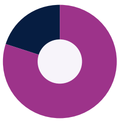
Engineering UK 2017

Synopsis and recommendations

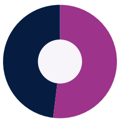
EngineeringUK

Synopsis
Engineering: context and contributions

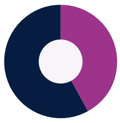
Engineering plays a vital role in the UK's economic and societal wellbeing, providing quality employment on a large scale and enabling the majority of our physical exports, as well as developing and implementing some of the key solutions to major global challenges. The UK engineering base has a world-leading position in a range of the knowledge-intensive industrial sub-sectors responding to global challenges, as well as in the scientific and technological research and innovation that underpin them.



80%
of engineering enterprises have **four** or fewer employees



52%
of employees work in an enterprise with **100** or more people



42%
of employees work in an enterprise with **250** or more people

Economy

Analysis by the Centre for Economics and Business Research (Cebr) suggests that the gross value added (GVA) for the UK by the engineering sector, as defined by EngineeringUK's Footprint of engineering jobs and companies, was £433 billion in 2015.

This was more than some key comparable sectors of the economy, including retail and wholesale, financial and insurance combined. From this GVA figure, it is estimated that engineering contributed £486 billion to UK GDP in 2015 – around 26% of the total and representing 2.3% growth since 2014. Furthermore every additional £1 of GVA created by engineering activity creates an additional £1.45 of GVA through indirect effects on the supply chain and more widely on household incomes and employment: engineering activity has a multiplier effect of 2.45 on GVA. In terms of effects on employment, every additional person employed in engineering, supports an additional 1.74 jobs: a multiplier effect of 2.74.

In 2015, the number of engineering enterprises in the UK grew by 7% over the previous year, to 650,000. Relative growth was fastest in London although experienced in every region and largely keeping pace with the backdrop of overall growth across the UK.

Small employers dominate numerically: 80% of registered engineering enterprises have four or fewer employees. However, the majority (52%) of employees in 2015 worked for an enterprise which employed 100 or more people and most of those (42%) worked for an enterprise with 250 or more employees (9350 of which in the UK).

£486 billion
contributed by engineering to UK GDP in 2015

7% rise (to 650,000)
in 2015 in the number of UK engineering enterprises

1.74 jobs
supported by every person employed in engineering (a multiplier effect of 2.74)

5.7 million
employees work in registered engineering enterprises in the UK –
19%
of total UK employment

Employment

Nearly 5.7 million employees work in engineering enterprises in the UK, representing just over 19% of total UK employment in all registered enterprises. As a proportion of total employment, this has remained relatively consistent for the last three years.

The engineering workforce is getting older, but not significantly faster than in the UK economy overall. However, the proportion of young workers (aged under 25, especially) has been decreasing over the last ten years. While women make up 46% of the UK workforce as a whole, engineering continues to be male-dominated: women make up only 1 in 8 of those in engineering occupations and less than 1 in 10 of those in an engineering role within an engineering company.

Engineering workforce

Only 1 in 8
of those in engineering occupations are women

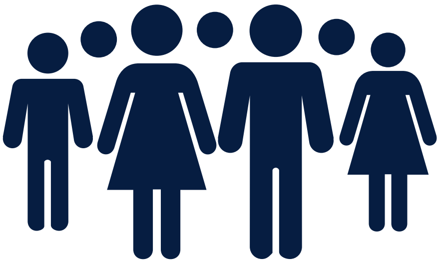
Context

Manufacturing remains one of the UK's largest economic sectors, despite automation having reduced its employment footprint.

It requires continued investment in innovation to consolidate the development of advanced manufacturing technology and concepts such as Industry 4.0. Some 2.7 million people are directly employed in the UK's manufacturing industries, and it is responsible for around half of the UK's exports. Over two-thirds of UK business investment in research and development is in manufacturing.

Productivity growth, which is a determinant of higher wages and improved sustainable output and therefore key to improving real wage growth, has been relatively weak in the UK since the recession, and lower than that of comparator nations. Technological innovation and investment in upskilling the labour force are thought to be crucial to enhance levels of productivity in engineering and manufacturing, and to respond to the re-shaping of the economy which will favour those with high skills.

