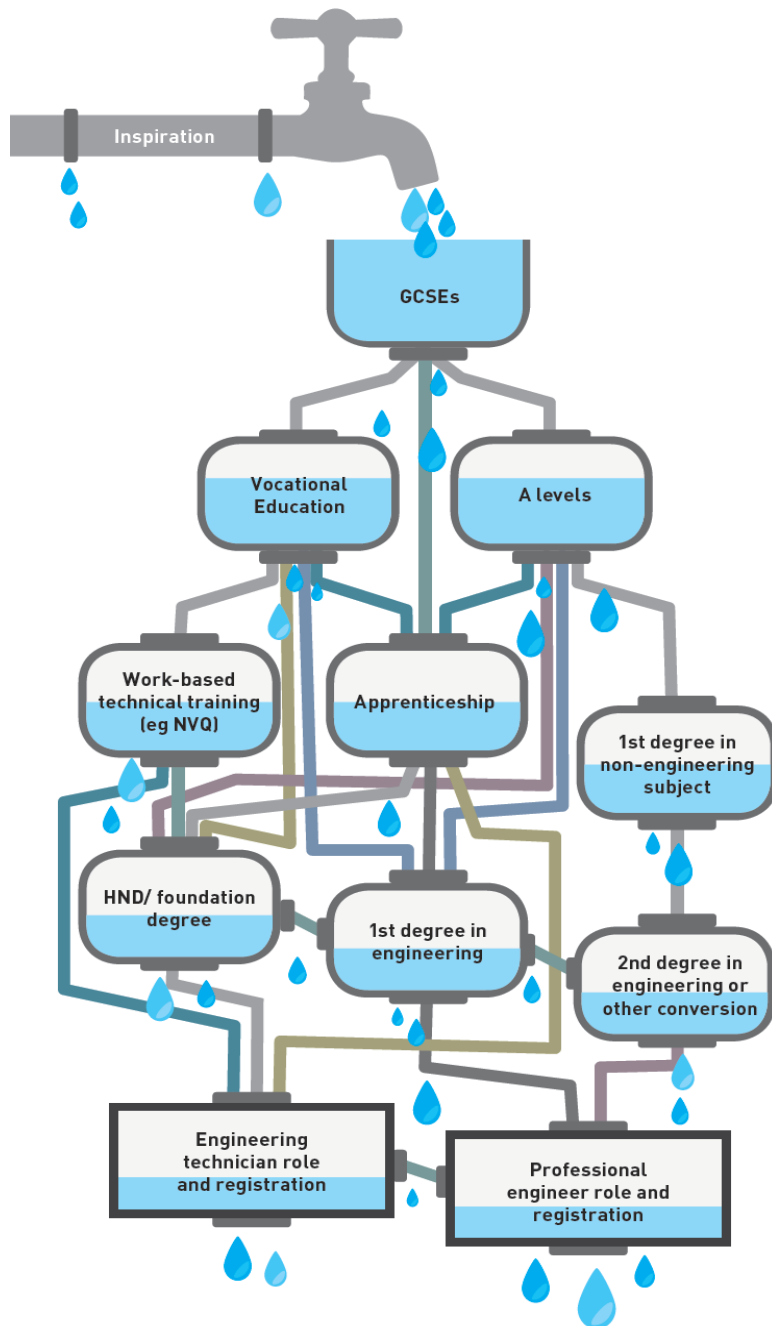


# Professor John Perkins' Review of Engineering Skills





## The challenge

**Engineering is pervasive**

**...engineering drives technological progress**

**...engineering skills are in demand throughout the economy**

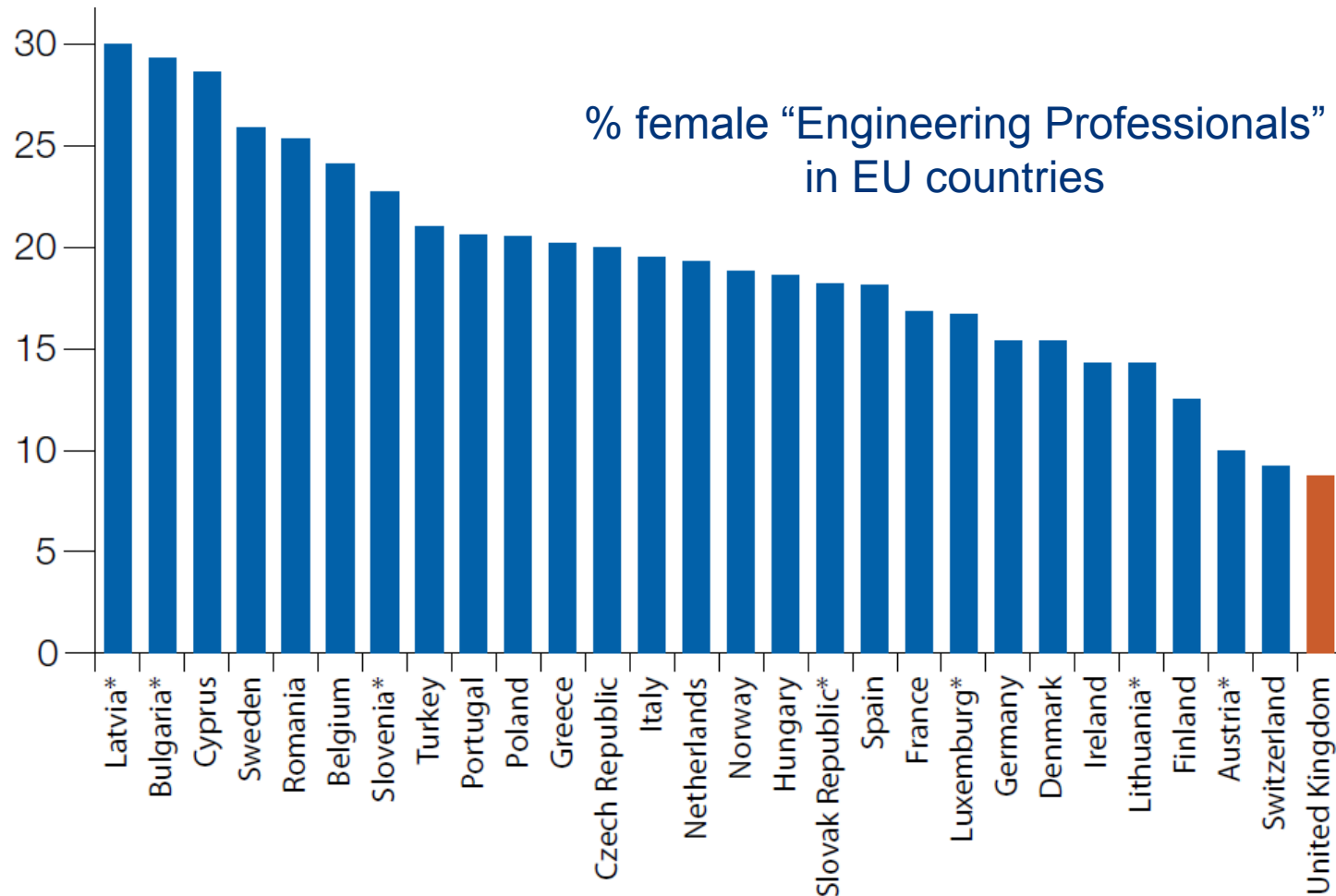
**It would benefit the economy to substantially increase the supply of engineers entering the labour market**

