

Josephine Quest: Multidisciplinary Research Horizons

Vol.1 | Issue 1 | June 2026

Rise of Women in Technological Industry

K. Naga Sireesha¹

Assistant Professor, Department of Computer Science
St. Joseph's College for Women (A)
Visakhapatnam, Andhra Pradesh, India

J.Anitha Rani²

Assistant Professor, Department of Computer Science
St. Joseph's College for Women (A)
Visakhapatnam, Andhra Pradesh, India

Kumkum Dhara³

Assistant Professor, Department of Computer Science
St. Joseph's College for Women (A)
Visakhapatnam, Andhra Pradesh, India

Abstract:

Gender diversity in the corporate landscape has been a long-standing goal for businesses and organizations, with significant efforts directed towards achieving equality between men and women. However, the tech industry, in particular, continues to face challenges in achieving equal representation. There have been noteworthy developments in bridging the gender gap in the tech industry. Women in the technology sector are gradually gaining ground, thanks to the concerted efforts of major players within the industry. Progress is evident and women in tech leadership roles are spearheading the way forward. These leaders are not only focusing on gender diversity but also expanding their initiatives to encompass other important aspects of workforce representation, such as race, age, and social factors. There have been notable strides towards gender diversity in the tech industry, there is still much ground to cover. Tech companies are playing a crucial role in accelerating the representation of women in leadership positions compared to other roles. This strategic focus not only sends a positive message to potential employees but also fosters a shift in the overall corporate culture. Moreover, it holds the potential to enhance retention rates of women in both technical and non-technical positions within the tech industry.

Introduction

Women have significantly shaped technology and computer science from their inception. Recent data reflects global tech companies' progress toward gender balance, projecting nearly 33% female representation by 2022, up over 2% from 2019. Women's growth is notable in technical and leadership roles, rising by 6.9% in the global tech workforce and 11.7% in technical roles

between 2019 and 2022. Impressively, women's leadership participation has grown by almost 20%, with an anticipated one in four leadership roles held by women in large global tech companies by 2022—a rise of over 4% from 2019. However, female labor participation remains at 47%, necessitating action for true gender equality and an inclusive workforce.

Considerations for tech companies:

Many technology companies are yet to make significant progress in diversifying their workforce and welcoming a broader spectrum of viewpoints. It is essential for these companies to prioritize enhancing gender and other forms of diversity within their ranks, fostering an environment that encourages inclusivity and equal opportunities. Achieving this goal demands a level of leadership commitment and strategic focus similar to that which drives other vital initiatives within the organization.

Commit to a holistic diversity, equity, and inclusion (DEI) strategy.

Ensuring a holistic approach to diversity, equity, and inclusion (DEI) is crucial for any organization. It is imperative to foster an inclusive culture that not only attracts diverse talent but also retains them. The growing awareness in prominent tech companies have started releasing annual diversity reports to highlight their DEI strategies and outcomes. Some of these companies have come together to form a coalition, aimed at addressing diversity issues within the tech sector, where they openly share best practices and insights gained through their experiences. One of the main objectives of this coalition is to enhance leadership representation by developing guidelines for board and executive roles that truly reflect the diverse range of customers and communities they serve.

Embrace goal-setting, transparency, and accountability:

Ensuring diversity within tech companies is of utmost importance, and to achieve this, it is crucial for these companies to establish and monitor diversity metrics. By reporting their findings and tracking progress, organizations can effectively assess what strategies are effective and what needs improvement. An exemplary case is Amazon, which scrutinizes performance ratings and attrition rates among different teams to address any significant demographic disparities. Their ultimate aim is to retain employees across all demographics at similar rates. Recognizing the significance of this matter, a coalition of over 30 tech company executives, experts in Diversity, Equity, and Inclusion (DEI), as well as academics, have united their efforts to expedite DEI progress.

Establish creative programs to hire, retain, and promote:

Efforts to increase the representation of women in leadership positions within the tech industry require a significant focus on hiring and nurturing a talented pool of female employees. To bridge the gap in the meantime, some tech companies have implemented innovative strategies, such as apprenticeships targeting unconventional talent, including individuals transitioning from other careers without a traditional tech background. Additionally, "return-ship" programs have been established to provide training and mentorship to women who are re-entering the workforce after a pause. Companies must also focus on improving the retention and advancement of women

within their ranks. This can be achieved through the establishment of mentorship programs and opportunities for professional development.

