

Taking a snapshot of the salary scene

The Engineer's 2016 Salary Survey asked engineers from across the different sectors of UK industry about their role and earnings

The past 12 months have been dominated by headlines about the impact of the economic slowdown in China, particularly on traditional sectors such as the steel industry, the drop in oil prices, and uncertainty over the UK's future in Europe. But how has the weak international trade market and domestic uncertainty affected

life for the UK's engineers? Have earnings in engineering suffered as a result, or has there been an overall rise in salaries despite the difficulties in some sectors?

In our 2016 Salary Survey we have once again asked engineers from across the different sectors of UK industry to tell us about themselves, including their earnings, what they do, and where they work.

With 3,698 engineers from across the UK and from 18 sectors of industry taking part, this year's survey has provided us with an illuminating picture of life in engineering today, from levels of job satisfaction and how pay and benefits in some sectors differ to others, to the number of women in the profession and how

"The energy sector remains the place to be if you are looking for the highest salaries"

their earnings compare to those of their male colleagues.

What's more, by comparing these results with those from our 2015 survey, we can see whether and in what way things have changed for engineers over the past year.

The average salary for engineers across all sectors in 2016 is £45,367, a marginal increase on last year's figure of £45,055. Like last year, this compares well with average salaries across other professions in the UK, sitting slightly below the £50,606 and £48,590 earned by qualified accountants and those in banking, respectively, but above the £44,818 earned by professionals in the financial services industry.

Despite well-publicised difficulties in the industry caused by declining oil prices, the energy sector remains the place to be if you are looking for the highest salaries in engineering. The average salary in the oil and gas sector remains at the top of the table for the second year, at £51,370. This,

£51.3k–£38k

average salary by sector



Keith Lewis managing director, Matchtech



The Engineer Salary Survey 2016 provides valuable insight to the views of the engineering community today. Not only do the responses provide clear indications about job satisfaction, salary expectations and job opportunities across different sectors, but an analysis of the demographics of the people who completed the survey can also unveil an image of the current state of the industry.

In relation to job satisfaction, around half of the engineers surveyed would describe themselves as happy in their jobs and fortunately over 80 per cent expect to remain in the industry for the next five years. Interestingly, salaries did not seem to play a part in levels of job satisfaction, at least not in the way you would expect, with some of the lowest-earning sector engineers actually reporting the highest levels of happiness – 56 per cent of engineers in academia, for example, are satisfied in their jobs despite having the lowest average salary of engineers across 18 sectors. Professionals in the rail, civil and construction industries are also largely satisfied (55.4 per cent) and feel valued in their job compared to professionals in other sectors. Discouragingly, despite ranking highly in the feeling-valued stakes, the number of rail, civil and construction engineers who feel this way is less than half (47.6 per cent).

Levels of job satisfaction also differ by region, with engineers in the south of England the most satisfied compared to those in Scotland, Wales and Northern Ireland, who were less likely to say they were happy in their role. This may well be related to the opportunities, or

lack of opportunities, currently available in these regions with London and the South East boasting large-scale rail and infrastructure projects while Scotland's previously prominent oil and gas jobs market has been in decline. And it is limited opportunity that is one of the main reasons why some engineers are considering changing roles.

From these findings, it is clear that job satisfaction is not only about salary, but about having valuable career prospects, a manageable workload and feeling valued in your job.

Another theme from the survey that cannot be ignored is diversity in engineering. Out of the 3,698 respondents, 6.5 per cent were female. While this figure was up by 1 per cent from last year's survey, the low number reflects how much work still needs to be done to encourage women into engineering. Not only would this enhance the diversity of the engineering workforce and help decrease the skills gap but it could also have significant economic benefits, according to the Confederation of British Industry, which estimates that women could bring in an extra £2bn to the UK economy if they participated more fully in STEM employment.

The survey also highlighted the importance of retaining women in engineering – 10 per cent less female than male respondents said that they expected to stay in the industry for the next five years. With women earning an average of 10 per cent less than their male colleagues, the gender gap in salaries could well be another barrier in retaining women.