**•The report makes 22 recommendations for action by Government, the profession and industry across the engineering “supply system”**

**•A call to arms:**

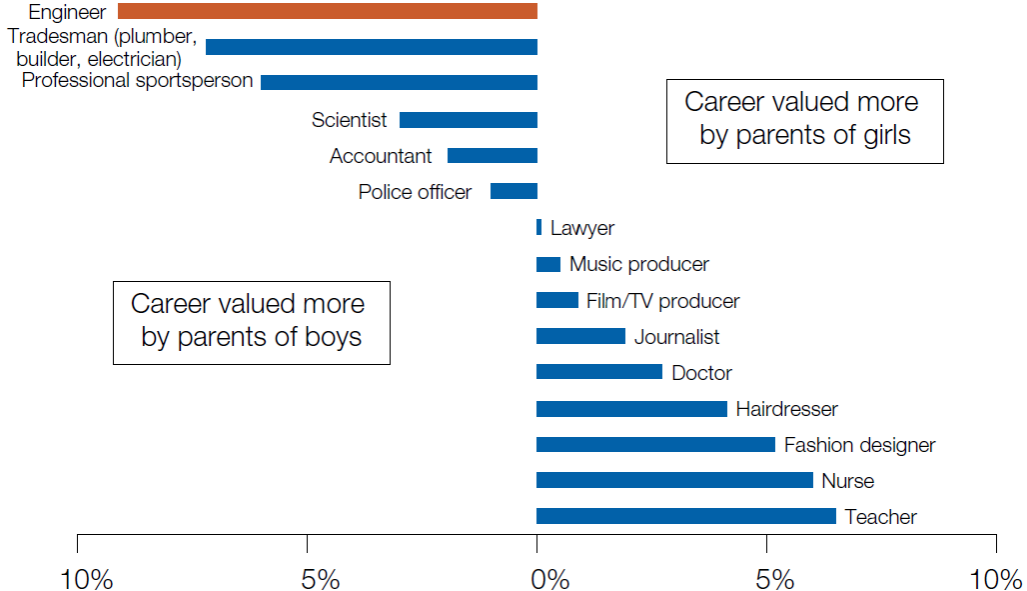
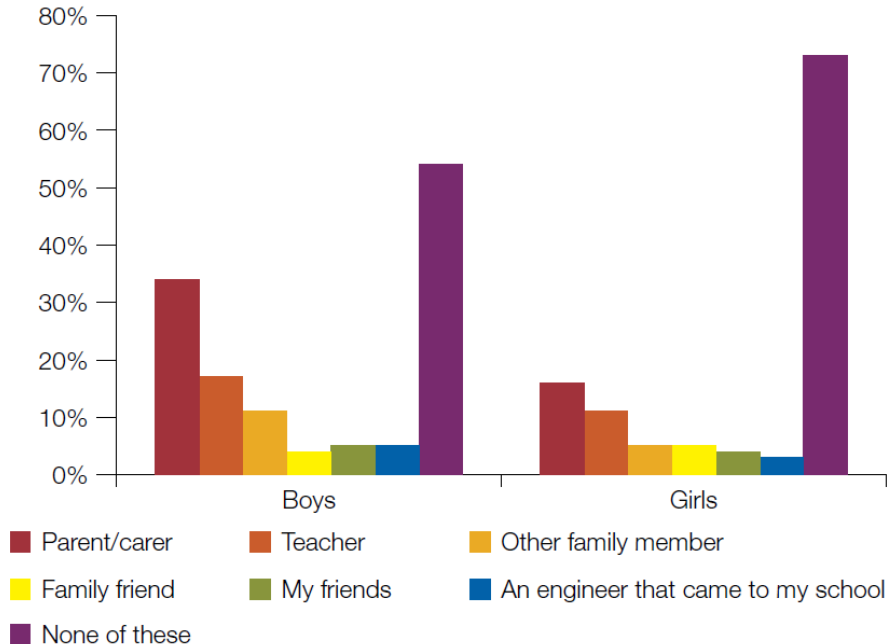
***“It is time for concerted action by the profession, industry and Government, to achieve the goals for engineering which we all share.”***

