



Changing 1000 small things

Katherine Kirk

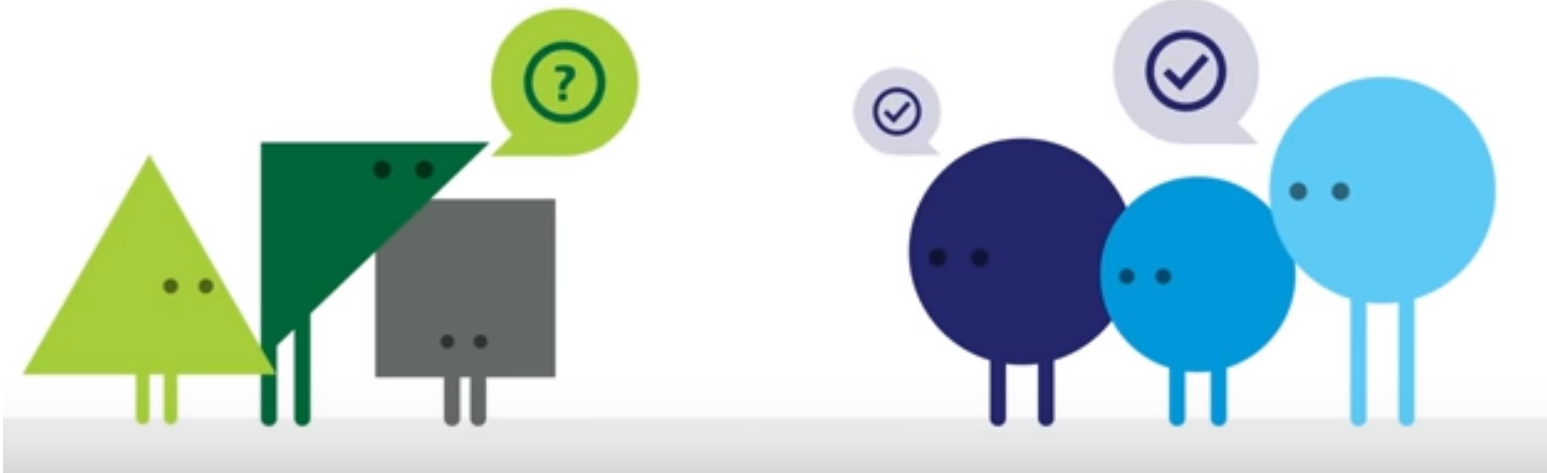
BINDT Diversity and Inclusion Advisory Group

Email Diversity@BINDT.org

Our aim in Diversity and Inclusion at BINDT

Creating cultures where all engineers thrive

<https://www.raeng.org.uk/publications/reports/creating-cultures-where-all-engineers-thrive>



[Creating Cultures where All Engineers Thrive - short video](#) from Royal Academy of Engineering

What do we think this means for BINDT?

- ▶ Demonstrating NDT as an inclusive profession
- ▶ Showing BINDT as an inclusive organisation
- ▶ All members feel included in the organisation they have joined
- ▶ All members are able to get the benefits of their membership (e.g. CPD opportunities)
- ▶ People from a broader base of the NDT community are inspired to join BINDT
- ▶ All parts of the NDT community can progress through the career pathways which are governed by the Institute (Membership, Registration, Certification, Apprenticeships)

Importance of Diversity in BINDT

It's in the BINDT strategy as one of our 4 priorities

It's our responsibility as a Professional Engineering Institute (PEI)

We've signed the Royal Academy of Engineering Diversity Concordat

However it doesn't happen by itself...

