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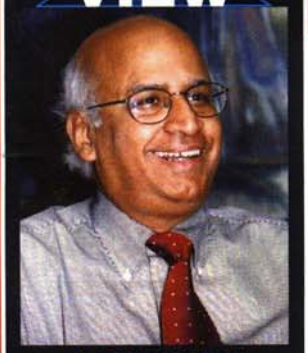

S RAMADORAI
Tata Consultancy Services

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'Always keep your chin up in trying times. Also, be self-motivated, optimistic, and focus on where the rubber hits the road...'

NM Sundaram
country marketing manager, HP Services

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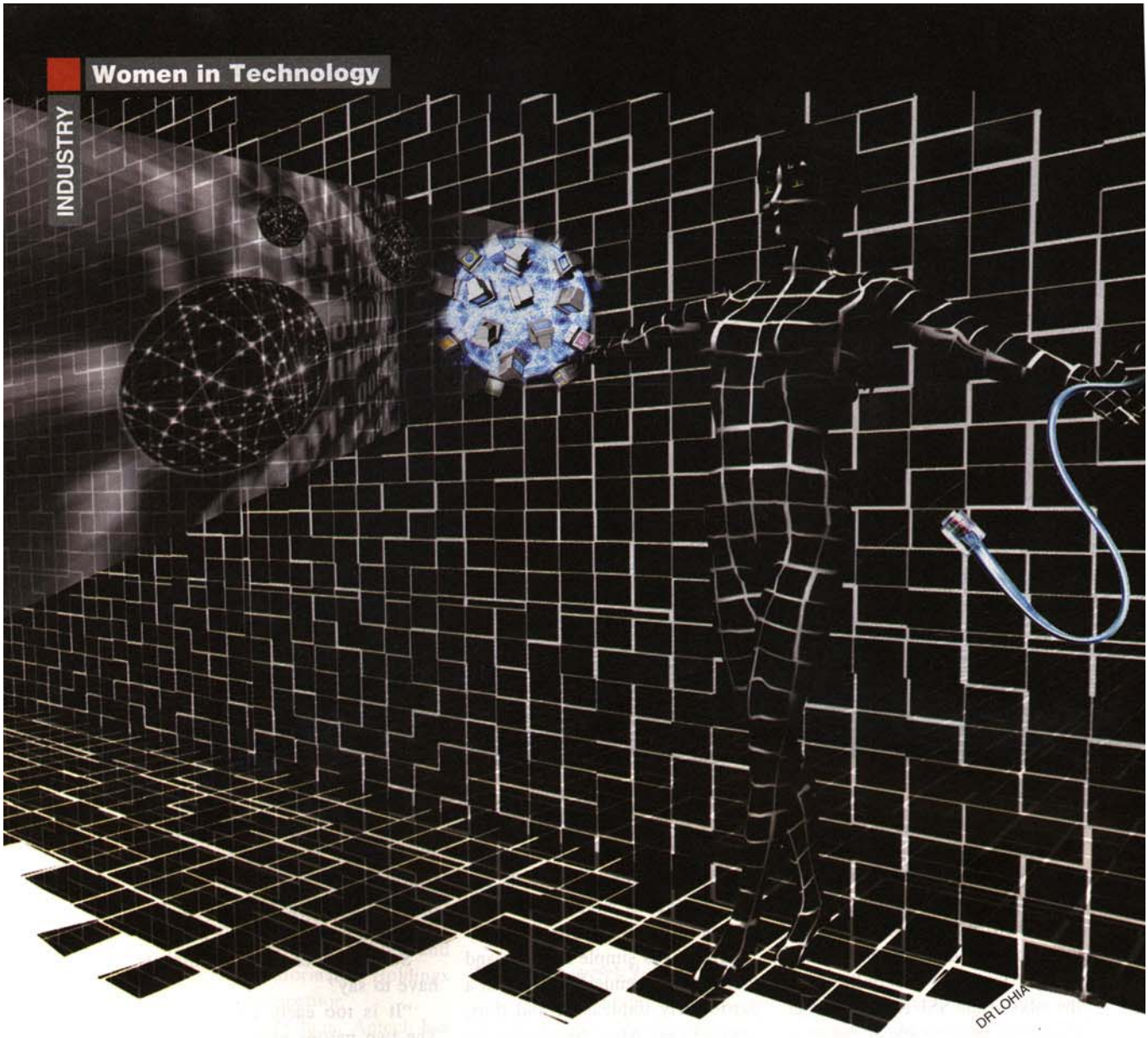
NASSCOM 2003: AN INDUSTRY REVIVES

The star-studded event of the software industry served as a primer for the outsourcing cause and to make it a huge phenomenon



Talibanism in Technology

Seven reasons why women in technology remain invisible...

