

A research report
produced jointly by

accenture

girls who
CODE

RESETTING TECH CULTURE

**5 strategies to keep
women in tech**



TECH NEEDS WOMEN

We want to double the number of women in tech.
To help them thrive, we'll need to change.



Tenley & Jasmin —
Senior Tech Analysts

EXECUTIVE SUMMARY

Women have almost caught up to men in the fields of technology, engineering and mathematics, right? You might assume so—but they have actually fallen further behind at the very moment when tech roles are surging and vital to the U.S. economy and its continued leadership around the globe. Unbelievably, the proportion of women to men in tech roles has declined over the past 35 years. And half of young women who go into tech drop out by the age of 35.

But we've cracked the code for reversing this troubling trend. We've found that an inclusive culture—one that is not only diverse on paper, but that enables everyone to have a voice—is the master key that unlocks opportunities for women who are studying and working in technology.

Our survey of students, employees, senior HR leaders and human resources officers (SHROs*) reveals the specific environmental characteristics that will help women in tech advance and thrive.

The differences between the most and least inclusive environments are huge. In less-inclusive colleges, one in four women feel like an outsider. Just one in 20 women feel that way in more-inclusive colleges. And in less-inclusive workplaces, the likelihood that a woman will advance to manager is just 28%, compared with 40% for men. That gender difference disappears in more-inclusive workplaces.

Women of color and Lesbian, Bisexual and Transgender (LBT) women typically face even steeper barriers in tech—however, these intersectionality effects are also mitigated by culture. For example, in less-inclusive college environments, just 67% of women of color see a clear pathway from studying tech, engineering or math to a related career, compared with 79% of other women. In more-inclusive environments, this figure jumps to 92%, on par with other women. In the workplace, 83% of LBT women in more-

inclusive cultures say they love their jobs, compared with just 35% of their peers working in less-inclusive organizations. And in more-inclusive workplace cultures, the likelihood of women advancing to manager and beyond by age 30 increases by 61%; for women of color it increases by a staggering 77%.

Our survey also revealed a disconnect between what women experience on the ground and what senior HR leaders believe about their organizations. HR leaders tend to think the culture in their organization is more supportive of women than it actually is. They are (at 45%) twice as likely as women (at 21%) themselves to say it's "easy for women to thrive in tech."

They also are not yet convinced about the power of culture as much as our research indicates they should be. Just 38% identify building a more-inclusive culture as an effective means to retain and advance women in tech roles.

Not surprisingly the perception gap between leadership and employees goes beyond just women in the tech industry. Recent global research by Accenture, "[Getting to Equal 2020: The Hidden Value of Culture Makers](#)," surveyed men and women across a variety of industries and found that two-thirds of leaders (68%) feel they create empowering environments where people have a sense of belonging, yet just one-third (36%) of employees agree.

A widespread cultural reset would help us to drive much-needed change: Our analysis suggests that if every company scored high on measures of an inclusive culture—specifically, if they were on par with those in the top 20% of our study—the annual attrition rate of women in tech could drop by up to 70%.

If this were to happen we could see up to 3 million young women working in tech in 2030, 1.4 million more than there will be if current trends continue.

Our action items for colleges and companies can help leaders reprogram their organizations for inclusion and success, starting today.

*This report draws on data from three surveys conducted between February and July 2019:
· 2,700 college students
· 500 senior human resource leaders
· 1,990 tech workers aged 30 or below
See appendix for more detail.

TWO STEPS BACK?

It's a startling truth: In spite of the efforts many have made in the last decade toward encouraging girls and women to pursue technology careers, the percentage of tech workers who were women in 1984 (**35%**) was actually higher than it is today (**32%**)¹.

Although the absolute number of women in tech roles has increased significantly over that same time frame (from 1.6M to 3.7M)², the fact that the gender imbalance is greater than it was 35 years ago is shocking and damaging—both for women and for the health of our economy.

What does this striking tech gender imbalance look like?

- Women hold just **16%** of engineering roles and **27%** of computing roles in companies in the US³.
- Women leave tech roles at a **45%** higher rate than men⁴.
- **50%** of women who take a tech role drop it by the age of 35, compared to approximately **20%** in other types of jobs⁵.
- In the largest 1,000 companies, fewer than one out of five Chief Information Officers (CIOs) or Chief Technology Officers (CTOs) are women⁶.

Are leaders seeing the whole picture?

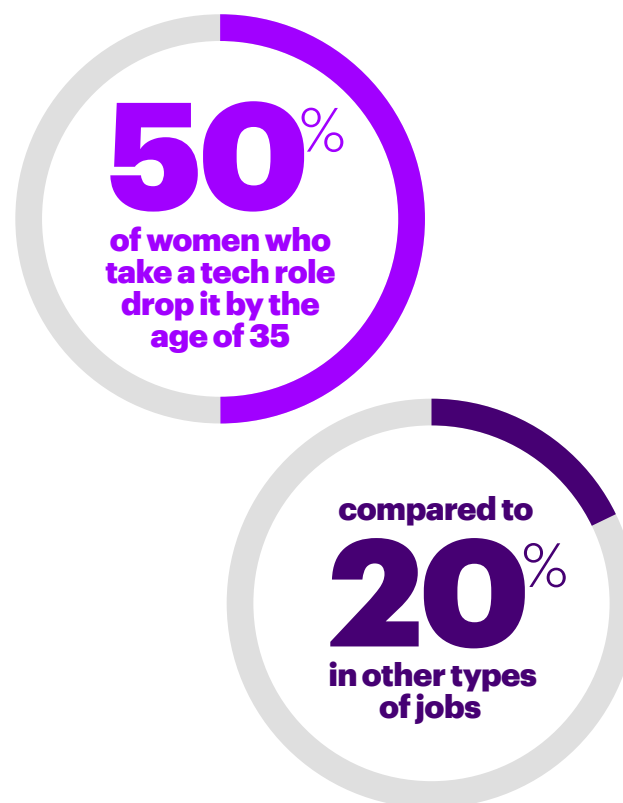
While there are several factors in play, our survey reveals a critical disconnect: Only about half of the women we surveyed believe the company culture where they work is empowering. But when we asked SHROs the same question, more than three-quarters of them said their company culture enables women to be successful in technology roles.

- SHROs are (at **45%**) twice as likely as women (at **21%**) themselves to say it's **"easy for women to thrive in tech."**
- SHROs are almost three times more likely to describe the path of women of color as **"easy"** compared with women of color themselves.

SHROs (along with the rest of the C-suite) are often change makers in their organizations. Many want to effect even greater change. Good intentions notwithstanding, our survey shows that leaders might not be fully in touch with what workers on the ground are experiencing, especially as their own responsibilities multiply. They might not have the tools or knowledge they need to foster real cultural change.

The very vibrancy of our economy is at risk. As tech permeates every industry more each day, rebuilding tech culture becomes more of an imperative if the U.S. is to remain a world leader in tech—and in general.

