The Gender Divide in the Tech Sector

A Plan to Address the Bias and Change the Culture

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Executive Summary

Gender discrimination in the tech sector remains a persistent and rising national concern. The Gender Divide in the Tech Sector provides further evidence of this gender gap and a framework for changing the sector's culture and environment to improve gender equality. It includes a review of recent academic research, media reports, as well as new qualitative research on the experiences of workers in Seattle's tech industry.

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Numerous studies reveal the severe under-representation of women in the industry, particularly in technical roles, and the even more dramatic decrease in their numbers among senior and leadership ranks. This report shows how gender discrimination in the tech sector works and raises the voices of women and gender nonconforming workers as they share their experiences. It also provides creative solutions to the problem, identifying new avenues for effective change.

Qualitative interviews expose what tech workers, often the only woman or gender nonconforming person on their team or in meetings, experience. Often, they share that they feel their voices are not heard, their ideas not valued, and their skills and expertise deemed invalid. They report they feel unsupported and even unwelcome in their everyday work environment.

Daily microaggressions and an unwelcoming environment take a toll in career advancement and pay for women, and they also take a personal toll that renders every day a personal challenge. This report helps us understand why women in tech are underrepresented at every level, and why they often disappear by mid-career. The issues include sexual harassment, unfair hiring and promotion practices, unequal pay, high rates of attrition, and the lack of support for parents in an industry where working long hours is often the norm, leaving little room for raising a family.

Our researcher conducted recent conversations with many tech workers a year after initial interviews, capturing their experiences during the current global pandemic when most workers are working from home. Gender discrimination issues have not abated, including microaggressions, work/life balance and lack of support for parents. These workers report deep concerns for their future performance evaluations and promotion opportunities.

In researching creative solutions to these problems, there are very few best practice examples within the tech industry, and most are designed for small companies. We cite problems with the designs of current corporate solutions to issues such as sexual harassment, and we outline alternative policies that put workers' safety and concerns front and center.

The biggest issues involve the culture of the tech industry, its set of values, beliefs and attitudes that shape behaviors, as well as the lack of commitment from top executives to make gender equality a business priority. While diversity and inclusion have become buzzwords and most tech companies today have instituted a Chief Diversity Officer and release annual diversity and inclusion reports, little substantive progress has been made in these areas. In fact, there has been some reversion in several areas. Most tech companies still talk of the employee pipeline problem as the main issue and pay very little attention to retention. They are not embracing the opportunities of a multipronged approach that would focus both on the pipeline issues and retention.

It is important to understand and address the complex web of gender discrimination in the industry to make progress in this area. This report provides women and gender nonconforming workers in tech evidence that what they face is not about them as individuals—it is not because they are not "good enough"—it is due to a systemic and pervasive problem that needs attention and an actionable plan. This report lays out more than sixty creative solutions, offering a template for progressive action on gender discrimination issues in the industry.

Photo: Former software engineer at Microsoft

Introduction

"The dozens of women I interviewed for the article love working in tech. They love the problem-solving, the camaraderie, the opportunity for swift advancement and high salaries, the fun of working with the technology itself... yet all of them had stories about incidents that, no matter how quick or glancing, chipped away at their sense of belonging and expertise."[1]

Gender-based discrimination in Seattle's major tech companies has received national scrutiny as early as 2015 in an article in the *New York Times* about Amazon's workplace culture.[2] Since then, articles have appeared on the back-up child care issues mothers face at Amazon; about a Microsoft email thread detailing sexual harassment and gender discrimination; and articles claiming women and underrepresented minorities are outnumbered in tech at all levels—getting worse as you go up the ranks.

This report adds to the body of existing literature, largely about Silicon Valley, by including the voices of tech workers in the Seattle area. Using a feminist research methodology, placing women's voices and experiences, as well as gender issues, at the forefront, we interviewed 48 women and gender nonconforming workers in the Seattle tech industry to further understand how gender discrimination plays out in the workplace and in their daily lives and what it means for their futures. We addressed microaggressions, brief commonplace daily verbal, behavioral, and/or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative prejudicial slights and insults. We also addressed sexual harassment, problems in hiring, pay and promotions, and in performance reviews, and the lack of support for parents.

Reaching out to the same tech workers interviewed for this report, a year later during a global pandemic when the vast majority of tech workers are working from home, more than 70 percent of respondents said they were equally—or more likely—to experience gender discrimination when working from home, from continued microaggressions, to concerns over visibility and future performance reviews, to the difficulties of balancing work and family with children currently at home.

All these issues are rooted in a workplace culture that undervalues women and diversity and creates an unwelcoming environment. Within the tech industry, gender discrimination occurs in subtle and not-so-subtle ways, but the overarching message to women and other underrepresented workers is that their skills are not trusted, their voices are not heard, and there is no way for them to win within a system rigged against them from the start.

Today, the field of U.S. software engineers is over three-quarters male. It wasn't always that way. History's first technology jobs were considered menial typist jobs, and women held them. But as the industry became profitable, male executives developed hiring criteria and workplace cultures that sidelined women. So, instead of workplaces that empowered women, business structures reinforced masculine biases and patriarchal norms. The tech industry became masculinized and occupations within it today remain segregated by gender and race. Women hold less than one-quarter of technical jobs in the tech sector; AnitaB.org[i] surveyed 80 tech companies in 2018 and found that women accounted for only 24 percent of tech workers nationally in the U.S. This number is down from a high of 36 percent in 1991.[3] As Table 1 demonstrates, this finding is backed by data from the Big Four tech companies in the Seattle area: Microsoft, Facebook, Google, and Amazon.

Despite recent recognition of the benefits of gender equality and diversity in tech, the numbers remain dismal. Multiple studies show corporate diversity improves management and a greater variety of perspectives and backgrounds results in better decision-making, and ultimately bigger profit margins, more innovation, and higher productivity.[4] Why, then, is gender equality not a top priority for all tech companies? A recent IBM-affiliated study concluded that despite the evidence, many companies are not fully sold on the benefits of gender equality, men tend to underestimate the impact of gender bias in the workplace, and many organizations are over-relying on 'good intentions,' rather than making gender equality a formal business priority.[5]

[i] *A national organization for women in technology*

Table 1: Women's Global Representation at the Big Four Tech Companies, 2019
(in percentages)

Company	Women as a percent of:		
	Overall Employees	Tech Employees	Leadership Roles
Amazon	41.7	N/A+	26.8*
Facebook	36.9	23	32.6**
Google	31.6	22.9	26.1
Microstof	27.6	21.4	25.4*

Sources: Amazon 2019; Williams, 2019; Brown & Parker, 2019; Microsoft, 2019
+Amazon does not provide a gender breakdown of tech employees
**Denotes women as percent of managers*
***Denotes women as percent of senior leadership*

Tech companies are profitable regardless of gender inequality, but Ellen Pao, co-founder of the diversity consulting non-profit Project Include, argues that companies like Amazon could have generated much more value if they had been inclusive from the start.[6] Roger McNamee, longtime tech investor and co-founder of venture capital firm Elevation Partners and private equity firm Silver Lake Partners, agreed. When asked how the tech industry would benefit by becoming truly diverse, McNamee said, "I think Silicon Valley would be wildly more profitable. I think there would be a significant reduction in the number of absolute failures. And so, I think success would go up dramatically."[7]

In *Brotopia*, Emily Chang also lays out some of the costs of gender inequality in tech, saying it leads to unhappy employees, many of whom leave by mid-career, and requires companies to spend more time and money on hiring and recruiting.[8]

In the *Tech Leavers Study*, author Allison Scott says, "There's a high cost to bad culture, and this is a self-inflicted wound," since replacing an average tech employee costs the company an average of $144,000 including lost productivity, recruiting costs, salary, and so on.[9] Gender inequality also lowers productivity, with unhappy workers often doing a second job developing survival strategies in addition to their tech job.

An Unwelcoming Environment

What are some of the issues that reinforce gender discrimination in the tech industry? After interviewing 48 women and gender nonconforming workers in tech[i], the most pressing issue they cite is an unwelcoming environment, which plays out in a number of subtle and not-so-subtle ways. This unwelcoming environment can impact microaggressions, sexual harassment, hiring, evaluation, pay, promotions, attrition rates, and support for parents, which will be discussed in more detail below.

At least 30 of the workers we interviewed reported they felt that tech was still a "boys' club" and that the number of women in tech currently did not change the overarching culture, which often rewards competition, yelling, and bullying over collaboration and listening. A technical worker at Amazon says the fact that tech is such a boys' club is "the first, most important, thing to be aware of in this industry." Tech workers at all companies agreed that the industry was still a boys' club and they felt unwelcome, but the situation appeared most extreme at Amazon. In 2015, Kantor & Streitfeld wrote an article in the *New York Times* about Amazon's workplace culture, which was designed to pit employees against one another and to push workers to their limits, a form of "Purposeful Darwinism" designed by CEO and founder Jeff Bezos.[10]

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Amazon's leadership principles include things like "Have Backbone; Disagree and Commit," saying leaders are obligated to respectfully challenge decisions when they disagree, even when doing so is uncomfortable or exhausting. They encourage publicly disagreeing with one's colleagues and critiquing ideas. Anyone who does not like this communication style is punished for not speaking up. The women we interviewed were told repeatedly that they need to "push harder" to have their voices heard or to convince their team that their idea is best. An engineer at Amazon points out that the leadership principles are "not inclusive" and "don't allow for different styles of communication." A user experience (UX) designer at Amazon points out that only women have to adapt, and asks why it is that men don't have to learn collaboration skills, for example? A documentation specialist at Amazon argues that the "individualistic approach" at Amazon has "people toiling away by themselves and not asking for help because they

[i] *See Appendix 1 for methodology*

fear the consequences," which leads to wasted time and money. A more cooperative, collaborative culture would change this dynamic and increase productivity.

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Additionally, while Amazon generally encourages and rewards aggressive behavior, women are often punished when they are aggressive. Performance reviews often cite being too "bossy," "aggressive," and "assertive" as negatives for women. Writer Kieran Snyder notes that the term "aggressive" is used differently in men's and women's performance reviews.[11] The word appears more often in women's reviews and is a negative; it appears less frequently in men's reviews and is often a call to be more aggressive.