Aside from interesting findings about gender differences, the survey also provided insight to the average age of people working in engineering, with 40 per cent of the respondents stating they were aged 50 or above. This reflects an ageing workforce, who will leave a gap in knowledge and experience when they leave to retire over the next 10 to 15 years. Once more, the importance of securing a talent pipeline is highlighted.

I hope you enjoy reading the results of the Salary Survey – may the findings spur the industry on to inspire diversity, equal opportunities and encourage more action to address skills shortages across engineering.

however, is slightly down on the figure of £55,265 for the same sector last year, perhaps reflecting the continuing difficulties the industry is facing.

Likewise, the energy, renewables and nuclear industries remain in second place with earnings of £50,132, but this again is a decrease on last year's average salaries of £54,408 in energy and renewables and £52,471 in the nuclear sector.

Around a quarter of those surveyed work in the automotive and aerospace industries, and like 2015 most respondents (74.3 per cent) describe themselves as either senior engineers or managers. The largest percentage of engineers, 29.8 per cent, work in the traditional manufacturing heartland of the Midlands and East Anglia. But

average salary by seniority



£45k

Average salary for engineers across all sectors

once again this was closely followed in second place by London and the South East, a region more often associated with sectors such as banking, on 21.4 per cent.

The overwhelming majority of engineers responding to our survey were white males, although the percentage of women has increased marginally year-on-year, up from 5.5 per cent in 2015 to 6.5 per cent in 2016.

The average age was virtually unchanged on 43.5, while almost half of those questioned had worked in engineering for between 20 to 40 years. Engineers remain largely content in their chosen career, with 83.8 per cent expecting to stay in the profession for the next five years – a similar figure to 2015.

Over the following pages we have looked in more detail at the findings of the survey, and considered what they tell us about engineering in 2016.

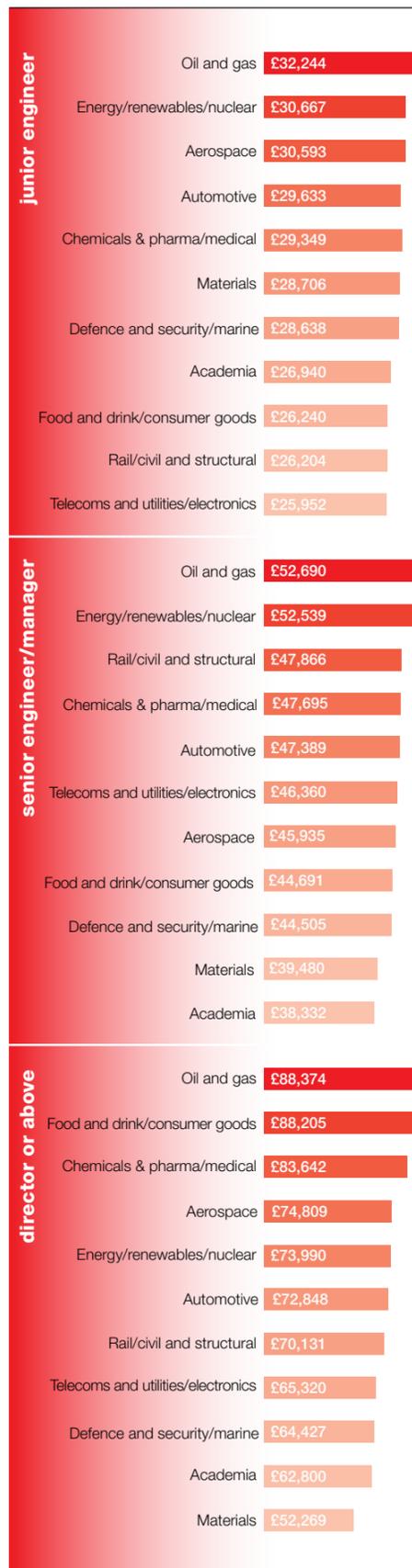
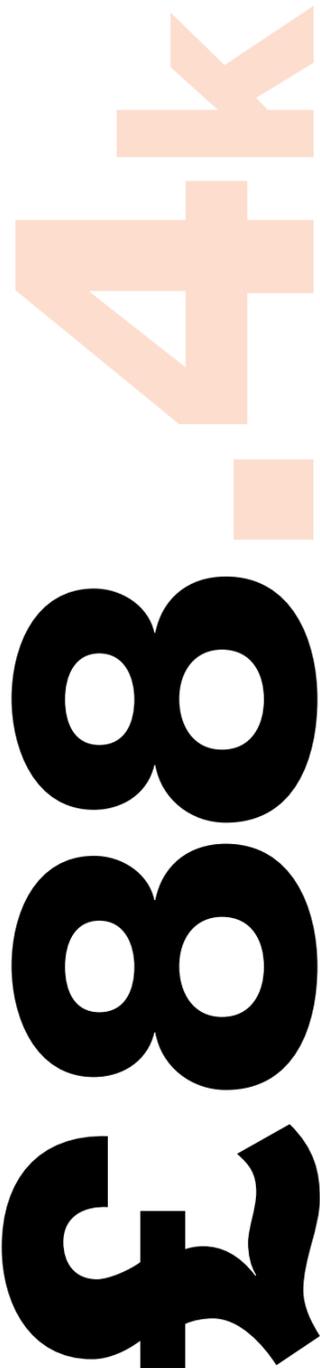
Click here to make use of our specially developed online salary calculator, and see how your salary stacks up against those of your peers – <http://salarysurvey.theengineer.co.uk>