Let's look at some evidence



Gender diversity in UK engineering remains one of the lowest of all the developed nations

Proportion female



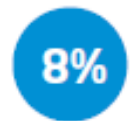
GCSE physics entrants



A level
physics entrants



Engineering and technology
first degree entrants

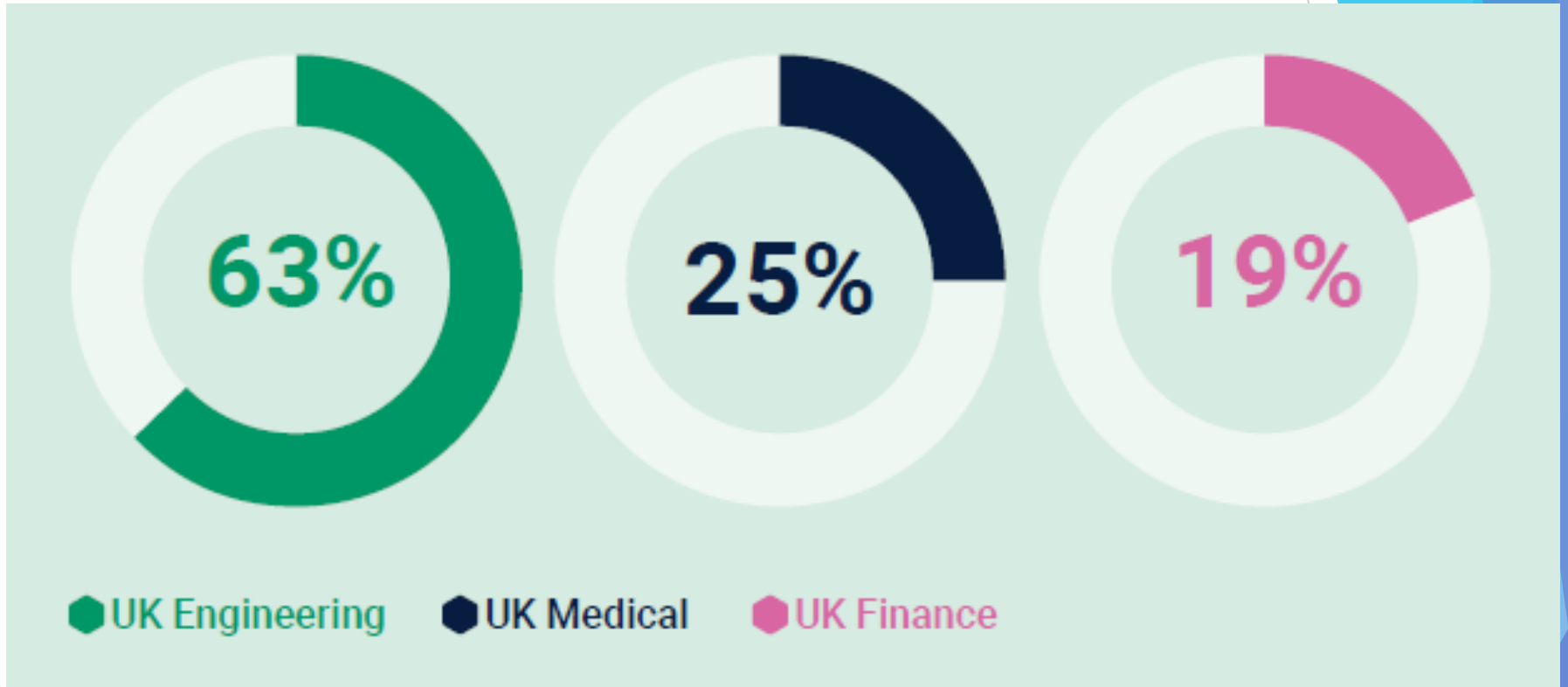


Engineering
apprenticeship starts
(England only)

<https://www.engineeringuk.com/media/156187/state-of-engineering-report-2018.pdf>

https://www.engineeringuk.com/media/1576/7444_enguk18_synopsis_standalone_aw.pdf

63% of women faced personal experience of discrimination in the UK engineering sector



<https://www.engineeringuk.com/media/156187/state-of-engineering-report-2018.pdf>

BAME people in engineering study and in the workforce



26% of UK domiciled engineering students come from Black Asian and Minority Ethnic backgrounds.¹⁴

