



2021

# Women's employment in Manufacturing, Operations and Engineering Services sector

An exploratory research



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# FOREWORD

**In a well-documented story of industrial excellence, factories of the Allied Forces during World War I were kept running by a large number of women who worked as carpenters, welders, machinists, technicians, and in other so-called male jobs. In peace time, women's participation in industry has even more far-reaching positive socio-economic impact. Yet, the proportion of women in operations, manufacturing and engineering services remains low. It is only 12% as per one estimate. It is a gap that we, at GE, cannot ignore.**

At GE, we have been more than awake to the opportunity for a long time. Our GE Women's Network initiative, started in mid-1990s by a few senior women employees, has been recognized globally as one of the most effective voluntary employee networks. It is one of many inclusion and diversity initiative in the company. We have several successful programs targeted at bringing onboard diverse talent and growing them within the company. This year, GE Foundation has embarked on a global program called Next Engineers, with a commitment of \$100 million, to increase diversity in engineering and create diverse innovators and leaders for the future. But there is more to be done.

Using Lean principles to problem solve, we partnered with Avtar to conduct a detailed research to understand the opportunities and challenges in improving gender diversity in operations, manufacturing and engineering services in India. With this research we hope to be starting industry-wide efforts to identify ways to improve gender diversity in



**Mahesh Palashikar**  
President, GE South Asia

manufacturing, operations, and engineering through a scientific, systemic, and data-driven approach. We want to take the learnings and insights from this research and put in place programs and initiatives to close the gap and sustain improvements.

The insights from the research are interesting. We are encouraged by the career aspiration of women in these sectors and of students who want to join these areas. We invite our peer organizations to join us in this campaign. I hope this research will spark discussions and actions that will make operations, manufacturing, and engineer services aspirational career choices for women in South Asia.



**We run 15 factories in India. We commissioned this study to create better understanding of the gender-specific challenges and opportunities in the areas of operations, manufacturing, and engineering project management. This is an important area of focus for us and our industry in order to enable Make in India.”**

# FOREWORD

**We are on the threshold of a complete recasting of paradigms in the manufacturing, operations and engineering services sector, thanks to Industry 4.0 and rapid mechanisation. So, what does this hold for employment opportunities, specifically for underrepresented talent? The question is not mere rhetoric since the sector is one of the largest employers in the country and a significant contributor to the country's GDP (17.4% of India's GDP). But when it comes to gender diversity, the percentage of women engaged in the sector is abysmally low, hovering around 3%. Applying the added filter of technical competence and representation of women in STEM roles within the sector, the picture fades further to a very bleak outlook. A shared apprehension on what this means not just for the sector but also for women's workforce participation in a country that wants to "Make in India", has led to this research collaboration between GE South Asia and Avtar.**

The results give us definite reason to be hopeful, while also emphasising the need for a burning platform approach to change. Spanning India-wide responses, the research built around the state of women's employment in the sector, which included a survey of talent and focus group discussions amongst women in the sector, revealed that while the manufacturing and engineering sector has not developed equivalent maturity in the Diversity, Equity and Inclusion space as some other industries, it most certainly cannot be written off. The best part is yet to come and with concerted efforts, the sector can rapidly ramp up its gender inclusion impact.

We covered a representative population of over 500 professionals in the sector, engaged in core, technical roles, over a span of 4 weeks. It is heartening to note that more than 84% of men engaged in the sector



**Dr. Saundarya Rajesh**  
Founder-President, Avtar

strongly believe in the need for improving women's representation in the sector, with over a half of them pledging allegiance to be an ally. This gives us - organizations, policy makers and policy influencers, a strong head-start. In a traditionally male-dominated sector, we are at a point of affirmative intent which when encouraged by equitable policies, holds the potential to drastically change the narrative of women's employment.

Of course, we do have our work cut out for us. A significant survey finding was the stark gender gap in how men and women perceive gender discrimination in the sector - while only a quarter of men surveyed felt that gender discrimination is a reality, 59% women reported experiencing discrimination specifically at junctures of career advancement. This calls for wide-spread systemic change, beginning with measures to ensure parity in the recruitment process to sending the messaging of inclusivity far, wide and deep through the employee populations.

The conversation we had with women, deeply passionate about the possibilities of the industry, gave us further insights into certain ground realities. Many women told us how governmental regulations around work timings and schedules (legally permitted hours for women to work in factories) is proving to be an impediment to their aspirations of growth. This was even when their families – parents, spouses and in-laws, rallied behind them to support their career dreams. They talked about how sometimes, even the design of workplaces discouraged them from some heavy lifting (literally!) as machines did not factor in an average human's height, but was designed to cater to average male height. They also told us about how they draw inspiration from the few women role-models in the sector who broke stereotypes and paved way for inclusive design; they told us about how predictable work hours was a key driver (and an industry differentiator) as they grew in their careers.

So that brings us to the larger question – what next? As leaders and policy makers, how do we react to the findings from this research? As a DEI proponent for over two decades, I vouch for the now established fact - embracing the potential of diversity when on a growth path will prove hugely beneficial; as of Oct 2020, the manufacturing sector had registered the largest spike in production in past 13 years and if organizations are to unlock the diversity promise, the outcomes are bound to be synergistic. To influencers of legislations in the country, we submit the most forward-looking proposition of opening up the sector for greater women's employment including allowing for nightshift working, allowances and provision for childcare. To young women aspiring to build purposeful careers here, I would say, welcome! Here's where the action is happening!



**Through the insights emerging from the research and the subsequent call to action, companies in the sector must take active steps for engaging women talent, contributing to improving women's workforce participation in the country. The research insights give clear indicators in terms of possibilities in the sector, to help women talent plan, prepare, and build purposeful careers in this fast evolving, hi-tech industrial sector."**

# INTRODUCTION



Women's workforce participation globally has been demonstrated to be a potent driver of the economic growth and development of a country. Research shows that there is a significant association between a country's GDP and female labor force participation. It is estimated that a 25% reduction in the gender gap could increase global GDP by \$5.8 trillion by 2025<sup>1</sup>. To realize their full potential, countries need to adopt targeted strategies to address the systemic barriers in women's workforce participation across all industrial sectors. Let us explore the Indian context in greater detail - in India, women's workforce participation rate is amongst the lowest in the world and has declined from 26.4% in 2005 to 19.9% in 2020<sup>2</sup>. Furthermore, in segments like manufacturing, operations, and engineering services, the participation is lower with estimates suggesting that the composition of women in manufacturing is between 3%(core engineering) – 12%(other engineering streams), compared to 27% - 40% employment in the services sector<sup>3</sup>. If we are to look specifically at women in technical roles, in the last

few years, the employment rate of women engineers has diminished from 35% in 2005 to 26% in 2018<sup>4</sup>. Beyond these glaring statistics, it is heartening to note that increasing women's labour force participation by 10% could add up to \$770 billion to India's gross domestic product (GDP) by 2025<sup>5</sup>.

