



# 100 Most Influential Women in Engineering

**SUMMARY**



INCLUSIVE BOARDS



# Engineering a Better Future: Solving the Underrepresentation of Women in the UK Engineering Sector

## THE LANDSCAPE

Engineers build roads, bridges, schools and hospitals, they make medicines and develop new materials like high-performance sports fabrics. They also manage our water, gas and electricity supplies and help to create a more sustainable future by developing ways to generate renewable energy<sup>1</sup>. Engineering is defined as the broad design and construction of machines, structures, materials and products<sup>2</sup>. In 2018, engineers accounted for 19% of all UK employees<sup>3</sup> and in 2015 the sector generated 25% of the UK's total GDP (£420.5 billion)<sup>4</sup>.

The UK engineering sector is currently facing a crisis. There is a significant skills shortage, with an estimated 1.8 million new skilled recruits needed in the next five years<sup>5</sup> to plug the current deficit. Women are grossly underrepresented in the sector compared to men, currently accounting for just 12% of engineers and 15% of engineering undergraduate students.

The Royal Academy of Engineering states that diversity and inclusion has six key benefits for engineering firms: Improved financial performance; greater innovation and creativity; higher business performance; increased motivation, productivity and retention of staff, improved customer orientation, and satisfaction. Business leaders agree that mixed teams are more representative of customers; offer a variety of viewpoints and a wider range of experience which improves decision-making and problem-solving. Improving diversity will not only address the skills shortage, but ensure growth and prosperity for companies and the wider UK economy, in the future.

## METHODOLOGY

**Inclusive Boards conducted an extensive review of available online literature, published reports and other sources relating to the UK engineering sector. Our literature review examined:**

- The composition of the sector and its contribution to the UK economy;
- current and future skills shortages;
- Women in the engineering sector and;
- The challenges associated with Britain's proposed exit from the European Union.

We conducted a detailed quantitative survey of the top 500 engineering firms operating in the UK by revenue. We examined the diversity make-up of their Boards and executives by analysing their gender, ethnicity, age profiles and socioeconomic backgrounds.

We also collected qualitative data to support our understanding of the women in the sector who are currently on Boards and hold executive positions. We interviewed over 100 senior women in engineering and completed a detailed analysis of their responses to determine the key themes. The findings form part of our recommendations in the report.

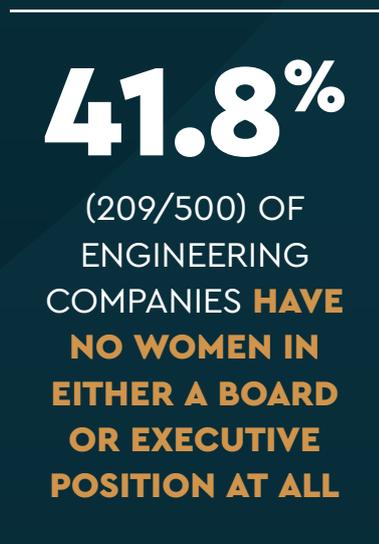
<sup>1</sup> <https://www.raeng.org.uk/education/what-is-engineering>, <sup>2</sup> *ibid*, <sup>3</sup> [https://www.engineeringuk.com/media/1576/7444\\_enguk18\\_synopsis\\_standalone\\_aw.pdf](https://www.engineeringuk.com/media/1576/7444_enguk18_synopsis_standalone_aw.pdf)

<sup>4</sup> <https://www.engineeringuk.com/media/1323/jan-2015-cebr-the-contribution-of-engineering-to-the-uk-economy-the-multiplier-impacts.pdf>

<sup>5</sup> <https://www.telegraph.co.uk/education/stem-awards/energy/the-great-uk-engineering-shortage/>

# Key Findings

## IN THE UK ENGINEERING SECTOR:



WOMEN WHO HOLD EXECUTIVE DIRECTOR POSITIONS ARE LIKELY TO COME FROM AN ELITE BACKGROUND IN COMPARISON TO THEIR MALE COUNTERPARTS WHO HOLD THE SAME POSITION.

WOMEN IN THE TOP 100 ENGINEERING FIRMS IN THE UK ARE MORE LIKELY TO HAVE ATTENDED NON-RUSSELL GROUP UNIVERSITIES WITH 37.04% COMPARED TO 45.39% OF MEN, BUT MORE LIKELY TO HAVE ATTENDED OXBRIDGE IN COMPARISON TO THEIR MALE COUNTERPART AT 24.69% AND 16.67% RESPECTIVELY.



# Recommendations



## Increasing Pipeline Activities

There is a need for targeted recruitment activities of undergraduates and postgraduates who study engineering related subjects. Organisations should consider starting engagement with students from their first year of study through insight days and offering work experience opportunities. To ensure the widest pool of candidates are being attracted, there is a strong need to target universities outside of Oxbridge and Non-Russell group institutions.



## Careers, Advice and Guidance

Engineering companies should work with schools and colleges to improve the information given about career opportunities in engineering and what it means to be an engineer.



## Inclusive Working Cultures

Organisations should develop inclusive working practices such as, flexible working and job share programmes for their employees. These should be rolled out company-wide and be supported at Board and executive level.



## Role Models

There should be more women in engineering role models showcased at all levels. These role models should be shown in schools, colleges, universities and in the workplace.



## Advocacy

Allies are an important part of increasing representation of women in engineering. This means that senior men should also be part of the advocacy effort to champion more women in leadership positions in engineering.

**"If we are going to have more diverse route, we have to do targeted internships etc. to find more diverse pools of people. For my company having internship with graduates definitely works well."**

*"Tackling unconscious bias with training"*

**"Working with schools, making STEM more appealing and accessible"**

*"I think it starts with education and making it clear to kids that you can do anything you want to do, just the way that I felt and I don't know whether that starts at home. But it's so important."*

**"Flexible working"**

*"It is always a Top down approach, therefore preaching and change has to come from the top levels. It is important to explain to people that diversity is more than just a gender, it is about inclusivity in general. Apprenticeship schemes for people from different backgrounds and women are a good way to open the door into engineering. But it Takes time to enact that."*

**"Being a role model is very important and enables young women to see those that have progressed to the top, showing them that it is possible."**

*"In terms of ethnicity, universities in the north are very diverse, schools need to feed into local diversity - that ethnicity should be pulled through into recruitment"*

**"In terms of gender, it's about education the young generation at school and university level, promoting a greater focus on STEM subjects."**

*"Men need to not view women with different skills/strengths as a negative, we have different strengths to contribute which are complimentary. Different strengths are conducive to a stronger result."*

**"It is very Important to have mentors and allies especially targeting certain underrepresented groups. Engineering is considered a solitary endeavour really it's about teamwork and having an impact - this really needs to be made clear"**

# INCLUSIVE BOARDS

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