26%

Engineering students from BAME backgrounds

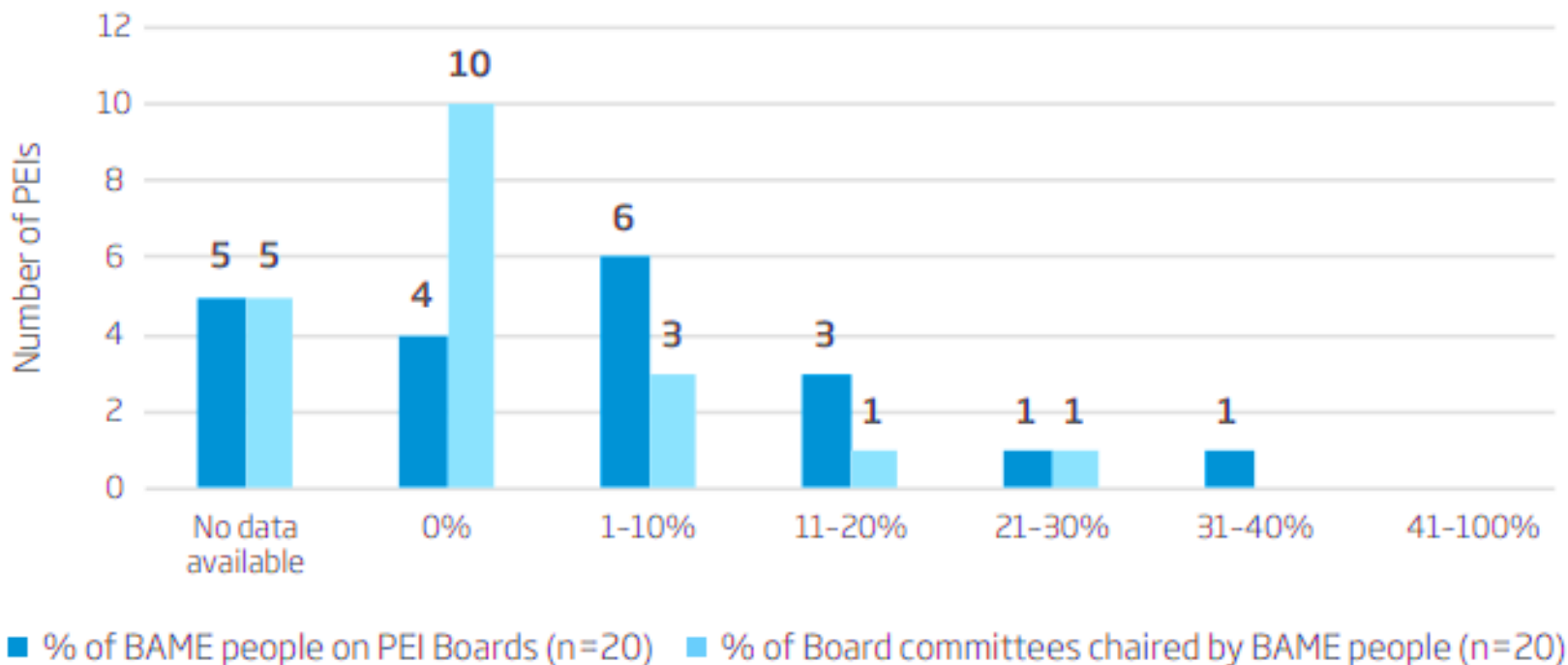


6% of professional engineers come from black and minority ethnic backgrounds.¹³

6%

BME professional engineers

BAME people on PEI boards



The evidence suggests that engineering is not making the best use of trained people and their skills and enthusiasm



Why do we need change?

- ▶ The evidence shows that it's not enough to say “we provide equal opportunity” / “we don't discriminate”
 - We need to look at what we are actually expecting people to do and who that favours or disadvantages
- ▶ It's clear that “encouragement” by itself is not enough to allow under-represented groups to participate
 - Even when they make their best efforts they're judged differently, or they can't conform to traditional requirements.

Our responsibility and our leadership role

Professional Engineering Institutes are in an ideal position to lead change in their communities

We already have responsibility for the infrastructure of the engineering profession under the auspices of the Engineering Council

We have an overview of the issues and a good reach to individual engineers and small companies

We are well-placed, and in fact honour-bound (under the RAEng Diversity Concordat), to get this sorted!