The impediments for workforce participation of women in the Indian context include gaps in educational attainment, social norms, restrictive institutional frameworks, and income levels, among social, economic, and policy-related factors. In the manufacturing sector, these challenges are compounded by challenges related to physical safety, infrastructural gaps, legal and regulatory challenges, shift working, conscious or unconscious biases in promotion or recruitment of women, lower access to digital technology, and lesser participation in science, technology, engineering, and mathematics (STEM) fields than men (resulting in a less gender balanced talent pool), among others<sup>4</sup>. There are also barriers

1. ECONOMIC IMPACTS OF REDUCING THE GENDER GAP, ILO, 2017

2. <https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS?locations=IN&view=chart> (last accessed 11 October, 2021)

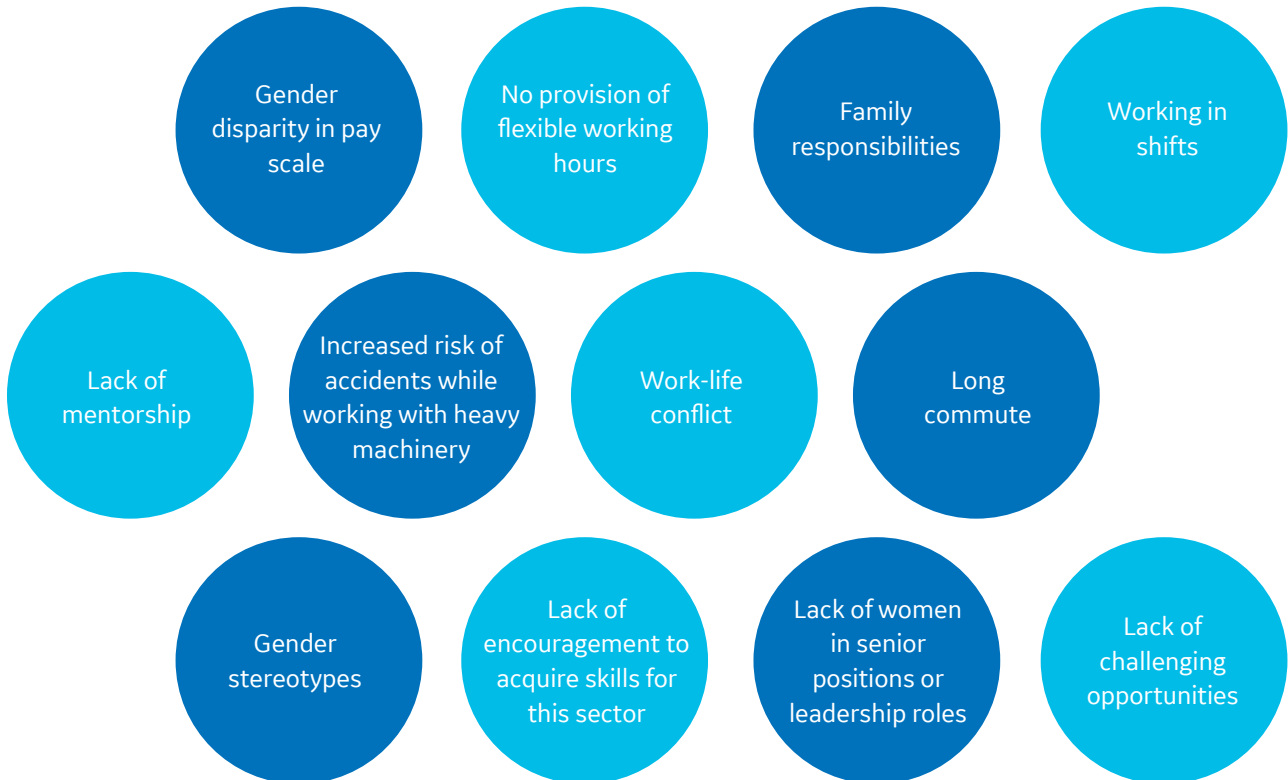
3. Swedish Chamber of Commerce, 2018

4. McKinsey Global Institute, 2019

5. Society of Women Engineers and the Center for WorkLife Law at the University of California, Hastings College of the Law (WLL), 2018

that manifest as a result of industry cultures<sup>6</sup>. Industry observations also indicate that women are not aware of the job opportunities in the manufacturing sector. The maternity retention rate in the sector has also

been traditionally poor – many women take maternity leave, never to come back. Few more factors which affect the women's workforce participation in the manufacturing sector are:



While the above-mentioned factors still hold true, many manufacturing companies are taking steps to include and employ more women and increase their participation. According to an analysis by the Centre for Economic Data and Analysis (CEDA) based on the CMIE (Centre for Monitoring Indian Economy)<sup>7</sup>, the total number of jobs available in the manufacturing sector in India is 27.3 million in 2020-21 (accounting for Covid induced disruptions and job losses), which account for close to 25% of all available jobs in the organized sector in India. The potential of reaping benefits by engaging with a diverse employee population could be immense, as the sector accounts for close to a quarter of the total jobs in the country.

According to a research undertaken by CII and UNDP<sup>8</sup>, a number of companies in manufacturing sector have changed their business culture and practices, to attract women and have been allocating their corporate social responsibility (CSR) funding for the inclusion of women. International organisations such as the United Nations (UN), World Bank, and International Labour

Organisation (ILO) have played a key role in supporting businesses and governments in countries like India to attain Sustainable Development Goal 5 - advancing gender equality and women's empowerment in order to fulfil their goal of 'leaving no one behind'.

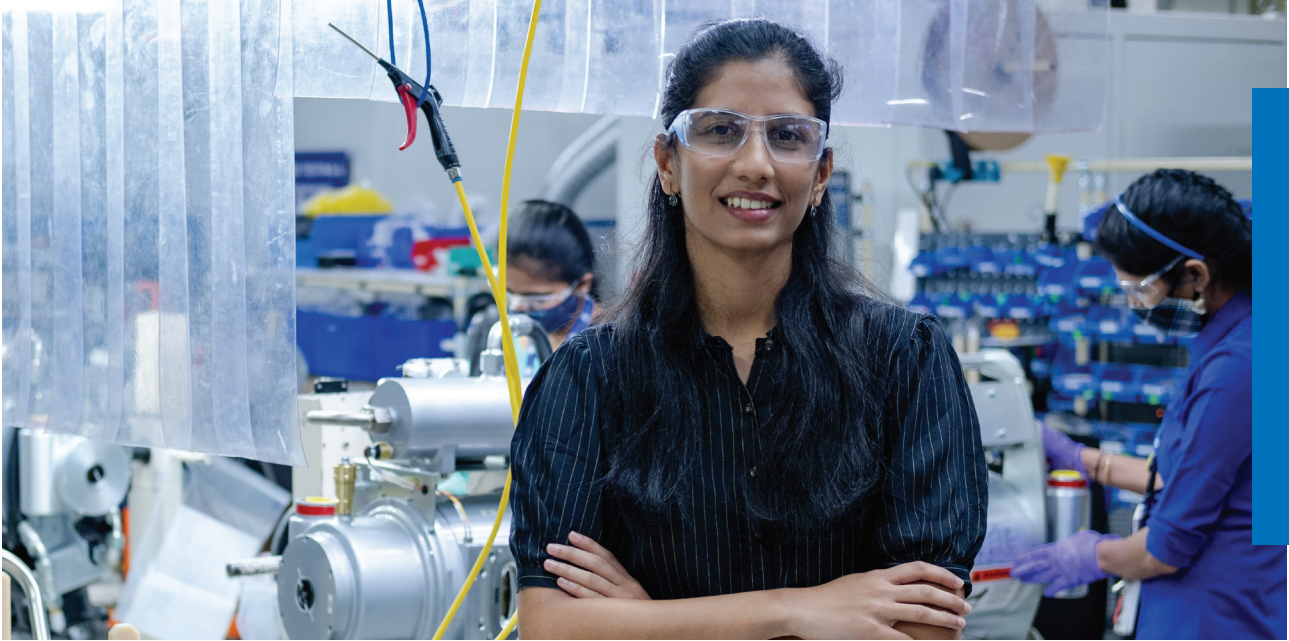
Against this backdrop of increased intent to engage with a gender diverse workforce, GE, the world's leading high tech industrial company and Avtar, India's premier Diversity, Equity and Inclusion solutions firm conducted an exploratory research on women's employment in the manufacturing sector in India, the challenges faced by women, their aspirations towards building careers and the industry perspective towards the same. Through the insights emerging from the research and the subsequent call to action, companies in the sector can work towards taking active steps for engaging women talent, contributing to improving women's workforce participation in the country. The research insights will also have clear indicators for the government and policy making forums in the country towards attracting and engaging more women into the sector.

6. World Economic Forum, 2016

7. Centre for Economic Data and Analysis (CEDA) and CMIE (Centre for Monitoring Indian Economy), 2021

8. Engendering the Manufacturing Sector Women in Manufacturing Status, Challenges and Action Plan, 2019

# GENDER DIVERSITY IN MANUFACTURING SECTOR IN INDIA



Before we examine the current research findings, it is important to explore the state of women's employment in some of the most intentionally inclusive organisations in India, from the sector. The cross-section of data being presented here traces women's

representation in white-collar roles from an entry level to the leadership level, specifically in the manufacturing sector. This is based on data emerging from corporate India's largest diversity analytics exercise – Working Mother & Avtar 100 Best Companies of women in India.

