret data, test solutions, and make decisions.¹⁶ One study by Columbia University found that diverse teams could create better results and be less prone to error.^{17,18} They bring different backgrounds and perspectives to the work.

A woman with dark hair pulled back, wearing a dark blue shirt with white polka dots, is looking towards a man on her left. The man is wearing a light blue shirt and glasses. They appear to be in a meeting or discussion. The background is bright and out of focus.

Companies need
women in data.

They need
diverse groups
of women, too.

In an early attempt by a large online retailer to design a computer program to guide its hiring decisions, the company used submitted resumes from the previous decade as training data.

Because most of these resumes came from men, the program taught itself that candidates who were men were preferable to women. While the company realized this tendency early on and never used the program to evaluate candidates, the example highlights how relying on biased data can reinforce inequality.¹⁹

Not only do women bring a different perspective, but they can also bring creative thinking in data and AI to a whole new level. Imagine a 1960s advertising campaign for birth control designed only by men using data analysis from men. An Harvard Business Review study analyzing the connection between productivity and gender diversity found that, among Western European companies, a 10 percent increase in the ratio of women to men in the workforce correlated with a 7 percent increase in market value.²⁰



How do we encourage and support more women in data?

The path centers around three mission-critical objectives:

- 1 Education and mentoring programs
- 2 Hiring for fit and training for skill
- 3 Flexibility and inclusion





A head start: Girls in school

Is it that girls are disinterested in computer science and engineering roles and that's why there are less of them in the field? One study shows that stereotypes and images can have a profound effect on their perceptions.²¹ When an American girl thinks of an engineer or data scientist, they often imagine socially awkward, genius boys that they don't relate to—they don't see themselves belonging there. So, they are reluctant to choose the field. However, when stereotypes weren't in play, the study found that girls and boys were equally interested.²² It's time to change the narrative.

Consider, is there an opportunity to increase the enrollment for girls in robotics clubs? Could more be done to ensure that young girls are exposed to data science-type opportunities early on in settings that buck the stereotype?

Kristi Lamar, managing director and U.S. Women in Technology Leader at Deloitte Consulting LLP, notes, "Competence is not a function of gender but rather of belief, passion, and effort. Starting in kindergarten, we should intentionally provide girls with concrete opportunities to discover their natural wonder around technology."²³

A next step:
Establish
mentoring,
sponsorship, and
coaching roles



Mentoring for girls

Girls Who Code is looking to close the gender gap in technology and to change the image of what a programmer “looks like” and does. Girls Who Code also states they are “building the world’s largest pipeline of future female engineers.”²⁴

That’s why Deloitte is sponsoring and collaborating with Girls Who Code. It’s time to change the gender gap in technology. Girls Who Code’s goal is to achieve gender parity in new, entry-level tech jobs by 2030. These young girls are also learning to ask the question “why,” not just to accept the data as it is presented. Let’s help them change the status quo and aspire to be future data leaders.





Formal career support

Mentoring programs can go a long way in helping women be more successful. A Cornell University study found that mentoring programs dramatically improved promotion and retention rates for minorities and women—15 to 38 percent compared to non-mentored employees.²⁵ Another study by University of Pennsylvania's Wharton School found that 25 percent of employees who participated in a mentoring program had a salary-grade change, compared to only five percent of the workers who did not participate.²⁶

While many companies have formal mentoring programs established, Deloitte included, Deloitte is also working with organizations like [Women in Data](#) and [Women Leaders in Data and AI](#) to expand coaching and networking opportunities for women in the workforce. The more women in data and AI that participate in mentoring positions, the better. Every organization should strive to lend a helping hand to promoting more women in the field.



Opening up more opportunities

What role in technology is most attractive to women? It likely isn't just "programmer." In fact, according to research by two women in data at Bayer published in the Harvard Business Review, the roles most likely to attract women had interdisciplinary characteristics—they combined other domains with programming.²⁷

Hiring for fit and training for skill is another tactic to consider. Companies should not only be more open to untraditional backgrounds of their candidates—data science degrees didn't exist 20 years ago—but also recruit from new places.²⁸ Many tech companies are designing 'returnship' programs for women (and men) that step out of their careers for a time. The programs are fashioned off internships and often provide pay, a skills refresh, and an inside track on getting rehired.²⁹



A cultural shift: Establish better work/life integration for women

Can you name the top five countries for women to work in? The distinction goes to smaller countries Iceland, Finland, Norway, New Zealand, and Sweden.³⁰

Being the best country to work in goes beyond just gender equality in the workplace. [The World Economic Forum's 2022 report](#) evaluated health and survival, educational attainment, economic participation, and opportunity, as well as political empowerment in the aforementioned ranking.³¹ Establishing better work/life integration in countries that lag will likely require a major cultural shift, one that prioritizes flexible work arrangements, paid family leave, tuition assistance for continuous learning, and wellness initiatives. Only then can countries have a better foundation for guiding and nurturing more women in the workplace—including women in data.