The government's development of an industrial strategy is welcomed by the engineering community. It would endorse the view that a significant 'horizontal' element to such an industrial strategy – underpinning investments to assure increasing levels of skills, improved infrastructure, empowered science and research, and embedded innovation is a necessary adjunct to a strategic focus on key sectors or technologies. These feature in the ten pillars of the government's industrial strategy consultation (green) paper. Such an industrial strategy will be key to delivering an environment in which engineering can contribute effectively to economic and social development, particularly in light of the decision to leave the European Union, and should deliver a powerful message that the UK is forward looking, open for business, and an active and welcoming partner for the international research, innovation and business communities.



Future forecast:

265,000

skilled entrants required annually to meet demand for engineering enterprises through to 2024

Skills supply and demand

The broader international labour market landscape shows an underlying trend towards what is recognised as the 'hourglass economy'.

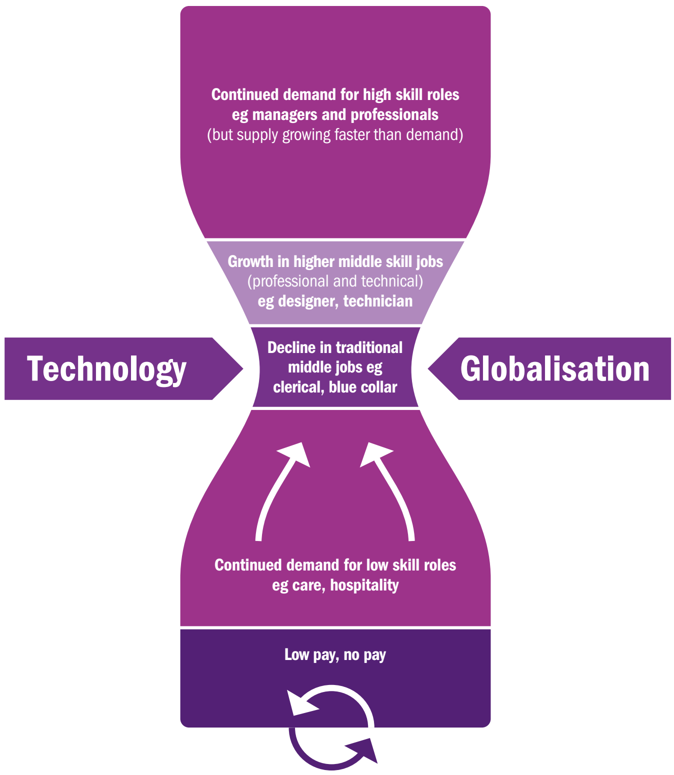
This predicts decreasing demand for 'blue collar' jobs (intermediate skills) which are vulnerable to automation and off-shoring. It also predicts increasing demand for lower skilled jobs (especially driven in health and social care by an ageing population) and for highly skilled jobs (technician and above) requiring science, technology, engineering and maths based competences. This is already being reflected in employers' reports of skills shortages and the government's shortage occupation list for skilled immigrants. This situation is expected to be exacerbated by the growth of new industries, some of which scarcely yet exist, emerging from new technologies and knowledge.

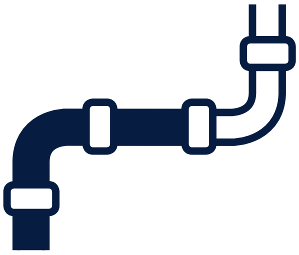
There is consistent evidence (including from the UK Commission for Employment and Skills, the CBI and the IET) of skills shortages for employers in key UK engineering sectors that are expanding, especially construction and ICT, as well as with manufacturing, despite its total size shrinking through automation. Employers anticipate an increasing need for people with higher level skills, and express decreasing confidence in their ability to recruit these in sufficient numbers. Potential restrictions on the free movement of labour, following the EU referendum result, further highlight skills shortage issues.