£46k

Average salary for managers/senior engineers across all sectors

average salary by industry

The average salary of directors or above working in the oil and gas sector



1. seniority

Just as in 2015, the seniority of those responding to our Salary Survey broadly reflects that of the readership of *The Engineer*, with the overwhelming majority describing themselves as senior engineers or above.

Of those surveyed, 42.8 per cent described themselves as senior engineers, while 31.5 per cent said they were managers, and 6.2 per cent directors.

At the other end of the seniority scale, 14 per cent of respondents described themselves as junior engineers, and just 3.6 per cent as graduate trainees or apprentices.

Worryingly, average salaries for junior engineers across the entire industry appear to have declined significantly, from £32,233 in 2015 to £28,771, this year. Salaries for senior engineers and managers have also declined, although to a lesser extent, dropping from £47,238 in 2015 to £46,428.

In contrast, directors have seen their average salary increase, from £68,672 in 2015 up to £71,573 in 2016.

There also remains a considerable pay gap between those working in different sectors of engineering. A director in the materials industry, for example, can expect to earn £52,269 per year on average, which is around £30,000 less than those in the oil and gas industry.

The oil and gas industry continues to offer the best salaries across all levels of seniority. A senior engineer or manager working in the sector earns an average of £52,690, closely followed by those in the energy, renewables and nuclear industry, who earn around £52,539 per year. Senior engineers and managers in academia, however, can expect to earn almost £15,000 less.

Likewise junior engineers in the oil and gas, energy, renewables and nuclear, and aerospace industries can all command salaries of over £30,000 per year, while those in the telecoms, utilities and electronics sectors earn around £25,952.

The average age of engineers across all sectors was 43.5, six months younger than in 2015. However, like last year, more engineers can be found in the 50-54 age band than any other (15.5 per cent). Indeed, almost 40 per cent of engineers responding to the survey were 50 or above.

In contrast, just 14.2 per cent of engineers surveyed were under 30, up slightly from 12 per cent in 2015, but still well under half of the percentage who are in their 50s.

Such a large number of skilled engineers leaving the industry within a decade is likely to have a huge impact, unless more can be done to encourage young people into the profession.

2. regions

While many outside the profession still believe that engineering is something that only happens in the Midlands and the north of England, our survey once again shows this not to be the case.

Respondents told us they are based in locations throughout the UK's regions and beyond. And although more engineers could be found in the Midlands and East Anglia than any other region (29.8 per cent), like 2015, this was followed in second place by London and the South East (21.4 per cent).

Overall, engineers working outside the UK were paid the highest salaries among the regions, with an average of £49,979. This was closely followed by those in London and the South East, on £48,000. Both these were substantially

where are the UK's engineers?