Be intentional about flexibility and inclusion

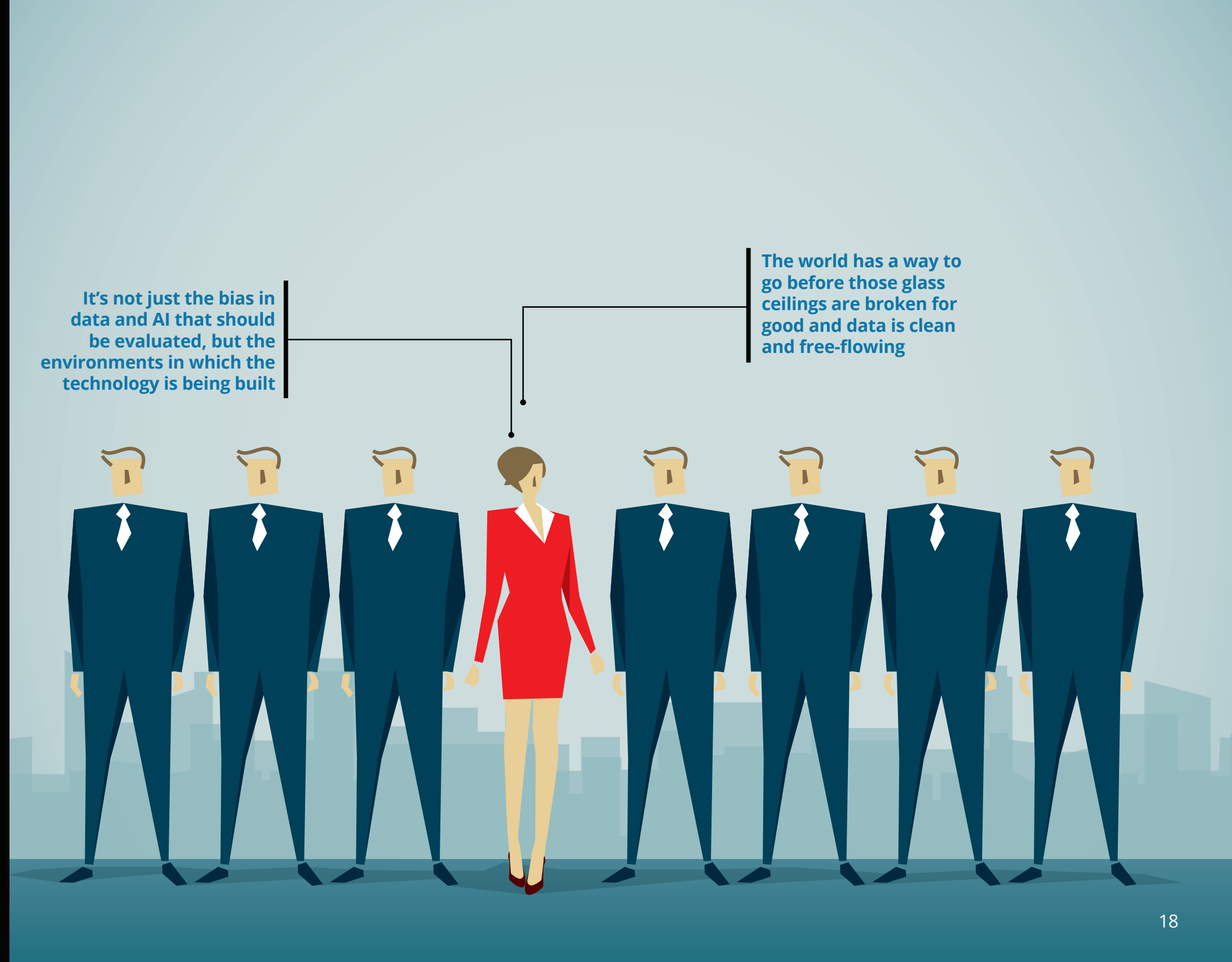
With women still taking on the brunt of childcare duties and domestic chores, flexibility in where, and how, work gets done is important.³² Companies can embrace remote work, flexible schedules, shared schedules, and consider varied phases like starting part-time and transitioning to full-time or vice versa.³³ People want healthy work environments where they are valued, appreciated, and heard. Unfortunately, many women don't feel included and gender bias is still a significant concern.³⁴ By raising awareness of gender equity, companies can help close the gender gap by being intentional, understanding the gaps, and taking the steps to promote a true cultural shift.

When companies make a point to build diverse teams that include people from different races, genders, backgrounds, interests, and geographies, research has shown that their teams—and businesses—can perform better.^{35,36}

What does success on “women in data” look like?

The issue is really twofold. Maybe it’s not so much “women in data” as it is “women and data” that needs the attention of both corporations and academia alike and in true alarm fashion. The women from AI Now Institute, New York University, point out in their *Discriminating Systems report* that it’s not just the bias in data and AI that should be evaluated, but the environments in which the technology is being built, and the people who build them.²⁶

Both women and data have suffered from past workplace and societal inequities that existed long before the girls participating in Girls Who Code were born and long before today’s current datasets were compiled. The world has a way to go before those glass ceilings are broken for good and data is clean and free-flowing.



How can your company improve the gender balance in data?

It starts with understanding the real-world data about where women are fitting into data and technology careers—and where they're not. When we look at the research, we know there's a long way to go—the glass half-full tells us there is a significant opportunity to steer young women into data positions and then to train, support, and mentor them through the ranks. In other words, to help them open doors and stay in the room, so to speak.

For the organizations that really want to continue to press on that glass ceiling, they already recognize that women can bring a unique perspective on data and its use in decisions about everything from health care to finances... can bring additional creative thinking to use data and AI to derive better insights for better outcomes...can model increased work/life integration (for both women and men)...and can help drive change. Gender diversity, in particular, can have positive effects on radical innovation, a criterion that is important for tech companies.³⁷



Beyond just understanding the current state of women in data, conversations about effecting change are critical and necessary.

Please reach out to us to start a high-level, high priority conversation about this important issue.

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