Retention of employees is becoming a higher priority for employers as the workforce becomes more highly trained and skilled. For example, the EEF found that approximately half of companies surveyed offer training plans and opportunities to work across other areas of the business to increase retention.

The broader international labour market shows an underlying trend towards what is recognised as the

'hourglass economy'





20,000
annual shortfall of engineering graduates (conservative estimate)

Latest labour force projections contained in Working Futures 2014-2024 predict annual growth in total employment of 0.5% for the UK. Projections for the engineering sector developed by University of Warwick's Institute for Employment Research from a bespoke extension of Working Futures 2014-2024 forecasts there will be demand in engineering enterprises for 265,000 skilled entrants annually through to 2024, of which around 186,000 will be needed in engineering occupations, to meet both replacement and expansion demand.

The total size of employment for those with level 3[1] skills will shrink, although significant replacement demand of around 57,000 entrants per year at this level will remain. At level 4[2] and higher, the annual requirement for engineering occupations is expected to be just over 101,000 annually. The demand will be particularly acute in construction, but also strong across the science and engineering, ICT and manufacturing sectors, and especially in London and the South East of England, although there will be net demand in all UK nations and regions.

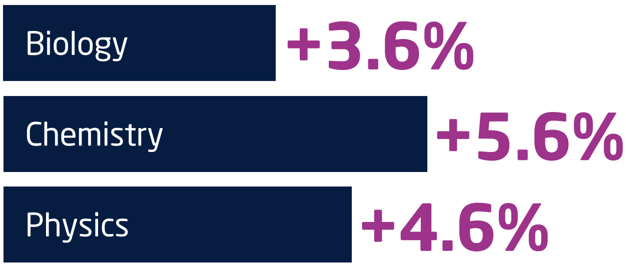
EngineeringUK's model for the supply of entrants into engineering roles with level 4+ skills, through higher education and higher-level apprenticeships, projects that there will be around 41,000 entrants of UK nationality annually. Our estimates of the supply from EU and other international graduates, based on our historic model, project the potential addition of up to a further 40,000 graduates, comprising a total of just over 81,000. This projection of supply assumes that similar numbers of international students will continue to study in the UK and continue to (be eligible to) work in engineering in the UK. Based on these estimates and assumptions, projected supply will fall short of demand by at least 20,000 per year.

Although the implications of the UK's intention to leave the EU have not been modelled, it seems likely that this will affect both sides of the supply/demand equation. In terms of supply, any tightening of immigration policy or reduction to the perceived attractiveness of studying and working in the UK, or eligibility to do so, are likely to have detrimental impacts on the supply of these key skills. If supply of entrants to engineering roles were from UK nationals only at level 4+ we would fall far further below the projected requirement. Work will take place over the next year to refine the current model of supply and we aim to provide an updated projection in the 2018 Report.

The supply of postgraduate-level skills in engineering and computing is currently highly dependent on international graduates studying in the UK, more so than any other major higher education discipline, and this represents a particular vulnerability.

1 For the purposes of this synopsis, we use the term level 3 to indicate academic and vocational qualifications or courses typically taken during upper secondary education (post 16) across England, Northern Ireland, Scotland and Wales. This includes but is not limited to A levels, Advanced Apprenticeships and equates to the same level in the Scottish Credit and Qualifications Framework containing Highers.
2 For the purposes of this synopsis, we use the term level 4+ as shorthand to include those academic and vocational qualifications that are typically taken after secondary education across England, Northern Ireland, Scotland and Wales and recognise progression into and through specialist, professional and higher education. This includes but is not limited to Higher National Certificates, Higher Apprenticeships, higher national diplomas, degree apprenticeships, degrees at all levels

Increase in GSCE entries 2015-2016



Educational context

Demographic trends

The UK population is set to grow from its current 66 million by around 3% in the next five years and by 11% in the next twenty, potentially reaching 73 million by 2037. Population growth has recently been, and is expected to continue to be, focused in London and South East England, with weaker growth in northern England, Wales and Scotland. Within the working population, 11% are not of UK nationality, and in the year to 2015, the non-UK workforce grew by 7.5% (compared with 1.5% growth in the UK workforce). This is largely attributable to immigration from European Union countries.