# Women and engineering... the challenge



# Women and engineering... why the gap?

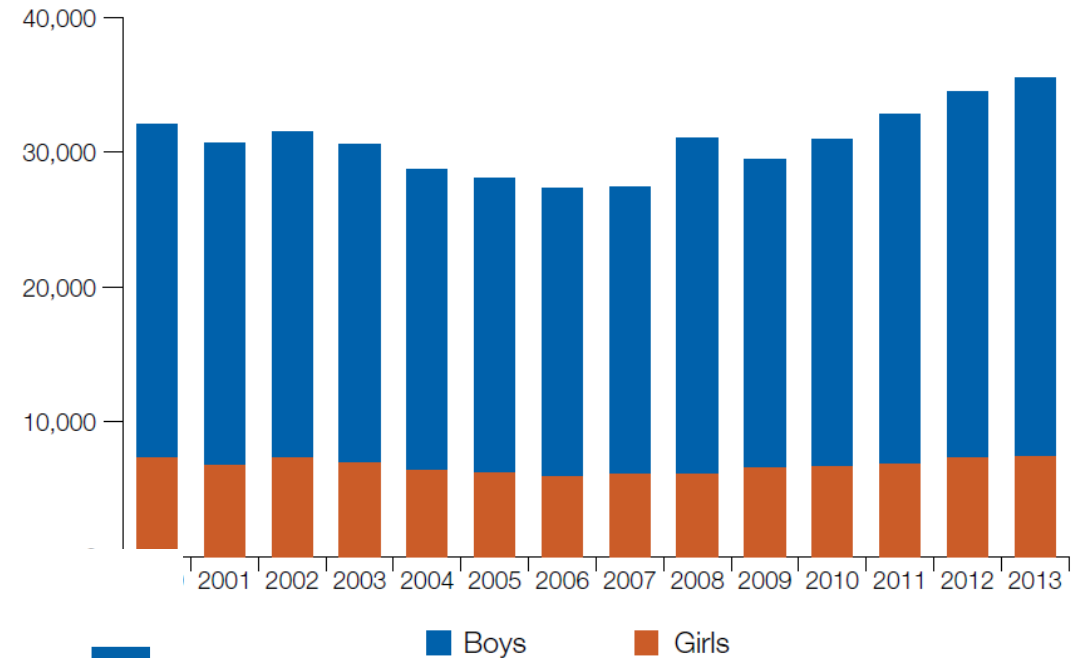
Who has encouraged boys and girls to consider a career in engineering?<sup>14</sup>



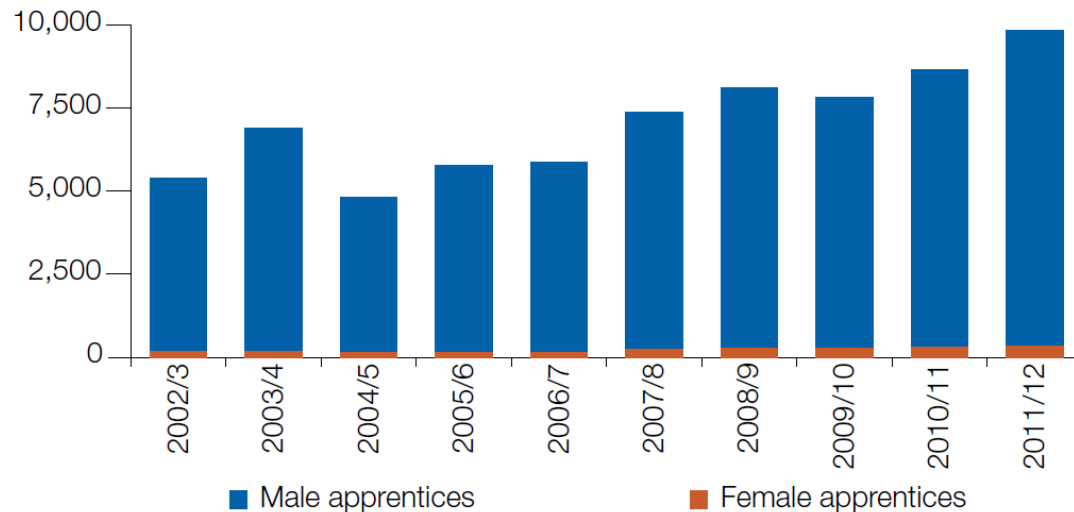
Which career would parents most like their child to pursue?