"Never grow a wishbone, daughter, where a backbone ought to be..."

—**Clementine P'ford,** journalist and editor

Most of us have heard of the Taj Mahal, one of the seven wonders of the modern world. We also know it was built in memory of Mumtaz Mahal. But how many of us know of her aunt, Nor Mahal? She invented the device to perform *attar* distillation from flowers to make perfumes.

Despite 4,000 years of contribution, we do not know about most pioneering women in technology—like Empress Shi Dun, who invented paper, Penthesilea, who invented the battle axe, and Catherine Green, who invented the cotton gin (though Eli Whitney holds the patent).

Florence Nightingale, the famous nurse, was also a brilliant mathematician, and her contribution as the inventor of the pie chart that businesses, technologists, researchers and governments throughout the world use today, is virtually unknown.

This continues even in this 'Information Age' where we boast of living in knowledge-based societies. How many of us know of Helen Greiner, a scientist and the only woman to run a robot company in the world or of Vanitha Rangaraju who is the only Indian woman to win an Oscar for her technical work

for the movie *Shrek*?

A lot has been written about the Taliban's treatment of Afghan women, which resulted in the worldwide outcry against women wearing full-length *burkhas*, which rendered them invisible and the denial of their fundamental rights. However, there's not even a whimper about the systematic Talibanism of women in technology, which has made them invisible throughout the ages. Despite a large number of talented and successful women in the field, why is it that society tends to associate only men with technology? This appears to be a global phenomenon, cutting across class, race, and the development of countries.

After elaborate research and having interviewed several women and men in the fields of education, business and technology, I found there are seven primary reasons why women in technology continue to remain invisible—social myths, conditioning, media, networking, deterrence, balance and marketing.

Social myths

Cutting across cultural differences, the patriarchal system has always the defined the place and role of a woman. This has led to perpetuation of myths like:

Myth #1: Women are emotional while tech is strictly logical. As a result, they don't go together.

Myth #2: Men are good at math and machines while women have no clue about these.

Myth #3: Men are the providers while women are nurturers.

Myth #4: Technical women are unattractive, arrogant, and abnormal.

Myth #5: Women can't do it because they are made that way: the divine or the evolution argument.

Myth #6: Women aren't as good at visualizing as men, and hence, don't make good engineers.

A lot of research exploring these myths is collecting dust in various organizations throughout the world. Anne Fausto-Sterling examines these issues in "Myths of Gender". In her book, she describes the research studies conducted to analyze adult brain differences. The conclusion of these various studies proves that verbal ability, visual spatial perception, and math ability have nothing to do with the gender of a human being.

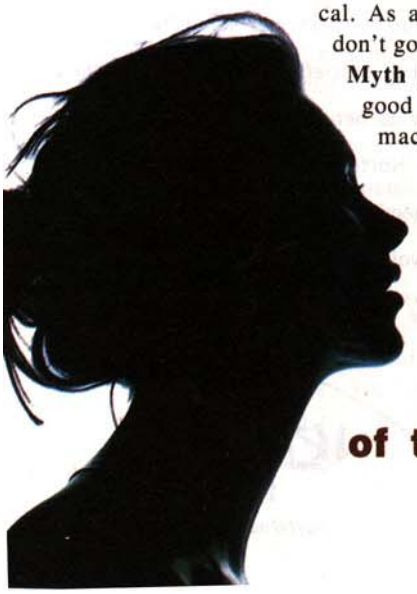
However, many males accept these myths readily. Njin-Tsoe Chen, project leader, Schuitema, Netherlands, observes, "To some degree it's society, but evolution also plays a role. Men and women are different." A recent survey conducted by search engine AltaVista found that the myth of men being better in technology, alive on the internet, as 80% of the men claimed they are better surfers than their female partners.

"I think that the number of women in science and technology is certainly larger than zero but it is a small percentage—5% or less," says Dr Hemker, German Physicist at Credit Suisse. Aggressive women get labeled as *bitches*. There is a program in California for 'bossy broads,' women whose assertiveness scares men and whose companies send them to learn how to 'temper' their behavior. Implicit attitudes are difficult to change. When a woman shatters these myths and succeeds in the technical field, she is made out to be a honchess, arrogant feminist or said to have slept her way through to the top. Instead of being accepted for their accomplishments, successful women are questioned as to how they became successful.