The number of secondary school-aged children in the UK is now rising and will continue to do so by around 10% over the next five years. This provides an expanding school cohort who can be encouraged to study the subjects that could enable them to pursue engineering careers. Similarly we are reaching the end of a period of decline in the number of young people aged 16-18; this will bottom out in 2018 and then begin to rise quite quickly.

Secondary level education

The number of schools is rising in response to these shifts in population, with some 3.8 million children currently educated in state-maintained secondary schools. While there has been a rise in the number of primary school teachers, this is not the case in the secondary sector.

The secondary education landscape continues to be complex, with policy-driven changes to structures (especially in England) and qualifications (across the UK nations). Generally, educational outcomes are improving overall, although the picture in terms of this supporting social mobility is very mixed: young people in London and its commuter belt are more likely to obtain good educational outcomes and have better career opportunities than those in the rest of the UK.

Following a period of decline during which the number of 16 year-olds was also falling, there has been a recent upturn in entries to individual science (physics, chemistry, biology) GCSE examinations. While entrants to design & technology and ICT are falling fast, there has been a rise in the numbers studying computing at GCSE level.

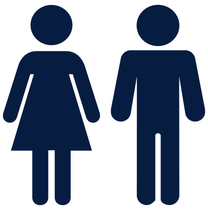
The overall GCSE pass rate fell back by 2 percentage points in 2016, thought to be partly due to recent changes in the English educational system relating to school performance measurement. Pass rates in single science subjects continue to be much higher (over 90%), than in combined science examinations (57%), reflecting the different types of schools and pupils taking these subjects. In 2016, there were fewer than 145,000 entries for each of the single science subjects, less than half the number for combined science (408,000 entries).

There have been rises in the number of entries to science and mathematics at A-level, and proportionally greater rises in computing and further mathematics albeit from smaller numbers. The rate of increase is slightly greater amongst females than males, but female students remain in the minority in computing (9.8% of entries), physics (21.6%) and further mathematics (27.5%) especially. There has been a slight dip in the numbers passing A-levels in science subjects but this is mostly due to a decreasing cohort size.

Results trends in Wales and Northern Ireland are broadly similar to those in England, while in Scotland trends will become clearer once the new Scottish National 5, Higher and Advanced Higher qualifications are fully bedded in.

The number of BTEC and similar vocational qualifications taken in addition to or instead of A-levels has risen fast in recent years, and has powered much of the increase in university entry by those from less advantaged backgrounds. The number of young people studying engineering and ICT (at level 3) have risen to the point where they are now similar to the number taking A-levels such as physics or computing.

While the number of GCSE entrants in sciences has grown over the last five years, the number of teachers teaching them has shrunk. A growing proportion of those teaching science subjects either have a degree in the subject or have had specific training in teaching the discipline. However secondary-level teacher shortages continue across the four nations, especially in physics, further mathematics and computing with these shortages felt most strongly in schools teaching combined sciences. Teaching computing as a subject has been recognised as a particular problem and the government is proposing to add it to the ‘shortage occupation list’ along with mathematics, chemistry and physics teachers, enabling easier immigration of such professionals to the UK



108,000

engineering apprenticeship starts (England) in 2014/15, the highest for ten years

Apprenticeships and Further Education

The current emphasis of education and skills policy is on apprenticeships rather than further education (FE), resulting in a sense of the FE sector being at something of a crossroads. The government is currently looking at 'technical education' and is working to restructure and simplify what has become overly complex in terms of its competing qualifications frameworks and pathways.

Meanwhile the number of vocational qualifications obtained in FE colleges is falling, reflected in a fall in the total number of colleges following mergers and closures. In spite of this, the number of engineering-related vocational qualifications obtained is actually rising, especially at the higher levels that are desirable in pathways towards a higher skilled technical labour force.