The gender gap opens up  
post-16

A-level physics candidates by gender<sup>25</sup>



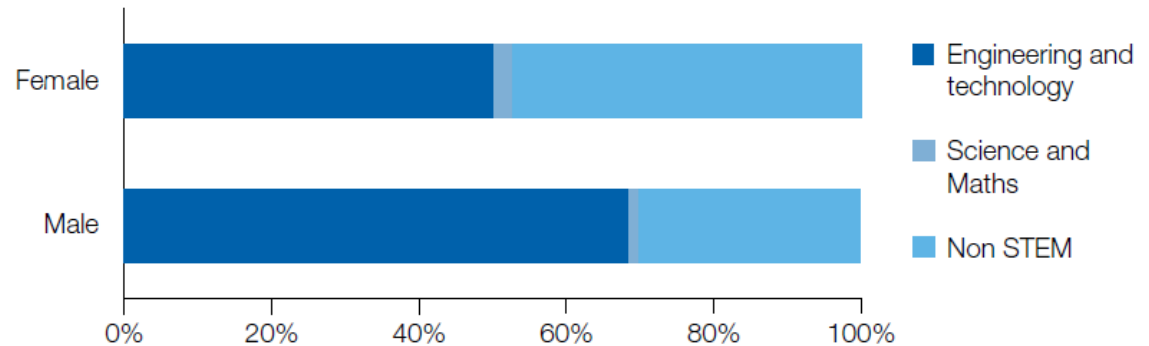
Advanced and Higher Apprenticeship starts in engineering<sup>28</sup>



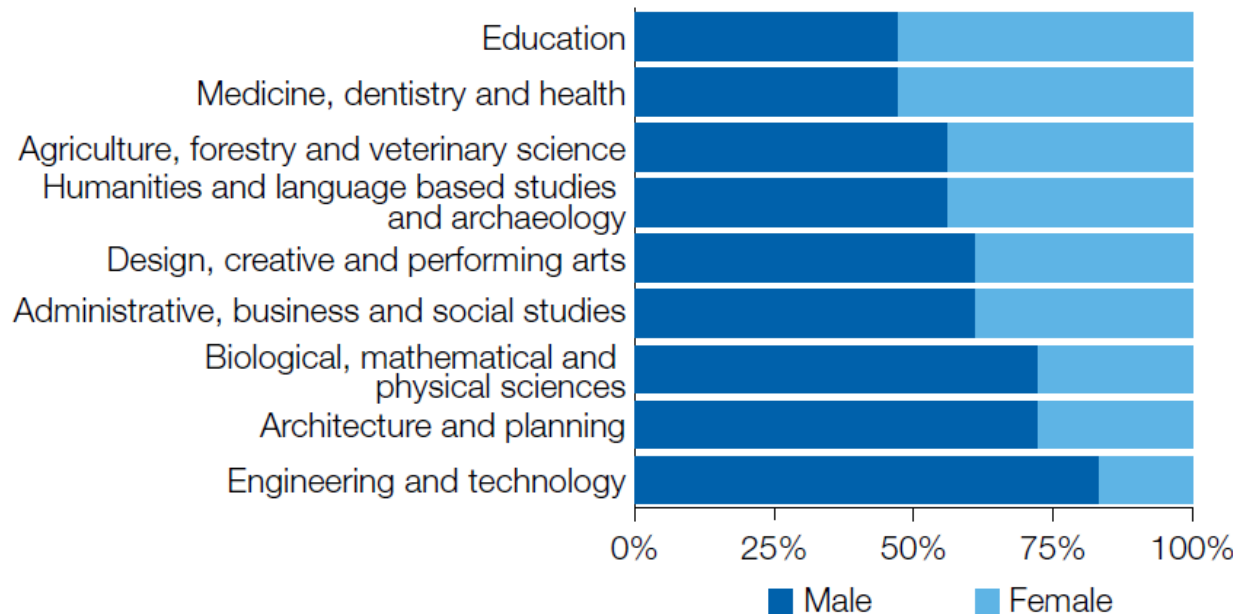
...and is even wider in  
vocational education

Destination (type of employer) of employed UK-domiciled graduates with first degrees in engineering and technology graduating in 2010/11<sup>37</sup>

Female graduates are less likely to take up engineering and technology jobs...



Full-time academic staff by gender 2011/12<sup>35</sup>

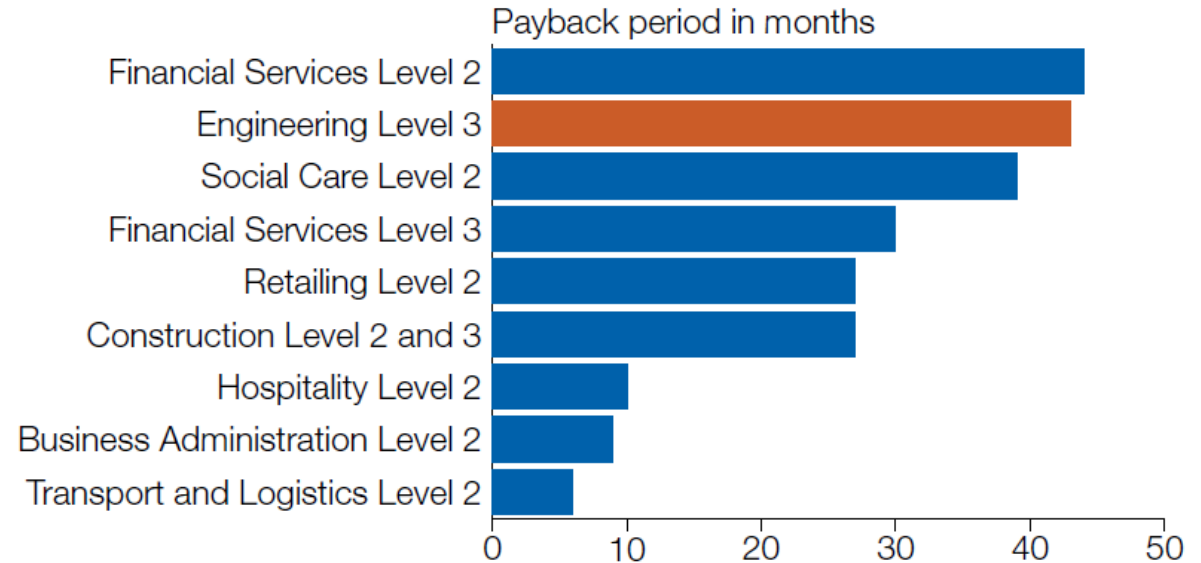


...and there's a significant gap in academia

## Further Education

We have a serious shortage of engineering technicians...  
...engineering apprenticeships are expensive for employers