Table 1: Women's representation trends in the manufacturing sector (Source: Working Mother & Avtar Best Companies of women in India study)

Women's representation	Overall	Entry level	Managerial level	Senior Managerial level	Executive leadership level
<b>2021</b>	12%	13%	12%	12%	9%
<b>2020</b>	10%	11%	9%	7%	5%
<b>2019</b>	8%	10%	6%	3%	4%

The data presented is over a three year window-frame, between 2019 and 2021, which is also an indication of how the sector has responded to the COVID induced disruptions of the last two years. It is heartening to note that women's representation continues to increase, moving up 4 percentage points between 2021 and 2019 from 8% to 12%. The increased representation of women at managerial level and upwards is an equally encouraging development, signifying increased participation of women in decision making roles that can prove decisive in more women entering the sector. While the data speaks

for the entire universe of women in the sector (across verticals of HR & Admin, Finance, Sales & Marketing & Technical roles), we may conclude that the status quo is conducive to designing inclusive paradigms across technical roles in core manufacturing, operations, and engineering services. When coupled with increase in aspiration amongst young women to enter and build careers in the sector, the long term impact would not only be an increased representation of women in the sector, but also the innovative impacts of diversity in terms of product design, and development.



# RESEARCH METHODOLOGY

To carry out the research, a three-pronged approach covering the entire career arc of women in technical roles in manufacturing, operations, and engineering services was devised. Beginning with a nation-wide survey of talent (both men and women in the sector), the study aimed to gauge the gender differentials in career aspirations and challenges. The survey was carried out over an online survey platform.

This was followed by a set of Focus Group Discussions (FGD) with women students (under-graduates, post graduates and doctoral students pursuing engineering in streams such as mechanical engineering, industrial production, and electrical engineering) and women professionals at early, mid and matured career levels in

the sector. The FGDs were held over virtual platforms and had participation from students and women professionals from across the country.

To understand how companies in the sector create conducive work environments for women talent and promote a culture of gender inclusion, a profiling of select companies in the sector was carried out. Company profiling was carried out via a guided questionnaire shared with the office of the CHROs at the respective organisations.

The research was conducted between September and October, 2021.

# RESEARCH CONTOURS

In this segment, we detail the contours traced in each research segment.

The survey contours covered the following pillars:

- **Career influencers** – Factors that inspired a professional to pursue a career in the sector
- **Career drivers** – Factors that presently motivate an individual to specialise and grow in the current career stream
- **Career expectations** – The vision that professionals have for their future career in the sector (short and long term). This included expectations they have from their employers in terms of enablement of their careers.
- **Challenges** – Factors that are detrimental currently to their growth prospects (This included aspects of lack of access to skilling opportunities, growth opportunities, work-life conflict, mobility-related challenges, etc.)
- **Demographics** – industry, highest educational qualification, years of work experience, etc.

The focus group discussions (FGD) with women engineering students covered the following aspects:

- **Career influencers** – Factors that inspired a graduate to pursue a degree in the sector

- **Career aspirations** – The aspirations that students have for their future career in the sector
- **Challenges** – Factors that are detrimental currently to specialising in the chosen stream and building a career

The FGD for women (at early, mid and matured career levels in the sector) covered aspects including:

- **Career influencers** – Factors that inspired a professional to pursue a career in the sector
- **Career drivers** – Factors that presently motivate an individual to specialise and grow in the current career stream
- **Career expectations** – The vision that professionals have for their future career in the sector (short and long term)
- **Challenges** – Factors that are detrimental currently to their growth prospects (This will include aspects of lack of access to skilling opportunities, growth opportunities, work-life conflict, mobility-related challenges etc.)
- **Career intentionality** – The intrinsic factors that helped a woman professional invest in her career pursuit and growth
- **Role of organisations** – The enablers provided by the organisation that provided an environment conducive to growth

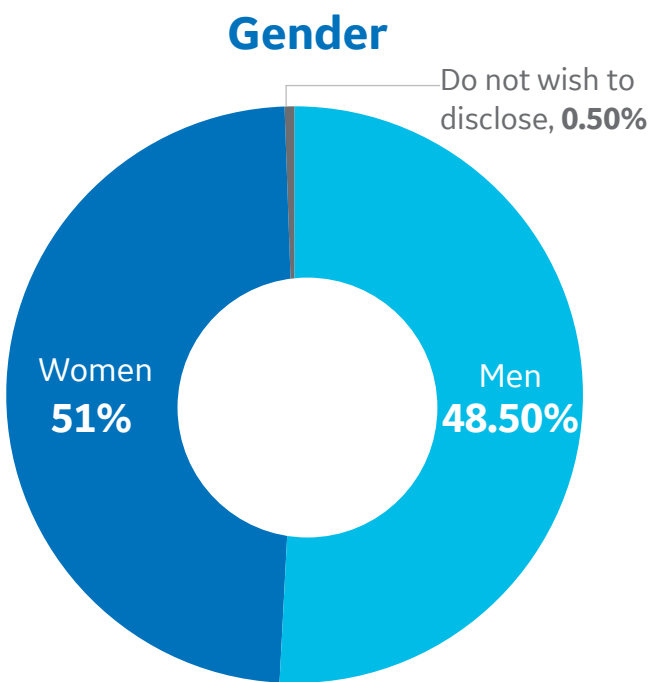
- **Family support** – The enabling environment provided by a woman professional's family towards following her aspirations
- **Management of challenges** – The strategies adopted by the women leaders to face and navigate roadblocks they encountered

The organisational profiling for best practices covered:

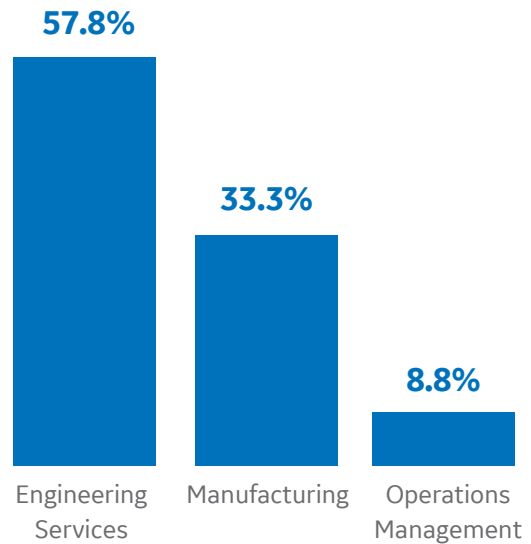
- Organisational vision for gender inclusion
- Initiatives towards gender inclusion (both India and global)

# RESPONDENTS

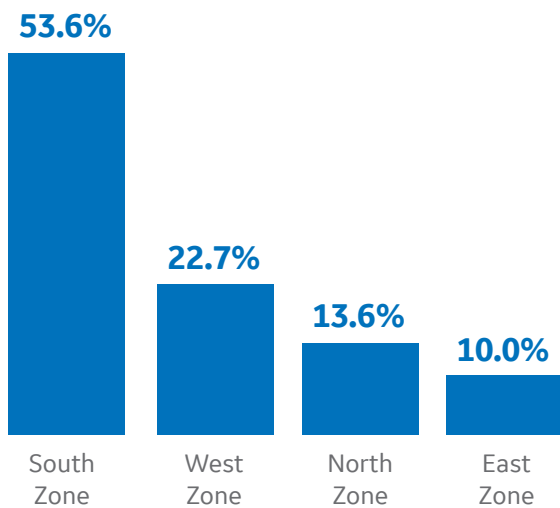
The survey garnered 418 responses from professionals across India. The demographic mix of the survey sample is as indicated in Fig.1:



