girls who code

Navigating the Tech Workforce in the Age of AI: Insights into Women's Early Career Journeys

SUMMARY

The technology sector has faced tremendous flux since 2023, marked by layoffs, shifting market demands, and the rapid rise of Artificial Intelligence technologies (AI). This report explores how these developments have affected women and nonbinary individuals[1] who are starting their careers in tech, highlighting the resources, skills, and support they need to succeed and the barriers they face.

As the industry undergoes vast changes, it is imperative that achieving gender parity across the tech workforce[2] remain at the center of the conversation. Enduring structural barriers continue to stifle equitable participation and advancement in tech jobs, with women and nonbinary individuals making up approximately 28% of the tech workforce and holding only 15% of its executive positions. Research additionally shows that 50% of women in tech roles leave those positions by the age of 35[3] and that women are 45% more likely to leave the tech industry entirely than their male counterparts.[4] These trends raise questions about inequities in retention and underscore the importance of studying the experiences of early career technologists, as these formative years can either contribute or deter from long-term, tech career paths.[5] The widespread introduction of AI across the tech industry further complicates issues of hiring and retention, creating a culture of opportunity while also exacerbating existing inequalities. Without proactive efforts, AI could further entrench gender disparities in the tech industry, making it harder for women and nonbinary individuals, particularly those early in their careers, to thrive.

To better understand the persistence of women and nonbinary technologists in the age of AI, Girls Who Code (GWC) with support from MetLife Foundation conducted a two-year study of GWC alumni working in technology. These early-career professionals shared their experiences in the tech industry thus far, what resources are helping them thrive, and how their careers have been impacted by the rise of AI. Based on the study findings, this report also offers recommendations for employers to support and advance this vital segment of the tech workforce.

METHODOLOGY

GWC conducted focus groups with a sample of 50 alumni over two years (2023 and 2024). GWC recruited respondents via email outreach and social media promotion. The sample was curated to be representative of the overall alumni population on the following dimensions: race/ethnicity, socioeconomic status, geographic location, GWC program participation, job title, and industry sector. All respondents identified as women or nonbinary and 52% of respondents were from historically underrepresented groups.[6]

Each focus group followed a semi-structured interview protocol and was recorded with participant consent. Focus group data was analyzed using thematic content analysis, a qualitative methodology, to identify themes and patterns within respondents' early workforce experiences. After the initial analysis, overlapping themes were merged and collapsed into a coding scheme, which was applied across all transcriptions to quantify their frequency. From this coding scheme, key themes that offered actionable, solutions-oriented insights were selected for further discussion.

FINDINGS

1. Limitations in AI Adoption

TO ADDRESS GENDER GAPS IN AI ADOPTION, RESPONDENTS NEED MORE CLARITY FROM THEIR COMPANIES ON HOW THEY SHOULD USE AI TOOLS AT WORK, GUIDELINES ON RESPONSIBLE-USE, AS WELL AS TRAINING ON HOW TO IMPLEMENT THE TECHNOLOGY.

Research suggests that early career women are less likely to take risks in the workplace than their male peers and may feel less at liberty to experiment with emerging technologies, particularly when company policies are unclear.[7] This aversion to risk emerges, in part, from the challenges that women and nonbinary individuals face in the workplace, including higher risks of backlash, retaliation, and microaggressions. Feeling less at liberty to experiment with AI puts underrepresented genders at a disadvantage in mastering the technology and also worsens biases within it, as diverse perspectives are essential for training and refining the data. *"You know before going into tech that it's a very male dominated field, but I feel like I didn't know it would be to this extent. It's definitely hard to feel like you have a safe space to try new things or grow your skills. It's honestly intimidating sometimes... being a new grad definitely adds to it, too."*

The individuals we spoke to are limited at work with which AI tools they are able to use, prohibited from using AI tools altogether, or were unsure about their employer's AI policy. Overwhelmingly, this resulted in respondents having little to no integration of AI tools into their daily work.