Length of time to recoup the cost of an apprenticeship<sup>30</sup>



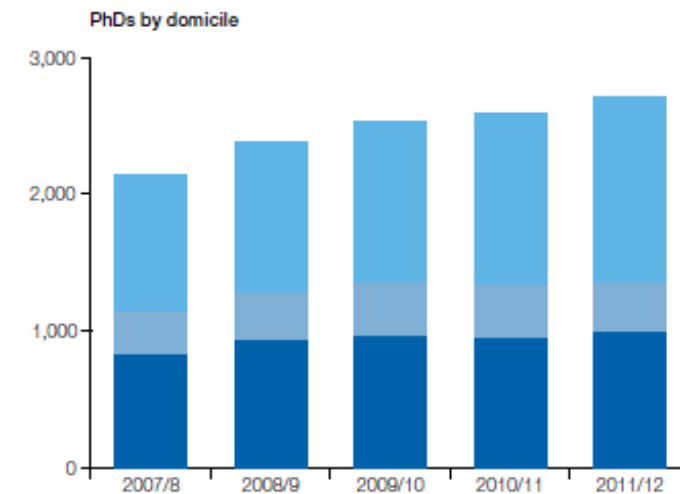
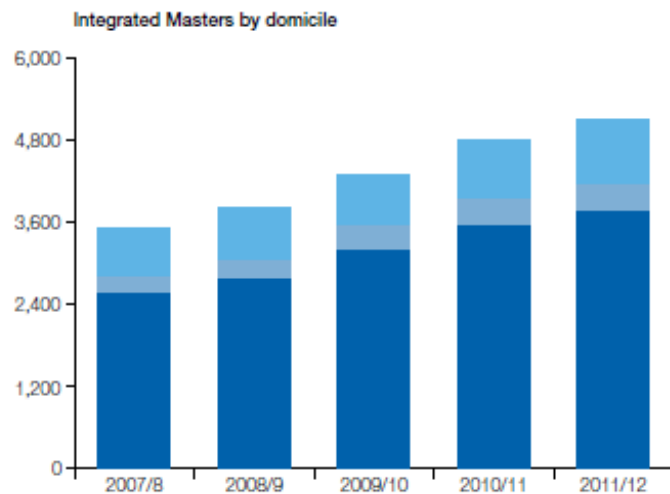
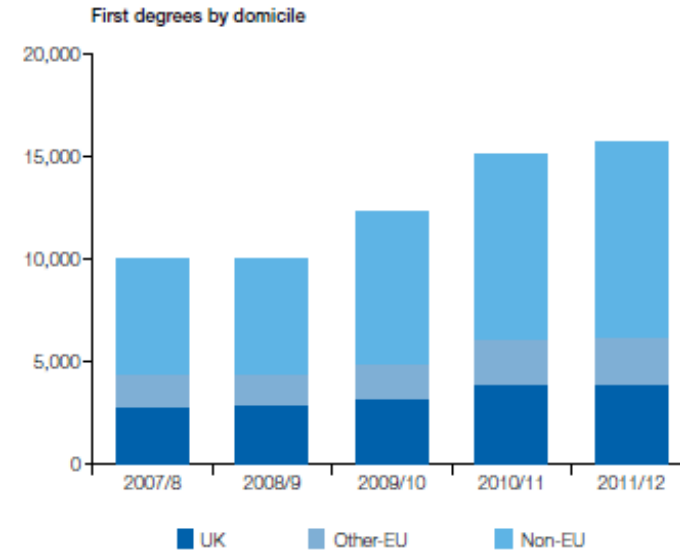
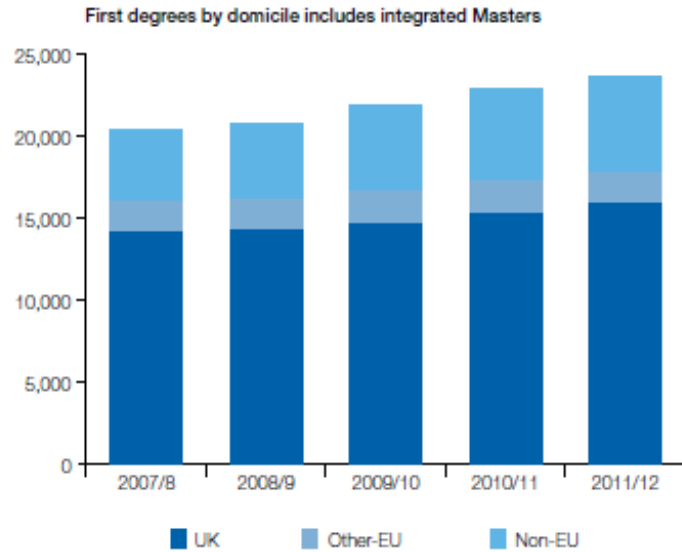
Government is undertaking a fundamental reform of Further Education to ensure that the system is responsive to what employers need.