Main Challenges identified by PEIs

1

Lack of data

2

Internal
resourcing

3

Current
demographics

4

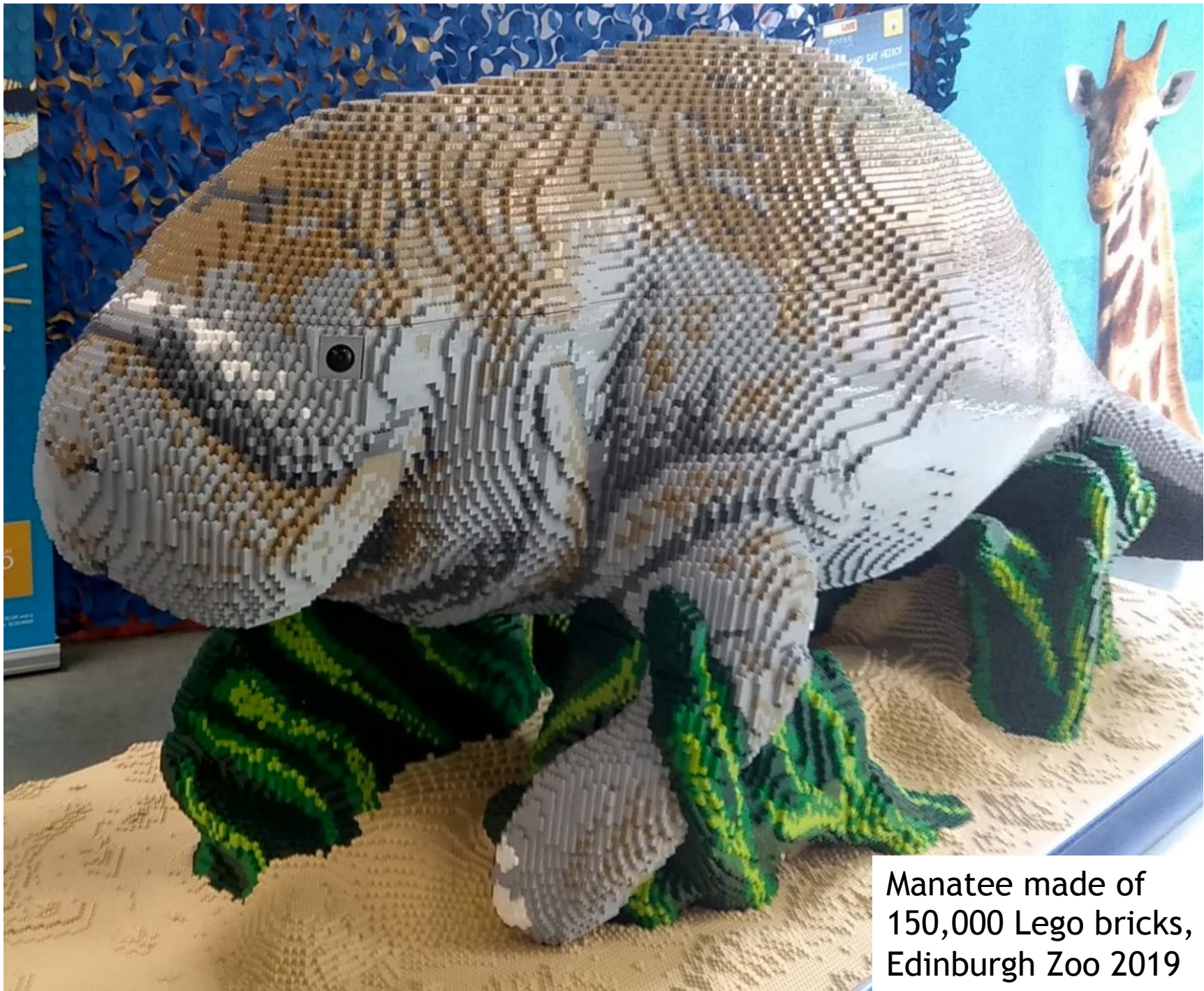
Organisational
and
professional
culture

5

Understanding
of D&I

These seem like big problems, some would say they are society's problems - why am I calling them small things?

