Impact Outlook

- 'We are bigger, more diverse, and more impactful than 40 years ago. Our growth means that we support more engineers, teachers and policymakers to engineer a better society'
- 'There is so much more work to be done, not just to increase the diversity of those entering the profession, but also to ensure that the culture of the profession is truly inclusive'

Driving diversity in engineering

***Professor Dame Ann Dowling, President** of the **Royal Academy of Engineering**, discusses the organisation's commitment to increasing diversity in the discipline and creating a culture of inclusivity for underrepresented groups such as women and ethnic minorities*

How has the Royal Academy of Engineering evolved since it was first established in 1976?

It is remarkable to see the differences between the Academy when it was first created and how it is today. Now, we have a much larger and more diverse Fellowship. We have a greater influence with government, and an increasing emphasis on working in partnership with other professional engineering organisations and the wider engineering community. Our recent reports for government on the profession's response to Brexit are good examples of that.

One of the key issues faced by the profession is the shortage of people with engineering skills. While the causes are complex, it is clear that if we are to increase the number of people in the engineering workforce, we need to attract and retain a broader pool of talent. Our profession should be much more representative of the society we serve. Addressing this issue is a key strategic challenge for the Academy today. We increasingly work with industry, schools, government and others to address the engineering skills crisis, and this year we have launched a campaign, *This is Engineering*, to help drive this change. Improving the diversity of the workforce is a major part of this project, driven by our profession-wide Diversity and Inclusion programme.

When I became President in 2014, I took the opportunity to develop a renewed focus on academia-business collaboration. Soon after taking office, I was invited by government to lead a review of this area and The Dowling Review of Business-University Research Collaborations was published in July 2015. I have been pleased to see our research programmes expand. These include support for use-inspired research, centres of excellence in emerging technologies, and industrial collaborations and interdisciplinary programmes. These research programmes, together with the Dowling Review and the continued impact of its recommendations, support our aim of making the UK the leading nation for engineering innovation.

Essentially, we are bigger, more diverse, and more impactful than 40 years ago. Our growth means that we support more engineers, teachers and policymakers to engineer a better society.

As a partner in the UK government's Year of Engineering, what measurable outcomes do you believe could be set as a benchmark to determine the success of the initiative?

The government has designated 2018 the Year of Engineering to raise public awareness of engineering and the opportunities it offers. This is as an excellent catalyst for the sort of cross-government, cross-industry momentum needed to make a significant difference to our skills supply. The Year focuses on developing direct and inspiring experiences of engineering for young people and families in the UK.

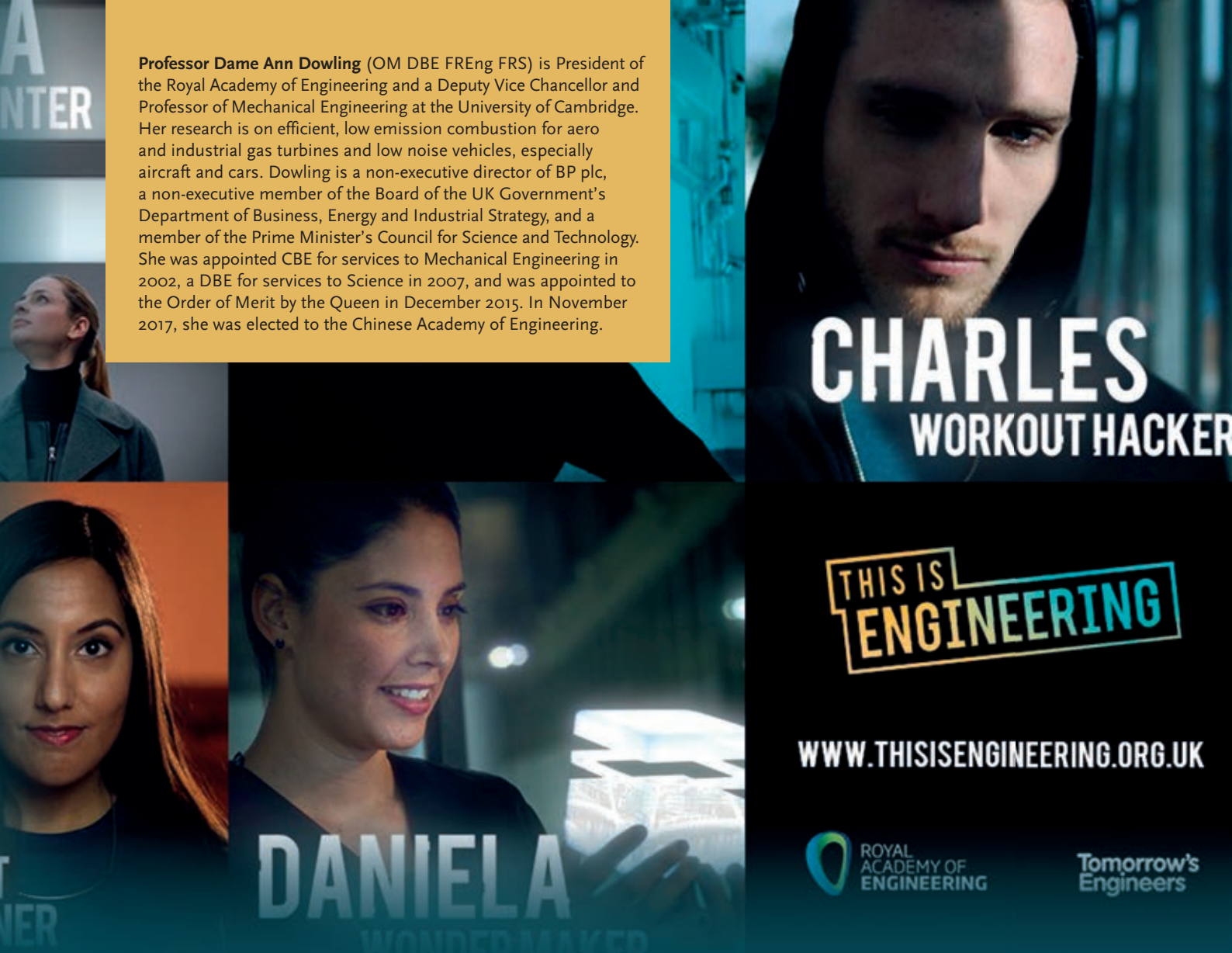
The Academy's main commitment in the Year of Engineering is a national, multi-year advertising campaign – *This is Engineering* – with engaging digital content that is targeted at 13 to 18-year-olds and their influencers. This will give our audiences multiple opportunities to experience positive and unified messages about engineering, improving their awareness and attitudes and encouraging them to find out more about engineering careers via the Tomorrow's Engineers website (http://www.tomorrowsengineers.org.uk/).