Government's response to the Perkins Review included a range of FE measures:

- Up to £30m for \*employers\* to tackle acute shortages of engineering skills
- Trailblazer Apprenticeships in engineering designed by employers
- £18m invested to create an elite training institution linked to High Value Manufacturing Catapult, with further facilities to follow for High Speed Rail and Nuclear

## Engineering and technology degrees awarded by UK HE institutions by domicile<sup>36</sup>

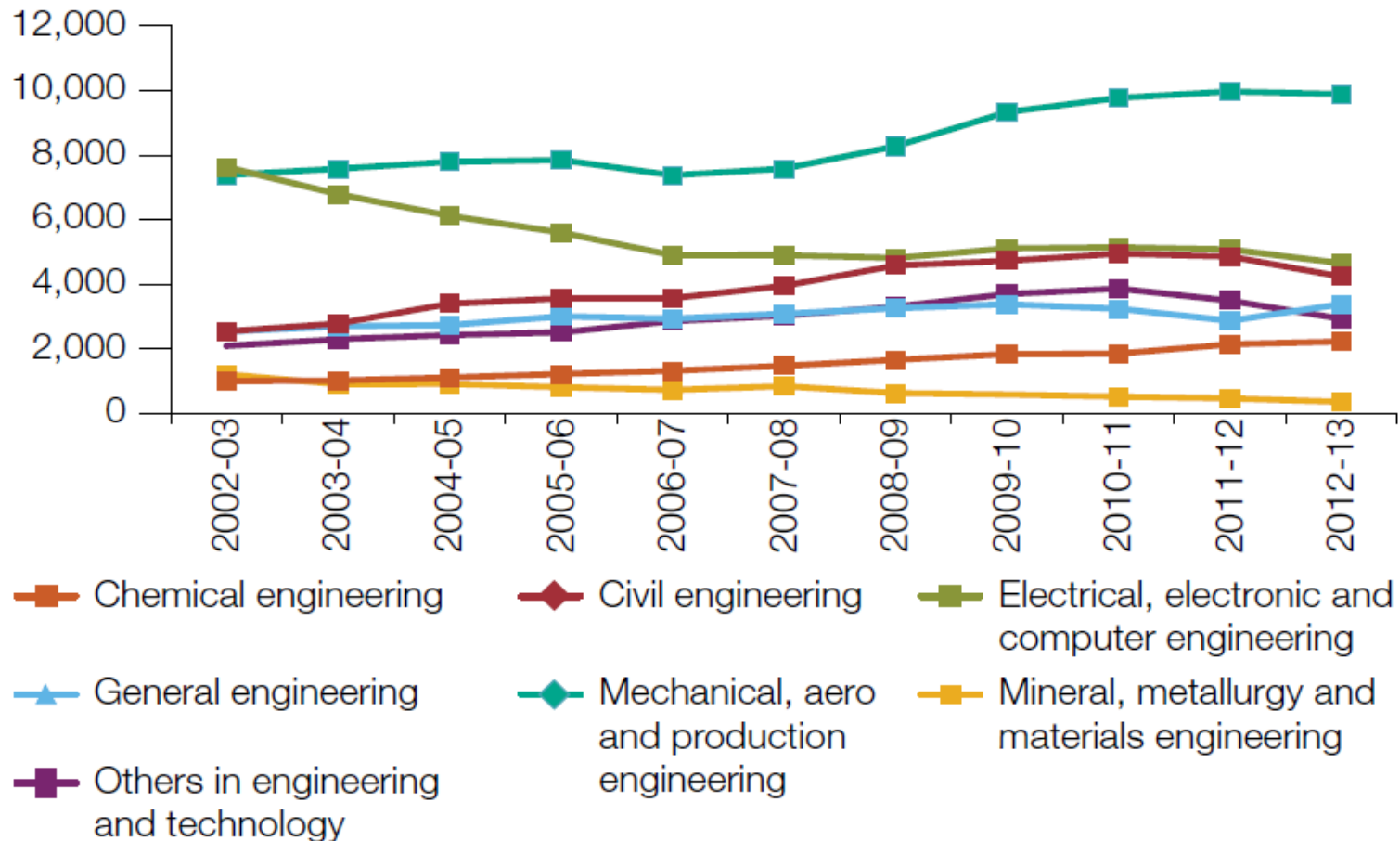
# Higher Education





# Applications to university

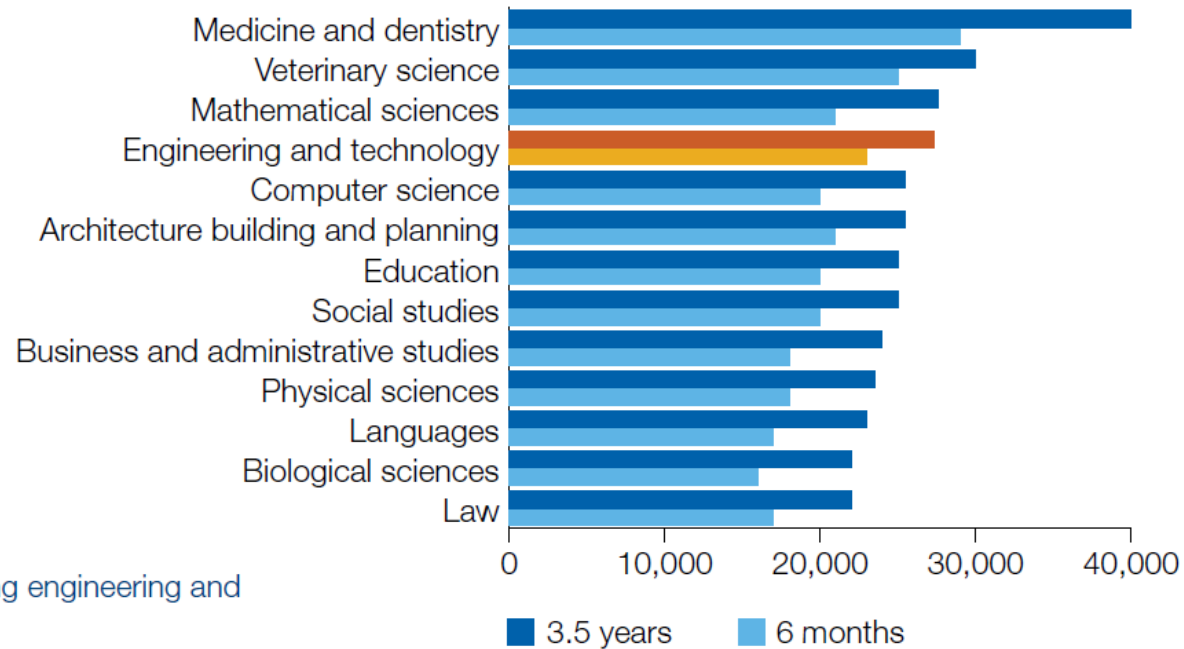
UCAS acceptances in engineering and technology 2012<sup>33</sup>