1. The Gender Pay Gap is real: According to the Women in Technology Survey 2023, 79% of women acknowledge the existence of a gender pay gap in the technology sector, where males earn higher salaries, while only 8% believe in pay equality. The research suggests that closing this gap may not be swift, as female STEM graduates entering the tech industry are likely to start at junior positions, prolonging the time required for the pay gap to narrow.

2. Women are still in the minority in technology: The technology sector maintains significant gender imbalance, with men occupying 77% of tech director roles and women comprising only 26% of the workforce, as per a recent Tech Nation report. Worryingly, 76% of women reported encountering gender discrimination and bias in tech roles. To cultivate inclusivity, initiatives should inspire girls, tackle biases in hiring and promotions, and offer mentorship. Creating a supportive environment for women across levels is vital. Through collective efforts, the tech industry can authentically embrace diverse talents and perspectives of both genders.

3. Flexible working and correct language in job ads is important for attracting women to apply for tech jobs: A fascinating aspect of women in the technology field is how job advertisements' language and perks significantly influence their interest in applying. Our survey reveals that 63% of women prefer roles offering flexibility and work-from-home options. Embracing flexible policies and hybrid work arrangements is vital for attracting diverse job seekers, transcending gender lines. The global health crisis has reshaped our view of work-life balance, making such considerations essential in attracting candidates from all backgrounds.

4. There is a demand for more STEM and women in tech role models: The technology industry confronts a significant challenge in presenting a greater number of female tech role models who can serve as inspiration and motivation for the upcoming generations to pursue tech careers. According to the results of our survey, a substantial majority of respondents (31%) believe that schools should take the initiative to address the gender imbalance in the tech field by nurturing a passion for technology among young female students. Additionally, a significant number of respondents also agreed that employers share the responsibility of driving change in this regard. To accomplish this, both schools and employers can play a crucial role by introducing female students to successful role models who have achieved the aspirations they themselves seek to realize.

5. Gender Imbalance in Tech is equal across all sized organizations: According to the figures presented, gender imbalance is a pervasive issue across organizations of varying sizes. The survey results indicate that 36% of respondents, who acknowledged the existence of a gender imbalance, were employed by large companies, while 33% worked in medium-sized companies, and 31% were associated with small companies. These findings depict a concerning state of gender balance within the tech industry. However, they also offer a silver lining, suggesting sample room for improvement and potential avenues for organizations of all scales to focus on fostering greater inclusivity and attracting more women to pursue careers in the tech field.

Addressing Gaps in the Workplace: The Work Culture Divide and IT Leadership Challenges

Workplace culture gap: Workplace culture profoundly impacts challenges for women in IT. Pew Research Center's study revealed gender discrimination, reported by 50% of women compared to 19% of men. Disturbingly, figures rose for women with advanced degrees (62%), computer roles (74%), and male-dominated settings (78%). Additionally, 20% felt gender hindered success, 36% encountered workplace sexual harassment. Male-dominated workplaces intensified discrimination (43% neglected it), pressuring 79% of women to prove themselves. Conversely, gender-diverse workplaces saw 44% facing discrimination, 15% noticing diversity neglect. Balanced workplaces meant 52% didn't feel constant pressure to prove abilities.

The IT leadership gap: IDC research showed women's senior leadership roles increased from 21% to 24% (2018-2019), aiding engagement and retention. 50%+ women leadership links to equal pay, boosting satisfaction and trust. Ongoing efforts must combat gender biases and barriers. A gap remains; 54% men anticipate executive promotions, versus 25% women, citing support, confidence, and outperforming peers. McKinsey notes female tech leaders exit due to hurdles and unacknowledged efforts, emphasizing well-being and inclusion. Progress demands nurturing inclusivity, mentorship, and bias confrontation for equitable leadership.

How to Become a Woman in Technology: In the tech industry, women encounter challenges related to other fields, leading to STEM job departures. Bias, including harassment, isolation, confidence gaps, and life-role pressures, prompt exits. Stagnation also impedes progress, with lacking promotions and opportunities. While total elimination is tough, addressing each concern is vital. Professional women's tech standing improves, though not optimally. Proactively countering these obstacles to enhance inclusivity is crucial for fostering an equitable, supportive environment for women in technology.

Here are five pieces of career advice you might find useful as you embark on your IT journey.