The government has loudly stated ambitions for growth in apprenticeship numbers, seeking three million starts during this parliament. Closer examination shows that there was a 15% growth in total starts in England in the year to 2014/15, with 108,000 in engineering sectors, the highest for ten years. Engineering-related apprenticeships are most prevalent in the North West, West Midlands and South East England, but not in London.

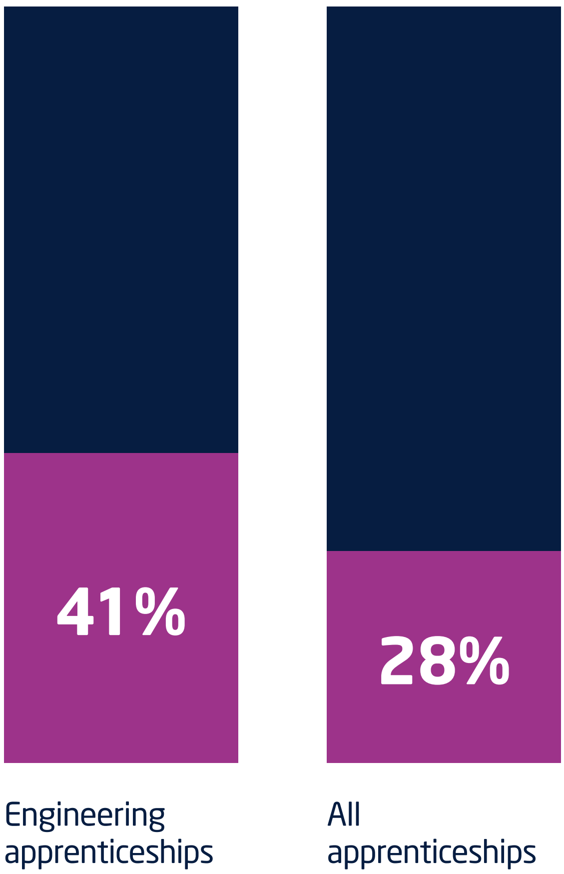
In 2014/15, 58,000 such apprenticeships were achieved in England, 42% of them at Level 3 or above. There was growth too in Scotland and Wales, but in Northern Ireland changes to funding entitlements for older workers have reduced the total numbers. Growth in engineering-related frameworks and ICT is proportionally strongest in Higher Apprenticeships, and the profile is shifting towards higher levels, more than is the case for many other sectors where Level 2 numbers continue to dominate. The age of starters is also decreasing for engineering, with 41% of starters aged under 19, in contrast to the overall apprenticeship picture where around half are over 25 years of age. On the other hand very few (7%) engineering-related apprentices are female, and in some frameworks only 3%.

A quarter of a million workplaces now offer apprenticeships, a rise of nearly 5% in a year and 50% over five years. 4 out of 5 manufacturing employers are reported to be planning to recruit manufacturing and engineering apprentices in the next year.

There are trends both for apprentice recruits to be younger and also for the balance of apprenticeship recruitment to be shifting towards higher levels, both of which are welcome trends, at which engineering is at the forefront. Productivity gains are highest from young apprentices.

Degree Apprenticeships are under a great deal of scrutiny and the first schemes have launched including in manufacturing and engineering sectors. As a means for a student to obtain a university degree without paying tuition fees and while earning a salary as an employee, they offer great promise as an alternative to traditional campus-based higher education. The introduction of the Apprenticeship Levy in 2017 may well catalyse the scale of their development, and engineering would do well to embrace them.

Apprenticeships starters aged under 19



5%

growth in applicants to HE engineering courses in 2015/16

3%

growth in applicants to all HE course areas in 2015/16

Higher education

UK higher education (HE) has been booming in recent years with strong growth in first degree and postgraduate education, although this is counterbalanced by reduced numbers on some other undergraduate programmes and part-time study. Record levels of young people are entering HE for full-time study in England and Wales especially, but the number of people studying part-time has fallen sharply in recent years, reducing the extent to which this route is upskilling employed adults.