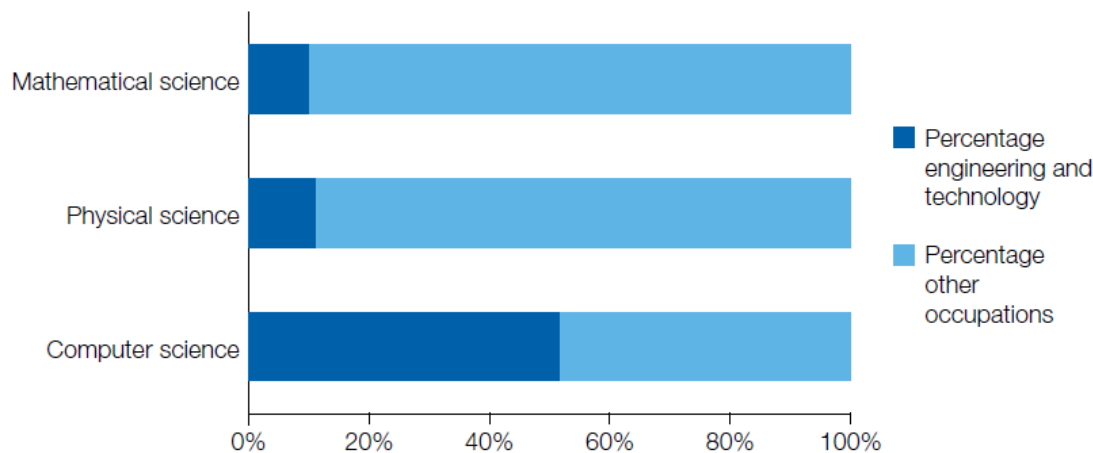
# Graduate careers

**Engineering and technology are some of the most financially rewarding subjects to study...**

Median annual salary by degree subject, 6 months and 3.5 years after graduation<sup>6</sup>



UK domiciled graduates with degrees in other subjects entering engineering and technology occupations 2010/11<sup>10</sup>



**...and engineering and technology careers pull in graduates from other fields**

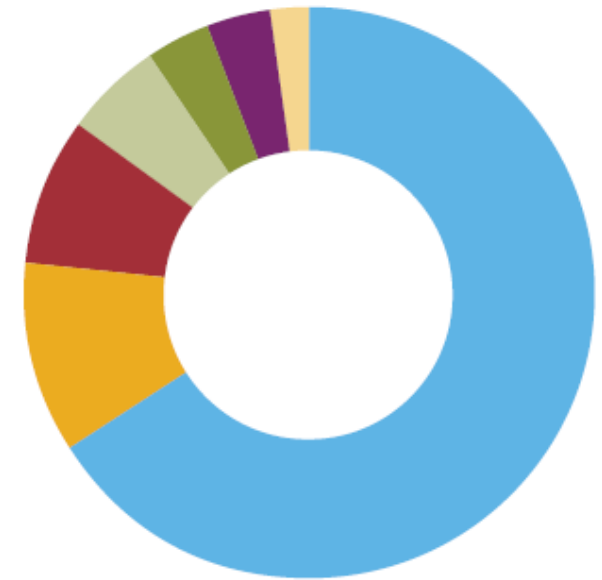
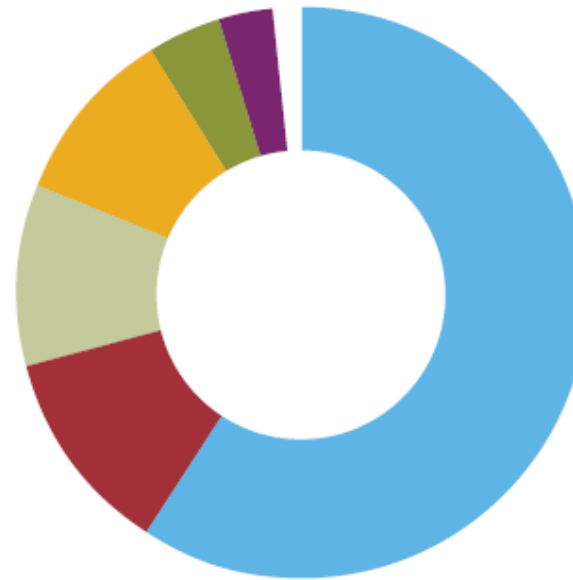
**Graduate  
careers**

**Despite the demand for engineers, some engineering graduates take a while to find work...**

UK-domiciled first degree graduates, 6 months after graduation<sup>38</sup>

Electrical and Electronic Engineering  
12% unemployed, 10% part time

Mechanical Engineering  
8% unemployed, 6% part time



- Working full time in the UK
- Unemployed, including those due to start work
- Working part-time in the UK
- In further study, training or research
- Working and studying
- Other
- Working overseas