Our research shows how a culture reset could change the game for women in tech and potentially double the number of young women working in the industry by 2030. We have actionable solutions for building an inclusive culture where women—and everyone—can thrive.



Current landscape for women who want to pursue a career in technology

College

Only **25%** of tech graduates are women, with a drop-out rate of **37%** for tech classes vs. **30%** for other programs.

Workplace

Percentage of women in tech roles has dropped from **35%** in 1984 to **32%** in 2018.

Leadership

Women are **2.5x** more likely to drop tech roles than other roles before 35. Women represent only **18%** of CIO/CTOs.

**WOMEN
NEED MORE
OPPORTUNITIES.
NOW.**

Sonali, R&D Manager in Tech,
Girls Who Code Instructor

PART 1: WHY THE TECH GENDER IMBALANCE MATTERS

Every company is—or is fast becoming—a technology enterprise. From simply having a website to using a digital payment system, deploying an AI-enabled chatbot or designing a self-driving car, all organizations have to engage with technology.

As a result, many companies have had to rebalance the skills they need to operate.⁷ Take the banking industry: At JPMorgan, around 50,000 of its employees—**20%** of its entire workforce—are now technologists; at Goldman Sachs that figure is **25%**.⁸ Both banks now self-define as “technology groups.”⁹

The labor market is struggling to keep pace with this demand, especially as technology evolves. For example, there is outstanding demand for an estimated 314,000 cybersecurity experts in the U.S.¹⁰—a rise of **50%** since 2015—and 150,000 data scientists.¹¹ Over the last three decades, computing roles in the U.S. have grown 10 times faster than the average growth of all job roles. The gender gap also matters because greater diversity has been linked with driving innovation¹², reducing bias and raising tech company share prices.¹³

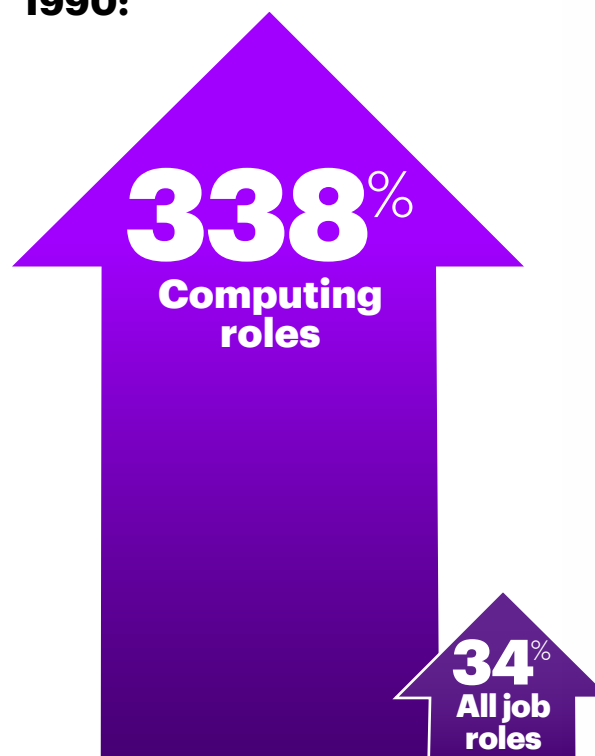
Innovation equals survival for companies in the age of disruption. Our previous research, [“Getting to Equal 2019: Creating a Culture that Drives Innovation,”](#) shows that the innovation mindset is six times higher in the most-equal cultures than in the least-equal ones.

When the teams designing, developing and deploying new technologies are not diverse, bias inevitably creeps in: For instance, a lack of “female” crash test dummies contributes to the fact that women involved in car crashes are **47%** more likely than men to be seriously injured, and **17%** more likely to die.¹⁴

“Digital-era technology, which began as a differentiating advantage years ago, is now expected from every business. It won’t be long before the standout examples of today are the norm. The message is clear: Keeping up with the digitals won’t cut it for what’s coming next.”

Accenture Tech Vision 2019

U.S. job demand growth since 1990:



A diverse world needs tech made by diverse people

And although emerging technologies such as facial recognition offer enormous potential, concerns over their accuracy and use have grown during recent racial injustice protests, leading to Amazon pausing use of its services.¹⁵ Increasing the number of women and people of color in the development and roll-out of such technologies could boost public trust.

A recent study by the Stanford Graduate School of Business found that greater gender diversity raises tech company share prices.¹⁶ In fact, a full **91%** of the SHROs in our survey told U.S. that attracting women with tech experience/education is critical for their company’s success.

The benefits of increasing the number of women in tech extend well beyond business performance, though. Doing so would have a significant impact on the gender pay gap, for example. In the U.S., women’s median earnings overall are approximately **80%** of men’s. Tech roles pay above average at every education level; in computing, women’s earnings climb to **87%** of men’s.¹⁷ Comparisons to men aside, there are clearly more opportunities for women to be employed and to achieve financial success if they go into tech instead of other fields: Median salaries for tech roles are about twice as high as those for other roles.



OUR DIFFERENCES
TRANSLATE INTO
**IMPACT, NOT
LIMITATION**

Britney, Blockchain Partnerships and Investments Lead, Tech Mentor, Speaker and Influencer

PART 2: WHY THE REGRESSION? COLLEGE AND WORK CULTURES AREN'T INCLUSIVE ENOUGH

How are we moving backwards, what with all the emphasis leaders and organizations have put on getting girls and young women into tech?

It's not the subjects or skills themselves: It's about the environments in which girls and women study, and then work, in tech.

The report "[Getting to Equal 2018: Creating a Culture Where Everyone Thrives](#)," identified 40 factors that help women of all ages, across all job roles, sectors and geographies, to thrive. This study identifies the factors that help young women (30 and below) in tech roles in the U.S. only.*

These environments are the antithesis of the "bro culture" rife in the tech world (and aptly described by activists such as Ellen Pao, author of *Reset: My Fight for Inclusion and Lasting Change*).

Our current analysis confirms this previous finding and identifies culture as a vital factor in attracting and retaining women in tech.

Women in college are much more likely to persist with tech programs if they feel comfortable and supported in their classroom experience. Meanwhile, women who leave tech roles in the workforce, or who are likely to leave in the near future, identify a non-inclusive company culture as the major driver.

At the start of this project Girls Who Code asked this question: What kind of a world are we sending our young tech students into? And is it one where they can thrive? And the answer is, it depends. It depends on the college they go to and on the company they join.

One of these worlds represents the crème de la crème: Its colleges with tech programs and offices with tech jobs make women feel encouraged, safe, free to be creative—and free to be themselves.

The other world represents less-than-ideal scenarios: Its colleges and offices are places where women feel overlooked, discriminated against and discouraged by the lack of flexibility as well as the dearth of role models.

In real life, colleges and workplaces fall somewhere along a big spectrum. But imagining the two extremes helps underscore the effect of culture on the gender tech imbalance. Because culture, it turns out, is what largely determines whether women thrive in technology-focused academic programs or jobs.