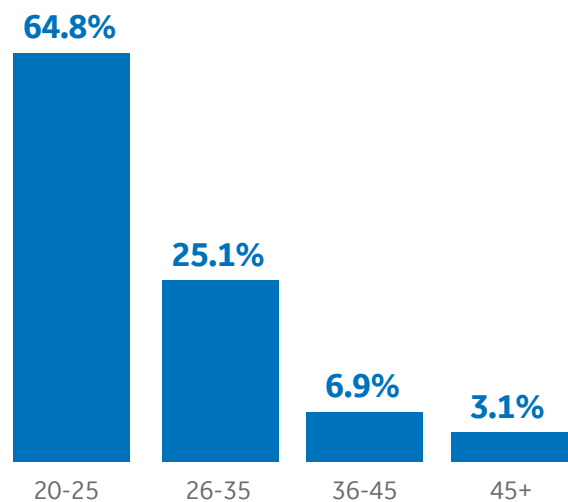
### Functional specialisation



### Zone distribution



### Age-wise distribution



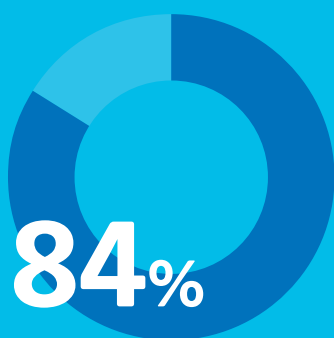
## Key Highlights

Five Focus Group Discussions (FGD) were held with women engaged in the sector, tracing the entire career arc of professionals in the sector. These were women engineers engaged in technical capacities. Each FGD was for a duration of 1.5 hrs and was conducted virtually. The proceedings of the FGDs were documented anonymously to capture the narratives of women engaged in the manufacturing, operations, and engineering services sector. The FGDs were conducted amongst the following cohorts:

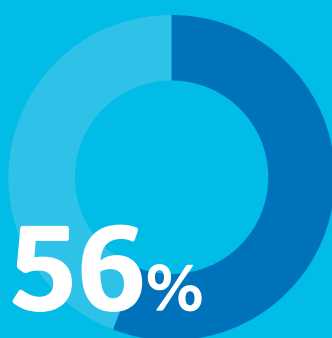
- Women students specialising in mechanical engineering, industrial production, electrical & electronics (This included undergraduates, post graduates and research scholars). 2 FGDs were conducted for this cohort. A total of 20 women participated in these FGDs.
- Women at the entry level in the manufacturing, operations, and engineering services sector – one such FGD was conducted. 11 women participated in this FGD.
- Women at the mid career level in the manufacturing, operations, and engineering services sector – one such FGD was conducted. 7 women participated in this FGD.
- Women at the matured level in the manufacturing, operations, and engineering services sector – one such FGD was conducted. 10 women participated in this FGD.

## Male allyship on the rise in the manufacturing, operations, and engineering services sector

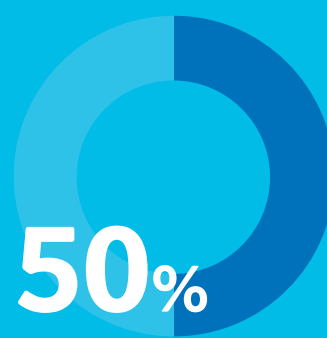
- One of the most revealing finding of the survey was with respect to the perception of men regarding employing more women in the manufacturing, operations, and engineering services sector. A whopping **84% of the male respondents believed that the manufacturing, operations, and engineering services sector would benefit from employing more women.** This is a clear indication that men have started identifying the true potential of a gender diverse workplace and are conscious of the need for inclusive workplaces.
- Out of these **84% male respondents who believed that the manufacturing sector could benefit by employing more women, 56% of them were ready to commit to help create women friendly work environments by volunteering to mentor women employees.** Also 50% of the male employees committed to consciously using appropriate inclusive language to make the work environment gender sensitive.



of the male respondents believed that sector would benefit from employing more women



of (them/men are) ready to commit to help create women friendly work environments by mentoring women employees.



of the male employees committed to consciously use appropriate inclusive language to make the work environment more women friendly.

## Gender gap in perception of discrimination in the sector

One of the disheartening results of the survey was that there were stark differences in the perceptions of male and female employees regarding the nature of discrimination against women, as shown in Fig.2.

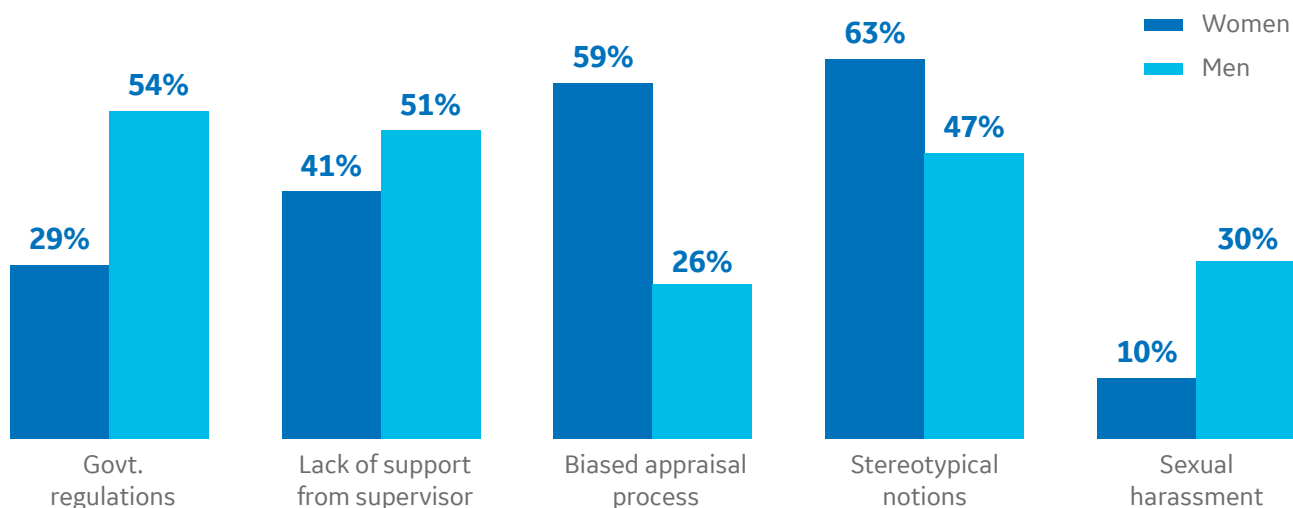


Figure 2: **Nature of discrimination experienced by women in Manufacturing**

- Amongst all men who reported seeing discrimination against women in the sector:
  - More than half of the male employees (53.5%) felt that the biggest discrimination faced by women was with respect to government regulations that restrict their work timing (especially on nightshifts). This indicates that men felt that the discrimination faced by women is because of systemic exclusion, rather than unconscious biases and other attitudinal factors.
  - The second most cited type of discrimination against women, as seen by men was lack of support from manager/supervisor. This was reported by 51.2% of the male respondents
  - The least common manifestation of discrimination against women (as seen by men), was the biased appraisal process hindering women's career growth. Only a quarter of the male population (25.6%) felt that biased appraisal process which slowed down women's career growth was prevalent in the organisations. This again echoes the inference that male employees felt biases to not be a significant part of the work environment.
- On the other hand, while looking at the responses from the female employees who reported having faced discrimination:
  - They have felt discriminated the most due to the stereotypical notions on what they can do and cannot do as a woman. This was felt by a massive 63.4% of the women employees.
  - This was closely followed by the experience of biased appraisal processes hindering their career growth (58.5%), while it was only a quarter population of men who harboured this belief. This clearly shows the glaring difference in the perception of men and women regarding the discrimination that women face in the sector. Since men are unaware of the stereotyping and biases that happen around them resulting in loss of engagement with women talent (and possibly heightened resentment) this calls for concerted effort by organisations to drive and nurture a culture of allyship.
  - The result also shows that the least commonly faced discrimination by women is sexual harassment at the workplace (10%). It can be an indication that if there are stringent organisational policies and governmental regulations against sexual harassment at the workplace, the discrimination women face in this context can be lessened. However, it may be noted that close to 30% men reported witnessing discrimination against women in the form of sexual harassment – this could be because men are more aware of what construes sexual harassment and hence decided to share their thoughts about it.