A 2016 survey of more than 200 women in Silicon Valley found that 84 percent of respondents had been told they are too aggressive, making it hard for women in tech to find the right balance between too meek and too assertive.[12] As one UX designer at Amazon puts it, "There is a really fine line for how women can behave," and many female Amazon employees agree that they cannot actually act like the men or they will be punished. A senior software engineer at Amazon argues that women receive "mixed messages," which ultimately means that it is "impossible to win."

The Industry has a retention problem

Many in the tech industry argue that the lack of diversity among the their workforce is due to a pipeline problem – that not enough girls and children of color are interested in tech and pursue studies and a career in tech, so there are simply not enough women and people of color to hire. Our gendered ideas of what careers are appropriate for men and women do play a role in job segregation, but comparing the numbers of women and people of color in mid-level roles versus the numbers in entry level tech positions, it's clear there is a serious retention problem. The problem is not just finding talented women and people of color, it's how to retain them.

More than a PR Crisis – Commitment from the Top Down

Even if everyone agrees cultural change is necessary in the tech industry, effective change won't occur unless there's a commitment from the CEO and company executives. Freada Kapor Klein, venture capitalist and philanthropist, argues that "no matter how many bells and whistles you put into place, there is no substitute for an unequivocal commitment from the top. Whoever is at the table needs to have a diversity lens when any business issue is being talked about."[13] Megan Dickey concludes that "what's become painfully clear is that commitment from the top is not optional."[14] However, this commitment is lacking among top tech CEOs. Diversity and inclusion need to be key business

priorities, and the policies put into place around gender discrimination must have, at their core, the goal of supporting women and underrepresented minorities, rather than protecting the company from lawsuits.

Are there tech companies that are doing a better job when it comes to diversity and inclusion? One best practice example is Slack, a tech communications company, which doubled in size from January 2017 to January 2019 to 1,502 employees but retained consistent diversity metrics, with women constituting 46 percent of its workforce, 35 percent of tech roles, 50 percent of management roles, and 30 percent of leadership roles.[15]

How does Slack achieve much higher numbers than the industry average? It focuses on internships for underserved young adults through its Year Up program and professional development and sponsorship for underrepresented groups, through the Early Career Accelerator Program that supports Black and Latinx professionals during the first two years of their tech careers, and 6-month sponsorship programs for those who have historically lacked access to such support.[16] Slack is a smaller tech company than the Big Four, but the fact that it was able to double in size while retaining consistent diversity metrics is key, as many argue that it is scaling up that leads to a lack of diversity within the tech industry.

Other positive examples of small tech companies include Bumble, 23andMe, HubSpot, Etsy, and Pinterest. Bumble is an interesting example of a woman-founded feminist dating and business networking app with 85 percent female employees and 80 percent female executives, and provides a flexible work environment that includes allowing workers to bring their children to work when needed.[17] Larger tech companies that are doing at least some of the right things when it comes to gender equality include IBM, Salesforce, Adobe and Genentech. However, with the exception of Genentech's

impressive numbers of women in leadership roles (41 percent of executives and 51 percent of mid-level managers), the other three companies have average or below average gender statistics when it comes to tech and leadership roles.[18] See Appendix 2 for more details on these companies' work on gender equality.

Regulatory Guidance

In order to move beyond good intentions to real change, governments could adopt the comply-or-explain approach, where regulators provide guidance on what they consider good policy, practices, or outcomes, and ask companies to either comply or publicly disclose why they did not. Information disclosure can push companies towards achieving their goals and overcoming their "intention-action gap" which appears to be a real problem in tech.[19] While Big Tech's CEOs increasingly speak about the importance of diversity and inclusion, there has been little concrete change. For example, Satya Nadella, Microsoft's CEO, appears committed to diversity and inclusion, recently saying "We are on a journey to close the gap between our espoused culture and the lived experience for every employee at Microsoft."[20] However, Microsoft continues to lag behind the other three big tech companies in the Seattle area, as measured by women as a percentage of overall employees, as well as in tech and leadership roles.

Empower Diversity Managers and Task Forces

Public accountability matters, particularly when it comes to who's managing corporate diversity and inclusion practices.[21] The major tech companies have taken a step forward by creating Diversity and Inclusion managers, but Kapor Klein argues that these positions "are not always set up to succeed." She argues that they need to report directly to the CEO and have the authority to stop other executives from making bad decisions to create meaningful change.[22]

Dobbin and Kalev argue that having diversity managers and diversity task forces helps promote social accountability within corporate America, as managers start to realize their hiring and promotion decisions could be scrutinized.[23] Now that Big Tech companies have adopted diversity managers/officers, the next step is implementing diversity task forces. Encouraging managers to voluntarily be part of the diversity and inclusion solution has also been proven to be a successful strategy, as those who volunteer begin to see themselves as "diversity champions."[24] This can be a path to culture change, as otherwise ambivalent or problematic managers begin to engage positively, and influence their teams and reports.

Ellen Pao sees a change in the tech industry with the admission now that there is a diversity and inclusion problem, but companies are "treating it as a PR crisis and strategy," which is why you see the same problems come up again and again.[25] Kapor Klein argues, "We're never going to make any progress by adding talent from diverse backgrounds if we don't fix the inclusion and culture issues."[26] In addition, Kapor Klein concludes that there are only two diversity and inclusion initiatives that can make an impact on their own, "setting specific diversity goals and giving a differential bonus for employee

referrals of diverse talent."[27] There is a consensus that other diversity and inclusion initiatives, such as unconscious bias training, are ineffective if not part of a broader diversity and inclusion comprehensive plan.

Changing the "Boys' Club" Culture

A change in tech culture is a critical element—from the traditional 'boys' club' to a more inclusive environment that fosters a sense of belonging and possibility for everyone. Atlassian, a software development company, has begun to focus its diversity and inclusion strategy on 'belonging,' as the company has found that improving employees' sense of belonging correlates with staying engaged and working at Atlassian.[28] Twilio, a tech communications firm, has banned the term "culture fit" because it helped contribute to a homogeneous workforce. Instead the firm instituted a program called Crack the Code, which promotes best practices around attracting, recruiting, and retaining talent in building a culture of inclusivity.[29] These companies are seeing the difficulty of retaining diverse workers within the traditional tech culture and are responding with initiatives on the 'inclusion' side, to create a more welcoming environment, but they are in the minority.

Preempting Bias

Heidi Williams, chief technology officer at tEQuitable, a tech employee ombuds platform, argues that changing tech culture requires companies to establish practices that help prevent unconscious bias. Good examples include:

- Creating unambiguous and unbiased rubrics for promotions and job responsibilities,
- Offering equitable career development systems,
- Creating rotating systems for 'unglamorous' tasks such as taking meeting notes,
- Creating meeting guidelines that encourage everyone's voice to be heard,
- Surveying employees regularly,
- Using exit interviews as an opportunity to get brutally honest feedback,
- Tracking company diversity and inclusion rates over time to adopt new policies and strategies

These practices are all crucial to success in the area of diversity and inclusion.[30] With more companies starting to track diversity and inclusion data, what changes have they made in response to the data? Research shows that nearly all tech companies' diversity and inclusion programs, from unconscious bias training to sexual harassment guidelines, are designed to prevent lawsuits and protect company assets, rather than pursuing diversity and inclusion. This must change for real progress to occur.

Unconscious Bias Training

Virtually all tech companies have adopted unconscious bias or diversity training. This type of training has become a multi-billion-dollar industry in the U.S. But programs differ widely and there is no evidence they are having a positive impact. Iris Bohnet concludes that "Such training sessions are unlikely to change attitudes, let alone behavior."[31] Many argue these trainings have the opposite effect because they focus on making people aware that everyone engages in stereotyping without providing strategies to manage the effects of stereotyping. Others note that such trainings highlight gender and racial differences and focus on negative messaging. This results in activating bias rather than reducing it, with managers and employees rebelling against the negative messaging.[32]

The solution is not to abandon unconscious bias training, but to transform it into an effective part of a comprehensive diversity and inclusion plan. For example, instead of negative messaging, engage managers to solve problems, by giving them a goal and the power to solve the problem.[33] Bohnet argues that training must focus on capacity building and organizational change, by offering managers and employees appropriate tools to make better decisions. For employees to see the process as fair and participatory, management must have a collaborative approach.[34] Finally, a well-designed unconscious bias or diversity training should be only one aspect of a comprehensive plan to design more diverse, inclusive organization.[35]

Addressing Microaggressions

With few women in this environment, the male-dominated culture can become openly hostile to women in subtle and overt ways. Microaggressions, in the form of everyday sexism, signal disrespect and reflect inequality in the workplace. Women who experience microaggressions view their workplaces as less fair and are three times more likely to regularly think about leaving it.[36]

Microaggressions, or micro-inequities[i] *refer to the "apparently small events which are often fleeting or hard-to-prove events that are covert, often unintentional, frequently unrecognized by the perpetrator, and occur wherever people are perceived to be 'different'."*[37]

Microaggressions include interrupting, lack of eye contact, addressing only the men in the room, raising one's voice, not recognizing the achievements of everyone equally, and consistently ignoring emails.[38]

Women of color are severely underrepresented in the tech industry and are most likely to face microaggressions.[39] An African American Ph.D. in Engineering at Microsoft says the current climate reflects an "amplified hostility" towards Black women and that there is a "lack of recognition for significant accomplishments" of women of color. She goes on to say that getting upset about this fact means that you are often "stereotyped as angry Black women."

[i] *Term coined by Mary Rowe in 1973*

The majority of those interviewed mention the lack of respect they face on a daily basis, which is demonstrated by being interrupted when they speak, not having their ideas heard, men expressing the same ideas and having the ideas suddenly be valued, people talking over them, and having to prove themselves and their technical skills over and over again. Several women mention their work being "nitpicked" by male colleagues on a regular basis, making it hard for them to get their work done. A software engineer at Amazon tells of being continuously interrupted in meetings even when she is asked to answer a question, and when she spoke up she was reported to her manager who told her "this kind of behavior could block your promotion."