"I'm not your average typical 'techie,' but after Girls Who Code gave me a sense of how to think when you're doing computer science, my ambition has always been to do something in tech."

Engineer at Tech Consultancy

For that study, we identified 40 cultural factors that support women's advancement in all roles, not just in technology ones.

WE NEED TO SHOW WOMEN THAT WE'RE CAPABLE OF ANYTHING

Jasmin,
Senior Tech Analyst,
UI/UX Innovator, Presenter

PART 3: HOW WE DEFINE AN 'INCLUSIVE' WORKPLACE CULTURE

Over the past three years, we have surveyed over 70,000 employees around the world in our Getting To Equal research series. This has allowed us to identify—and quantify the strength of—the factors that impact the ability of women (and everyone else) to thrive in the workplace. We use the presence and strength of these factors to determine how 'inclusive' a workplace culture is.

Building on this methodology, this report assesses how inclusive colleges and workplaces are in the United States—for tech students and employees, respectively.

YOU WANT
TO BE
EMPOWERED
TO MAKE
DECISIONS
AND TO LEAD

Tenley, Sr. Cloud and
Data Science Analyst,
GWC Teaching Alumna

Identifying best practices

Throughout this report we cite two core analysis segments: “more-inclusive” and “less-inclusive.” In the workplace, we identified the factors that positively and significantly influence the ability of women to thrive in tech; in college, we adapted our method to allow for reduced certainty of an enjoyable college experience necessarily leading to a related job role.

At work: We used a linear regression model to analyze responses to our survey to identify the cultural factors that positively and significantly influence the (likely) retention/advancement of women in core programs/roles. These factors were grouped into three buckets: Bold leadership; Comprehensive action; and Empowering Environment: respect and autonomy.

At college: We identified the questions relating to college culture to understand the experiences of women and men, where their experiences did and did not align, and what factors made the most difference. These questions included diversity of faculty/student body; gender equality; ethnic/racial minority support; sexual harassment and discrimination; and freedom to “be yourself” at a college.

We scored every respondent on the incidence and strength of these factors in their college or workplace to produce a respondent-specific culture score. **We then segmented and analyzed the responses of the top 20% (“more-inclusive”) and the bottom 20% (“less-inclusive”) in both college and the workplace independently.**

For more detail, please see the appendix.

The cultural
factors that help
women thrive in the
tech workplace

BOLD LEADERSHIP

A diverse leadership team that provides role models and publishes targets

COMPREHENSIVE ACTION

Policies and practices designed to level the playing field

EMPOWERING ENVIRONMENT

Respect:

Employees are treated like humans; diversity and individuality actively encouraged

Autonomy:

Employees are given flexibility and control over how, when and where they work

PART 4: A TALE OF TWO COLLEGE CULTURES

The tech gender imbalance starts early: In our 2016 report *Cracking the Gender Code*, we found that girls’ interest and enjoyment in tech wanes in high school as the availability of computing classes declines and they lose friends in class and begin to feel isolated.

Many women never rediscover their interest in tech, shrinking the number who apply for tech programs at college; for example, just 28% of students taking Advanced Placement Computer Science exams in 2018 were women.¹⁸ And many of those who do make it to college

programs don’t stay there. We estimate that 37% of women switch away from tech majors, compared with 30% on average across all degrees.¹⁹ The upshot is that just one in four tech graduates in the U.S. today are women.²⁰

Women’s college experiences	In more-inclusive college cultures	In less-inclusive college cultures
See a clear pathway from studies to a career	93%	73%
Feel they belong	89%	37%
Plan to look for a tech role after college	85%	64%
Feel comfortable asking questions	83%	46%
Feel like an outsider	5%	25%

Using our tech student survey data, we built a model to identify the factors that influence the likelihood of women pursuing a tech career at different stages of their college lives. We found that studying in a more-inclusive college culture has a strong impact on a woman’s decision to look for a job in tech, ranging from making it 21% more likely in freshman and sophomore years to 19% and 14% in the junior and senior year, respectively. Men also benefit in a more-inclusive culture, with 88% planning to look for a tech role after college vs. only 69% in a less-inclusive culture.

37%
of women switch away from tech majors



LIKE-MINDED PEOPLE WON’T PRODUCE ANYTHING NEW

Batool, Senior at UC Berkeley, GWC Program Participant

Inclusive cultures support diversity

Of course, not every woman has the same experience, regardless of where she goes to college. Race and sexuality can have intersectional effects on students. In fact, in less-inclusive colleges, a pecking order emerges when it comes to being able to thrive in tech: men, women, and then women of color.

Among women of color at less-inclusive colleges in our survey, for instance, **55%** found classes “inspiring,” versus **67%** of other women.

Women of color are also three times more likely to experience racial harassment and two and a half times more likely to experience racial discrimination compared to other women.

These issues affect the likelihood that women of color will pursue tech careers: Just **67%** of those in less-inclusive environments see a clear pathway from studying tech, engineering or math to a career (vs. **79%** of other women).

But in more-inclusive environments, this figure jumps to **92%** (vs. **94%** of other women). And

in more-inclusive colleges, close to **90%** of women of color find their classes to be both “inspiring” and “friendly”; the same percentage as for other women.

Women of color in college tech programs are more likely to participate in women’s networks than other women in tech at the same school (**63%** vs. **50%**), an indication that they are seeking out support that is otherwise missing.

Lesbian, Bisexual and Transgender (LBT) women who major in tech also have a more positive experience in more-inclusive cultures. For example, **90%** of LBT women in more-inclusive environments “love” their classes compared with just **61%** in less-inclusive environments; and **83%** feel they have the freedom to be themselves (vs. **46%** in less-inclusive environments).

But even in more-inclusive college cultures, the experiences of LBT women lag behind their non-LBT peers. While **76%** of LBT women in these environments feel they “belong” and are “comfortable asking questions,” the figure rises to **86%** for other women. And two-thirds of LBT women have experienced some form of harassment, compared with half of non-LBT students.

SPOTLIGHT: "SUNITA"

Sunita was wary of pursuing computer science at college; she had very real fears about not being accepted and not having friends in the classroom. However, she connected with the female head of the computer science department at John Hopkins University, who began to mentor her. She also joined the Women in Computer Science campus group, and ultimately gained the courage to pursue the path she wanted from the start.

Having been put off by the types of software engineering roles presented to her at college, Sunita initially applied for non-tech roles. She somewhat reluctantly landed a software developer role at a start-up, and accepted it, thinking she would only stay for a year. But the role has exceeded her expectations; she loves the flexibility to work when, where and how she wants, and describes the founders as “approachable, open and supportive.” Sunita now sees herself staying in tech, either in a managerial or hands-on specialist engineering role.

SPOTLIGHT: COLLEGE LOOPS

Girls Who Code—the international nonprofit leading efforts to close the gender gap in tech—runs multiple programs aimed at bringing more girls into the technology workforce. In 2020, the organization had 80,000 college-aged alumni and that number is only growing. Half of them come from historically underrepresented groups—Black, Latina, low-income—in tech.

