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BUILDING A GENDER-EQUAL TECH-FORCE

By Kirti Seth with Swati Saini

Is the tech-world still just a man's world?

The Indian tech-force has indeed become one of the most essential levers of the country's economic well-being. However, has the IT-BPM sector utilized both male and female talent to the fullest and equally? Or is the tech-world still just a man's world? Being relatively new, the sector has been able to implement forward-thinking initiatives and policies, and foster working cultures which has enabled both, attraction and retention of female talent. Women thus form a substantial portion of the IT-BPM sector, with a 35% share, which adds up to about 1.4 million[1].

However, the numbers start diminishing as they go higher up the career-ladder. We just cannot deny the evident '*leaky pipeline*'. Women hold 40% of entry-level tech jobs, 30% of mid-level positions and only 20% of senior-level roles[2]. In fact, women over the age of 35 are 3.5 times more likely to be in junior roles in comparison to men. Even though, it is yet not clear when these women started their careers, it is interesting to note that either women are starting their careers relatively later in life or generally in junior roles[3].

Why do we need more women in tech?

Yes agreed, women deserve the same opportunities as men to choose from and succeed in their career. There is ample study to support that getting more women into STEM occupations would translate into greater gender equality in incomes and better economic prospects for women[4]. Also, balanced gender diversity brings many benefits to organizations. They have a range of talents, skills and experiences to draw upon and a critical mass of 35% of women in a team improves its performance and consequently the organization's performance[5].

Nonetheless, the need for increasing their participation in tech at all levels goes beyond gender diversity and fairness. As the advancing Indian society grapples with the grand challenges of the 21st century, like, ensuring good public health, developing cities and villages, and solving for climate change and environmental sustainability; we look upto science to provide the answers[6]. To find the right answers, we must deploy all the best talent we can. Let us take a look at how having more women in science and tech can help us find the answers, we have been looking for:

1 Positive influence of female role-models:

Studies suggest that women need to see female role-models more than men need to see male role-models. Successful women can therefore be inspiring examples, validating the possibility of overcoming traditional gender barriers and indicating to other women that high levels of success are indeed achievable[7]. For instance, female professors in STEM are seen as positive role-models. As a result, women automatically identify them with science, and stereotype science as more feminine than masculine. Thus, in schools and colleges, viewing professors as positive role-models has been associated with pro-science career aspirations and attitudes for women[8].

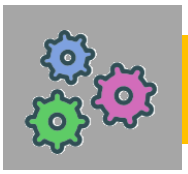
2 Address society's needs with greater sensitivity:

There has been a paucity of women in science research, both as experimenters and as subjects of study, resulting in a science knowledge base that has much more evidence for men than for women. For e.g., when voice recognition products were introduced, they worked better for men than for women, and still do. However, these technologies could be made better if the voice recognition algorithms were equally sensitive to the frequency of female voice. Similarly, for generations, biomedical research employed only an average size male model for conducting experiments to design drugs. It was only when women got involved in scientific and medical research, that the policies on medication understood that women are physiologically quite different and need different drugs and dosages[9]. There is a need to understand that research produces different outcomes for men and women, and for research to be well-informed, both directions need to be explored well[10]. A balanced representation of women in science and tech will certainly help us address the needs of both, men and women with greater sensitivity.

3 An effective approach to problem-solving:

Just imagine, currently women constitute a mere 10% in tech-entrepreneurship[11] and India already boasts the 3rd largest position in the world, as a tech based start-up hub[12]. What all could we achieve if their representation in tech-entrepreneurship increases? Entrepreneurship involves experimenting with new ideas, and evidence demonstrates that when an idea does not work out as intended, women and men adopt different problem-solving strategies[13]. In women, the part of the brain, responsible for problem-solving and decision-making,

called the frontal lobe, is actually larger in comparison to men. Also, women can tap more readily into the right part of the brain, which is responsible for creative thinking, and effective problem-solving[14]. It thus comes as no surprise, that rectifying gender imbalance in employment and entrepreneurship could help increase global aggregate productivity by 16%[15].



Are we doing enough to retain women in Tech?

Although, India has the second largest Artificial Intelligence workforce in the world, only 22% of them are women, compared to 78% who are men. This accounts for a gender gap of 72% yet to be closed[16]. Aware of this gender divide, the country has taken several pioneering initiatives for promoting women in STEM. For example,

1. Ministry of Science and Technology launched the Women Scientists Scheme. The scheme addresses challenges confronting women in STEM, who had a break in their career, by providing suitable opportunities to return to mainstream science.[17]

2. Ministry of Human Resource Development, after several years of denying India's participation in PISA (Programme for International Student Assessment), has now welcomed it with open arms. PISA tests 15-year-old girls and boys from all over the world in maths and science to help participating countries understand important questions, like, relationship between STEM teaching techniques and students' STEM-related performance and women's under-representation in STEM. Based on the results, PISA guides Governments in shaping their education and skill-development policies.[18]

3. NASSCOM launched its Women Wizards Rule Tech (W²RT) program exclusively for women technologists. The program seeks to increase the pipeline of women at senior levels capable of taking up leadership roles, and enable their retention in tech.[19]

While these are significant moves, Governments, Academia and Industry across the globe are experimenting with innovative ideas that could be replicated in India's context. For instance, Canada, recently launched a '*Choose science*' campaign to encourage female participation in STEM disciplines. In the US, the '*Million Women Mentors*' program aspires to spark the interest and confidence of girls and women to pursue and succeed in STEM careers and leadership opportunities. [20]

What can be done?

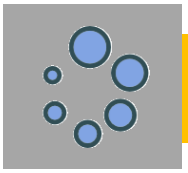
The lessons are loud and clear. While Government can encourage women participation in STEM with supportive policies and financial assistance, Industry and Academia can help women with the right education, training and job opportunities.

- ***Catch them young*** - If the young women of tomorrow are to take advantage of opportunities of the technological revolution, the foundation for their STEM careers needs to be laid today. This includes creating a learning environment in our schools and colleges that allows them to be comfortable and confident within STEM fields. Education systems will thus play a critical role in determining their interest in STEM subjects and careers.

- ***Effective reskilling interventions*** - According to WEF, by 2026, 57% of the jobs that will be disrupted by technology are currently held by women.[21] As a result, the rate at which women professionals acquire and apply new technology knowledge would be an important factor in ensuring their employability. Reskilling and Upskilling strategies, will therefore become critical.

  Women have repeatedly identified reskilling as the single most important tool in their career restart, progression, and job role changes.[22] Online reskilling opportunities are recreating learning. It allows women to learn at their own pace, giving them targeted, and industry-relevant training in a way that is mobile and convenient. Online courses in Machine Learning, Deep Learning and Data Science are a great source of reskilling and available on multiple digital learning platforms.

- ***Opportunities for women re-entering workforce*** - Internships, apprenticeship programs, return-ships and vocational training can prepare women for jobs that don't necessarily require a college degree, and can help them acquire new skills at work.



Conclusion

Although, different career stages in STEM will pose unique challenges for women and girls, they will also provide immense potential for individual and societal growth. To address India's most pressing problems, we will need gender-equal STEM engagement at every step of the way. This will require a combination of different perspectives, collaboration between Government, Industry and Academia, and active engagement with young women throughout their education and into their working lives.

So, whether she wants to study nanoparticles, conduct research at the bottom of the ocean, or 3D print prosthetic limbs - ***let her learn, let her work, let her lead.*** The time is now for our nation's girls to grow and her inquisitive mind is the key.

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