## Women and men influenced by similar factors to build careers in the sector

Men and women responded very similarly when asked about the key influencers that motivated them to pursue a career in manufacturing, operations, and engineering services sector, as shown in Fig.3.

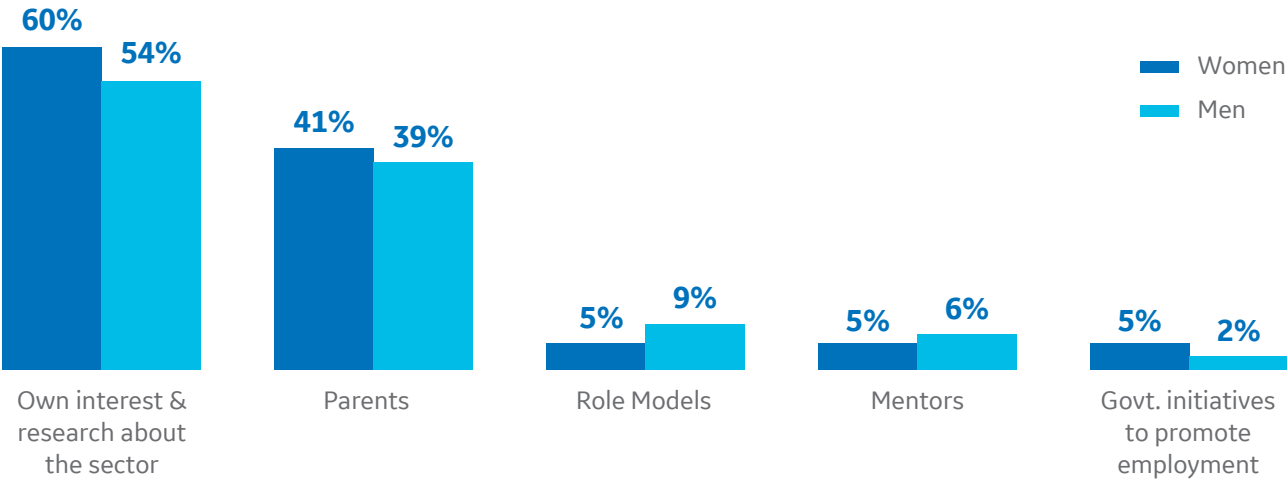


Figure 3: **Key Influencers that motivated to choose a career in Manufacturing**

- Both men and women felt their own interest and research about the sector was the most important influence for them resulting in choosing a career in this sector (60% women and 54% men felt so).
- The second most important influencer for men and women was parents. 39% of men reported it as the biggest influencer and an even higher percentage of women (41%) reported the same. This is a welcoming insight because it clearly indicates that objections faced by women to join the manufacturing sector because it is a male bastion is slowly fading away and families are recognising women's passion towards making it big in the sector.
- Yet another result that holds importance is that initiatives by the central/state government to promote employment in the sector was the weakest influence for men (1.5%) and women (4.7%) to choose a career in manufacturing. This certainly calls for more introspection and corrective steps from the part of the authorities to boost employment in the manufacturing, operations, and the engineering services sector.

## Lack of relevant job opportunities, a big challenge for talent in the sector

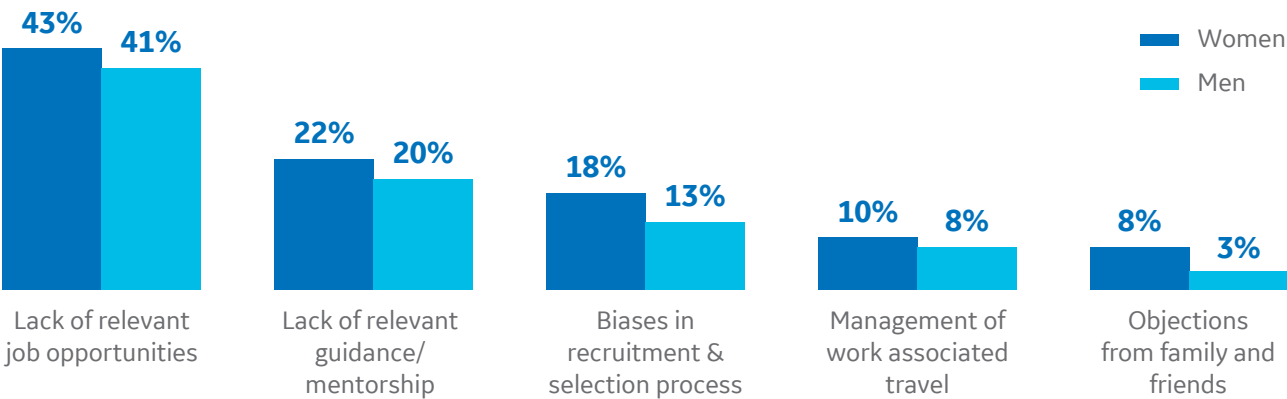


Figure 4: **Types of challenges faced in a career in Manufacturing**

- As per Fig.4, it may be understood that for both men and women, the biggest challenge stated was the lack of relevant job opportunities – by 41% men and 43% women. This could be an indication that career growth path of technical specialisation has poor visibility in India. The weakest challenge was the objections from family and friends because of stereotypical notions. This reemphasised the fact

that parental and societal attitudes towards women working in this sector is undergoing a positive shift.

- 5% more women reported facing biases in the recruitment processes as they entered jobs in the sector – 18% women reported facing biases vs 13% men. This could be because of the stereotypical notions around women's longevity in the sector.

## Lack of inclusive culture, a deterrent to employment in the sector

The key factors that motivate employees to work in this sector were also similar irrespective of the gender.