To support these alumni and ensure they persist in the field, the organization launched College Loops—university-level networks of alumni and other young women in computer science. They are led by Girls Who Code alumni and are open to any women who are studying computing or interested in technology.

And because community colleges are an untapped resource for increasing diversity in computer science (over 50% of Hispanic and Black undergraduates are educated at community colleges) Girls Who Code debuted College Loops at both four-year and two-year institutions.

Today, Girls Who Code has 200 College Loops on campuses across the United States. The organization’s college-aged alumni are majoring in computer science at a rate 15 times the national average. And the group is on track to close the gender gap in entry-level tech jobs by 2027.

**A WOMAN
IN THE ROOM
MEANS THAT
THE PATH
HAS ALREADY
BEEN CARVED**



PART 5: A TALE OF TWO WORKPLACE CULTURES

What happens when young women leave the college campus and join the world of work?

The workplace culture of the place where they land matters: Women plan to leave tech for various reasons, but in our study we found that poor company culture accounts for **37%** of those—making it the number one cause. By contrast, dissatisfaction with the job role

accounts for **31%** of reasons for leaving; the draw of another role (outside tech) for **22%**; and a lack of diversity for **10%**. When asked how companies could attract more people like them into tech roles, **51%** of women identified workplace culture and support, alongside more role models (**52%**).

For more details, please see “Reasons for leaving tech roles” in the appendix.

Women’s workplace experiences	In more-inclusive workplace cultures	In less-inclusive workplace cultures
Love their job	85%	28%
Been promoted	66%	42%
Likelihood of advancing to manager	45%	28%
Colleagues assume they are more junior than male peers	33%	63%
Made to feel that the job is not for “people like them”	16%	50%
Have heard or read inappropriate remarks or comments	15%	54%
Likelihood of leaving tech	1%	21%

More-inclusive cultures help women thrive

Women of color face even steeper challenges than other women in tech workplaces. While **27%** of computing roles in the U.S. market are held by women, just **3%** and **2%** are held by African American and Hispanic American/Latina women respectively.²¹

Only **8%** of the 390 women of color working in tech that we surveyed say it’s “easy” for them to thrive, compared to **21%** of all women.

The challenges for women of color in tech roles are underestimated by SHROs, which perhaps compounds their difficulties. The SHROs we surveyed do recognize that it’s harder for women of color to thrive in tech: Just **22%** say it’s “easy” for women of color, compared to **45%** for women in general. But that means that

“As a black woman in tech, I have sometimes felt like my ideas are overlooked. You have to try a little bit harder, but it is definitely possible to thrive.”

Analyst, Global Tech Consultancy

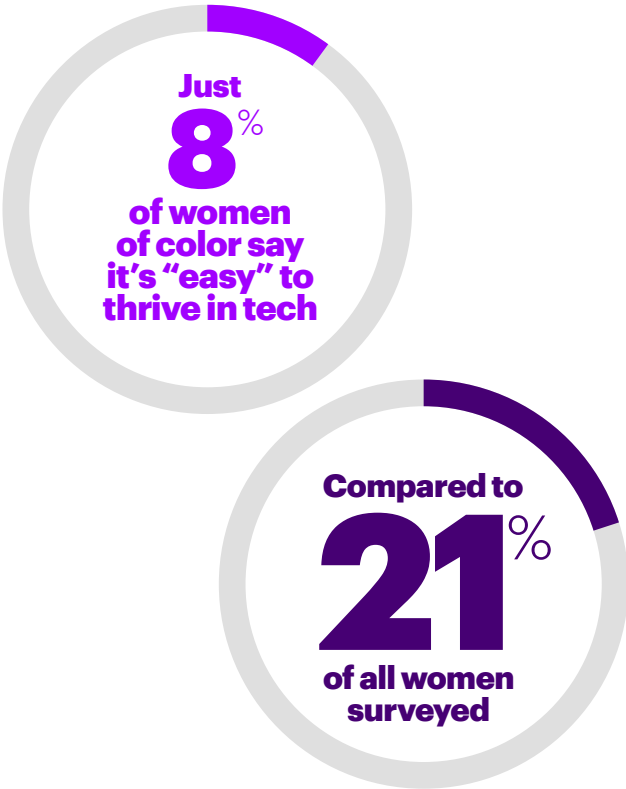
SHROs are almost three times more likely to describe their path as “easy” compared with how women of color themselves describe it. But again, we see that inclusive environments get different results: While **62%** of women of color experience inappropriate remarks or comments in less-inclusive company cultures, this figure drops to **14%** in more-inclusive ones. And just **16%** of those working in more-inclusive environments are made to feel the job is not for people like them, vs. **62%** of peers in less-inclusive environments.

We found that a mere **9%** of LBT tech employees say it’s “easy” to thrive in tech, compared to **23%** of non-LBT women. Another study of those who had recently left tech roles found that the proportion of LGBT+ employees who had suffered public humiliation or embarrassment (**24%**) or bullying (**20%**) was significantly higher than for non-LGBT+ employees.²²

We found that a more-inclusive company culture can level the playing field for LBT women, though. In more-inclusive cultures, **83%** of them love their jobs compared to just **35%** of those in less-inclusive cultures.

LBT women in more-inclusive cultures are also around half as likely as those in less-inclusive cultures to have experienced inappropriate remarks or comments (**26%** vs **56%**), or to be made to feel that the job was not for “people like them” (**26%** vs **49%**). Overall, LBT women in more-inclusive cultures (**85%**) are more than four times as likely to describe the workplace environment as “empowering,” compared with their peers in less-inclusive organizations (**20%**).

So, as we saw in college, women do not thrive on a par with men in less-inclusive workplace cultures. But culture levels the playing field: every employee is more likely to advance in more-inclusive environments, but women (four times) and women of color (five times) get bigger boosts compared with men, evening out their career prospects. Put simply, more-inclusive cultures mitigate the impact of demographic characteristics such as gender and ethnicity on the ability of all employees to thrive in tech.



SPOTLIGHT: GOOGLE

Google takes a data-led approach to increasing the diversity of its workforce. In terms of hiring, Google analyzes the text and word count of job descriptions to remove words or phrases that could bias a candidate against applying. This has resulted in an **11%** increase in applications from women. And they have pivoted their recruitment focus away from an assessment of how a prospective employee would fit into their culture, towards an understanding of what they would add. Further, the retention equity program, which offers underrepresented groups tailored support such as coaching, mentoring and development opportunities, has an **84%** success rate.