**The next big thing
will be a lot of small things.**



Manatee made of 150,000 Lego bricks, Edinburgh Zoo 2019

We can focus on the small parts of the problem that we can actually tackle as an Institute

- ▶ These things are a core part of our job as a PEI and we can do them differently if we want to
- ▶ The RAEng Framework can help us, by getting us to break down our core activities into small parts and asking ourselves to think about them
- ▶ Have we missed an opportunity to do something differently? Can we change it next time?

What can PEIs change?

PEI self assessment scores range 1-4

	Median self-assessment level for all participating organisations	Median self-assessment level for PEIs ¹	Median self-assessment level for scientific bodies ²
1 Governance and leadership	2	2	2
2 Membership and professional registration	2	2	2
3 Meetings, conferences and events	2	2	2
4 Education and training, accreditation and examinations	1	1	1
5 Prizes, awards and grants	1	1	1
6 Communications, marketing, outreach and engagement	2	2	2
7 Employment	2	2	2
8 Monitoring and measuring	2	2	2

Areas of Good Practice reported by PEIs

1

Leading diversity and inclusion from the top

2

Setting goals and building a strategy and action plan

3

Increasing diversity in membership

4

Engaging with members and other stakeholders to inform approach

5

Integrating diversity and inclusion into communications

6

Raising decision-makers' awareness about the impact of unconscious bias

7

Integrating diversity and inclusion into how prizes are awarded

8

Creating a more inclusive working culture

What are we doing in BINDT?

- ▶ “Bite-size” unconscious bias training at Engineering Council Working Group and Branches
- ▶ Working through our communications and website material
- ▶ Reviewing our formal documentation (e.g. by-laws)
- ▶ Career break offer and information for career breaks
- ▶ Bringing in D&I into Apprentice standards
- ▶ Board diversity project, including Young NDT Professionals
- ▶ Data driven - providing evidence beyond anecdotes
- ▶ Participating in RAEng “Framework” for PEIs - learning and sharing knowledge and understanding
- ▶ Developing overall BINDT D&I Strategy

Most important....

- ▶ Keeping up momentum in key areas
 - ▶ Especially where we have a crucial responsibility for people's careers
- ▶ Presenting a consistent message
 - ▶ It's hard for people to go outside cultural norms and they need to know they're still doing the right thing.
- ▶ Providing clear statements that this is what we are doing as an organisation
 - ▶ Taking up our leadership role in the community

Main Challenges identified by PEIs (revisited)

1

Lack of data

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Internal
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and
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Understanding
of D&I

There's quite a lot of data to be going on with, but more specific internal data will help

Do something different rather than doing "more"

Focus on changes which are in our control

It's part of our job as a PEI to influence professional behaviour

Build into CPD, take opportunities to learn, under EC review D&I will be in UK-SPEC

TALENT 2050: SKILLS AND EDUCATION FOR THE FUTURE OF ENGINEERING

FINAL REPORT

“The engineering industry has long been concerned about skills shortages and a lack of diversity. We believe a new approach could help the industry move thinking away from the current ‘leaky pipeline’ to recruit from a ‘reservoir of talent’, which is ready to learn.”

Supported by



Recommendations: how our education system can deliver in-career development more effectively; **how professional bodies can support recruitment from different backgrounds and recognise their wider skills**; and how the mix of funding from state, individuals and business could work.

Never Too Late: Profiling Female Engineering Apprentices

<https://www.imeche.org/policy-and-press/reports/detail/never-too-late-profiling-female-engineering-apprentices> Sept 2018

While 53% of new apprentices are female, there is a striking gender imbalance in engineering – only 8% of engineering apprentices are women.for young women to be “converted” to engineering, there needs to be more support and encouragement later in their school careers.

A couple of recommendations

1. Employers, FE colleges and other organisations should broaden their targeting to include young women with interests in creative crafts and the arts.
4.act on the knowledge that women choosing routes into engineering careers tend to make this decision later, and that their hobbies and interests are less likely to be ‘tinkering’ and more likely to be linked to creative crafts and arts.



Rebecca Steele, Arnold Clark

Tell us about your apprenticeship.

I'm currently doing a Modern Apprenticeship (MA) in Light Vehicle Maintenance with Arnold Clark. It's a three-year course and I've been here for almost a year now.



Who or what influenced your decision to commit to the MA?

