A research report produced jointly by accenture | girls who code

RESETTING TECH CULTURE

5 strategies to keep women in tech

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 US[3].
- Women leave tech roles at a **45%** higher rate than men[4].
- **50%** of women who take a tech role drop it by the age of 35, compared to approximately **20%** in other types of jobs[5].
- In the largest 1,000 companies, fewer than one out of five Chief Information Officers (CIOs) or Chief Technology Officers (CTOs) are women[6].

Are leaders seeing the whole picture?

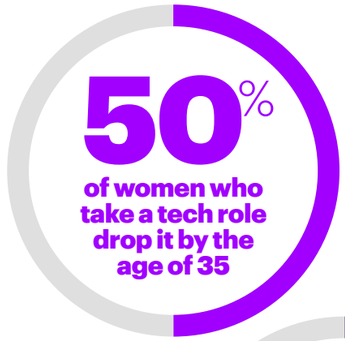
While there are several factors in play, our survey reveals a critical disconnect: Only about half of the women we surveyed believe the company culture where they work is empowering. But when we asked Senior Human Resource Officers (SHROs) the same question, more than three-quarters of them said their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

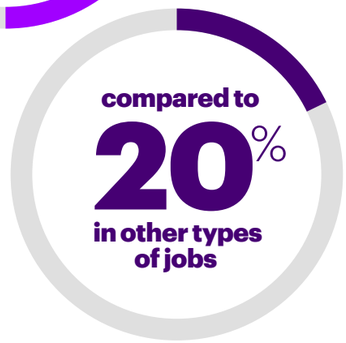
- SHROs are (at **45%**) twice as likely as women (at **21%**) themselves to say it's **"easy for women to thrive in tech."**
- SHROs are almost three times more likely to describe the path of women of color as **"easy"** compared with women of color themselves.

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 US[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 ten times faster than the average growth of all job roles. The gender gap also matters because greater diversity has been linked with driving innovation[12], reducing bias and raising tech company share prices.[13]

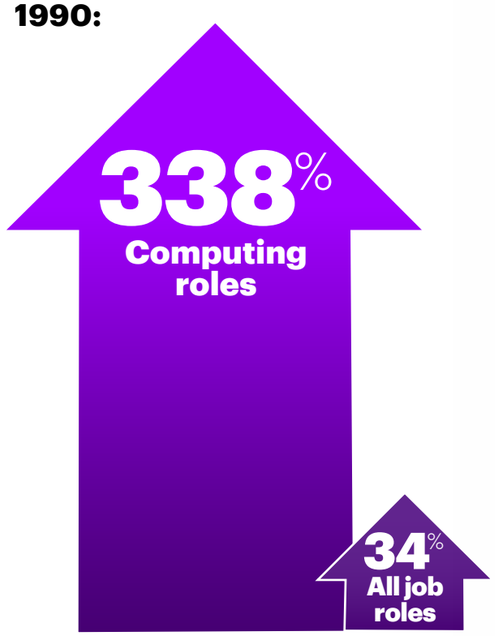
Innovation equals survival for companies in the age of disruption. Our previous research, "Getting to Equal 2019: Creating a Culture that Drives Innovation", shows that the innovation mindset is six times higher in the most-equal cultures than in the least-equal ones.

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 'techy,' 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

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
- 2400 Women
- 1920 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 2-years colleges; 77% at 4-years 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 respondible 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
- 1502 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, so-cio-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 wellbeing 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 wan'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 U.S. align our survey respondents to total (target) population figures, and so to estimate the impact that on the retention and advancement of young women in tech if all women worked in more-inclusive workplace cultures. Our projections use total US 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.

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