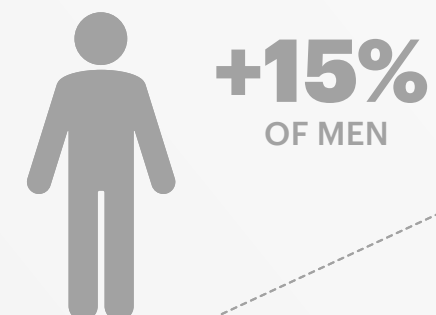
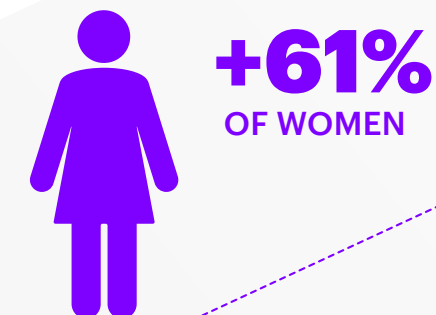
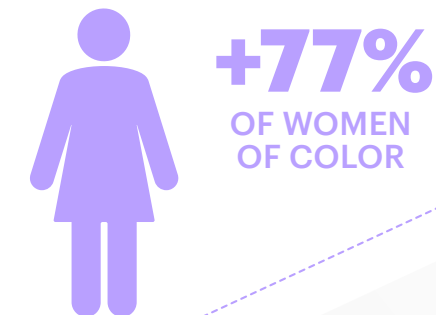
Google recognizes that it still has “work to do to increase underrepresented talent in our workforce,” but there have been clear improvements over recent years. The proportion of women in tech roles rose from **17.4%** in 2014 to **24.7%** in 2020. And the proportion of women in leadership roles increased from **20.6%** to **26.9%** over the same period.²³

LEADERSHIP DEFINES CULTURE AND BOUNDARIES

Britney, Blockchain Partnerships and Investments Lead, Tech Mentor, Speaker and Influencer

Company culture has a strong impact on the likelihood of **all** employees thriving in tech

Increased likelihood of an employee advancing to manager level in more- vs. less-inclusive workplace cultures



PART 6: STRENGTHENING THE SHRO/EMPLOYEE CONNECTION

SHROs are potential culture changers, and many have innovative ideas for improving the workplace. But given their multiple duties, some appear more focused on hiring than on retaining women. How can they make sure their ideas for changing the culture of their organizations are brought to life?

A reset starts with greater knowledge of the current culture and how it's actually experienced by women in technology jobs. Our survey shows that, along with the rest of the C-suite, SHROs are possibly unaware of some of the realities on the ground at their companies.

SHROs underestimate how hard it is for women to thrive in tech roles. They are twice as likely as women themselves to say it's "easy for women to thrive in tech" (**45%** vs. **21%**).

Whereas just about half the women we surveyed believe the company culture in their tech role is empowering, more than three-quarters of SHROs said their company culture enables women to be successful in technology roles.

And SHROs are almost three times more likely to describe the path of women of color as "easy" compared with women of color themselves.

Only **52%** of the SHROs we surveyed say their companies are actively building more-inclusive cultures, while just **38%** identify building a more-inclusive culture as an effective means to retain and advance women in tech roles.

Our analysis, conversely, shows that an inclusive culture is key to meeting these goals.

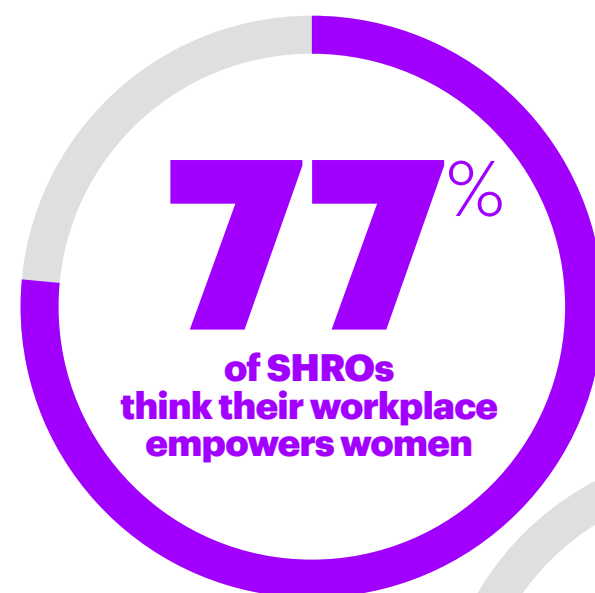
To fill the talent gap, recruit more women

On one level, SHROs certainly understand the challenge: Given the significant tech talent gaps in the U.S. today, nine in ten of them believe that attracting more women into tech roles is critical to the success of their company. But far too few of them believe that culture truly makes a difference.

SHROs see women leaving tech roles at a far greater rate than men, especially early in their careers. However, again in contrast with our findings, they don't perceive a gender gap among those who stay in the most technical roles or become leaders.

We hope that SHROs will be emboldened by our results: They now have a solid case to present to their colleagues for resetting their company's culture—starting with evidence for how the culture might not be as good as it seems from a slight distance.

Making sure that women are succeeding at work is not only in line with a SHRO's purpose; it's also necessary for the future health of a company and its growth. SHROs, therefore, are uniquely positioned at the forefront of the movement for continued economic and tech leadership in the U.S.



**Perception gap between
leadership and employees**



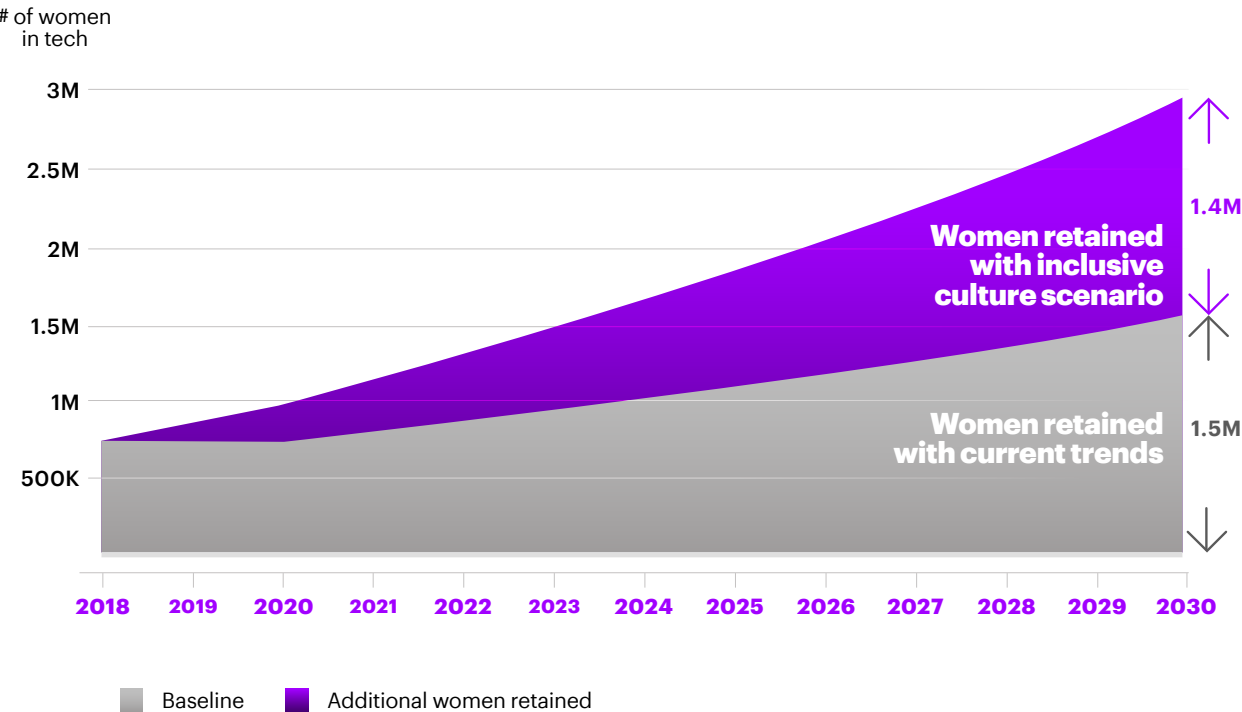
**Maria, Sonali,
Batool & Teresa —**
Women Supporting
Women: Mentors
& Mentees

PART 7: REWRITING THE STORY: WHAT IF EVERY WORKPLACE WERE INCLUSIVE?