After three years of doing jewellery design at college, I didn't know what to do from there. I came out of college and it just didn't sit right to go down that route – I wasn't sure what I would get out of it. I could have gone into Art school but then I thought about what I was interested in, and my family knew that cars were always something that I was passionate about. It was always an area I wanted to learn more about and explore.

Why did you choose the MA over other learning choices?

I'll be able to progress in the automotive industry and have a qualification at the end. I really enjoy working in a big dealership like Arnold Clark and it gives me the best possible learning experience – I get to find out how the larger dealerships operate. Eventually, I would like to have to have my own automotive business.

With women accounting for only 9% of the engineering workforce, the UK needs to recruit more female engineers. However, it also needs to hold on to those it already has.

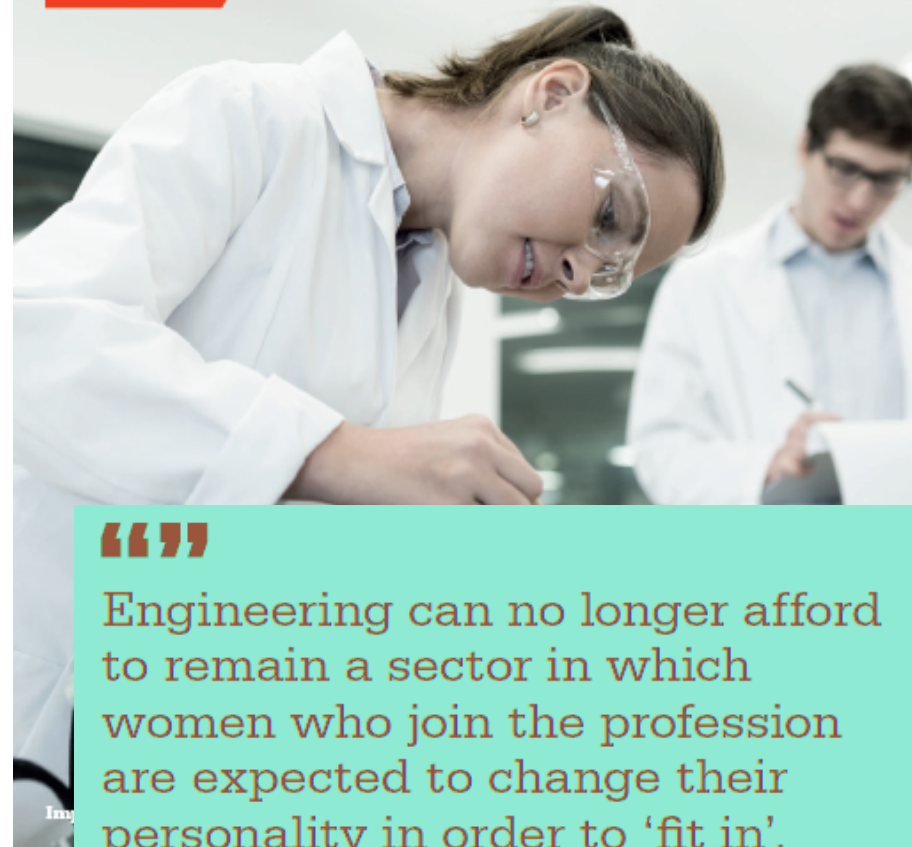
Within a few years of gaining an engineering degree, just under half of UK female engineering graduates will have left the profession. By contrast, at the same stage, two-thirds of male engineers remain in the sector.

<https://www.imeche.org/policy-and-press/reports/detail/stay-or-go.-the-experience-of-female-engineers-in-early-career>

STAY OR GO? THE EXPERIENCE OF FEMALE ENGINEERS IN EARLY CAREER.

25

Institution of
MECHANICAL
ENGINEERS



“““

Engineering can no longer afford to remain a sector in which women who join the profession are expected to change their personality in order to ‘fit in’.

