

# The Chemical Engineer

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This article first appeared in *The Chemical Engineer*, which is published monthly by the Institution of Chemical Engineers  
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# Walking the Walk

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*Industry leaders must be the catalyst for the equilibrium shift towards a diverse and inclusive profession*

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**T**HE importance of increasing the participation of women in the workforce, especially in science and engineering sectors, has been recognised around the world as being essential for economic growth, for innovation, developing new industries, and for the knowledge economy.

A recent report by McKinsey Global Institute has indicated that increasing workforce participation by women globally will add US\$12trn in GDP annually by 2025<sup>1</sup>. Another recent report, that compares engineering capacity around the world, shows that the proportion of women in engineering remains below 20% in most developed countries<sup>2</sup>. And according to the UK's Royal Academy of Engineering, gender disparity in engineering is the starkest aspect of lack of diversity that needs attention<sup>3</sup>.

The obvious answer appears to be to encourage girls to study science and mathematics in school and to consider a career in science or engineering. However, the uncomfortable truth is that in many countries, difficult and unwelcoming workplace cultures result in women voting with their feet, often early in

their engineering careers, departing to other sectors where there are higher proportions of women and more supportive workplaces. In many countries, the engineering profession is not yet in a position to offer life-long, fulfilling careers in engineering to girls, and offer the same opportunities as it does to boys. This issue needs to be addressed now, not just from an ethical standpoint, but to achieve the diversity that is so urgently needed for innovative and sustainable engineering.

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**IN MANY COUNTRIES, THE ENGINEERING PROFESSION IS NOT YET IN A POSITION TO OFFER LIFE-LONG, FULFILLING CAREERS IN ENGINEERING TO GIRLS, AND OFFER THE SAME OPPORTUNITIES AS IT DOES TO BOYS. THIS ISSUE NEEDS TO BE ADDRESSED URGENTLY**

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For example, while Australia is looking to innovation to develop new industries and create jobs, there continues to be a serious

deficit in the participation of women in professional and technical jobs especially in science, engineering and technology. These are the worst-performing sectors by any measure. For example, there are just five Australian-owned companies in these sectors that were listed as Employers of Choice by the Workplace Gender Equality Agency in 2015, indicating that the majority had not achieved success in attracting and retaining women, although generally, most have diversity policies! Listed companies in the engineering and technology sectors have the lowest proportion of women on their boards and in executive management, the women that have achieved these positions are usually in finance, law and human resources.

### A SERIOUS LOSS

The serious loss of women in science and engineering occurs early in the career cycle. For example, analysis by Engineers Australia shows that about half of female graduates in engineering do not enter the workforce. Of the rest, another 50% leave within the first ten years, especially as they start a family. The losses continue so that there is less than 1% Australian-born women engineers remaining in the cohort aged more than 50 years. This is not only a huge waste of key skills needed for the engineering and technology sectors – the pipeline of career progression of women engineers to leadership positions is full of very large holes.

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#### REPAIRING THE PIPELINE OF WOMEN FROM GRADUATE ENTRY TO LEADERSHIP IN ENGINEERING ORGANISATIONS REQUIRES A CULTURAL TRANSFORMATION THAT STARTS AT THE TOP WITH THE BOARDS AND CEOs OF THESE COMPANIES

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Repairing the pipeline of women from graduate entry to leadership in engineering organisations requires a cultural transformation that starts at the top with the boards and CEOs of these companies. This requires visible leadership that demonstrates that inclusiveness is a key non-negotiable value, necessary to build effective workplace teams for innovation and effective performance.

Leaders in the chemical industry are the catalyst that can create the cultural shift required in their organisations, in a similar manner to the change that has been achieved since the mid 1970s to achieve significant improvements in process safety and a dramatic reduction in chemical incidents, injuries and deaths. The systematic approach adopted for changing an organisation's performance in safety can be used to develop a more inclusive culture. I have developed such a systematic approach which includes reporting leading and lagging indicators for progress in increasing diversity in organisations. This approach has been adopted with success by organisations in the public and private sector in Australia and around the world<sup>4</sup>.

### STRATEGY CHANGE

A strategic approach to changing the culture in organisations to be more diverse and inclusive includes explicit statements from leaders about the importance of an inclusive workforce, as a key, non-negotiable value of their organisations. These statements are supported by policies and procedures to attract, recruit, develop and retain women. Training is also important, especially in dealing with unconscious bias. Strategies should be implemented which ensure that basic needs are met, including pay parity for women (a gap still exists even at graduate entry level in Australia), and amenities such as toilets in remote and regional workplaces. The reporting of leading and lagging indicators to the board and management ensures effective tracking of progress. Management incentives for diversity may be needed to kick-start the changes that are needed.

### WALK THIS WAY

The message that leaders need to give is that diversity is important for high-performing organisations. Leaders need to walk the talk on the need to have more diverse workforces because this drives innovation and performance. Women should be valued *because* they are different and have something new to contribute which may not have been considered before. Women engineers represent 50% of the population, their contribution to engineering teams reflects an important segment of community attitudes and values. Their different perspective is crucial for innovation, considering alternatives, reducing risk and developing more robust and sustainable engineering solutions. Success with such policies will result in more women engineers achieving leadership positions, and becoming role models for girls aspiring to successful careers in engineering.

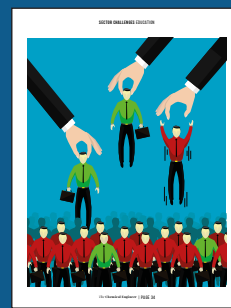
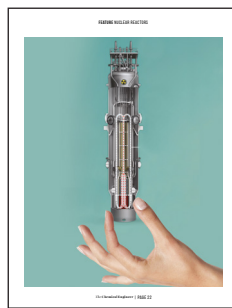
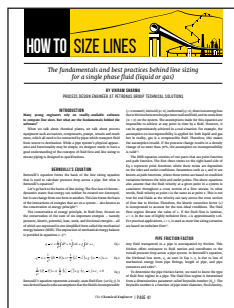
There is growing evidence that a systematic approach drives the change that is urgently needed. Engineering workplaces need to be inclusive, retain women and encourage them to return to work after the crucial family formation years so that they can progress to leadership positions.

Until the cultural changes have been made, and the profession has more women in middle and senior leadership positions, efforts to attract girls will not achieve the levels of diversity that is considered vital for innovation and sustainable engineering outcomes. ■

### FURTHER READING

1. *The Power of Parity: How Advancing Women's Equality can Add US\$12trn to Global Growth*, McKinsey Global Institute, September 2015.
2. *Engineering and Economic Growth: a Global View*, a report by CEBR for the Royal Academy of Engineering, September 2016.
3. *The Business Case for Diversity*, <http://bit.ly/1yvvhBe>, Royal Academy of Engineering.
4. Kanga, M, *A strategy for Inclusiveness, Wellbeing and Diversity in Engineering Workplaces*, November 2014, <http://bit.ly/1QRazQd>





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