> *"There's been a lot of talk about AI within the company and people that are personally interested in using the tools will go out of their way to try it out and do that self-directed learning. But it is kind of surprising that there is no formal training or any sort of required basic understanding of what it is, how it works or why we are developing it."*

Research shows that the gender disparity that exists across the tech industry is present within the AI workforce, as well, with men currently representing 71% of the AI workforce and women making up only 29%.[8] Respondents discussed the precarity they sometimes felt in their roles as their companies pivot to focus on the development of AI tools and increasingly prioritize projects and teams working on AI. Respondents believe understanding AI technologies and working on AI teams would provide them with greater job security, but also find that there is a high barrier of entry for early career technologists without an existing background in AI and Machine Learning to pursue those positions.

> *"They're trying to motivate us to create AI tools, but I've not seen any resources in terms of how to have regular engineers learn how to get into this field of work. One of my colleagues, who's been in this industry for 30 years, was put on a random AI project and he vents to me daily about how hard it is. So if it's hard for an engineer who has 30 years of experience to get into this, how on earth are we expecting early career people to get into it?"*

2. Commitment to Skills-Development

AS RESPONDENTS THINK ABOUT THEIR FUTURE CAREER IN TECH AND RESPOND TO THE RISE OF AI, THEY ARE GRAPPLING WITH HOW TO GROW THEIR SKILLS IN WAYS THAT CONTRIBUTE TO JOB SECURITY AND CAREER ADVANCEMENT.

Respondents spoke about the importance of developing skills and obtaining certifications or degrees that allowed them to be more specialized and more adaptable to changes within their company or the industry at-large. *"There's constantly an expectation to continue upskilling and to continue to be able to apply yourself in a lot of different ways. Frequently I hear that in your early career you have to decide if you want to be a generalist or if you want to be a specialist, so I'm at that decision point."*

The rise of AI is shaping how early career professionals are thinking about skills-development. Some respondents discussed their plans to pursue AI/Machine Learning specializations in graduate programs. Others, particularly those in cybersecurity and information security, shared how they wanted to specialize further within their current pathway as it would be even more valuable as AI progressed. Additionally, many others shared that they were focusing on developing their soft skills and focusing on ways to make themselves "less easily replaceable" by technology. *"AI has definitely made me begin thinking (about developing) skills that technology cannot ever have. It's now a matter of thinking about how to upskill myself so that I will always have a job regardless of how AI shapes or does not shape the future of the workforce."*

Respondents would benefit from additional skills-development support and guidance from their employer. Notably, respondents shared that they were discouraged at work from pursuing skill-development opportunities that did not directly benefit their team. Additionally, they often did not have time within working hours to pursue upskilling opportunities. Skills-development, while crucial to career advancement in the age of AI, often depends on employee's self-advocacy for resources and the amount of time they can commit to upskilling outside of work. These barriers to upskilling became additionally complex for respondents when discussing them through the lens of race, gender and age. By not providing dedicated skills-development opportunities and time to complete them, companies create additional barriers for the advancement of early career women–many of whom are in caretaking roles or have additional obligations outside of their primary job. *"You're sort of just expected to lean in to the extra work, but at what point do you stop leaning?"*

3. Need for Consistent Career Mentorship

ACCESS TO MENTORSHIP IS CRUCIAL FOR CAREER ADVANCEMENT IN THE AGE OF AI, YET RESPONDENTS REPORT BARRIERS IN BOTH FINDING AND KEEPING MENTORS DURING THE EARLY YEARS OF THEIR CAREER.

A study from the American Association of University Women found that only 20% of women in tech have a mentor, compared to 50% of their male counterparts.[9] Respondents who did have a mentor discussed that they often formed these professional relationships while obtaining their undergraduate degrees or working in internships. The importance of these relationships cannot be overstated; research from Anita Borg Institute found that women with mentors in the tech industry were 77% more likely to still be working in tech after three years when compared to women without mentors in the industry.[10] Respondents shared that they often looked specifically for women mentors, and that they would actively try to seek out these relationships within work or find networking opportunities outside of work to forge these relationships.

> *"For me, mentorship was really important for me to stay in tech. Seeing someone with the same background as me excel in their career in tech and help guide me… they were the most influential people in helping me stay in my career. If I hadn't seen a handful of women in leadership, I probably would not want to stay nearly as much as I do."*

While respondents discussed the value they found in their mentors, they also shared that as their career progressed they were finding it challenging to maintain mentor/mentee relationships. They felt there was a lack of opportunities for authentic engagement with their mentors beyond reaching out to them as-needed with an explicit ask/need. This lack of repeated touchpoints and engagement over time leaves critical gaps in career mentorship, particularly when discussing long-term ambitions and navigating changes within the industry.