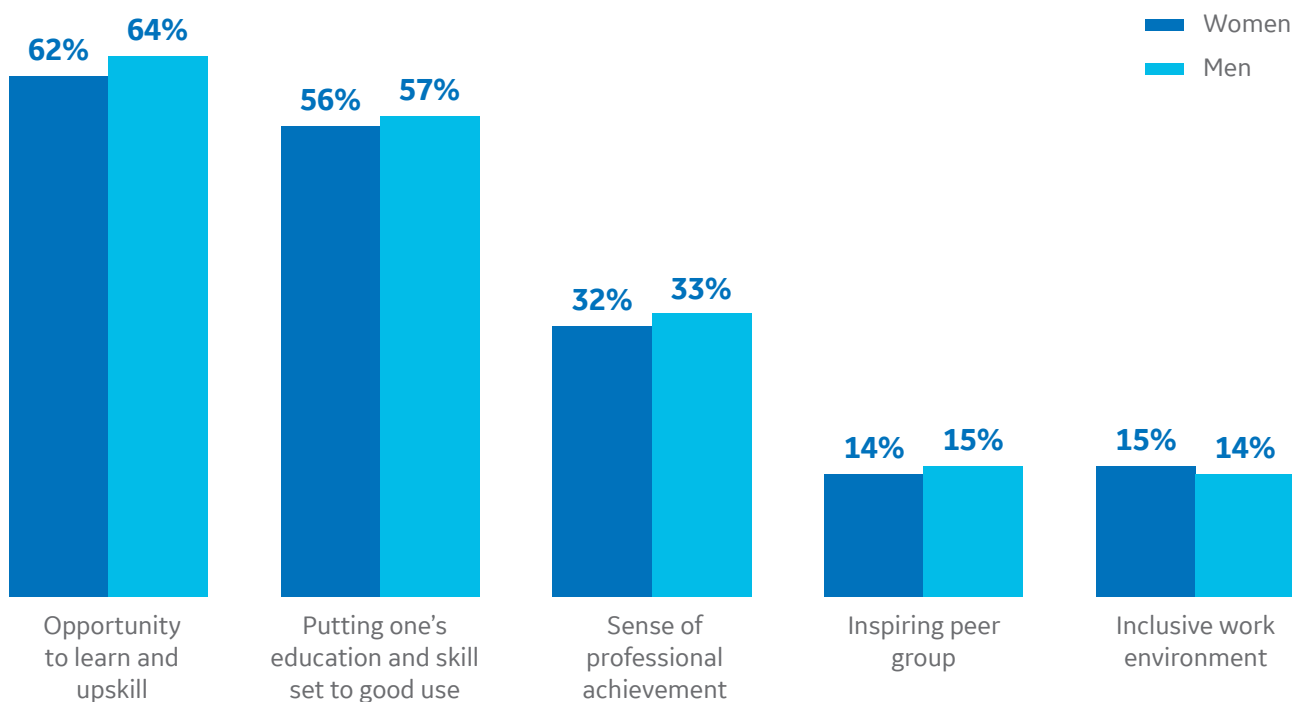


Figure 5: Key factors that motivate employees to work in Manufacturing

- As per Fig.5, both men and women felt the biggest motivation to be the opportunity to learn and upskill on the job; by 64% men and 62% women. This was closely followed by the motivating factor of putting one's education and skill-set to good use (57% men and 56% women). However, lack of opportunities to develop niche skills was also reported to be the second biggest challenge by men (36%) and women (31%). This clearly shows the need for more upskilling activities from the larger organisational context which can help the employees move up the career arc quickly and effectively.
- Another important insight was the least motivating factor as stated by both men and women. An inclusive work environment (15% of women and 14% men) and inspiring peer group (14% of both men and women) were reported only by small percentages of respondents to be motivating factors in their current work environment. This issues a clarion call for organisations to focus on their cultures, to ingrain elements of inclusivity to further provide an inspiring work environment for professionals.

# Women lack clarity more than men, in terms of building careers in the sector

The results regarding employees' career growth and aspirations and where they see themselves in 5 years' time had some similarities and deviations, as can be seen in Fig. 6. There was a difference among the men and women in terms of the clear vision they had for their future. 9% more women than men are unclear about the future of their careers in the sector. While

17% of men lacked clarity in terms of where they might be professionally 5 years from now, 26% of women did not have clarity regarding their career plans. This might also be because of the absence of role models for women and highlight the need for more mentoring and allyship in the organisations, especially for the women employees.

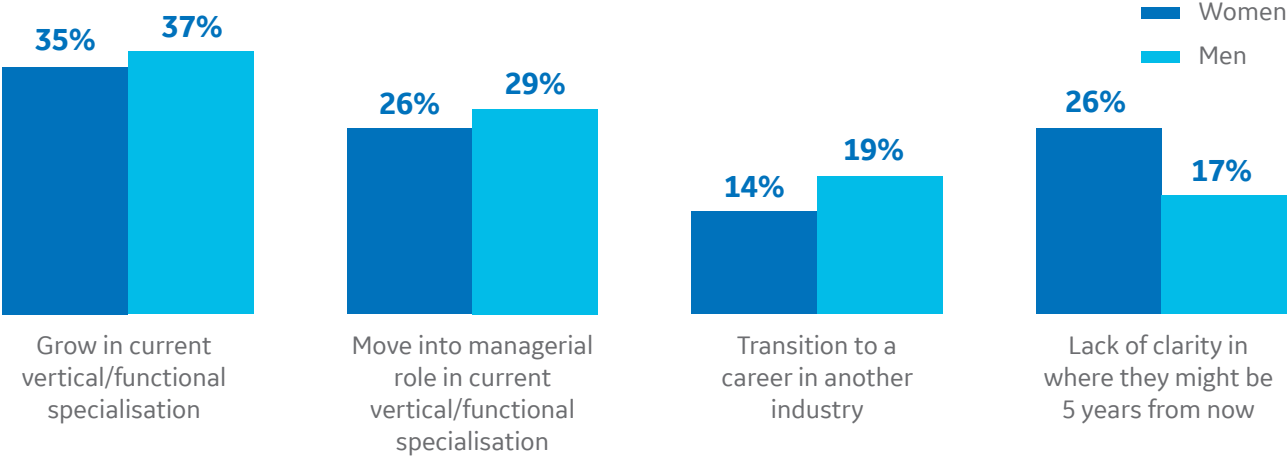


Figure 6: **Employees' future career plans - 5 years from now**

# More men than women use enablers like leadership training and career sponsorship; more women use enablers like flexible working

As Fig.7 shows, more men than women use strategic enablers like leadership training and career sponsorship while women use enablers like child-care support and flexible working for navigating the work-life maze.

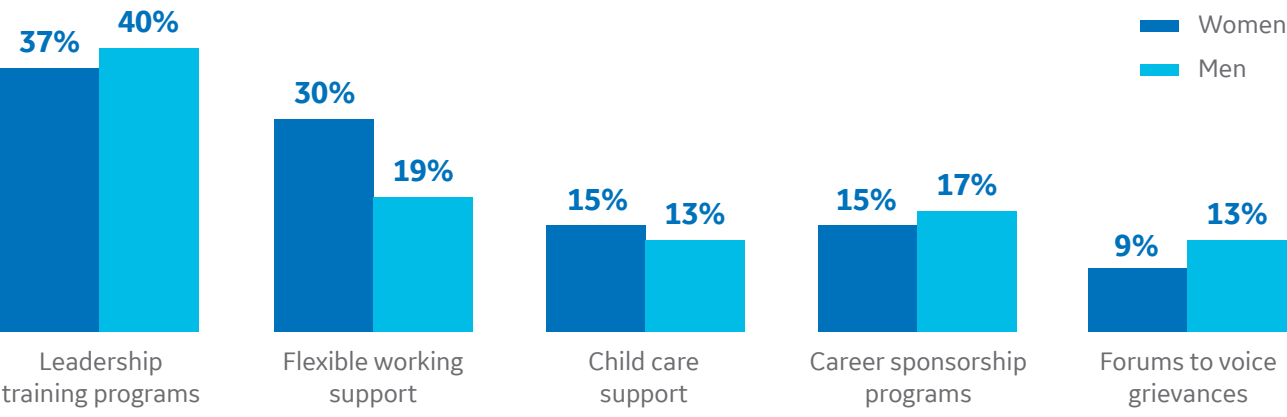


Figure 7: **Career Enablers used by professionals**

- There was a significant difference in the proportion of men and women regarding the flexible working support (like flexibility in work timings or options to work from home based on circumstances) as a career enabler provided by the organisations. While 19% men used it as a career enabler, 30% of women used it as a career enabler provided by the organisation.
- There wasn't much difference among men and women using childcare support (like day care services, creches) as a career enabler provided by the organisation – it is the most underutilised career enabler. 13% men and 15% women with children felt the same. This could be an indication of the changing gender roles and perception that bringing up children is a shared responsibility.

## Aspirations of and challenges faced by women in the sector

The FGDs gave an in-depth understanding of the challenges and aspirations of women in the sector from being a student to being a working professional at various stages of their careers. The main themes that emerged as challenges and aspirations for the women were:

### For Women Students

There were challenges that were voiced out unanimously by many of the students although their career aspirations were varied. The major challenges and aspirations stated by them were:

#### Challenges

- **Accustomization to a male dominated sector:** The first struggle that majority of the students underwent was to come to terms with and become accustomed to the fact that majority of their classmates are of the opposite gender. Hence, students had difficulties interacting with them, working with them on projects and even seeking help from them.
- **Opportunities Barriers:** There were challenges that women students reported in feeling excluded in industrial opportunities while studying.
- **Infrastructural Barriers:** The students also faced difficulties in physical demands pertaining to the sector, such as handling machines and other large equipments, unhelpful nature of peers regarding machines and learning machine-related skills. They also felt self-doubt regarding skills and knowledge required to succeed in the field and at times felt that one's own thought process was hindering their growth.
- **Systemic barriers:** A few students reported facing barriers in the campus interviews with some companies continuing to follow exclusionary practices by not including women.

### Aspirations

Most of them wanted to pursue further studies in the same sector or in the same sector but with a different specialisation. There were a good number of students who wanted to join the industry and had a clear line of sight as to the companies they wanted to join as well.

### For Women Professionals

There were commonalities and differences in the challenges faced by the women professionals in various stages of their lives.