One technical worker at Amazon reported she senses an "inherent lack of trust that she's qualified," and thus has to prove herself constantly. A software engineer at Google feels that "as a woman you are not assumed to be an engineer, and the assumption is that you don't know what you're talking about." A project manager at Amazon (who is the data expert on her team), feels she has "to defend her analytics" on a regular basis. The men on the team assume that she does not know what she's talking about, whereas a male data expert is trusted. If there's a problem with his analysis, there must be a problem with the data.

Women report they feel relegated to lesser roles, literally leveled down. They say they are viewed by co-workers as being at a lower level than they are. This frequently comes with having their work devalued and with general stereotypes about who can be an engineer and who can be a manager. Some feel that their accomplishments are diminished and that they are not given credit for their work while men on their teams are. As a documentation specialist at Amazon puts it, "women are consistently dismissed." A transgender woman at Microsoft describes the discrimination she experienced while transitioning as "bitter-sweet" as "it reinforced that gender discrimination is real and it is impacting me now." Her colleagues were beginning to view her as a woman.

Several women tell of men consistently not responding to their emails, and multiple women say they have been excluded from projects—even their own projects—by men on their teams.

Using Your Work Voice

The issue of being excluded from their own projects is exacerbated as workers are required to work from home. A developer and a software engineer, both at Amazon, participate in regular phone calls with groups of male co-workers who do not know their names—or who refuse to refer to them by name, even after being asked multiple times. Thirteen women in our survey spoke about being told by managers to act more like men in terms of posture, vocal tone, and to use the words they use. This is not new—a woman who joined Microsoft in the late 1990s recalled being told to dress like the men in order to fit in.[40] Many of the interviewees have adopted this advice, having a lower 'work voice' and avoiding words like "maybe" or "I think" in emails to men to ensure their ideas were not dismissed

Extreme Tactics?

Two extreme tactics employed by the interviewees to ensure their voices are heard or that they can do their work include: 1) letting a male colleague send emails to get quicker responses to keep the project moving along, and 2) having a male colleague repeat everything she says on conference calls to ensure her ideas are heard.

for sounding unsure. One engineer at Microsoft talked about the extra preparation she regularly undertakes to ensure she gets her point across in "a brief, fact-oriented manner."

Among the extreme tactics our interviewees had to use to get work done or get their voices heard are: 1) letting a male colleague send emails to get quicker responses and keep the project moving, and 2) having a male colleague repeat everything she says on conference calls. These adaptations show the lengths women must go to do their jobs. As a project manager at Microsoft puts it, "the time women spend in meetings trying to convince others we know what we're talking about could be spent doing the actual work."

Microaggressions occur more often when there is only one woman in the room, frequently the case. A software engineer at Nordstrom says that if you are in a meeting and you are "the only woman" then you are labeled a "troublemaker for speaking up." A software engineer at Microsoft feels similarly, that if you are the only woman it's "hard to make your presence known and to have people listen to you." Many of the women interviewed agree that having more women on a team means that women are more likely to be heard and their ideas valued.

The Only One in the Room

Many interviewees reported feeling very alone in experiencing microaggressions, because they often were the only woman in the room when it occurred. There are two impacts of being 'the only one' in the room: first, the experience of feeling excluded and devalued is more likely to occur. Second, it doesn't allow women to compare notes and share experiences; instead, they question whether they are good enough when treated this way. Nineteen women spoke of the alienation of being the only woman in the room during meetings or the only woman on their team. Many interviewees witnessed only women being asked to do "office housework," such as taking notes in meetings and planning social events. Some even reported male colleagues noticing this gendered division of labor after having taken unconscious bias training.

Women working at home during the current pandemic say they still experience microaggressions daily. Multiple tech workers spoke about being interrupted in online

meetings and a content developer at Microsoft said her male manager talked over her much more online than in the office. On two occasions, she said, he apologized and then continued to do it. Most survey respondents said they experienced no difference in microaggressions working from home or in the office.

Solutions to Microaggressions: Personal? Or Cultural?

Many solutions to microaggressions involve direct responses – by the victim, by witnesses, and/or by the aggressor. However, these are all personal solutions to a systemic behavior problem stemming from a culture that allows and sometimes even encourages bullying and hostile behavior.

Some research points to micro-affirmations, small gestures or behaviors that are inclusive and caring, including listening, as a way to combat microaggressions.[41] Others point to micro-interventions, which make the act of microaggression visible, disarming it, and educating the perpetrator.[42] Research from *The Riveter* suggests that women learn to navigate, rather than confront microaggressions.[43] No one seems to have a systemic solution to microaggressions other than changing company culture from the top to discourage such behaviors strongly and swiftly.

Another consequence of tech industry's unwelcoming environment is that women experience imposter syndrome, low self-confidence and a fear of failure. They experience internal struggles between achieving success and avoiding being "found out," which prevents many from continuing their careers. A software engineer at Microsoft mentions "how the little things make you question if this is where you really belong. Day after day you feel isolated and left out." Interviewees described feeling "upset" and "exhausted" by the emotional toll, and two interviewees spoke of negative health impacts. A former engineer at a visual media company said there were "subtle cues that I wasn't welcome," and spoke about "feeling systematically unsupported" before making the decision to leave the industry.

"...how the little things make you question if this is where you really belong. Day after day you feel isolated and left out"
(software engineer, Microsoft)

It's hard to complain to a company's Human Resources (HR) office about daily microaggressions and feeling not welcome, as each individual act seems small, though the cumulative impact can be overwhelming. Even those surveyed who had reported sexual harassment and unwanted touching to HR felt nothing was done or the outcome unsatisfactory. More than 20 of the interviewees expressed they felt HR was "not helpful," or "nothing was done," and "going to HR is not an option," as HR is largely seen to be protecting the company, not its employees. A senior program manager at Microsoft says "there are regular discussions among networks of women at Microsoft about HR being ineffective." She reported that

"it's too well-known about the bad behavior of people and nothing is done. This permeates the culture of the company." It is clear from these interviews that HR's purpose should be realigned to act on the behalf of employees, to listen, investigate and take action where appropriate. An ombuds office is discussed below as a solution.

Is Good Management a Matter of Luck?

The predominant feeling among the interviewees was that their happiness at work was a matter of luck—the type of manager they were assigned and the team culture the manager creates. At least a dozen women had changed teams or orgs (divisions) explicitly to find a better culture or more women, knowing that changing teams can mean a career setback. A technical worker at Amazon puts it plainly, "if you're miserable then you move to another team or org." Women do this knowing that "when you leave you have to start over and you are penalized financially and in reviews" (technical worker, Amazon) and that "moving around can delay promotion and stall your career" (senior software engineer, Amazon). A senior program manager at Amazon indicates that "a supportive manager makes a difference." As for team culture, a datacenter personnel at Microsoft believes that "it has a lot to do with supervisors setting expectations early and often." Many interviewees expressed similar sentiments as a software engineer at Microsoft who says that "it's very team dependent whether you're happy or not" at work. A former principal UX program manager at Microsoft, who has since left the tech industry, argues that "your direct manager is more important to the culture of the team" than other factors. As a result, one's "career advancement is dependent on your team and manager" (data scientist, Microsoft).

Sexual Harassment

An important part of workplace culture is the prevalence of sexual harassment and how instances of sexual harassment are dealt with. Sexual harassment remains widespread in the workplace, with 50 percent of women in senior leadership, 45 percent of women in technical fields and 40 percent of women overall experiencing sexual harassment.[44] When women face sexual harassment and even sexual assault in the workplace, often they do not report for fear of retaliation or fear of no action being taken. These fears are warranted as those who do report, often do face retaliation and inaction. A program manager at a large tech company, who did not want the company identified, told of a recent situation where multiple women on her team were sexually harassed by their new male manager within a month of him being hired at the company. When they complained to HR, they were told that he had just moved across the country with his family so no action would be taken.

There is an urgent need for companies to underscore that bad behavior is unacceptable and will not go overlooked.[45] In reality, there are often no consequences—men accused of sexual harassment are allowed to resign quietly and are given large payouts depending on their perceived contributions to the company. When it comes to sexual harassment in the American workplace, those who are accused of such offenses are "too often facing too few consequences."[46] A particularly egregious example is Andy Rubin, who received a reported $90 million exit package from Google after coercing a female employee into performing oral sex.[47] This culture that punishes the victim, not the perpetrator, needs to change.

Unsealed 2018 court filings revealed that women at Microsoft filed 238 internal complaints about gender discrimination and/or sexual harassment between 2010-2016.[48] This demonstrates the pervasiveness of the problem, since many women do not report discrimination or harassment. An April 2018 *Seattle Times* article which detailed the "culture of casual sexism," at Microsoft which was slow to change.[49] Microsoft hired its first diversity and inclusion specialist in 2001. Since then, the percentage of women at Microsoft in the U.S. has actually declined from 26.4% to 24.5% in 2016 as the company has grown.

In April 2019, a group of Microsoft employees protested the company's treatment of women at an employee meeting with CEO Satya Nadella, asking him to address claims of discrimination against women in promotion and advancement, as well as claims of sexual harassment.[50] In response, Microsoft announced a plan with more accountability for general managers and above for diversity and inclusion, new business conduct training materials, stronger discipline for bad behavior, more career progression information, more HR professionals to respond to complaints, as well as the creation of a new Employee Advocacy Team to assist employees through a workplace investigation.[51]

When multiple women complained to HR about being sexually harassed by their new male manager within a month of him being hired at the company, they were told that he had just moved across the country with his family so no action would be taken.

Multiple interviewees spoke about being on a team where a male manager was so abusive or harassing or unsupportive that every woman left the team within a short time. Some were advised by HR that leaving the team was their best option. A situation where no women want to work with a manager should be tracked and should raise a red flag. Interviewees from both Amazon and Microsoft spoke of being on teams with strong women leaders only to have a reorganization occur that brings in a male leader and all of his male managers, pushing out the women on the team. The regular reorganizations that take place within tech companies can make changing teams or orgs to find a better manager or culture risky, because another reorganization can change everything.