Polish Your Skills: In the realm of STEM, especially in information technology, the importance of staying updated with the latest advancements is paramount. Whether aiming for excellence as a programmer, cybersecurity expert, or network administrator, continuous learning is vital. Despite holding a computer science degree, ongoing skill enhancement is essential. This involves exploring trending technologies, programming languages, and coding methods. Nurturing your curiosity and thirst for knowledge paves the way for significant growth in the ever-evolving tech world.

Connect with Mentors: While capable of independent accomplishments, seeking a mentor can significantly enhance your career trajectory. Identify role models within your tech circles and consider approaching them for guidance. Starting within your company, look to supervisors or executives who embody the qualities you admire. Online platforms, particularly social media, offer access to mentors sharing valuable insights. Engage, follow, and build respectful relationships, regardless of distance. By fostering connections with peers and learning from

experienced individuals, you'll navigate your career path more smoothly, fostering growth and fulfillment.

Speak Up: Don't hesitate to share your valuable opinions and brilliant ideas, building the confidence needed to overcome potential dismissal in discussions. Women often face being sidelined due to misconceptions about their contributions. Yet, your voice is significant, even amid workplace discrimination. Surprisingly, nearly fifty percent of women in STEM encounter gender bias. Speaking up for equality is crucial. To bolster assertiveness, practice at home by engaging with your reflection, simulating conversations. This prepares you to confidently express thoughts when opportunities arise, fostering a more empowered presence.

Be Proud of Your Accomplishments: In contrast to men, women often downplay achievements, influenced by the "imposter syndrome" that questions their success. Openly discussing accomplishments has merits. It boosts self-confidence, enriching self-perception and professional growth. Moreover, it cultivates a positive reputation. Sharing triumphs online or in gatherings shapes a personal brand and establishes expertise, earning respect and recognition.

Support Other Women: As women advance in the corporate hierarchy, they frequently encounter increasing isolation. Unfortunately, statistics indicate minimal growth in women's representation in executive roles. This disparity underscores the urgency for women, particularly leaders, to actively uplift and support their peers. Irrespective of personal career milestones, recognizing others' challenges remains crucial. Involvement in backing female-led startups, promoting science and coding education for girls, and contributing to tech industry diversification can yield significant impact.

Conclusion

In recent decades, women's presence in technology, math, science, and engineering fields has consistently lagged, constituting less than half of the STEM workforce. Over thirty years, there's been a troubling 5% drop in women pursuing careers in these domains. However, this shouldn't deter aspiring women from engineering, scientific, or computer roles. Support for women in these fields is growing, with dedicated organizations empowering aspiring tech leaders. To excel, find and use your voice, advocate for yourself and fellow women, seek mentorship from champions of women in tech, enhance both technical and soft skills, and proudly share achievements. Confidence will shape your fulfilling tech career.

References

- Ashcraft, C., McLain, B., & Eger, E. (2023). *Women in Tech: The Facts 2023 Update*. National Center for Women & Information Technology (NCWIT).
- Britto, R., Gerosa, M., & Steinmacher, I. (2022). An empirical investigation on the challenges faced by women in the software industry. *arXiv Preprint*.
- CompTIA. (2024). *State of the Tech Workforce 2024*. CompTIA Industry Research Report.
- Deloitte. (2023). *Women in Technology: Global Trends and Future Opportunities*. Deloitte Insights.

- Hennessey, E. J., Desnoyers, A., Christ, M., Tassone, A., Dreyer, B., & Sanchez, P. (2025). Balancing the byline: Exploring gender and authorship patterns in Canadian science publishing journals. *arXiv Preprint*.
- Huber, E., Selvaratnam, R., & Taylor, C. (2024). Women in higher education leadership: Diversity as strength in times of AI. *ASCILITE Conference Proceedings*.
- International Labour Organization (ILO). (2023). *Women in STEM: Bridging the Gender Gap in the Digital Economy*. ILO Publications.
- McKinsey & Company. (2023). *Women in the Workplace 2023*. McKinsey Global Institute.
- National Center for Women & Information Technology. (2024). *Women and Information Technology: By the Numbers*.
- OECD. (2023). *Bridging the Digital Gender Divide*. Organisation for Economic Co-operation and Development.
- Pluralsight. (2024). *The State of AI Skills Report*. Pluralsight Research.
- Tasnim, S. C., Mondal, S., Das, J. K., & Roy, B. (2024). Gender disparities in contributions, leadership, and collaboration in software systems research. *Journal of Systems and Software Research*.
- TeamLease Digital. (2025). *Gender Parity: Shaping Workforce Equity in India's Technology Sector*.