Our analysis enabled us to explore what could happen if every company had a culture like the top 20% more-inclusive ones. We estimated that the annual attrition rate of women in tech could drop up to 70% (from 4.6% to just 1.3%).

That means there could be almost 3 million young women working in tech in 2030, instead of the 1.5 million projected to be working in tech if current trends continue. In other words, we could almost double the number of young women working in tech over the next decade.

Doubling the number of women in tech by 2030



SPOTLIGHT: MICROSOFT

Microsoft offers a wide range of programs aimed at attracting, recruiting, retaining and developing women interested in tech roles and leadership from around the world. Strong support networks such as Codess and Women Think Next help women from diverse backgrounds find connections and mentors in the coding and engineering fields to accelerate their careers.

Microsoft also partners with organizations including the Anita Borg Institute and NCWIT to connect with diverse communities of professionals and provide its own employees with networking and professional development opportunities.

The number of women in Microsoft's workforce has been steadily increasing at levels: Women now hold more than 22% of technical roles, an increase of 11% in the last three years and 16% in the last five. In leadership, women hold nearly 41% of the company's roles, an increase of 17% in the last three years and 56% in the last five.²⁴

WE NEED TO
SUPPORT
DIVERSITY OF
THOUGHT AND
EXPERIENCE



Mary, Managing Director, Tech Innovation, BOD for Women Who Code, Speaker, Advocate and Mentor

PART 8: HOW TO RESET YOUR CULTURE

How can colleges and companies take a vast and often intangible environment, generally built over many years, and make it more tangibly inclusive?

The starting point is to stop expecting women to adapt to current conditions. Don't make women change their behavior so they can fit in; refit your culture so that women can thrive because of who they are, not in spite of it. We used our model to identify the actions that have the most impact on the retention and advancement of women. Here's what we found.

On college campuses

Get to 35% Female Faculty

Commit to greater gender diversity and diversity of faculty and students overall by setting and tracking progress on programs designed to support women and ethnic minorities.

Publicizing their faculty and student diversity data is a way for colleges to ensure accountability.

At the most-inclusive colleges, for example, at least **35%** of the faculty in tech, engineering or math classes are women. It's not only about presenting a positive image of women in tech, though: Instructors who give an enriching in-classroom experience make a real difference in students' enthusiasm for tech careers.

Educate and Don't Tolerate

Start campaigns against sexual harassment/discrimination and the use of gender-biased language. Women are two and a half times more likely to experience sexual harassment in less-inclusive work cultures.

It's important to have a zero-tolerance policy and to implement educational campaigns for students and faculty on the negative impact of sexual harassment and discrimination, as well as on the use of gender-biased language.

"The collaboration in college really showed me that the tech industry is what I want to pursue. I love how people work. It may seem solitary, but you actually work with so many people."

NYU student, Girls Who Code Alumnus

Give a 360° Degree

Offer support outside of class, such as study groups, office hours, guidance from an academic advisor/counselor and mentoring in order to retain women.

A "women in tech" organization, for instance, can create a support structure for students on campus that they can rely on while they're in school and after they've graduated.

Practical, hands-on work experience is also key to making sure women can apply what they're learning and build up their resumes. These are the most effective actions to take to make tech a more attractive career option to young women.

Paint a Portrait

Build a positive image of people—and especially women—who work in tech.

Colleges should work to portray tech roles as well-paying jobs that make the world a better place. In these positions, people can be part of a team and work on projects that are challenging and rewarding.

Some students mistakenly think they would be working alone in front of a computer all day. Integrating teamwork and dynamic problem solving into the classroom curriculum can correct this misperception.

Map It Out

Demonstrate clear links between tech studies and tech careers, especially for senior-level students. Educating students about these pathways is the most impactful action to take on behalf of seniors.

Ways to do so include arranging practical experiences at companies and showcasing the success of alumni in tech.

Two-year colleges: a hybrid of college and work environments

50% of full-time undergraduates at two-year colleges are also employed, compared with 41% at four-year colleges. That means that campus culture is not enough on its own to boost their willingness to work in tech. Ideally, community

colleges should partner with employers to create school and work cultures that support women as they learn in these overlapping spheres of influence.

In the first year, the likelihood of a woman pursuing a tech career is positively influenced by practical support, such as language that makes the program content more relevant to women, and the provision of support in areas such as calculus.

In the second year, organizing recruitment forums and helping students secure internships naturally become more important.

We found that women who see a clear path from their tech program to a tech career are **25%** more likely to want to pursue one. And women who have a "good image" of tech workers are **27%** more likely to look for a job in tech—meaning that appealing role models are crucial to this population of students.

SPOTLIGHT: "LAKEISHA"

Lakeisha studied Information Technology at Pennsylvania Community College. There, she says, she often felt like the "token woman of color," and observed how women would drop tech classes—a retention issue that she attributed to the "boys-club" atmosphere.

For example, she said that the men in the class were reluctant to share their notes with her.