Once sexual harassment received increasing public attention in the 1990s, the corporate response was to develop mandatory training on forbidden behaviors and grievance procedures for filing complaints. In a decades-long study of more than 800 U.S. companies, Dobbin and Kalev found that neither training programs nor grievance procedures are helping to solve the problem of sexual harassment, and in fact they do more harm than good, by increasing worker dissatisfaction and turnover.[52] A 2016 special task force of the Equal Employment Opportunity Commission (EEOC) found "no evidence that the [sexual harassment] training affected the frequency of sexual harassment experienced by the women in the workplace" and that HR trainings and procedures are "too focused on protecting the employer from liability" and not focused on ending the problem.[53] It has become virtually impossible for an employee to successfully sue her employer on a claim of a "hostile work environment" if the employer has a policy against sexual harassment.[54]

The EEOC task force also found that sexual harassment is "widespread" and "persistent," and that 85 percent of workers who are harassed never report it; instead, employees are much more likely to come up with their own solution than to seek help from HR for fear of repercussions or inaction.[55] One HR officer argued "If companies wanted [HR] to get rid of troublemakers, they'd pay us to do so."[56] Caitlin Flanagan argues that HR has been great at creating protocols of "compliance" to defend companies against lawsuits, but has not been great at solving the problem of sexual harassment. According to a Google employee quoted by *The Washington Post*, "A lot of my coworkers are reporting sexual harassment to HR and HR is working to defend the company and the accusers."[57] In fact, HR officials often counsel victims against filing grievances because they know the system is rigged and the likelihood of a positive outcome for the victim is slim.[58]

New Anti-Harassment Training and Reporting Tools

Dobbin and Kalev conclude the problem is how sexual harassment training is presented—focused on forbidden behaviors—with the message that men need fixing, thus many men get defensive and resist. Two other types of training have been more successful: bystander-intervention training and manager training. Bystander-intervention is the most promising alternative and is currently used on more than 300 college campuses and has been adapted for the U.S. Army; it requires several hours of live training focusing on "if you see something, say (or do) something."

Manager training is delivered exclusively to managers and presents sexual harassment as a challenge that all managers must deal with and gives them the tools to help solve the problem and become potential heroes rather than villains, which leads to increased buy-in. The common takeaway is that training focused on negative messaging or the problem are ineffective and may produce the opposite of the intended result. Instead, focusing training on helping managers become part of the solution is a much more effective strategy.[59]

Dobbin and Kalev also back the adoption of ombuds offices that are informal, neutral, and truly confidential to help end the harassing behavior. Because employees are more likely to report to an ombuds office, an ombuds system has a greater ability to track complaints by department and location, alerting leaders to problem spots.[60] Tech companies such as tEQuitable offer an independent, confidential virtual ombuds office that companies can tap into.[61] Another option is voluntary dispute resolution, which is less adversarial than formal grievance procedures, and where mediators work to find solutions that satisfy both sides.[62] Mandatory arbitration is much more popular within the tech industry, which serves to protect companies from litigation, but does little to help victims of sexual harassment. One of the demands of the Google 2018 walkout which Google agreed to was to end mandatory arbitration for sexual harassment cases.

Other options for reporting include 1) a confidential electronic reporting system that allows an employee to hold her report until a second complaint is made about the same person, or 2) employees may complain to any manager they feel comfortable with and that manager is authorized to either informally address the matter with the harasser or escalate the issue to a full investigation. Having multiple options offer victims more agency over what direction to take, which can only be a good thing. With these options a formal HR grievance procedure would remain as a last resort for the most egregious cases.[63]

Dobbin and Kalev argue that in addition to the alternative trainings and grievance procedures outlined above, there are three other promising tools in the corporate fight against sexual harassment:

1) train-the-trainers programs to train employees as harassment experts, committed to changing the corporate culture,

2) harassment task forces, which put employees in charge of identifying problems and designing solutions, engaging employees in ways tailored to the needs of specific companies,

3) publishing harassment data company-wide for transparency and accountability, allowing employees to track progress and make problem-solving part of the company culture.

All three of these tools have proven effective and engage employees to be part of the solution.[64]

The final piece of the puzzle is what to do about employees who have been found guilty of serious instances of sexual harassment and managers who knowingly tolerate sexual harassment to take place. The Society for Human Resource Management (SHRM) calls for managers in violation of sexual harassment policies to be disciplined, and that all complaints involving senior management should be handled by external third parties to maintain fair investigations.[65] Too often sexual harassment claims are swept under the rug with no consequences, which discourages reporting and creates a culture that tolerates sexual misconduct. Flanagan contends that companies need clear direction from the top that sexual harassment will be punished severely.[66] This commitment, in addition to the policies and procedures outlined here, is needed to create a comprehensive strategy to fight sexual harassment in the workplace.

Hiring Issues

Table 2 demonstrates that more men than women are being hired and promoted into every level of tech jobs, and the percentage of women is not increasing significantly year to year. More women in tech are found at entry level positions, and the percentages of women decrease noticeably at higher levels.

Table 2: Women as percent of total tech employees at various levels in 80 tech firms, 2018

	2015	2016	2017	2018
Entry	24.8	25.8	27.8	29.5
Mid	19.7	21.2	22	23.6
Senior	15.7	16.8	17.5	18
Executive	15	15.4	16.4	18.5

Source: AnitaB.org, 2018

Within the tech industry, women are generally concentrated in non-tech jobs. Within certain tech skill areas, such as engineering, women are relegated to the lower paying, less prestigious jobs. Google has been accused of steering men into back-end engineering jobs, considered more technically rigorous and more prestigious (these jobs are also paid and promoted at a higher rate), whereas women are steered into front-end engineering jobs.[67]

Help Wanted: "Rock Star Program Managers"

Many of our interviewees agreed that the system is flawed, beginning with the language used in job ads, to the boys' networks used to find new employees, and finally to female

candidates being held to higher standards on technical skills. Textio, a recruitment marketing company, analyzes job ads to see which words attract more men or women candidates. Words such as "superstar" and "crazy" used in Oracle job ads, "attacks" used in Amazon job ads, and "killer" used in Salesforce job ads attract more male applicants. On the contrary words like "inclusive" used in Slack job ads and "humility" used in Hulu job ads tend to attract more women candidates.[68] A recent internal job posting circulated at Microsoft used the subject line: "Looking for a Rockstar Senior Program Manager!," language likely to attract male candidates. This heavily gendered job ad language signals to applicants whether or not they 'belong' and affects whether they apply, even if they are qualified for the position.[69] "Sorting mechanisms are powerful and often overlooked," so it is up to companies to carefully scrutinize the messages and signals they are sending in job ads as well as in other company communications and on their websites.[70] By de-biasing job ads, both men and women are more likely to seek nontraditional jobs, creating the best candidate pool.

Iris Bohnet proposes electronic curtains, removing names, pictures and other demographic information from e-job applications before review to ensure a fairer hiring process.[71] Other experts call for gender-blind recruitment, pay, and promotions, so that women are not screened out, paid less, or steered into certain jobs due to gender.[72]

Several interviewees mentioned being brought into interview loops for female candidates —to show that there are women at the company—but they are rarely brought into interview loops for male candidates. Instead, male candidates are often hired by a team made up of only men. A Documentation Specialist at Amazon said that the feedback men give on female candidates is gendered – they are much tougher when evaluating women's technical skills.

Bohnet points to research that structured interviews work best, particularly with a scoring system and when interviewers assign scores right after the interview. Ideally, interviews are conducted one-on-one, to achieve multiple independent assessments, uninfluenced by what others think, which can occur in panel interviews; a more structure process helps groups reach better decisions when it comes to hiring.[73] While this is not the current trend in tech or corporate America, it should be considered as part of a serious commitment to hire and promote more women and other underrepresented groups.

Other suggestions to level the hiring playing field include setting company-wide diversity goals, broadening candidate pools by partnering with (and supporting) women's tech organizations and coding schools, replacing employee referral bonus programs with diversity hiring bonuses, and improving diversity recruiting with better training and support.[74]

Flexibility and Careers

When it comes to careers and jobs, women are much more concerned with flexibility than men. In a 2019 *Riveter* survey, 75 percent of women said that flexibility was "somewhat to very important." Claudia Goldin has showed that women tend to choose occupations with more flexibility, and has identified "the premium that women place on flexible work

conditions as a key factor affecting gender segregation in the labor market."[75] If flexible work arrangements became the norm, it's likely that women would no longer face career penalties for seeking out flexible careers.[76] Other researchers conclude that flexible hours lead to increased diversity and a better work/life balance.[77] During the current COVID-19 pandemic, many tech jobs have become "flexible," as thousands of tech workers work from home. Interviewees say this was difficult to do in the past without special accommodations. About two-thirds (64 percent) of our survey respondents said that flexibility was important when choosing a job. Flexible hours used to be more common than working from home in the past. Now companies are re-thinking work flexibility, which could have a positive impact on women's career prospects.

Career development involves issues of pay, promotion, and performance evaluations, among others. The Riveter survey also revealed:

- 26 percent of women reported that a male peer was making more in the same job,
- 53 percent of women have never received a promotion,
- 44 percent who did receive a promotion said the promotion was overdue,
- 24 percent of women say they receive unequal access to professional development opportunities, including time with leadership and/or mentors,
- 27 percent of women say they receive unequal recognition for a job well done.

These results illustrate how women feel they are treated in the workplace, by being paid less than male counterparts and denied equal access to career advancement. These feelings clearly lead to discontent and a decision to leave their careers.

The Gender Pay Gap

As a result of unfair pay and promotion practices, several big tech companies are facing lawsuits. The U.S. Department of Labor is suing Google after an investigation found "systemic compensation disparities against women pretty much across the entire work force."[78] Google is also facing a lawsuit by current and former women employees, alleging the company systematically discriminates against women in pay and promotion.[79] Microsoft is also facing a gender discrimination class action lawsuit, charging that the company has engaged in systemic and pervasive discrimination against women in technical and engineering roles on performance evaluations, pay, promotions, and other terms and conditions of employment.

What factors are involved in creating and reinforcing the gender pay gap?