> *"If I think about the beginning of college to now, I definitely have women that I really connected with in some way, and learned a lot from. I could talk to them. The hard part, though, is definitely maintaining those relationships. When you leave an internship or college or a job… how do you stay in touch?"*

It is especially important for early career technologists to find a mentor within their company. By forming and maintaining a strong relationship with a more senior leader at work, women are better positioned for career advancement in several key ways. Mentors are able to share insights about organizational planning and strategy, including the role of AI and other emerging technologies. This helps early career technologists identify areas for growth, specialization, and allows them to better position themselves for promotions or new roles. As discussed, respondents shared feeling unaware of how their job function intersects with AI and unclear about how to access relevant training resources. Respondents also shared that they looked to mentors at work to share their own experiences and strategies for success in order to learn how to advance and persist within an ever-evolving industry.

> *"(I learned that) it's important to imagine your career 10-20 years down the line. I doubt that I'm still going to be working in Salesforce reporting every day, so I think that has sort of forced me to look at the people I admire and develop skills they have: adaptability, communication, project management... all of those soft skills that really oil the machine for any company in any project. Anybody looking to have a long term career in tech will need to be able to adapt to the new technologies, to stay up-to-date on trends, and just be aware of how this work is continuously changing and evolving."*

4. Power of Peer Connections

RESPONDENTS WANT MORE OPPORTUNITIES TO SHARE COMMON WORKPLACE EXPERIENCES WITH PEERS AND DISCUSS ISSUES OF ETHICS AND EQUITY AFFECTING THE INDUSTRY.

Respondents felt gender, race and age were all contributing factors to how they were treated in the workplace. Incidents of harassment, microaggressions and othering were named as common workplace experiences, with a number of respondents citing these experiences as the catalyst for beginning a new job search. This finding aligns with the research that, overall, women who leave tech roles, or are likely to leave in the future, identify a non-inclusive company culture as the major driver,[11] resulting in numerous impacts to one's well-being and professional trajectory. Additionally, as challenges in the job market persist, respondents feel increasingly hesitant to exit "bad" full-time jobs and are in need of expanded professional networks, both to identify potential career opportunities and discuss the challenges they face in the workplace.

> *"I think one thing that has really impacted me in a positive way is just a single Slack channel that exists at the company that I work for. It's a private channel for women and non-binary folks to just vent. Do whatever, say whatever you want there. It does open the door for a lot of reassuring conversation that makes me feel like I'm not alone. I don't know a lot of those people personally. But yeah, just even seeing a message every day, someone saying I'm going through this thing right now, is extremely impactful."*

Respondents value career discussions with their peers and would like more spaces to have these types of conversations. Within the study's focus groups, respondents were able to have candid conversations about their concerns and excitement about AI and its impacts. Issues of ethics and equity were forefront for respondents who shared feelings of hesitations about personal and widespread AI adoption. They discussed their concerns about misinformation, the perpetuation of biases, as well as how deep fakes were affecting the psyche of young women. Respondents also shared how uneasy they felt about the speed at which AI technology is being developed, particularly without a diversity of technologists and clear regulations. These conversations cultivated a sense of community among respondents who were able to voice and discuss their concerns within a supportive environment of peers. It is important, as DEI efforts undergo continued cuts, that these safe and inclusive spaces are fostered across the industry.

Recommendations for Employers

ESTABLISH POLICIES THAT LEVEL THE PLAYING FIELD FOR AI EXPERIMENTATION

As a first step in supporting early career women in tech, we recommend employers develop and share responsible-use AI policies with employees. Our research shows that early career women, particularly those with other historically underrepresented identities, are hesitant to experiment with AI tools in the workplace when guidance about how to do so responsibly has not been communicated to them by leadership. We believe this experimentation is vital as it enables early career women to build practical skills with AI technology and gain valuable hands-on experience integrating AI tools into their workflow. Responsible-use AI policies also help to demystify the technology for employees by communicating company standards and foregrounding its potential applications. These policies not only allow for employees' professional development but also contribute to a more equitable tech landscape by fostering inclusive opportunities for AI adoption.