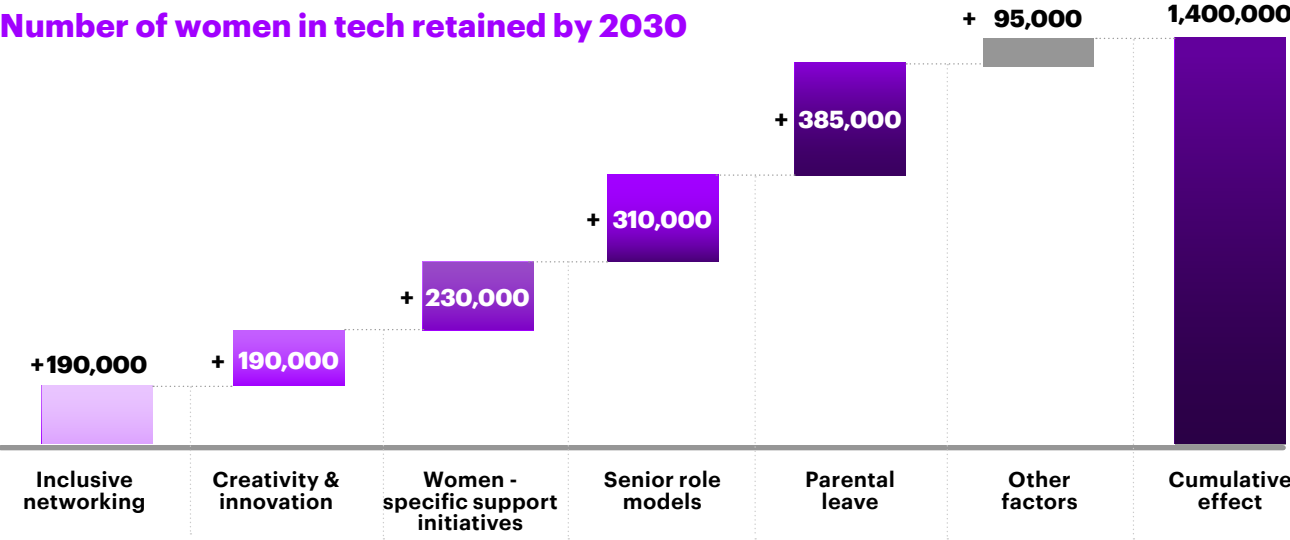
But thanks to strong support from her family, among them several women relatives working in tech, Lakeisha followed her interests and is now working in a cybersecurity role. She is aware of the dominance of older, white men, so she has actively sought out women to mentor her.

By speaking up and asking for training, she has been included in a wide variety of projects, which is necessary for women to find their niches in tech roles.

In Workplaces

Our analysis suggests if all organizations were as inclusive as the top 20%—and adopted five key cultural practices—it could help retain 1.4 million women in tech by 2030. Focus on these five initiatives so women in tech can thrive in your company:

Number of women in tech retained by 2030



Let Both Parents Parent

1. Parental leave [+385,000]
In addition to having maternity and paternity policies in place, make sure women and men are encouraged to take leave, and make sure they see senior leaders doing the same thing. That way it will be a rule—not an exception.

Make it a Metric

2. Senior role models [+310,000]
Companies should set targets/goals for diversity in the leadership team. Moreover, these should be published publicly to hold leaders accountable and should even be included in KPIs governing compensation.

Send Reinforcements

3. Women-specific support interventions [+230,000]
Singling out specific groups for special treatment might appear counterproductive in terms of integration. But providing women with targeted workplace support such as mentors, sponsors and employee resource networks helps compensate for an uneven playing field.

Encode Creativity

4. Creativity & innovation [+190,000]
Many women enter tech because they want to make a difference in the world, not sit in a back office coding all day. Environments in which employees are rewarded for creativity and innovation (which we define as creating new markets, experiences, products, services, content or processes) would appeal to many women.

Meet on Their Terms

5. Inclusive networking [+190,000]
Opportunities to network with colleagues and senior leaders typically take place at after-work drinks, breakfast meetings or sports events. Scheduling more-inclusive events, for example during working hours, would enable those with other commitments to attend and could boost women’s aspirations while making them feel that they belong.

SPOTLIGHT: SLACK

Slack is an industry-leading channel-based messaging platform. Founded in 2014, the company employs more than 2,000 people across 16 offices globally. Its hiring practices focus on attracting a more diverse set of applicants, enabling applicants to demonstrate their unique strengths and mitigating bias to better ensure that all candidates—regardless of their identities—are evaluated fairly.

From its early days, Slack has striven to be an inclusive community for all, with a particular focus on the needs of women, people of color and other underrepresented groups in its hiring and development programs. From standardized interview panels to recruiting partnerships with organizations that develop underrepresented talent, like YearUp and Code2040, to Slack’s Rising Tides sponsorship program that has invested in women and other underrepresented individuals in the company, Slack hasn’t been afraid to experiment with initiatives focused on creating and sustaining an inclusive workforce. Slack is also part of the Pledge 1% program, through which companies set aside 1% of their equity to fund and support programs that advance women and other individuals who have been traditionally underrepresented in the technology industry.

Slack’s share of women across the business is notable; for example, 46.1% of managers are women, as are 29.9% of leaders, and 33.4% of those in technical roles as of December 2019. The latter figure is up from just 18% in 2016, and Slack continues to work to increase this every day.²⁵

A GOOD LEADER IS LIKE A GOOD MOTHER. YOU ENCOURAGE YOUR TEAM TO DREAM

Teresa, Managing Director, Tech R&D, Inventor of 190+ Patents and Applications



CONCLUSION

Our research shows that if more women have an inclusive environment in which to learn about and work in tech, companies will be far better able to meet the increasing demand for talent. Bringing more women into the fold will also mitigate problems such as algorithmic or product design bias, which are exacerbated by a lack of diversity. Companies with inclusive environments nurture innovation and shrink the gender pay gap, too.

Making it so organizations have the people they need to grow, and women have the opportunities they want to succeed, is a winning strategy for companies and for the strength of the economy at large.

Let's make sure women—and all of U.S.—are ready to thrive in what will inevitably be an even more tech-driven future. And let's make sure the U.S. is a global tech leader that harnesses all of its rich talent, not just half of it.



WE ARE MAKING
PRODUCTS THAT
ARE SUITED
TO EVERYONE IN
THE WORLD

Rumman, Responsible AI Lead. PH.D.,
Data Scientist, S.F. Business Times
"40 Under 40"

APPENDIX

Survey methodology

This report draws on three distinct surveys conducted online in the U.S. between February and July 2019:

2,700 students currently at college

- 675 students in each academic year
- 2,400 women
- 1,920 women currently studying Computer Science, IT (Information Technology), Cybersecurity/Security, Engineering, Mathematics or Data Science
- 830 women of color [African American, LatinX and Native American women]
- 300 men
- 480 women on non-tech programs
- 23% of students studying at two-year colleges; 77% at four-year colleges

500 senior HR executives

- 32% were chief human resources officers, 22% were tech HR leads, 13% were chief learning officers and 33% were in other senior HR roles
- Companies employing people in technology roles in the U.S.
- 250 tech companies; 250 companies in other industries
- All respondents involved into the hiring/development of workers in technology-related roles including chief human resources officers, chief learning leads, talent strategists, recruitment leads and those responsible for HR in tech functions.
- All companies sampled had 50 or more employees, with good distribution between medium and large companies

1,990 tech workers

- Currently working or previously worked in a tech role
- 488 men

- 1,502 women; of which:
 - 815 women in core tech roles [use technical skills such as coding, math or engineering on a daily basis—or who have progressed up through the organization by using these skills. Example roles include Software Developer, Data Scientist and Technical Solution Architect].
 - 533 women who had left (n=186) or were planning [within 2 years] to leave (n=347) core tech roles.
 - 390 women of color [African American, LatinX and Native American women].