- **Women at Entry Level:** Lack of gender diversity in the workplace was a major challenge as many of them felt left out, uncomfortable and out of place at times. They also felt difficulty in getting accepted by the majority and had a tough time in making their voices heard. They also experienced lack of growth opportunities as women were restricted from taking on bigger challenges. A few reported infrastructural challenges, including lack of exclusive washrooms and gender insensitive design of machinery. All of them aspired to overcome these challenges and grow in the sector, as they were passionate about the streams they chose to pursue.
- **Women at Mid-Career Level:** A large majority termed unconscious bias and stereotyping as their biggest challenge. They felt that male co-workers were very protective, and this led to the stereotyping that women are not capable,



knowledgeable, or independent. Women also reported facing these biases and stereotypes when it came to interacting with vendors and suppliers. There were also policy level restrictions when it came to mobility and travel for business purposes, as women were not allowed for the same beyond certain timings. Women also talked about difficulties in networking, upskilling and obtaining proper work-life balance. For the same reason, most of them aspired to grow in the industry along with better work-life integration, and opportunities for upskilling from the organisations. Most women reported feeling safe and secure in their workplaces and workplace sexual harassment not being a point of concern for them.

- **Women at Matured Level:** Senior women professionals in the sector had difficulties in earning respect and implementing key decisions in the organisations due to the lack of women in decision-making roles. There was also stereotyping with respect to women's knowledge, skills and abilities, but interaction with the blue-collared workers was particularly difficult mainly because of the societal norms and gender roles. All of them aspired to be mentors and role-models for young women aiming to become a part of the industry.



# JOURNEY TO GENDER INCLUSION IN MANUFACTURING, OPERATIONS, AND ENGINEERING SERVICES SECTOR: CASE STUDIES



## Case study 1

## Schindler India Pvt. Ltd.

Coping with challenges like a high attrition rate and an insufficient talent pool among women, the organization has a targeted recruitment drive to boost women's participation. About 50% of campus hiring is focused on hiring women at the entry-level, alongside NEEM trainees for roles in the factory. For leadership roles, the talent mapping includes women candidates from the same and allied industries.

Schindler has adopted inclusive policies like work from home, remote working, and daycare facilities for employees. A holistic approach for women employees aims to support expectant mothers with medical assistance during pregnancy, and ensures safe travel amid an inclusive infrastructure.

The talent pipeline of women is being strengthened through upskilling sessions like Open Dialogues, the Female Leadership Development programme for high potential women in individual roles, and the Women In Leadership programme.

A signatory of Women Empowerment Principles (WEPS), Schindler India's diversity, equity, and inclusion vision is 'Winning Through Diversity. People managers have been trained on the inclusive leadership 'Be An Ally' programme.

The discussions around DEI are all conducted through the year. Alongside an annual inclusion month and recognition of male allies, the Inclusion & Diversity newsletter discusses the success stories of women employees.

Schindler's President and CEO, Ashok Ramachandran, has led by example in adding women professionals in his core team in driving strategic initiatives. Under his leadership, Schindler India has been certified by Great Places To Work thrice in a row. Following in Ashok's footsteps, male people managers are emerging as Inclusion allies & focusing on increasing their team diversity.



**Ashok Ramachandran**

President & CEO Schindler India & South Asia



**My vision for Schindler is to transform our culture to make it truly inclusive. A culture where every employee, irrespective of their gender, can freely and uniquely express their talents to realize their potential. A culture where every manager is looking forward to create, embrace and nurture diverse teams. ”**



**From the beginning of my stint here, I have received support from colleagues and seniors. In Schindler, your views are valued, and your opinion matters. The confidence the team has shown in me, the opportunity and support given by the management, appreciation, and timely feedback have transformed me.”**

**Akanksha Rathi,**  
Group Leader – New Installations



**My journey with Schindler India began in 2020 when I was chosen as the Regional Vice President to lead the business of Mumbai and Navi Mumbai. Since then, I have been mentored and guided by Ashok Ramachandran, CEO & President, Schindler India & South Asia. He diligently connects with me almost every month, checks on my updates, reminds me of my core values and makes sure that I am aligned to the Schindler way of doing business. Through his varied experiences he has guided me in creating strategic and leadership impact, building credibility with my team, and choosing the right wave talent for my team.”**

**Pooja Aggarwal,**  
Vice President – Field Operations

## Case study 2

# KEC International, RPG Enterprises

Countering challenges like insufficient talent pool, lack of resources, and mobility constraints, the organisation has been working towards engaging women in operations, manufacturing, and engineering services. There have been concerted efforts to hire women from tier-1 and tier-2 engineering colleges (IITs/NITs), as part of the Engineering Leadership Trainee (ELT) and Post Graduate Engineering Leadership Trainee (PGELT) program. Through the ELTs, women are hired from local colleges across various countries where KEC has its projects (UAE, Oman, and Uganda). There are Group Management Resource (GMR) programs for MBA graduates from tier-1 city campuses across the country alongside lateral hire from competitors and allied industries.

Ensuring talent retention, there are targeted events like periodic connect with senior leadership apart from engagement activities planned across the year. These include one-one mentoring sessions by senior leadership, women-friendly policies (flexi hours, maternity, and sabbatical), and Wisdom Quest Policy (which encourages higher studies). For the advancement of women talent, KEC has timely job rotation across locations, departments and roles, and role enlargement for high potential women employees. E-learning modules on technical and behavioral competencies also help them to enhance their capabilities. For top talent among women, the organisation offers exposure through external conferences and webinars.



**Somraj Roy**

CHRO, KEC International, RPG Enterprises



**Our organisation’s goal is to foster an inclusive workplace that ensures fairness and equal opportunity for everyone at KEC.”**

Building an inclusive workplace, the organisation conducts regular sessions on gender sensitisation, Unconscious Bias, POSH Act, to name a few. Regular

meetings with HR-BPs, department heads, and senior leadership help align the goals.

With inclusive rewards and recognition platforms to appreciate the contribution, fun events, and celebrations across festivities, inclusion efforts also comprise emotional wellness programs in collaboration with Juno Clinic and Practo.

At KEC, male allyship plays a pivotal role in driving

inclusion across levels. The focus is on sensitising senior leadership on the importance of gender diversity with support from the parent company (RPG Group) for diversity hiring.

The organisation has periodic and open discussions with leadership and teams to avoid any roadblocks. There is business support in establishing sustainability governance agenda, which focuses on diversity and inclusion.

### Case study 3

## ABB

ABB is committed to diversity, inclusion, and equal opportunity for business success, and a stronger workforce. The organization strives for a culture where individual differences are welcomed and celebrated. While there are efforts to build the capabilities of the potential women leaders under the RISE program, this year, ABB will extend support to meritorious underprivileged women.

Under the program called 'With Her Beside Her', a pool of mentors is being created within the organization. A group of young women, which ABB is supporting through an NGO to complete their graduation, will

be mentored by the pool. Through this program, the leaders will get a real-time opportunity to interact with the female protégé outside ABB and help them navigate their professional and personal journey. They will also get a chance to learn various aspects of mentoring with specific input on mentoring from ABB and external mentors.

The organization has also initiated managers into a coaching program where trust is built through conversations. ABB also has a male allyship program to bring about a culture of gender equity and inclusion.

### Case study 4

## Volvo Group India

As a global company, Volvo has been witnessing accelerated growth in India. At the same time, Volvo is looking for opportunities to attract, develop and retain a gender-diverse talent pool.

The company has faced challenges with lower women representation due to gender stereotypes within the workforce, unavailability of women with the required skills for automotive assembly in and around the location, and the flexibility ratio due to the changing demand. The inclusion index based on the internal employee engagement score in the previous year did not match the expectations of the organization.

Assessing the limitations and challenges, opportunities were identified for women, for which unskilled and

semiskilled women who were the closest match were selected. A special five-week boot camp ensured the success of this significant initiative. Both men and women were also sensitized to co-working, appreciating diversity, and complementary skill sets.

As a result, there has been an increase in diversity ratio, women technicians on the shop floor, reduction in defect per truck, women technicians were found to cause zero faults, and an increased intake of the program with a mindset shift amongst the male workforce, apart from the efficiency improvements.