INVEST IN TARGETED, ROLE-SPECIFIC UPSKILLING

Building an AI literate workforce requires a commitment from employers to dedicate time and resources to upskilling programs. We recommend employers invest resources in targeted, role-specific AI upskilling programs that include use cases to demonstrate the intersections of AI with various job functions. Our research shows that companies and employees would benefit from dedicating time within working hours for these skills-development programs, cultivating a culture of continued learning and creating more equitable upskilling opportunities for their workforce.

CREATE AI-FOCUSED AFFINITY GROUPS

As DEI initiatives and staffing decline across tech companies, we recommend employers recommit to initiatives that support their employees with underrepresented identities while also creating spaces for peer-to-peer connection. Early career women are being hugely impacted by the rise of AI and often lack spaces to experiment with and discuss the technology. The creation of AI-focused affinity groups—networks of individuals with shared interests and identities—would allow early employees to discuss AI, its use cases, and their concerns in synchronous sessions. Our aim is that these communities of practice will boost the AI literacy and confidence of those who attend, as well as create a stronger network of peers where one may not organically exist.

DEVELOP ENHANCED MENTORSHIP PROGRAMS

Authentic, consistent career mentorship is crucial for early career women in tech, particularly as the adoption of AI continues to disrupt the workforce. We recommend employers cultivate company-wide policies, initiatives, and culture that foster connections between its senior leaders and early career professionals, focusing on sharing insights about emerging trends in AI and helping mentees identify areas for growth and specialization. Research shows that mentors play a key role in both job retention and career advancement for women in tech by introducing mentees to networks and opportunities for participation that they otherwise might not receive. Additionally, by sharing their own experiences and strategies for success, mentors empower women to advocate for themselves, pursue leadership positions, and contribute to innovative AI solutions, ultimately enhancing their visibility and impact in the field. Additionally, though our respondents did not speak about the need for sponsorship, we strongly recommend employers provide structured opportunities for women to secure sponsors, in addition to mentors, as part of their professional growth plan.

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About Girls Who Code

Over the next 5 years, Girls Who Code (GWC) will reach 5 million girls, women and non-binary individuals to close the gender gap in tech. In recent years, GWC has significantly expanded program offerings in the College and Career space, providing participants with skills that will help them pursue careers in technology fields as well as develop the networks and social capital that will support their success.

About MetLife Foundation

At MetLife Foundation, we are committed to driving inclusive economic mobility. We collaborate with nonprofit organizations and provide grants aligned to three strategic focus areas – economic inclusion, financial health and resilient communities – while engaging MetLife employee volunteers to help drive impact. MetLife Foundation was established in 1976 to continue MetLife's long tradition of corporate contributions and community involvement. Since its inception, MetLife Foundation has contributed over $1 billion to strengthen communities where MetLife has a presence. To learn more about MetLife Foundation, visit metlife.org.

Endnotes

[1] Girls Who Code is committed to serving women and nonbinary individuals. Approximately 4% of study respondents identify as nonbinary. In addition to its own findings, this report will rely on publicly available data and research which predominantly focus on the experiences of women. Data points drawn from research focused exclusively on women will be identified as such.

[2] Approximately 1% of the tech workforce are reported as non-binary; it is unclear, though, whether this stems from a lack of representation or outdated data collection and reporting systems.

[3] Accenture and Girls Who Code (2020) "Resetting the Tech Culture"

[4] Forbes (2017). "Why Women Leave the Tech Industry at a 45% Higher Rate Than Men"

[5] CompTIA (2024). "State of the Tech Workforce 2024"

[6] This includes respondents who are Black, Latinx, Indigenous, multiracial, first-generation college students, and from low-income households.

[7] Boston Consulting Group (2024). "Women Leaders in Tech Are Paving the Way in AI"

[8] Forbes (2024). "Women Make Up 29% Of The AI Workforce — Here's How To Fix It"

[9] American Association of University Women (2018). "Barriers and Bias: The Status of Women in Leadership"

[10] AnitaB.Org (2024). Empowering the Future of Tech: Bridging the Gender Gap

[11] Accenture and Girls Who Code (2020) "Resetting the Tech Culture"