Model methodology

How we developed our college culture index

- STEP 1:** We identified the questions relating to culture in our college student survey to understand the different experience of women and men in college; where their experiences aligned; where they didn’t; and what factors made the most difference.
- The questions covered areas such as Diversity of faculty and students and initiatives supporting it; Gender equality; Ethnic/Racial minority support; Addressing sexual harassment and discrimination issues; Sense and support of freedom to be yourself at a college

- STEP 2:** We scored every respondent on the incidence and strength of these factors in their college to produce a per-respondent “culture score.”
- STEP 3:** We segmented respondents to find two core analysis groups: the top 20% of respondents by culture score (“more-inclusive”) and the bottom 20% (“less-inclusive”).

Full list of characteristics used to define more-inclusive culture, which influence positively the experience of women studying in tech:

- Overall at college:**
- Visible efforts to increase the diversity of the students and of the faculty
 - Program that addresses sexual harassment or discrimination

- Programs to encourage and support female students who are studying traditionally male courses like computing, engineering and tech
- Programs to encourage and support students from ethnic minorities
- Programs to support disabled students
- Provides an environment where no one feels excluded

In tech courses:

- Share of the faculty are women in tech, engineering and math classes
- Students and faculty from a diversity of backgrounds (race, gender, country, socio-economic)
- Meeting women at college (other students, professors) who demonstrate that women can advance and be as successful as men

Perceived performance of their college:

- Gender equality overall and in tech courses
- Attracting and retaining women on tech courses
- Campaigns against sex discrimination, sexual harassment or the use of gender-biased language

Perceived progress made by their college:

- Providing an environment where no one feels excluded
- Gender equality overall and in tech courses
- Attracting and retaining women on tech courses
- Campaigns against sex discrimination, sexual harassment or the use of gender-biased language

Factors helping women advance in their studies:

- Visible role models of my gender
- Support of a mentor
- Being given trust and responsibility
- Commitment to gender diversity

- Diverse faculty
- Diverse student body
- Freedom to be creative/innovative
- Freedom to be myself in the class
- Support outside of class for continued learning (office hours, related study groups, clubs and student organizations)
- Guidance from your academic advisor/counselor

Factors that make students want to work in tech: A 2-step approach

We built a model to determine what drives at college a woman’s decision to work in tech

STEP 1: We created and defined the variables based on the survey data result. Some of the questions were specific for certain college years, so some of the variables were common for all levels and some specific for one or two college years. As a dependent variable, we used students willing to look for a tech-related job after graduation.

STEP 2: We built four regressions models. Each of them was focused on different college years. The models aimed at understanding the impact of diverse factors on tech students’ willingness to work in tech over time.

How we developed our company culture index

How we define and measure workplace culture:

STEP 1: Using a linear regression model, we analyzed the responses to our survey to identify the cultural factors that positively and significantly influence the retention/advancement of women in core programs/roles. These factors were grouped into four buckets.

STEP 2: We built a model to quantify the impact of the cultural factors on the retention and advancement of women.

STEP 3: We scored every respondent on the incidence and strength of these factors in their workplace.

STEP 4: We segmented respondents to find two core analysis groups: the top 20% of respondents by culture score (“more-inclusive”) and the bottom 20% (“less-inclusive”).

Full list of factors (organizational characteristics) which influence retention and advancement of young women in tech:

BOLD LEADERSHIP

- Female role models
- Diverse leadership team
- Diversity target or goal is shared outside the organization
- Representation of senior women of color has improved
- Proportion of women in senior leadership team has increased

COMPREHENSIVE ACTION

- Women are encouraged to take maternity leave
- Men are encouraged to take paternity leave
- There is a clear maternity policy in place
- There is a clear paternity policy in place
- Initiatives in place to support women (e.g., mentors, sponsors)
- Participation in an employee resource networks (e.g., women of color network)
- Leaders take action to get more women into senior roles
- The organization is fully committed to hiring, progressing and retaining women
- Progress has been made in attracting, retaining and progressing people from ethnic minority backgrounds
- Selection process for new roles or growth opportunities is open
- Job adverts are appealing to women
- Interview panels tailored to candidate’s ethnicity/racial background

EMPOWERING ENVIRONMENT: RESPECT

- The health and well-being of employees is taken seriously
- Employees have the freedom to be themselves at work
- Race discrimination is not tolerated at work
- Employees rarely experience inappropriate remarks or comments
- Employer-sponsored social events take place during office hours
- Organization is welcoming to people who identify as LGBT

- Employees are encouraged to be creative /innovative
- Employees feel trusted and are given responsibility

EMPOWERING ENVIRONMENT: AUTONOMY

- The organization respects employees’ needs to balance work with other commitments
- Employees can decline a request to work late/attend early-morning/late-evening meetings without negative consequences
- Employees are able to work remotely/take early/late meetings from home to help balance personal commitments
- Employees can use connected devices to work when and where they choose to help balance personal commitments
- Employees use flexible working arrangements

Reasons for leaving tech roles

We asked women who had left tech roles - or were likely to leave such roles within two years - why. Respondents were presented with 13 options (including “Other” and “Don’t know”). We then grouped these options into four buckets:

JOB ROLE FACTORS:

- I don’t / didn’t like my line manager/ supervisor
- The work is / was boring/repetitive
- I wasn’t able to advance at the pace I wanted

CULTURE FACTORS:

- I wanted a better work/life balance
- Hard to balance work and family commitments
- I couldn’t thrive because of the company culture
- Because of sexual harassment or discrimination
- Because of racial harassment or discrimination

DIVERSITY FACTORS:

- Lack of senior leaders / role models from my racial/ethnic background
- Lack of senior leaders / role models of my gender
- Lack of colleagues from my ethnic / racial background
- Lack of colleagues of my gender

PULL FACTORS:

- Another role is/was more attractive

Employment projections

To forecast the impact of workplace culture on the number of young women who could be attracted to and retained in tech, we first built a classification of tech occupations. We then used microdata data from the Current Population Survey (BLS) to estimate the number of men and women working in such occupations by age and career level; we also analyzed microdata from the National Longitudinal Survey of Youth (NLSY97) to estimate the attrition rate of tech workers aged 30 and below. This allowed us to align our survey respondents to total (target) population figures, and to estimate the impact of that on the retention and advancement of young women in tech if all women worked in more-inclusive workplace cultures. Our projections use total U.S. employment forecasts developed by Oxford Economics as of May 2020.

Qualitative research

- Conducted nine telephone interviews with women under 25 currently working in tech roles from June-August 2019.
- Collected 26 online video diaries with women majoring or minoring in tech at college using the dscout platform.

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About Girls Who Code

Girls Who Code is an international non-profit organization working to close the gender gap in technology and change the image of what a programmer looks like and does. With their 7-week Summer Immersion Program, after school Clubs, and College Loops program, they are leading the movement to inspire, educate, and equip young women with the computing skills to pursue 21st century opportunities. Girls Who Code has reached 300,000 girls to date through its programs and 500 million people through campaigns, advocacy work, and New York Times best-selling series.

To join the movement or learn more, visit girlswhocode.com. Follow the organization on social media [@GirlsWhoCode](https://twitter.com/GirlsWhoCode).

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