Conditioning

The social myths perpetuate stereotypes that lead to conditioning. There is pressure on women to look and behave in certain ways, which is deeply ingrained in their psyches. Perception is everything. Kate Millet, the writer and educator said, "Many women do not recognize themselves as discriminated against; no better proof could be found of the totality of their conditioning." Stereotypes based on social myths exist because of mass media. It starts at an early stage when parenting is done using stereotypes—girls like dolls and boys like cars. "I think it does kids harm not to see what they gravitate towards and make toy selections appropriately. I was always jealous of my brother's radio controlled cars and electronics sets," says Helen Greiner, president of iRobot.

According to Diana Bouchard, graphic artist, Quebec, Canada, "Looking through thousands of photographs weekly, women are depicted 95% of the time as 'beginners' with males standing behind them, pointing at the computer screen as if to say 'ok, now you click here.' It's indicative of male mentality that women don't get it." When young girls see this, they assume technology is not for them. While there's much discussion about the social impact of the



Many women do not recognize themselves as discriminated against—a visible proof of the totality of their 'conditioning'

media's depiction of a woman's body, there is almost none about the impact it has on careers and educational aspirations.

In an Internet survey where I polled over 2,557 women working in the technical field, 56% of the women stated they have *never* been able to wear a skirt to work in any tech industry job event, because they're afraid of being perceived as unprofessional. 70% said plain glasses, little or no make up, and a tight hair bun helps them if they want their work to be taken seriously. Finally, the conditioning is so absolute that women are told they are automatically empowered by the design of the technological environment known as the kitchen with all its fancy gadgets, which turns out to be a way of luring women to occupy their assigned place in society. This is better known as the "gendering of space" argument, which was propounded by Dr Radhika Gajjala, Bowling Green State University, Ohio.

Media

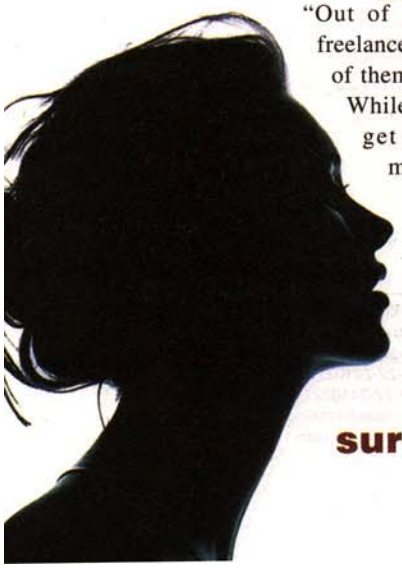
By not covering successful women in technology, the media denies the next generation role models. Today, if you flip through any popular technical magazine, you would rarely find an article written by or about a woman. Why?

David Ball, editor of *Packet Magazine*, answers, "Out of my top five freelance writers, four of them are women. While our writers get bylines, in many cases, the byline goes to the content expert that was interviewed for the story. There appears to be more male engineers and technical product managers than female." Regarding dearth of articles about women, Don Davis, editor, *Card Technology* magazine, says, "The majority of the executives in the industry we primarily cover are men. Thus, most of the knowledgeable sources are men. As for the audience, I'm sure it's mostly male."

Thus, editors justify lack of coverage saying their readers (again assumed to be male) wouldn't be interested in knowing about women in technology. It is up to the women's magazines to cover these topics and personalities. This becomes a vicious cycle as the typical woman's magazine covers what are considered "women" subjects like fashion, beauty, and family and leave IT to tech magazines.

"There should be a proper regulatory framework to ensure that the broadcasters' air programmes on successful women in technology. The regulators should ensure that broadcasters comply," says Emily Khamula, Broadcasting Officer in Malawi, Africa.

Prof Rodney Brooks, MIT, disagrees. "See the article in *Forbes* on iRobot, featuring Helen Greiner and the movie *Me & Isaac Newton*, featuring my former student Maja Mataric. Or see the press coverage for my former student Cynthia Brezeal—*Time* magazine featured a story, plus myriad TV appearances. None of my former male students have done as well in the press as these three."



...thus, most of the 'knowledgeable' sources are men. As for the audience, I'm sure it's mostly male too

A woman who swims with sharks has a better chance of being published than a man who does the same thing. Why? Because she is considered a maverick. Mass media coverage of Prof Brooks' three former female students who specialized in robotics can be explained as robotics is still considered a maverick field for technical women. Despite the social myth that women in technology are abnormal, why don't they get the limelight? This is because only 'displayable' aggressiveness results in limelight. For women in technology, externally, one mightn't seem aggressive; internally, they have to be because of the job, which doesn't make good copy.

Networking

Lack of networking plays an enormous role in rendering women in technology invisible. It is hard for women, however, to hang out with their male colleagues after work. Two factors remain as major obstacles to networking.