# The Government response (so far)

## Immediate impact

- £30m for innovative proposals from employers to develop engineering skills in areas of shortage

## Inspiration

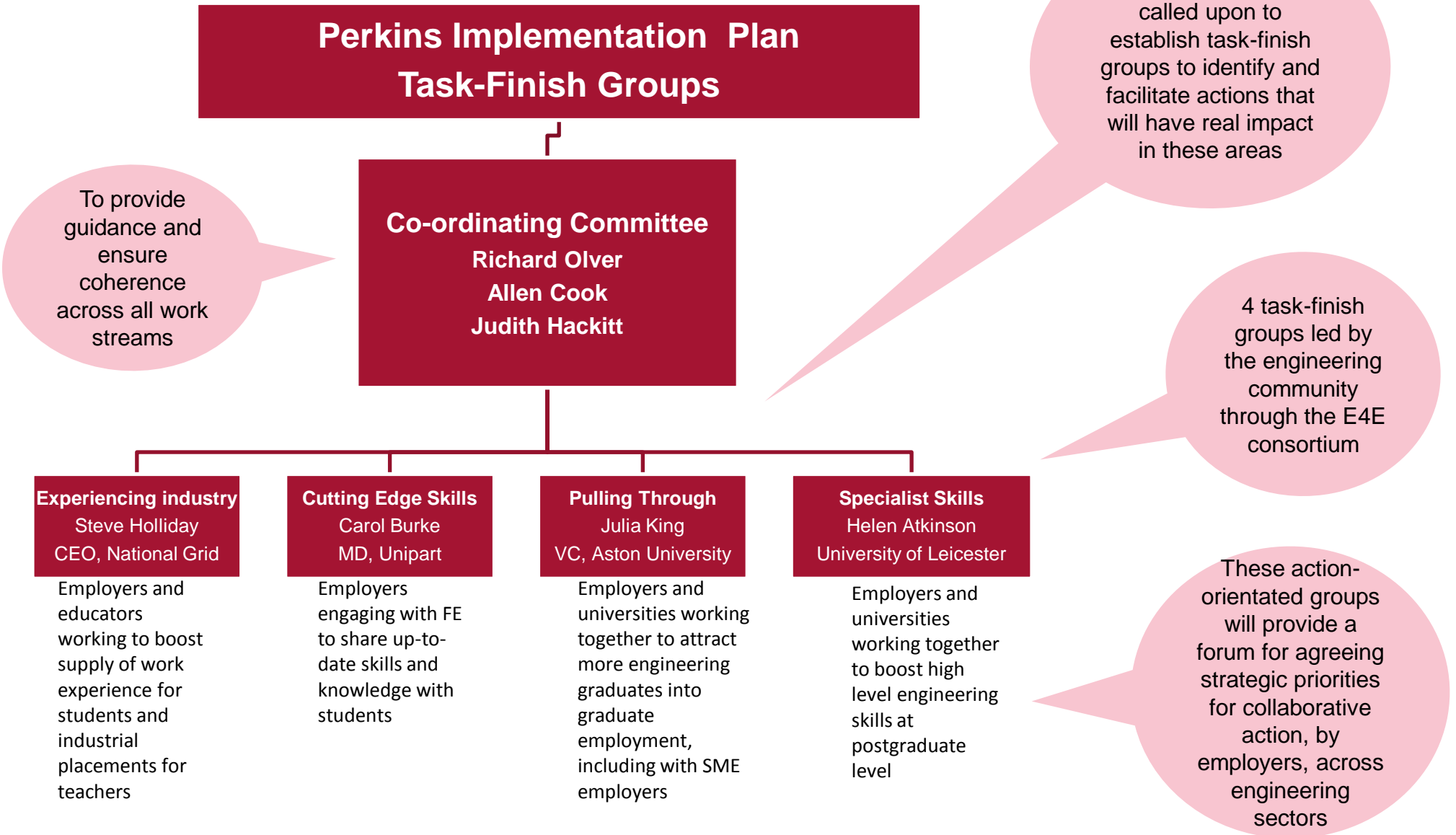
- Tomorrow's Engineers Week: partnership of 70 organisations
- £250K to develop Tomorrow's Engineers employer engagement for nationwide roll out

## Vocational Education

- Trailblazer Apprenticeships in engineering
- £18m elite training facility at Manufacturing Technology Centre, plus High Speed Rail, Nuclear

## Higher Education

- £200m investment in STEM teaching capital fund
- £185m for teaching in high cost subjects, including engineering
- ELQ exemption for part time students studying engineering



# Key milestones and reporting

Jan      Feb      Mar      Apr      May      Jun      Jul      Aug      Sep      Oct      Nov      Dec



Meeting 1 of task groups

Meeting 2 of task group

Meeting 3 of task group

Meeting 4 of task group

Meeting 1 of Co-ordinating Committee

Meeting 2 of Co-ordinating Committee



Agree Terms of reference

Agree objectives and ways of working and allocate actions

Case study development / pilot activity

# We need your help...

## Employers and students

- How can we improve employer engagement with students in Higher Education, including
  - Employers working with a broader range of institutions improve diversity of recruits
  - Ensuring students are aware of the full range of engineering employers – including SMEs

## Postgraduate funding

- Can we bring employers together to fund higher level (postgraduate) developments?

## Two way experience

- How might we provide opportunities for academic staff to work in industry for a period without damaging their academic trajectory?
- ditto industrially-based engineers in universities?

**What more could universities and business do to work together?**