Peter Finegold

Head of Education and Skills,
Policy & Research

The next big things where we need more diversity and inclusion in NDT

- ▶ Skills for Industry 4.0
- ▶ Skills shortage in traditional roles
- ▶ Better use of training effort
- ▶ Valuing other skills if applicants do not start with traditional qualifications
- ▶ Value of diversity in producing a more robust industry
- ▶ If we represent NDT at a strategic level, we have to represent all of it

Please get in touch via Diversity@BINDT.org

Email Diversity@BINDT.org



Industry-led “10 Steps”



Developed jointly with RAEng, run by WISE campaign



<https://www.wisecampaign.org.uk/ten-steps-diagnostic-form/>

The state of D&I in engineering survey 2018

improving skills, innovation and creativity

Interim findings from Royal Academy of Engineering

Four in ten engineering employers (38%) thought that their D&I activities had had a small/significant positive effect on their business, rising to almost three quarters of larger employers (73%).

The most commonly reported benefits for engineering employers were: (1) improving company image or reputation; (2) improving compliance with legislation; and (3) increasing collaboration.

A significant proportion of engineering employers do not see a link between increasing D&I and combating skills shortages/gaps.

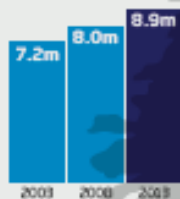
Engineering employers identified challenges to the company making progress on D&I.

- lack of diverse applicants with the skills needed (48%)
- lack of understanding about how to increase D&I (39%)
- physical environment (36%)
- lack of leadership (36%)



20 - 30%

By 2051, it is estimated that BME people will represent between 20 - 30% of the UK's population⁸



There are more people aged 50+ in employment than ever before¹⁰



25%
Secondary school pupils are from a BAME background³

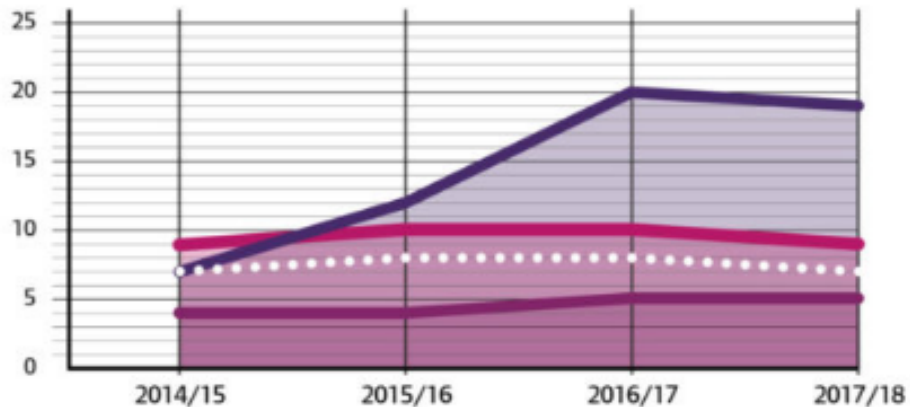


29%
Primary school pupils are from a BAME background

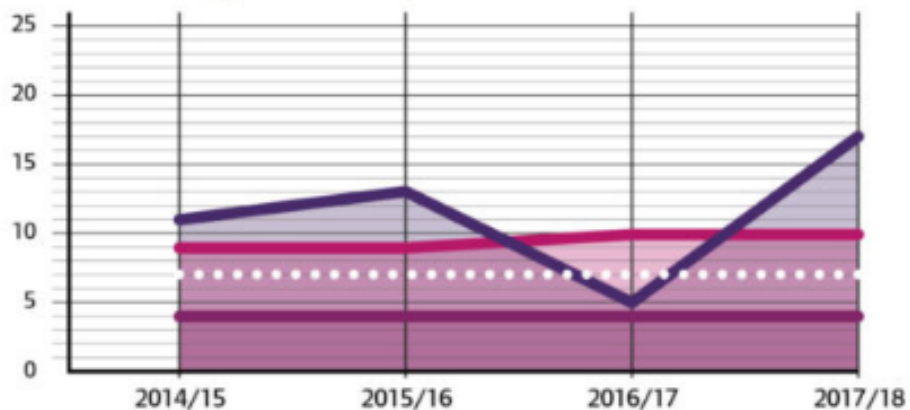
*Source ONS Labour Force Survey

Women in Engineering & Manufacturing Technologies Apprenticeships – 2014 to 2018

Women Apprenticeship Starts (%)