- Old Boys' network.
- Male colleagues' wives or girlfriends.

A female senior manager at Intel, says, "I find networking to be a major problem. I cannot have the same informal 'outside work' relationship with my peers and senior executives that my male 'competitors' could have without spouses being concerned and some people's tongues wagging."

Most of the time progress at work *depends* on being able to have the same access to male co-workers after hours as the other male co-workers have. This isolates women from the "old boys' network" and trust building that occurs at senior levels that leads to more opportunities.

Deterrence

Deterrence is done in two places—school and home. According to a

Unesco study, girls consistently match or surpass boys' achievements in science and mathematics in schools across the world. In developed countries, young women are discouraged from pursuing engineering. In developing countries, there is refusal to invest in a girl's technical education.

A study by the National Science Foundation found gender-based inequities in the USA. According to it, despite gains in girls' participation in advanced math in the 1990s, 34% of the girls report being advised not to take math in their senior year of high school.

According to a NIME study, in Asia most families across cultures are willing to invest in technical education for their girl child because it improves marriage prospects but after marriage inevitably, over 50% of these women do not pursue a full-time career.

Balance

Working hours required and the social set up for the jobs in the technical field demand quite different commitments. This directly affects the socially defined role of a woman as a nurturer. Therefore most women feel there is a lack of balance in their lives and this leads to guilt. In Californian Law, pregnancy itself is considered a disability with a note from your doctor.

Shazia Harris, a clinical psychologist and researcher in education, Pakistan says, "My research indicates that females will opt for fulltime jobs if the option is available even after marriage and even after having children which was one of the major factors for losing the professional female workforce, i.e., home responsibilities before career."

Marketing

Generally, men market themselves better. In her book 'What's Holding You Back?' Linda Austin says men tend to *over*-represent their abilities and qualifications by 30-40%, while women *under*-represent theirs by the same amount. This works to a 60-80% gap between what a man and a woman with similar qualifications claim. According to Jennifer Pikes, an engineer who worked for IBM, "Even in the 'soft' technical area (technical writing department), men seemed far more eager to make a name for themselves than the women did."

Though social perceptions are slowly changing, women in the technical workplace remain behind the scenes because they tend to play down their contributions. This is because "feminism" has become a bad word in today's society. Many women in the technical field are scared of being labeled "feminist" that they would rather 'dumb down' than take credit for their work. Also, social conditioning tends to make women as secondary, non-aggressive, non-risk-taking team players.

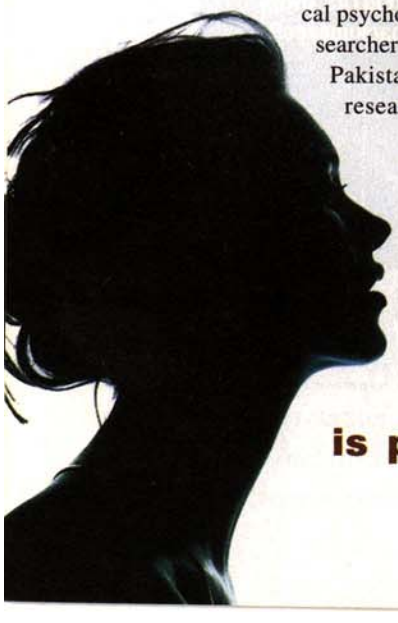
Recommendations

Dorothy Parker once said, "You can't teach an old dogma new tricks." True, but why not create a new one? For starters, we could begin by asking the same questions that members of the civil rights movement did. This issue of invisibility of women in technology is currently hovering between intent and execution, with industry leaders wishing the whole issue would simply disappear instead of addressing the problem head-on. This is where government advocacy and media can play an enormous role.

Technical workplaces founded on a male 'norm' need to be changed to allow fair competition for jobs and advancement for women whose strategies differ from the norm. If the norm involves weekend 'beer busts', it's not the female employee who needs to 'loosen up' but the employer who needs to identify appropriate venues for company meetings and encourage diversity.

Femininity as the culturally defined model of female behavior enforced from the outside needs to be examined. One needs to strongly reject any sort of artificial 'femininity' and teach our society to embrace diversity, to allow girls to be 'technically' ambitious without labeling them 'tomboys' and to allow boys to be sensitive without branding them 'sissies'. Generalizations based on myths should not be assumed of any particular man, nor used to discriminate against any particular woman.

While ignoring the contributions of a single individual is really bad and ignoring the contributions of a minority is appalling, ignoring the potential contributions of half the population can be best explained in two words—plain stupid.



If men and women were truly equal at work, both would hold roughly identical expectations of what is possible and what isn't

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