Through *This is Engineering*, we hope to have a significant, positive impact on the uptake of engineering. This is of course a long term goal, so in the short term we will be measuring perception change and online behaviour that indicates active consideration of engineering as a career path. The Year of Engineering will support us in this endeavour, helping more people understand the great variety that a career in engineering offers and its relevance to their lives. I also hope that it will stimulate more engagement with engineering across government and parliament, and more partnership working across the profession, not just in 2018, but for years to come.

With many groups commonly underrepresented in engineering at both the graduate and professional level, what can be done by professional bodies and policymakers to improve this imbalance?

Clearly, we need more people from underrepresented groups in the profession, including women, ethnic minorities, and people who are disabled, lesbian, gay, bisexual, transgender, and from lower socioeconomic backgrounds. Numerous initiatives are

Professor Dame Ann Dowling (OM DBE FREng FRS) is President of the Royal Academy of Engineering and a Deputy Vice Chancellor and Professor of Mechanical Engineering at the University of Cambridge. Her research is on efficient, low emission combustion for aero and industrial gas turbines and low noise vehicles, especially aircraft and cars. Dowling is a non-executive director of BP plc, a non-executive member of the Board of the UK Government's Department of Business, Energy and Industrial Strategy, and a member of the Prime Minister's Council for Science and Technology. She was appointed CBE for services to Mechanical Engineering in 2002, a DBE for services to Science in 2007, and was appointed to the Order of Merit by the Queen in December 2015. In November 2017, she was elected to the Chinese Academy of Engineering.



being run to encourage more people from different backgrounds into engineering, and *This is Engineering* is a part of that. We are deliberately using young engineers from diverse backgrounds as role models, so that young people of all ethnicities and genders can see that engineering is for people like them.

We also run programmes that increase the flow of undergraduates and recent graduates from underrepresented groups into engineering work experience and employment; work intensively with groups of schools in economically deprived areas to increase engagement with engineering and raise aspirations; and fund projects across the UK that engage the public with engineering through events and direct experiences, prioritising groups that are underrepresented. However, there is so much more work to be done, not just to increase the diversity of those entering the profession, but also to ensure that the culture of the profession is truly inclusive of these groups and there are no barriers to recruitment and retention in the workplace.

At the Academy, we have a working group that encourages engineering businesses to look at their culture and at barriers to progression within their organisations for women and minority groups. Our working group gives them the support and tools they need to change that culture and remove those barriers. Last year, we ran a survey of 7,000 engineers that asked questions about workplace culture in engineering, and we are working with industry to turn its recommendations into an action plan. But we still need more data on career trajectories to more precisely identify any barriers and address them.

Students learn about engineering careers at an event in Manchester

Contact details

Professor Dame Ann Dowling
President
Royal Academy of Engineering

For general enquiries:
T: +44 20277660600
W: https://www.raeng.org.uk/

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