- Occupational segregation, using the practice of 'steering' or channeling women into jobs with lower pay based on the perception of 'women's work.'[80] This is a factor in the Google investigation and lawsuit—steering men and women into different fields within engineering.

- The motherhood penalty, where women taking time away from the workforce or cutting back hours see earnings and advancement opportunities hurt, and mothers overall are less likely to be hired than women without children and are offered lower salaries.[81]
- Direct gender discrimination and race discrimination and bias accounts for the rest of the gender pay gap – that which cannot be explained by other factors.[82]

In the U.S. in 2017, women working full-time, year-round typically earned just 80 percent of what men earned. The gender wage gap is worse in Washington State (78 percent). The gender pay gap is, of course, worse for women of color; Black women earn 61 percent and Latinx women earn 53 percent compared to white men.[83] In the tech industry, white-collar wages are typically high, but women still face a pay gap compared to male counterparts.[84] Historical drivers of the gender wage gap, such as educational differences, are disappearing, but the professional penalty for women having children remains an important factor, as does gender discrimination.[85] Because companies refuse to release pay data, many of our interviewees wonder if they are being fairly paid. Some have learned that they are not being paid on par with male colleagues but have decided that little can be done. For those working at companies facing pay discrimination lawsuits, the feeling of not being paid equally sticks with them and is always in the back of their mind, wherever they end up.

The Paradox of Meritocracy

The "paradox of meritocracy" in the tech industry means that merit-based reward systems result in favoritism to men.[86] Former tech engineer and journalist Wendy Liu says "I used to take for granted that the tech industry was a meritocracy, and moreover that meritocracy was unambiguously good," but "in practice, it was mostly used to excuse paying women less."[87] The myth of the tech industry's meritocracy and credo "if you are paid less then you must be of less value" has to be dismantled for women to progress.

When it comes to the pay gap, many point to women's reticence to negotiate or poor negotiating skills as the key factor. However, Iris Bohnet found that women who negotiate for themselves are less liked because they violate gender norms.[88] Clearly the "male way" of advancement in the tech industry does not generally work for women who attempt to follow the same path.

The solution to the pay gap is transparency about negotiations. Bohnet also found that in fields where applicants have good information on salaries, the gender gap almost vanished, in other words, women negotiate just as well as men when they have information on typical salary ranges. Increasingly, tech workers are sharing salary information with others to ensure fair compensation. In 2015, thousands of Google employees shared salary information, and more recently, so did thousands of Microsoft employees.[89] Organizational transparency is key. Companies should have "gender-blind" pay policies, stop the practice of using prior pay history to set salaries, adopt equal pay for equal work policies, and conduct regular audits and adjustments to employee compensation.[90]

A senior program manager at Microsoft speaks about competent "women get passed up for promotion while men are failing upwards."

Promotion and advancement

Many women in tech feel unsure about their chances of promotion. Multiple interviewees spoke of feeling stuck at mid-level and facing a glass ceiling to get to a senior level. Many women see men advancing more quickly and question why. Even within months of starting, men with the same background and education as female colleagues are often promoted to a higher level. For some women who were hired straight out of college with a cohort of men and women, they see the men advancing quicker. A senior program manager at Microsoft speaks about competent "women get passed up for promotion while men are failing upwards."

For women seeking to be promoted into management and leadership within tech companies, there are several issues:

1) The candidate pool is smaller for women since there are less women at all levels to draw upon.

2) There appears to be strong bias in performance reviews, from the type of words used to describe men and women, to men being praised for taking initiative and women being told to tone down their aggression, to managers using performance reviews to retaliate for unwanted sexual advances. A study of performance reviews in tech and found that 59 percent of men's reviews contained critical feedback, while 88 percent of women's reviews contained critical feedback. The feedback was gender-specific, with women being told things like "pipe down" or "watch your tone!"[91] It has been shown that companies tend to hire and promote men based on their potential, while women are hired and promoted based on their performance/track record.[92]

3) Women tend to receive less support from their managers and less access to senior leaders, both of which hurt women's chances of being promoted.[93]

The lack of women among senior executives, leadership, and C-suite jobs is not surprising, given the lack of women below these levels. Women need to be recognized as top performers at the same rate as men and women demonstrating great leadership skills must have those skills nurtured and recognized.[94] Gillian Tans, CEO of Booking.com argues, "Driving greater gender diversity in tech is as much about unearthing untapped talent as it is about supporting women who have already built the skills, knowledge and expertise in our sector."[95]

Performance Evaluations Holding Women Back

Virtually all midsize and large companies now use annual performance evaluations, but studies show that raters tend to lowball women and minorities, and that managers work around performance systems to reward their favorite employees.[96] Even when men and women receive the same performance appraisals, research has found that men still receive

more promotions and women receive lower pay increases.[97] Many of our survey respondents said they are concerned about future performance reviews and promotions because they are less visible working from home. Mothers fear that lower productivity due to balancing children and work from home will affect future performance evaluations.

Another issue with performance evaluation programs that disadvantage women is the difficulty of evaluating one's own work. Women tend to undersell themselves in self-assessments, which then colors how their managers assess their work. The solution is to get rid of self-evaluations or not share them with managers before they make their evaluations.[98] Another solution is to have managers give employees regular feedback on how well they are doing compared to others, to give them a more objective view of their standing in the group. This strategy has been proven to eliminate gender differences in choices at work.[99] Another benefit of having more women in teams is that women receive better evaluations when they are on balanced teams, but poorer evaluations when they comprise less than 20 percent of the group.[100] This ties into the idea of critical mass, discussed below.

In the tech industry, as in other male-dominated industries, there is "widespread gender potential bias," where managers assume men have higher potential than women, even if they have done nothing to demonstrate such potential. For men there is "no shortage of opportunity continue to fail upward... no end of chances to reach their potential."[101] One way to combat this bias is to hold managers accountable by tying compensation to their department's performance. This which would provide an incentive to promote the most talented, not necessarily the favorite, employees. Iris Bohnet has shown that formulaic performance evaluations for compensation work better for women, and that comparative evaluation was fairer and made the gender gap disappear in performance evaluations.[102]

Glue Work

Other issues when it comes to women's career advancement include glue work, mentorship, sponsorship, and leadership development training. Glue work refers to all the work that is required to make a company successful and to hold things together, such as checking in on projects, reviewing other people's work, mentoring and coaching, note-taking in meetings, and so on.[103] Women volunteer or are asked to do glue work more often than men, often to their own detriment because it takes time away from 'core work,' and such work has low visibility and is 'non-promotable.'[104] The solution is to recognize, value, and equally share glue work. For example, managers need to track glue work and share it equally among employees through a rotating system; if there is too much work to share, then they need to consider hiring someone to do this work.[105]

Iris Bohnet argues that we need more research on mentorship, sponsorship, and leadership development training; she believes that coupling leadership training with mentoring offers great promise but requires further study. She argues that current U.S. women's leadership development programs have not been successful because they focus on building capacity and navigating existing playing fields, rather than on interventions that could redesign the playing field. Mentorship programs can result in more diversity in management, but sponsorship appears to be even more effective. Unfortunately, it seems to be more available to men than women.

None of the women or gender nonconforming tech workers we interviewed had a sponsor. Several said they had heard of sponsorship but were not aware of sponsorships at their company. Sponsors take an active role as advocates for their proteges, make sure they get visible assignments, be considered for promising opportunities, and negotiate on their behalf for promotions and pay increases. Some firms hold sponsors accountable for how well their proteges do, and this is reflected in their compensation.[106] Other researchers found that companies that provide formal sponsorship programs saw increased diversity.[107] Slack used sponsorships to engage and retain talented performers, providing them with career development training, executive coaching, and one-on-one sponsorship with a Slack executive.[108]

Balancing Work and Family Life

Women made great progress in U.S. corporate leadership in the 1970s and 1980s, but that progress slowed considerably in the 1990s and has stalled completely this century.[109] It's widely believed that balancing work and family life explains women's stalled careers, but Robin Ely and Irene Padavic found the "crushing culture of overwork," while harmful to all employees, disproportionately penalized women who were encouraged to take less demanding roles and hours, to the detriment of their careers. The tech industry is known to push long hours and availability, but long hours have not been shown to raise productivity. In fact, they are associated with lower performance and increased sick-leave costs.[110]

Another issue related to the scarcity of women in tech and in leadership is the lack of female role models. As Wendy Liu points out, growing up, all her tech role models were male, and the few successful female programmers then became targets for criticism. When

there are so few women or people of color in an industry, they become tokens, unfairly judged as the example of their gender or race. They are critiqued more harshly than white male colleagues, who are treated as individuals, not tokens. Adding one or two women or people of color to a team often leads to tokenism. Once a critical mass of about one-third (or at least three) diverse team members takes place, stereotypes begin to lose their importance and minority members are regarded as individuals, not tokens.[111] Solutions include quotas, as well as exposure to female role models throughout young girls' lives, which has been shown to decrease their stereotypical beliefs about themselves.

Do Quotas Work?

Iris Bohnet argues that quotas are a potentially influential tool due to their success in politics and in the corporate world. She points to the success of quotas in India's village councils in substantially increasing women's representation and changing attitudes about women and girls. Quotas have been used in many political systems around the world, and since 2000 they have entered the corporate world. For example, in 2003 Norway began requiring a 40 percent minimum representation of each sex on corporate boards of certain public and state-owned companies. Norway's increase in female board members also lead to more female top managers. Bohnet notes that the beauty of quotas is that they change numbers quickly, avoiding the painful incremental assimilation process, which can depress performance.[112]

To allay concerns that quotas would result in unqualified women taking jobs from qualified men, Bohnet proposes a two-stage hiring process, where the first stage determines merit and the second stage gives preferential treatment to targeted demographic groups. To diversify executive boards, Bohnet proposes "increasing the pie" by increasing board sizes when quotas are introduced. Companies can improve their public image by publicly posting improving diversity metrics to take advantage of employer ranking systems, such as AnitaB's "Top Companies for Women Technologists."[113]

Attrition and Turnover

Turnover is costly for companies. It is expensive to find, recruit, train, and retain talent. The Kapor Center's *Tech Leavers Study* found that unfair treatment (everyday stereotyping, harassment, bullying, etc.), is the largest cause of turnover in tech, but most acutely affects underrepresented groups, and costs the industry about $16 billion annually. Tech companies rarely report their retention data, but they have become "a revolving door for underrepresented groups."[114] More transparency would be helpful step to begin solving the issue.