Trends showed nearly 5% growth in the number of applicants to engineering courses over the past year, greater than the 2.7% experienced across all subjects, with gains in all its sub-disciplines except electrical and electronic. Growth was marginally stronger amongst female applicants, although they remain the minority across engineering, albeit with higher proportions (over 25%) in general engineering and the growing area of chemical, process and energy engineering.

The majority (71%) of those entering a first degree in engineering and technology in 2014/15 were of UK origin, 6% from other EU countries and 23% from other nations. The proportions of international students within engineering and computer science are higher than for other STEM subjects. UK students with an ethnic minority origin are slightly over-represented in engineering, but females strongly under-represented at around 15% on average. Participation in other forms of undergraduate study such as HND and HNC programmes are falling, in parallel with the decrease in part-time HE participation.

At postgraduate level the picture is quite different, with only 25% of taught postgraduates in engineering being of UK origin, 15% from EU nations and 60% outside the EU. For some engineering sub-disciplines the proportion of international (non UK/EU) students has hit 80%. A quarter of all taught postgraduate students are female, reflecting a relatively greater tendency for female engineering graduates to pursue postgraduate study rather than enter engineering employment following their first degree.

In total, 9% more first degrees in engineering and technology were obtained in 2014/15 than the previous year. The strongest growth was in mechanical and aerospace engineering, while the numbers obtaining civil and also electrical and electronic engineering first degrees fell back. At Masters level, there was 15% growth, with three-quarters of standalone M-level engineering degrees obtained by non-UK graduates, and 86% of those in electrical and electronic engineering. Around 3000 doctorates were obtained, the majority (60%) by international students.

The strongly international composition of HE study in engineering (and computer science) stands out from other subjects, and poses some vulnerability both to any changes in future immigration policy with regard to international study or eligibility for post-study employment, and to perceptions of the UK by prospective international students. Postgraduate provision would in many cases not be viable without the participation of international students, who in turn become a high proportion of the HE research and teaching workforce in these strategically important subjects.

The decrease in part-time study is concerning as a potential route to upskill existing employees or those not in a position to undertake full-time degree study. Degree Apprenticeships represent an opportunity to offset this. Maintaining and ideally increasing the flow of graduates in engineering from HE is critical to the future skills supply pipeline for the sector. To do so seems likely to require continuation of the current participation of international students as well as increasing the UK student cohort. Better diversity of that cohort, in terms of gender but also a wider range of modes of study (including part-time models) would be of benefit.

68%
of UK first degree engineering graduates are in full-time work six months after graduation (2014/15)

84%
Three years after graduation, 84% are in full-time work and only 2% unemployed (2013/14)

Transition to employment

Graduate outcomes

Graduate employment rates rose post-recession and graduates as a whole have continued to enjoy higher employment rates and earnings than those without a degree, despite the strong expansion in graduate numbers.

A higher proportion of UK first degree engineering and technology graduates (68%) are in full-time employment six months after graduation than of graduates overall (58%), although fewer enter part-time work or postgraduate study. This proportion has risen over the last five years, tracking the improvement in the economy, post-recession. Three years after graduation, 84% are in full-time work and only 2% unemployed. Outcomes for those studying taught postgraduate engineering courses are more positive still, with three quarters in full-time employment soon after graduation.

Amongst UK engineering graduates who studied a first degree full-time, the proportions of men and women who enter full-time work six months after graduation are similar. A higher proportion of females enter postgraduate study than males.

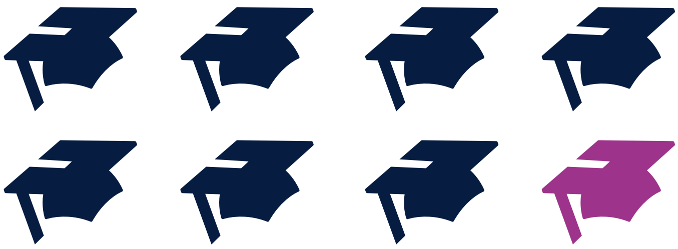
There is a larger variance with ethnicity in the employment outcomes of engineering graduates than amongst graduates overall. 71% of white engineering graduates are in full-time work within six months of graduation but only 51% of their counterparts of ethnic minority origin (compared to 59% and 53% for graduates from all subjects). Unemployment is also more than twice as high amongst the latter.