To counter the challenge of representation of women in the captive centres, there has been a focus on women hiring. 'ExcelHer', a unique career restart program

created exclusively for women and is among the many efforts by the organization to increase diversity in various aspects.

Lean-In circles, a peer-to-peer women networking platform, empowers women to achieve their ambitions and is facilitated by Women colleagues across levels in Volvo Group India.

To reinforce a culture of inclusion for better engagement and retention of the hybrid workforce, the 'Volvo for All' policy aims at creating an inclusive culture to foster supportive energy and encourage individual growth and strong teams. Diversity and Inclusive Leadership Workshops have been conducted for nurturing an inclusive mindset:

For inclusion, the organization has rolled out new benefits, policies, and programs like recognizing the role of equal parenting, increasing paternity leave while birth and adoption to 3 weeks. Male employees, both single and married, can avail themselves of the childcare benefit. The organization also marked the International Men's Day and the International Day of Persons with Disabilities.

Through concerted efforts by the I&D council, HR Leadership, and the Country Management Team members that encouraged the initiatives, the gender diversity ratio has increased by 5%.

Volvo's Country Management Team Members are allies in improving women's representation in the company. In the previous year, 30% of the women talent were appointed as managers, a first in their careers. The Women in Manufacturing Program devised and managed by the business leader of the Trucks Plant has increased the ratio of women in the plants by 4%.

The organization will soon launch inclusion Labs to increase awareness on gender equality, non-discrimination, and leverage people's potential.



**Amit Sharma**

Vice President – Human Resources,  
Volvo Group India

**“Inclusion is a key attribute of our organizational culture considering that we have people representing various backgrounds. Our DEI priorities have been aligned to our employee journey along with an exclusive charter on Inclusion. We want to see equal participation of men and women in our workforce. We will launch soon Inclusion Labs to increase awareness on topics related to gender equality, non-discrimination, and leverage people's potential where their opinions are valued to solve challenges on gender stereotypes. We would continue our endeavour towards making our policies and practices gender neutral.”**

## Case study 5

# GE Healthcare

With 24% of the total workforce being women, GEHC faces challenges like tight regulations by the government for women in shifts.

A focused initiative called Women in Operations (WIO) under the GE Women's Network (GEWN) aims to employ women in technical, manufacturing, and operational roles. It focuses on women's leadership

skills, expanding their networks, building career opportunities, and sharing best practices and experiences. These facilitate the development of women in operations through three main pillars – attract, invest and grow-- that help to actively retain women talent.

Leadership commitment for inclusion and diversity plays a huge part in the development of women's talent and leaders in the organization. For this, there is a structured operating mechanism consisting of a leadership team, I&D steering committee, employee resource group hubs, and site representatives with active participation across all levels of the organization. GEHC focuses on grooming talent within bottoms up and also on lateral hires.

The infusion of women's talent is carried out through programs like GE SCDP (Supply Chain Development Program), and GE GET (Graduate Engineer Trainee) for college freshers. The organization strives to balance the equation by actively hiring competitive women talent for 50% -80% of the SCDP. GEHC is also planning an all-women factory.

Inclusion is fostered through leadership accountability and commitment, building awareness through education and open dialogue, aligning talent and diversity priorities, and strengthening and promoting the culture of belonging.

Allyship and advocacy play a key role within the organization. I&D moment sharing, the celebration of talent, and driving the initiatives with people leaders and managers as KPI measured across functions. The affinity group of GEWN and WIO also have male members, and leaders (male and female) are invited to networking events, role model talks, etc.

**“ I have been in global roles for the last six years. I have received support on both personal and professional fronts from leaders and managers. I feel motivated to take up new challenges and apply for different roles within sourcing.”**

**Sapna Saini**, Sourcing Leader  
at GE Healthcare, Bangalore



**Mahesh Kapri**

GM Integrated Supply Chain,  
GE Healthcare, India

**“ It is a workplace with a platform, where women and men thrive and inspire through meritocracy, and a spirit of equality, irrespective of their background or gender. Inclusion and Diversity are a fundamental part of the business, encouraging a culture of openness, developing a mindset and muscle to be sensitive and inclusive to build a diverse team.”**

**“ From being an GE OMLP intern to a production team leader, my journey has seen tremendous personal and professional growth. GEHC has helped me build my leadership capacities through the OMLP Program, which has helped me navigate and explore various roles in supply chain and operations.”**

**Sahana Hegde**, Production Team  
Leader, GE Healthcare, Bangalore

# WAY FORWARD

The crucial take away of every exploratory research is that it gives clear directions and pointers for all the stakeholders on the journey ahead. The same holds true for this one as there are several recommendations pertaining to what the organisations, governmental agencies and educational institutions can do to make the predominantly male dominated sector of manufacturing, operations, and engineering services, more diverse, inclusive and women-friendly. Let us look at some key action points that emerge as we close on this research, as shown in Fig. 7.

<b>Government and policy makers</b>	<b>Organizations</b>	<b>Educational institutions</b>
<ul style="list-style-type: none"> <li>• Initiatives to boost the employment in these sectors</li> <li>• Develop care-giver support infrastructure</li> <li>• Reassess and redesign the policies pertaining to women eg. nightshift</li> <li>• Measures to ensure gender parity in academic institutions in STEM streams</li> <li>• Conduct diversity drives for women for government jobs</li> <li>• Social awareness campaigns to encourage more women in these sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Take affirmative action to employ more women</li> <li>• Promote and recognize a culture of allyship sans bias and discrimination</li> <li>• Build inclusive leadership capabilities and behaviours</li> <li>• Provide curated career growth opportunities for women</li> <li>• Enable better work-life balance through flexible working support</li> </ul>	<ul style="list-style-type: none"> <li>• Run awareness campaigns to attract girls to core engineering streams</li> <li>• Ensure zero bias in campus selection process</li> <li>• Promote gender diversity amongst faculty in core engineering streams</li> <li>• Conduct periodic check-ins with girl students on challenges they face, take corrective actions</li> <li>• Build industry-academia partnerships to attract girls to these sector</li> </ul>

Affirmative action requires conviction and optimism, in every stakeholder. For organisational leaders and decisions makers, there is a lot that can be done aiming at incremental change towards gender inclusion – the pursuit can be aggressive though! Focussing on the controllables including infrastructural inclusion and culture building are the non-negotiable first steps. Collective effort in the ecosystem will further push the needle – by the government and by educational institutions that help produce the talent pipeline. With improved women’s workforce participation in the sector, we are positive that not only would we take long strides towards parity and equality but businesses in the midst of Industry 4.0 will also reap benefits of that of a diverse workforce!



## About GE

GE (NYSE:GE) drives the world forward by tackling its biggest challenges. By combining world-class engineering with software and analytics, GE helps the world work more efficiently, reliably, and safely. For more than 125 years, GE has invented the future of industry, and today it leads new paradigms in additive manufacturing, materials science, and data analytics. GE people are global, diverse and dedicated, operating with the highest integrity and passion to fulfill GE's mission and deliver for our customers. [ge.com](https://www.ge.com)

## About Avtar

Avtar set up in 2000, is India's premier Diversity, Equity & Inclusion solutions firm. Lead by the visionary Dr. Saundarya Rajesh, Avtar has helped charter Diversity, Equity, & Inclusion plans for several organizations in the IT/ITES, BFSI, FMCG, Pharma, Retail and Engineering Industries in the country. Avtar is renowned for spearheading several first time DEI interventions including –

1. Creating a marketplace for women on career breaks to meet potential employers,
2. Spearheading original DEI research that has provided cutting edge insights to organizations
3. Re-Skilling, Up-skilling and Counselling of women to pursue sustainable career paths
4. Building career intentionality amongst under privileged girl children
5. Conducting India's largest diversity analytics studies in partnership with Working Mother Media (a celebrated culture change champion of the US) called Best Companies for Women in India and Most Inclusive Companies Index and
6. Creating India's first ever exclusive diversity job portal.

To know more, visit [www.avtarinc.com](https://www.avtarinc.com) | [www.myavtar.com](https://www.myavtar.com)