Twenty of the interviewees have thought about leaving their company, or tech altogether, or have already left tech. Three of the interviewees have an exit plan but are waiting for the right time. At least five of the women said they were not happy but were staying to improve things for themselves and for women entering the tech industry. A nonbinary person leaving tech commented, "it's really tiring to work in a male-dominated industry" and a Google software engineer says she "frequently wonder[s] if tech in general is right for me."

A 2011 Microsoft memo written by a female engineer manager disclosed that 56 percent of female engineers left the company mid-level. This indicates that the proportion of female senior engineers is decreasing and high numbers of women at the principal level are leaving.[115] The memo suggested that Microsoft encourage women engineers to stay in technical jobs rather than pursuing "broad business leadership." Some interviewees said that advancing at their companies means moving into a management role that didn't interest them. Many feel they are being steered away from engineering and into management. An engineer at Amazon said, "the career path for women engineers isn't clear because there are few women role models." One interviewee tells about a female engineer reporting to her who sees no role models in the senior engineering ranks. Women appear to be steered into certain roles in tech, when they are first hired, and as they progress up the ranks. Women's technical skills appear to be less valued as many women are steered into program management, where soft skills of collaboration and teamwork are valued. This area needs more research—it appears to be a detriment to women's tech careers.

"The point isn't that any one comment or incident is going to push a woman out of tech or make her miserable at work. It's the constant emotional labor that she has to perform, day after day, just to keep her job and do her work."
Chang, 2019

Most of the people I interviewed said they liked their job, but that the extra work required because of their gender made them question if they belonged in tech. This extra work includes strategies such as changing their voices at work, extra meeting preparation to ensure their ideas are heard, bringing allies to meetings to support their ideas, and spending weeks to get colleagues on board with their ideas, plans or analysis (unlike male colleagues whose work is simply accepted right away). These individual strategies may work in a particular circumstance, but they are not going to change the overarching culture.

The emotional toll of doing extra work is exhausting, isolating, and leads many women to question their future in tech. This fits with Mundy's findings, "The dozens of women I interviewed for the article love working in tech. They love the problem-solving, the camaraderie, the opportunity for swift advancement and high salaries, the fun of working with the technology itself... yet all of them had stories about incidents that, no matter how quick or glancing, chipped away at their sense of belonging and expertise." [116]

As Emily Chang found in interviewing women in tech, "The point isn't that any one comment or incident is going to push a woman out of tech or make her miserable at work. It's the constant emotional labor that she has to perform, day after day, just to keep her job and do her work." She concludes that women in tech are worn down over time because "they are doing a whole extra job" in order to survive. The emotional toll of an unwelcoming environment leads many women in tech to be unhappy, exhausted, less productive, and more likely to change teams or leave tech altogether.[117]

Attrition has been an issue in tech for a long time. A report by the Center for Talent Innovation concluded that when women leave tech it is usually not for family reasons or because they dislike the work; instead "workplace conditions, a lack of access to key creative roles, and a sense of feeling stalled in one's career" are the main reasons.[118] Emily Chang found that "women exit the tech industry at a rate 45 percent higher than men," and are leaving tech jobs much faster than non-tech jobs.[119] As a Technical Worker at Amazon noted, "at Amazon it's very easy to move around in the company, which might be masking women's attrition rates." While getting more women in the tech pipeline is important, retention appears to be an even more important area. Creating a more welcoming environment would certainly be a top priority.

The *Tech Leavers Study* concludes that keys to solving the turnover problem include a comprehensive diversity and inclusion plan (approached as a business strategy), an inclusive culture, and fair and effective management processes. Good diversity and inclusion plans include five key components:

- having a diversity and inclusion director,
- setting explicit diversity goals,
- employee bonuses for diverse candidate referrals,
- conducting unconscious bias training,
- establishing employee resource groups

Ellen Pao provides advice to women and people of color for hitting reset in tech, including practical advice such as finding your team and picking your battles, as well as having an "F-you fund," giving you the option to leave at any time.[120] She argues that it is easier to advocate for yourself if you don't feel financially dependent on the job. This acknowledges that for women and people of color, working in tech is a struggle and leaving a company or the industry must always be an option.

Support for Parents

Closely related to advancement and retention is the support for pregnant women and working parents. Because the U.S. only requires 12 weeks of unpaid parental leave[i], in most states employees are dependent on employers for this benefit. A handful of states now have paid family leave programs, including Washington. Most large tech companies do provide paid parental leave as part of a package of benefits to recruit the best talent. However, the benefit varies from company to company, with tech startups offering less. This patchwork of policies can also be a factor in pushing women out of the industry.[121]

Why don't large tech companies in their roles as innovator lead by example and offer a year of paid parental leave, as in other advanced industrialized countries? The tech industry's long work hours make it even more difficult for a mother to return to work after a few

[i] *The Family and Medical Leave Act (FMLA)*

months of leave. A year of paid parental leave might make it easier for mothers to return to full capacity when returning to work.

Something else that might help the transition back to work is onsite childcare, programs that large tech companies have not invested in. Patagonia, a clothing company, does provide onsite childcare and boasts a 100 percent working mother retention rate. The typical U.S. company sees 20-35 percent of mothers never return to work after childbirth, for a variety of reasons including insufficient parental leave and child care.[122] *The Riveter* survey of women who left their job to parent, indicated they would have stayed at the company if the following policies were in place:

- flexibility to work from home (35 percent),
- more affordable childcare (33 percent),
- more paid parental leave (32 percent),
- ability to take more parental leave even if unpaid (20 percent),
- flexible work schedules (20 percent),
- the ability to bring the child to work on occasion (11 percent).

Why do tech companies not offer onsite childcare when they offer a myriad of other services on their vast campuses (i.e. dry cleaning, hair salons, banks, climbing walls, games rooms, and gyms)? Apple's new campus reportedly cost an estimated $5 billion and included every perk one could imagine, except the one that is most effective at retaining women: onsite child care.[123] Obviously, resources are not the problem; the issue is lack of commitment to support parents and making work/life balance a priority.

A pregnant senior risk manager spoke about how both she and her husband work long hours at Amazon and even though she is more educated and earns more money, she will likely not return to her job after childbirth as it would be "too difficult with two parents working long hours."

While support for parents should include both men and women, the Pew Research Center found that women are more likely than men to adjust their career paths for family life, which means that women are the ones most affected by child care, parental leave, and other family policies and programs.[124] A Microsoft engineer feels that there was a lack of opportunities at the company when she had her children and that this "stymied her career." An engineer at Amazon argues that "everyone is supported before they take maternity leave, but when it comes time to be promoted, they are questioned for being absent." A pregnant senior risk manager spoke about how both she and her husband work long hours at Amazon and even though she is more educated and earns more money, she will likely not return to her job after childbirth as it would be "too difficult with two parents working long hours."

Companies can help change this situation by providing longer paid parental leave to all parents, to encourage fathers to participate in child-rearing and to challenge the perception that women are more of a liability in hiring and promotions. If men and women equally take time out of the labor market when a child is born, women will face less discrimination in hiring and promotion. Table 3 shows that Seattle's Big Four tech companies all provide paid parental leave to fathers but for less time than for birthmothers, with the exception of Facebook.

Table 3: Parental Leave Options at the Big Four Tech Companies, 2019

	Leave for birth mothers	Leave for fathers, non-birth parents	Flexible work time
Google	22-24 weeks paid leave	12 weeks paid leave	
Microsoft	20 weeks paid leave	12 weeks paid leave	
Amazon	20 weeks paid leave	6 weeks paid leave	Ramp Back program: flexible work hours for up to 8 weeks
Facebook	16 weeks paid leave	16 weeks paid leave	

Sources: Lotze, 2019 and McGregor, 2017

The Momazonians take on Amazon

The big development around parenting in tech is the Momazonians, more than 1,800 mothers working at Amazon. The Momazonians are trying to convince CEO Jeff Bezos to offer back up childcare (childcare if an employee's primary childcare falls through). These moms have collected evidence showing that the lack of childcare can derail the careers of talented women.[125] If they succeed, this could engineer a major cultural shift at Amazon and allow women move up. Currently there is only one woman on the senior management team reporting directly to Bezos.[126] Facebook, Google, and Microsoft have long offered backup daycare for their employees.

During the current global pandemic, schools and childcare programs are closed and tech worker parents work from home. How they are expected to balance childcare, educating their children, and their own work schedules? Even before the pandemic, Amazon has been accused of providing poor employee work/life balance. Employees who face illness, caring duties, pregnancy, or parenting face an uphill battle when it comes to conforming to Amazon's culture.[127] The pandemic has only made the situation worse for parents, particularly mothers. A senior risk manager says that the company "hasn't even acknowledged the existence of the struggles working parents are currently facing," even though many workers have spoken up about the issue. A technical worker says, "I am a single parent with two small children, so my work/life balance is completely

shot to hell, to be blunt." The current situation has amplified the work/life balance problem into a nightmare for many parents. Microsoft has offered an additional 12 weeks paid leave to deal with school closures, but the industry's failure to address this problem is shameful.

While the big tech companies' parental leave systems are generous compared to other industries, that is a low bar. When employees are expected to work and be available long hours, balancing work and family life can be extremely difficult. Some potential solutions include moving away from the 24/7 corporate culture, increasing flexible work options, longer paid parental leave (for both mothers and fathers), and better childcare options, including onsite childcare.