Of those UK and EU engineering graduates who enter employment after graduating from a UK full-time first degree, over 70% work in an engineering occupation; the proportion amongst those who study part-time is significantly higher still. The proportion of engineering graduates entering sectors such as financial services or management consultancy is tiny in comparison with the proportions entering work in engineering in occupations such as mechanical, civil or design engineers.

Graduates of other subjects also contribute significantly to the engineering workforce; roughly 1 in 8 of all employed first-degree graduates works in an engineering occupation six months after graduation – around 8,000 engineering graduates and 17,000 others.

Strategies to increase the employability of graduates are now embedded across HE providers, but there are some concerns (reported in the Wakeham review and elsewhere) that although STEM graduates are in high demand, not all have a sufficiently rounded set of both technical and transferable skills, at the right levels, to satisfy the demands of current employers. Work experience has become an essential asset for graduates.

Graduates of other subjects



1 in 8
of all employed first-degree graduates work in an engineering occupation six months after graduation.

Graduates

£26,000

£22,000

Engineering All

Professionals

£45,000

£34,000

Engineering All

Earnings

Engineering graduate starting salaries are well above the all-subject average (£22,000) at just over £26,000 in 2014/15, and nearly £27,000 for those entering an engineering occupation. Postgraduate study adds a further premium.

Across all engineering disciplines, there is no gender pay gap in the mean starting salaries earned by graduates, although it does emerge in some sub-disciplines, and there is evidence for a small ethnicity pay gap for engineering graduates. There are also significant variances based on the type of university attended, more so for engineering than other subjects.

The mean salary, in 2015, for all those in full-time STEM occupation employment was £33,689, only 0.5% higher than the previous year, but the more representative median (£27,645) was up 1.6%. Amongst these occupations, mean earnings for some mainstream engineering roles look strong and are enjoying bigger rises – such as civil engineers at over £42,500 (up 5%) and mechanical engineers (over £45,000, up 3.6%) while electrical engineers had similar earnings but which declined last year. These are similar to, or higher than, the average for chartered and certified accountants.

At technician and skilled crafts levels, median salaries for many engineering-related roles are good and rising. Although they do not match earnings in the financial/business services sectors, many are considerably better than for some of the skilled roles in sectors such as the food and drink or textiles industries.

There are strong regional variations in earnings for those in engineering occupations, in line with overall trends. Those in London earn the most but mean engineering salaries are growing in all the home nations and English regions. However, these regional trends can be outweighed by more specific occupational variances regionally – in 2015, mean earnings for several engineering roles were higher outside London, reflecting local complexities of the labour market and in places key skills shortages.

2016

51%

Increasing rates of 11-16 year olds would consider a career in engineering

Increasing the flow

Perceptions of engineering as a career choice

Young people's perceptions of engineering have grown more positive in the last five years. The proportion of 11-16 year olds who would consider a career in engineering has risen from 40% in 2012 to 51% in 2016. This upward trend is somewhat more pronounced among those aged 11-14 than 15-16, and is rising faster still amongst those of sixth form age (17-19).

The picture amongst those who influence young people, educators, is also positive – the vast majority of teachers (96%) would recommend a career in engineering to their pupils, and three quarters of parents view engineering positively as a career. However, while parents are equally likely to recommend a vocational route into engineering as an academic one, pupils and teachers are more likely to favour academic routes into engineering.

A further concern is that teachers seem to have greater confidence in their pupils' knowledge of engineering than the pupils do themselves. In 2016 45% of STEM educators believed their pupils know what people in engineering do, but fewer than one third of young people claim to do so. Engineering is the area of work relating to STEM that they know the least about.