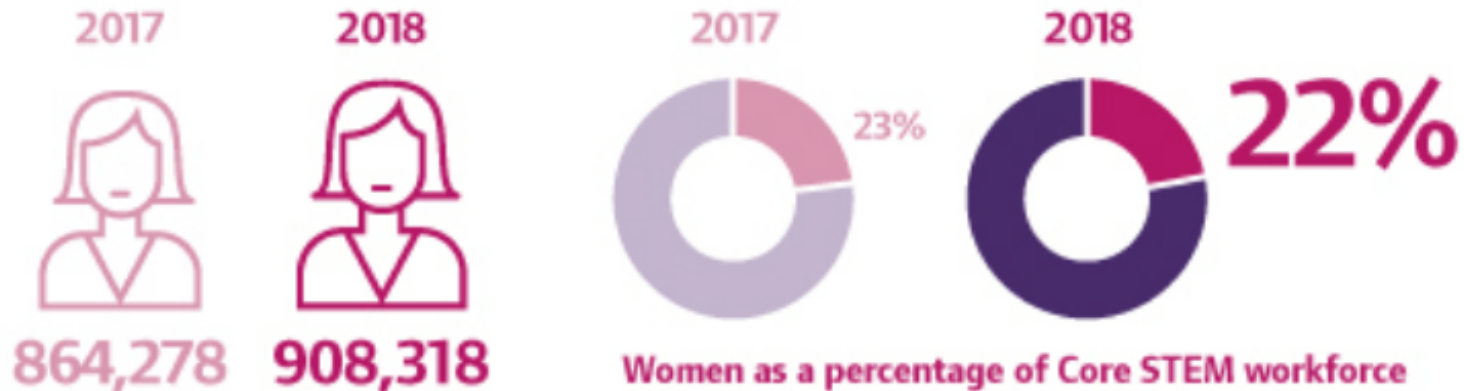
Women Apprenticeship Achievements (%)



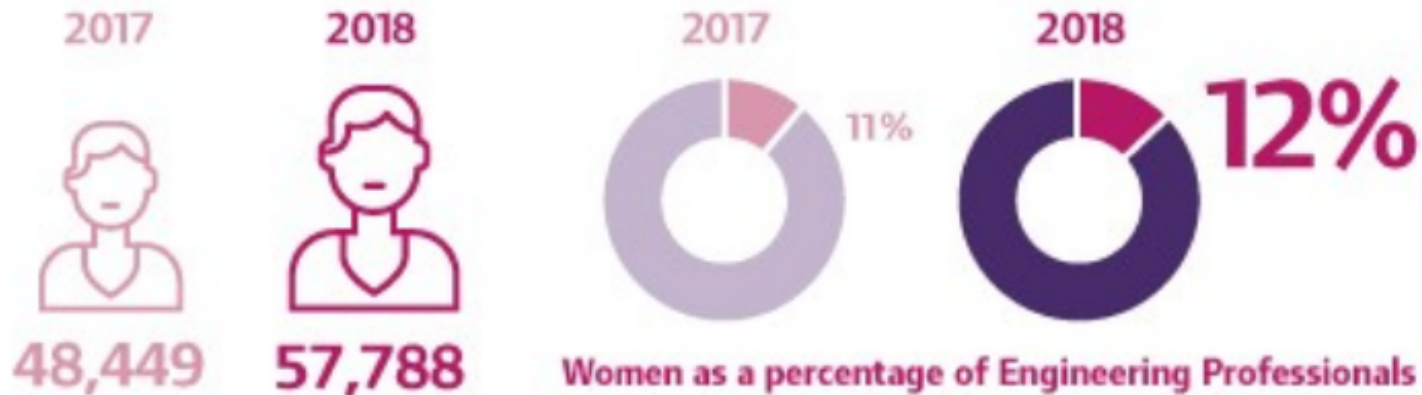
Key

- Intermediate Apprenticeships
- Advanced Apprenticeships
- Higher Apprenticeships
- ⋯ Totals

Women in Core STEM Occupations



Women in Engineering Professional Occupations



Women on PEI boards