Tech Worker Activism and Retaliation

The tech sector has not traditionally been known for worker activism, but more and more tech workers are engaging in collective action on gender equality and other workplace issues. The Tech Workers Coalition was founded six years ago and helps organize workers seeking better conditions, treatment, and pay in the tech industry.[128] In 2018 *Wired* magazine ran an article titled *"The Year Tech Workers Realized They Were Workers."* In 2019 The *Guardian* newspaper compiled a database of 230 collective actions taken beginning in 1979, with more than 100 of those actions occurring in 2019.[129] In addition to increased unionization efforts, recent examples of activism around gender equity include:

- the global walkout of 20,000 Google employees and contractors (2018),
- media coverage of the Momazonians seeking backup daycare at Amazon (2019),
- Microsoft workers raising concern on gender discrimination and sexual harassment (2019),
- Employee protest at Google's annual meeting on sexual harassment among other issues (2019),
- A shareholder resolution on promotion velocity data, filed by Amazon workers (2019).

In their report on tech worker activism, Nedzhvetskaya and Tan found exponential growth in tech worker actions in the past year. While precarious workers are leading the charge (who have somewhat different goals than white-collar tech workers), 2019 saw the beginning of solidarity being built between different types of tech workers, from warehouse workers to engineers to gig workers.[130] This accelerated during the current COVID-19 pandemic, as white-collar Amazon tech workers have spoken out about the conditions of warehouse workers. White-collar tech workers are speaking out from disillusionment with an industry that prides itself as meritocratic, progressive, and innovative. Sexual harassment and assault scandals, contracts with U.S. Immigration and Customs Enforcement (ICE) and Customs and Border Protection (CBP), and environmental concerns have led to major actions by tech workers, including the worldwide Google walkout of 20,000 employees in 2018.

Retaliation has been a common tech company response to worker activism. A senior program manager at Microsoft spoke about facing retribution in her performance review for trying to start a woman's group to work on diversity and inclusion on her team. Her poor performance review had a huge financial and career impact and was used as a "systemic silencing" of her efforts to change the culture of a team well-known for lack of diversity and inclusion.

Google's treatment of Meredith Whittaker and Claire Stapleton, two organizers of the 2018 walkout, included demotions and removal of direct reports. Google claimed these were routine shifts and reorganizations, but it was clear that the women were targeted. Both women eventually left the company.[131] Since the 2018 walkout, activist workers at Google had honed a formula for pushing back on issues such as a contract with CBP, and the hiring of an anti-union consulting firm; the formula included using Google's internal search tools. In November 2019, Google fired four U.S. employees on the same day, including a transgender woman, for accessing "need to know" documents. This strategy was a major shift in Google's culture, forbidding employees from using "need to know" material, even if not labeled that way. This strategy, placing the onus on workers to determine "need to know" status, is a "kind of digital entrapment."[132] Laurie Burgess, a lawyer representing the workers, argues that the Google firings were intended to "chill employee activism."

In 2020 Amazon fired two warehouse workers of color after they raised concerns about warehouse conditions during the pandemic, as well as two women UX designers from the group Amazon Employees for Climate Justice who publicly denounced the "unsafe" conditions at the warehouses. While Amazon says the workers were fired for "repeatedly violating internal policies," Maren Costa, one of the fired designers, said, "They were targeting the most visible leaders in an attempt to silence everyone."[133] In response, a prominent engineer and vice president of Amazon Web Services, Tim Bray, quit "in dismay" and pointed to the firings as "evidence of a vein of toxicity running through the company culture."[134]

Instead of quieting employee activism, the Google firings appear to have mobilized hundreds if not thousands of employees previously "on the sidelines."[135] Perhaps the same will be true at Amazon. Google's aggressive reaction has led to unionizing talk; workers have reached out to several unions. In addition to research by *The Riveter* on the power of unions to "transform our workplaces and beyond," many current and former tech workers agree that unionization is necessary to change the power dynamics in the tech industry and give workers a stronger voice. [136]

Intersectionality

Most data and information on gender discrimination in tech treat women as a uniform category, and within tech this means mostly white and Asian women. Of the Big Four tech companies, only Google keeps labor force statistics based on intersections of gender and race, and most studies of women in tech do not include this information. In this study, of 48 interviewees, two identified as transgender, one as nonbinary, one as

genderqueer, and one as demigirl. Four identified as underrepresented minority groups—two African American, one Hispanic, and one Latinx. Eleven of the 48 interviewees identified as somewhere on the LGBTQ+ spectrum.

Women of color and queer women face even more biases and barriers to advancement, and report often being 'the only' one of their race, ethnicity, or sexual orientation in the room.[137] The consequences are more obstacles and less support in advancement—only one in 30 C-suite leaders being women of color. In addition, women and men of color are significantly more likely to leave their companies and move elsewhere in tech.[138]

Women of color are more likely to face microaggressions, double standards, and unconscious bias. They are most likely to experience workplace harassment, are often held to higher standards, and presumed to be less qualified.[139] The intersectional impact of race and gender biases contributes to the gender pay gap for women of color, who experience worse pay outcomes than could be predicted by race and gender separately.[140] An action plan for leaders to help women of color includes taking initiative, giving credit where credit is due, providing honest feedback, assessing potential, checking for bias, and assessing the effectiveness of diversity and inclusion programs.[141] *The Riveter* argues that diversity and inclusion training "must be rooted in intersectionality" and that we must adopt a "relentless approach to intersectionality and inclusion" in order to achieve equal opportunity for all workers.[142]

As Table 4 demonstrates, women of color are dramatically underrepresented in the tech sector.

Table 4: Women's Representation at Google[i] by Race, 2018 (U.S. only)
(in percentages)

	Women as a percent of:	
	Overall Employees	Leadership Roles
White+ women	15.7	16.5
Asian+ women	13.3	8.1
Latinx+ women	2.0	1.3
Black+ women	1.4	1.1
Native American+ women	0.3	0.4

Source: Brown & Parker, 2019.

[i] *Google is the only Big Four tech company that makes intersectional data on employees publicly available*

Lessons from other countries

Are the problems that persist in the U.S. in tech found in other parts of the world? Sweden provides one comparison with its culture of gender equity. It turns out gender discrimination also exists in the Swedish tech industry. In 2018 a Swedish movement named #Teknisktfel (technical error) emerged, inspired by the #MeToo movement, which chronicles harassment and discrimination faced by women tech workers.[143]

As in the U.S., women's share of tech employment is dismal in Sweden, with just 25 percent of STEM degrees earned by women. Ulla Tellhed, who studies the issue at Lund University, writes that Sweden stereotypes competencies "like the rest of the world," and perceives tech as a masculine field. Research has shown a "gender-equality paradox" when it comes to women in STEM. The higher a country ranks on gender equality indexes, the fewer women STEM graduates the country produces, as evidenced by Sweden, Finland, and Norway. Linda Rydén, a #Teknisktfel organizer, says in the tech industry in Sweden "you are expected to play on the men's field with their rules. The locker room culture, you have to accept it. Or else you have to leave... It makes me really sad." Several of the Swedish women who shared their harassment stories revealed that they later left their jobs in tech.[144] There are clear commonalities when it comes to gender discrimination in the tech industry globally.

Conclusions

In this report we have outlined serious gender discrimination issues in the tech industry today. It is important to note that these issues are present in virtually all male-dominated industries, but some are more salient for the tech industry. Talking to women in tech, you get the feeling that these well-educated and skilled women were not expecting such poor treatment when they chose a career in this supposedly meritocratic industry. For an issue that has received so much attention, there has been little actual measurable progress overall or at the Big Four tech companies. Rachel Thomas and her co-authors in *Women in the Workplace* argue, "Progress isn't just slow. It's stalled," noting that 90 percent of the companies surveyed by McKinsey & Company and LeanIn.org prioritized gender diversity in 2017, but only 84 percent in 2018.[145]

Many workplace studies agree on the solutions–companies must make gender equality a formal priority by setting targets, holding leaders accountable, and taking bolder steps to change workplace culture.[146] Commitment from top leaders is necessary, transparency on hiring, pay, and promotions is needed, and companies must engage managers and employees in implementing proven diversity and inclusion solutions. Few tech companies have made diversity and inclusion a business priority or have implemented any of the more than sixty strategies and policies outlined in this report. Instead, leaders still point to the 'pipeline problem' and getting more women and girls into tech. There is far less recognition of the retention problem in the tech industry, caused by a toxic, unwelcoming work culture to women, gender nonconforming folks, and people of color. This must change.

"Progress isn't just slow. It's stalled"
Thomas, et.al. (2018)

Ideas for Future Research

Many interviewees asked if we were interviewing men to get their take on the issue and many brought up the concepts of allies and advocates, both of whom are needed among their male colleagues. This would be a fruitful area for future research. *The Riveter* argues that we need to create "truly inclusive spaces" and we need men to show up in these spaces as allies, so that women are not expected to solve this problem on their own. Too often when women signal a problem, they are expected to come up with the solution. Other areas in need of research attention include 1) a gender and racial analysis of contract employees in tech and how they are treated, 2) how women are steered into certain tracks within tech, such as Program Managers instead of senior technical roles, and 3) how gender discrimination plays out when tech workers work from home, particularly as this potentially becomes the new normal.

Of all the issues outlined in this report, it was most difficult to find institutional solutions for the microaggression problem. This is a growing area of research, but most of the 'solutions' put forward are individual solutions focusing on how to react when you are the victim of or the witness to a microaggression. There needs to be more research about what companies can do to change the culture so microaggressions are no longer tolerated and part of the workplace culture. As this report outlines, there is no one solution to any of these problems but there are many policies, programs, and procedures that tech companies can adopt to achieve more diversity and inclusion in their workforce.

About the Author

Kimberly Earles received a Ph.D. in Political Science from York University in Toronto, Canada, focusing on gender, employment, and social policy. She has published her work in leading academic journals and has presented her original research at conferences around the world. She has completed research projects for the National Action Committee on the Status of Women, the Law Commission of Canada, and the Washington Education Association on topics as varied as local and global gender issues, political representation and democratic governance, and gender and compensation for educators. Kimberly Earles website is https://www.kimearles.net/ and email address is kim@kimearles.net.