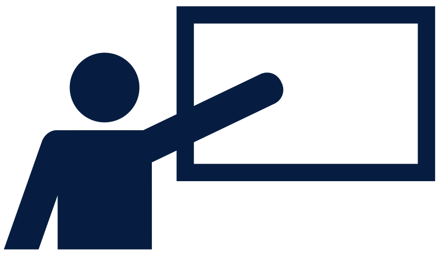
There is evidence that more positive attitudes towards STEM careers are having impact on subject choices in school; nonetheless, too few young people are deciding to continue to study the subjects that keep the doors open to engineering careers, limiting the number who ultimately will be able to enter highly-skilled engineering careers. Analysis of findings from large-scale studies suggests that higher priority should be given to addressing misconceptions about where STEM study can lead and highlighting its relevance to young people's current life and future direction. Interventions that focus too narrowly on improving enjoyment of STEM, it is suggested, often lack long-term impact on pupils' subject choices.

Effective careers education and interventions during school are vital to develop more informed careers thinking, and there is increasing agreement on how to deliver it well. Good careers support engages a wider variety of young people (including more from disadvantaged groups) to think more about their subject and career choices, not just those with the most social capital. However, careers advice and guidance in state schools remains patchy at best and highly under-resourced; indications are the majority of pupils currently do not have access to substantive careers guidance.

There is a necessary and growing focus on the quality and impact of interventions for young people, especially in schools. There are myriad offers and opportunities to schools of activities relating to STEM and related careers, which schools struggle to differentiate. STEM-related learning and communication activities need to be better co-ordinated and evaluated, so that schools can work out which are best to use and when and so that the activities achieve greater reach and long-term impact on young people.

Effective employer engagement

The shift away from professional careers support in schools in favour of employer engagement continues, based on the potential value of people from local business supporting career and employability development work in schools. There is emerging evidence (from the Education and Employers Taskforce) that effective interactions between young people and those in the world of work through structured employer engagement has an important role in helping young people make good decisions, and that participation in such activity (particularly in Key Stage 3) can have a discernible impact on their earnings in adult life. There is some divergence in the evidence of just how many employers are engaging with young people in education, through provision of school visits, careers talks and offers of work experience opportunities. However, the available data point towards growth in the proportion of engineering employers that are doing this.



96%

of teachers would recommend a career in engineering to their pupils

What's key

To maintain the economic and social contributions of engineering, we must address the shortfall of engineers

Recommendations

The EngineeringUK report establishes unequivocally the importance of engineering in terms of the contribution it makes to the UK in terms of economic activity and exports, providing large-scale employment, as well as societal impacts.

We also project that the current rate of supply of high-level skills will not satisfy the expected demand over the next ten years. In order that such a shortfall does not damage engineering's ability to contribute in these important ways in future, we identify the following five areas:

1 **Increasing the supply pipeline (of engineers) from education**

2 **Increasing diversity**

3 **Increasing the supply of skills through the workforce**

4 **Maintaining the international dimension**

5 **Industrial strategy**

1. Encourage many more pupils to choose STEM subjects and make well-informed choices that maintain the option of a career in engineering and technology
2. Increase diversity in engineering and technology, through the entire education system and into and throughout employment
3. Draw on the talent already in the workforce: increase the skills, and improve the retention, of existing engineering employees – and attract employees from other sectors
4. Enhance the vital international dimension in UK Higher Education: world-class, welcoming and open for study – and subsequent employment
5. Develop an industrial strategy that reinforces and sustains engineering's contributions to the UK, and that recognises and helps to address the STEM skills gap

Engineering

For practical purposes, including for this report, we define engineering as a broad sector through a selection of industries and/or as a range of job types through a selection of occupations. These are selected from the ONS Standard Occupational Classification 2010 (jobs) and the Standard Industrial Classification 2007 (companies). Together these selections form EngineeringUK's 'Engineering footprint' – the occupational and industrial codes included are listed in the Annex to the report. While the selection is EngineeringUK's own it has been done in consultation with the Engineering Council and the Royal Academy of Engineering; it takes a relatively broad definition of engineering, particularly in terms of industries. At its core are engineering jobs that are in engineering companies ("SIC X SOC"), but the footprint also includes engineering jobs that are in non-engineering companies and non-engineering jobs that are in engineering companies.