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Appendix 1: Methodology

This project relies on a feminist research methodology, placing women, their voices, and their experiences, as well as issues of gender, at the forefront. In terms of finding interview subjects, networks, friends, and friends of friends were used to reach out to as many women and gender nonconforming folks in tech as possible. An email about the project, seeking participants, was sent out to email lists at Amazon, Microsoft, Google and some smaller tech companies, and an announcement about the project was made at a meeting at the Ingersoll Gender Center in Seattle. Anonymous interviews with 48 people were conducted between May 7-31, 2019 as follows:

- 20 interviews were one-on-one, while nine interviews included groups of two to five people
- Five interviews were conducted over the phone and 43 were conducted in-person
- 46 were in the Seattle area, while two lived elsewhere in the U.S.
- 41 identified as female, two as transgender, one as womxn, one as demigirl, one as genderqueer, one as nonbinary, and one preferred not to identify
- 28 identified as white, seven as Asian, two as Indian, one as South Asian, two as African American, one as Hispanic, one as Latinx, and six preferred not to identify
- Half of the interviewees identified as heterosexual, five as queer, three as bisexual, two as asexual, one as lesbian, one as gay, one as pansexual, and 11 preferred not to identify
- 19 worked at Microsoft, 18 at Amazon, two at Google, two at Comcast, one at Facebook, one at Nordstrom, one at a publishing company, one at a small tech consultancy firm, one at a visual media company, one at a LGBTQ+ organization, and one preferred not to say.

Those interviewed had a wide range of roles at their companies, from software engineer Intern to senior director; the largest groups were a variety of program managers (13) and engineers (19). And, finally, those interviewed worked in tech for between three months and 26 years, with an average of about 8.5 years.

In May 2020, during the pandemic, we developed a follow-up survey regarding gender discrimination when working from home. We sent the survey to the 48 tech workers interviewed on May 6, 2020 and gave them until May 17, 2020 to respond. We received 14 survey responses: 7 from Microsoft employees, 5 from Amazon employees, and 2 from other companies. The small number of survey responses did not allow us to draw firm conclusions but did provide some interesting information for further consideration, as discussed in the report.

Appendix 2: Best Practice Tech Companies

In addition to Slack, already discussed in detail above, *The Riveter* named Bumble, 23andMe, Etsy, Pinterest, IBM, Adobe, Genentech, and Salesforce to its list of 12 tech companies with the best gender balance policies.[147] Bumble, 23andMe, Etsy, and Pinterest are all small tech companies of between 100-2,000 employees. Like Bumble, discussed earlier, 23andMe has a woman founder and CEO and has 51 percent women employees, 42 percent women leaders and 43 percent women STEM employees, including engineers, research, and therapeutics. Etsy, an online marketplace for independent makers and crafters, 87 percent of whom are women-owned businesses, has a workforce made up of 56 percent women, 33 percent women engineers, and 52 percent women leaders. In 2019 Etsy also committed to increasing the percentage of Black and Latinx employees and in 2020 Etsy launched a sponsorship program for Black, Latinx, women, and non-binary engineering employees. Pinterest has 47 percent female employees and 30 percent female engineers, including a woman head of engineering.

As for larger tech companies of 10,000 employees or more, *The Riveter* pointed to IBM, Adobe, Salesforce, and Genentech as having good gender balance policies. Some of these policies include IBM's 'returnship program' for those who have taken time out of the labor market and are returning, similar to Adobe's Welcome Back program. Adobe has also had success with gender pay parity and is building on this success to focus next on opportunity parity, examining fairness in advancement opportunities at the company. Salesforce has implemented a diversity scorecard program that acts as an early warning system around hiring and keeps the focus on diversity and inclusion year-round. However, none of these companies have higher than average numbers of women in tech or leadership roles. Genentech, a biotechnology company, adopted a multipronged, long-term gender diversity strategy in 2007 and has increased women in leadership roles to 51 percent of mid-level managers and 41 percent of executives since then. This helps to underscore the need for a comprehensive diversity and inclusion strategy rather than one-off policies, in order to achieve substantive change.

Two other organizations of note are Paradigm and the non-profit, Project Include, mentioned earlier. Paradigm is a consulting firm that works with clients, including Slack and Pinterest, to help them implement diversity, equity, and inclusion solutions and strategies, and train employees and leaders for success in these areas. The small Paradigm team of 30 employees consists of almost 90 percent women. Project Include, a non-profit started by Ellen Pao, uses data and advocacy to accelerate diversity and inclusion solutions in tech, focusing on the start-up world. Project Include focuses on inclusion through a comprehensive strategy and accountability.

[1]Mundy, 2017
[2]Kantor & Streitfeld, 2015
[3]Chang, 2019
[4]Kosoff, 2019; Chang et al., 2018; Peluso et al., 2019
[5]Peluso et al. 2019
[6]Kosoff, 2019.
[7]As quoted in Chang, 2019
[8]Chang, 2019
[9]Scott et al., 2017
[10]Kantor & Streitfeld, 2015
[11]Snyder, 2014
[12]Vassallo et al. (2016)
[13]As quoted in Dickey, 2019.
[14]Dickey (2019)
[15]Slack, 2019
[16]Ibid.
[17]Wolfe Herd, 2018
[18]Lui, undated.
[19]Bohnet, 2016: 278
[20]Microsoft, 2019
[21]Bohnet, 2016
[22]Dickey, 2019
[23]Dobbin and Kalev, 2016
[24]Ibid.
[25]Dickey, 2019
[26]Ibid.
[27]Ibid.
[28]Nott, 2018
[29]Twilio, undated
[30]Cantieri, undated
[31]Bohnet, 2016 p. 51
[32]Bohnet, 2016, and Dobbin and Kalev, 2016
[33]Dobbin and Kalev, 2016
[34]Bohnet, 2016
[35]Emerson, 2016
[36]Thomas et al., 2018
[37]Brogaard, 2013
[38]Ibid.
[39]Washington & Roberts 2019
[40]Day, 2018
[41]Dickey, 2019
[42]Olsen, 2019
[43]The Riveter, 2019
[44]Thomas et al., 2018; Dobbin and Kalev, 2020
[45]Thomas et al., 2018
[46]Dickey, 2019
[47]Wakabayashi & Benner, 2018
[48]Liao, 2019
[49]Day, 2018
[50]Tiku, 2019a
[51]Novet, 2019
[52]Dobbin and Kalev, 2020
[53]Flanagan, 2019
[54]Edelman, 2018
[55]Flanagan, 2019
[56]As quoted in Ruettimann, 2019
[57]Ghaffary, 2019
[58]Dobbin and Kalev, 2020
[59]Ibid.
[60]Ibid; Lawrence, 2020
[61]tEQuitable, undated
[62]Dobbin and Kalev, 2020; Lawrence, 2020
[63]Lawrence, 2020, Dobbin and Kalev, 2020
[64]Dobbin and Kalev, 2020)
[65]Society for Human Resource Management, undated
[66]Flanagan, 2019
[67]Wakabayashi, 2017
[68]Textio, undated
[69]Bohnet, 2016
[70]Ibid: 163
[71]Ibid.
[72]Peluso et al., 2019
[73]Bohnet, 2016
[74]Chang et al., 2018; Peluso et al., 2019; Cantieri, undated
[75]Bohnet, 2016: 155
[76]Ibid.
[77]Peluso et al., 2019
[78]Wakabayashi, 2017
[79]Tiku, 2019b
[80]Miller & Vagins, 2018
[81]Bertrand et al., 2010, Correll et al., 2007; Kricheli-Katz, 2012
[82]Miller & Vagins, 2018
[83]Fontenot et al., 2018, U.S. Census Bureau, 2018a & 2018b
[84]Miller & Vagins, 2018
[85]Kliff, 2018
[86]Bohnet, 2016: 112
[87]Liu 2020: 128-129
[88]Bohnet, 2016
[89]Gershgorn, 2019
[90]Peluso et al., 2019; Miller and Vagins, 2018
[91]Snyder, 2014
[92]Thomas et al., 2018
[93]Ibid.
[94]Peluso et al., 2019
[95]As quoted in Hennessey, 2019
[96]Dobbin and Kalev, 2016
[97]Bohnet, 2016
[98]Ibid.
[99]Ibid.
[100]Ibid.
[101]Bohnet, 2016: 113, Liu, 2020: 171
[102]Bohnet, 2016

[103]Reilly, 2018; Ezekiel, 2018
[104]Reilly, 2018; Babcock et al., 2018
[105]Reilly, 2018
[106]Bohnet, 2016
[107]Peluso et al. 2019
[108]Slack, 2019
[109]Ely and Padavic, 2020
[110]Ibid.
[111]Bohnet, 2016
[112]Ibid.
[113]Ibid.
[114]Scott et al., 2017
[115]Day, 2018
[116]Mundy, 2017
[117]Chang, 2019
[118]As quoted in Mundy, 2017
[119]Chang, 2019
[120]Pao, 2017
[121]Burwell and Tulshyan, 2017
[122]Lieber, 2019
[123]Bishop, 2017
[124]Lieber, 2019
[125]Lieber, 2019, Soper & Greenfield, 2019
[126]Soper & Greenfield, 2019
[127]Kantor & Streitfeld, 2015
[128]Asher-Shapiro, 2019
[129]Nedzhvetskaya and Tan, 2019
[130]Ibid.
[131]Scheiber and Conger, 2020
[132]Ibid.
[133]Greene, 2020
[134]Zaveri, 2020
[135]Scheiber and Conger, 2020
[136]Liu, 2020; Miley as quoted in Dickey, 2019
[137]Thomas et al., 2018
[138]Krivkovich et al., 2017
[139]Washington & Roberts, 2019
[140]Blau & Klahn, 2017
[141]Washington & Roberts, 2019
[142]The Riveter, 2019
[143]Hustad, 2018
[144]Ibid.
[145]Thomas et al., 2018
[146]Thomas et al., 2018; Peluso et al., 2019
[147]Lui, undated

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About the Washington Labor Education and Research Center

The mission of the Washington State Labor Education and Research Center is to deliver high-quality education, training programs and research relevant to the working women and men of Washington State. The Labor Center creates the tools working people need to improve their work lives and their communities and promote a just economy through collective action. As a unique program within higher education in the state, we use the best practices of adult education and applied research to serve our dynamic and diverse labor force, including the new Rights at Work Washington website (www.RightsatWorkWA.org).

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