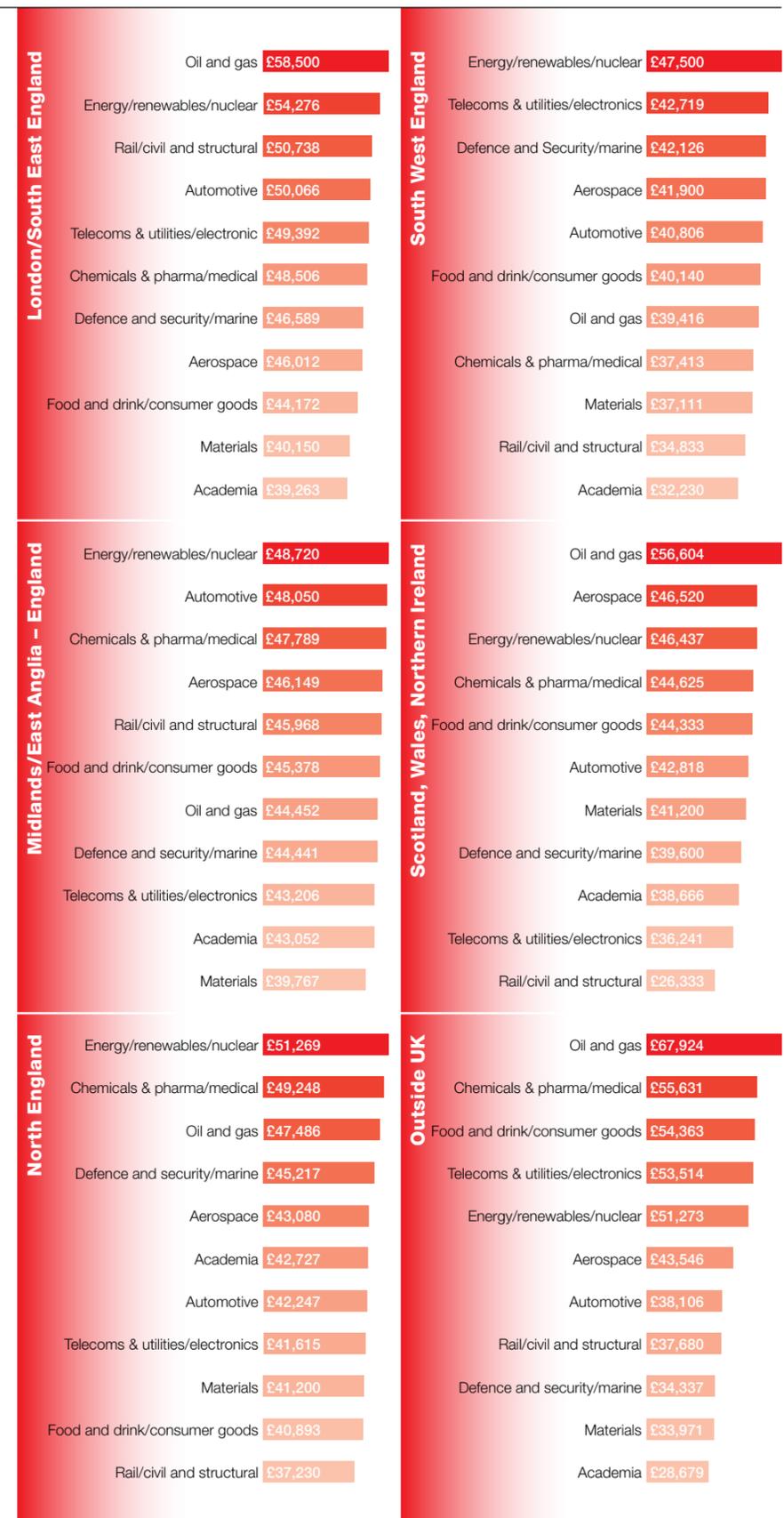
| | |
|-------|-----------------------------------|
| 29.8% | Midlands and East Anglia |
| 21.4% | London and South East |
| 18.8% | North |
| 13.8% | South West |
| 8.7% | Scotland, Wales, Northern Ireland |
| 7.5% | Outside UK |

higher than salaries in the South West, the region with the lowest rates of pay overall, with an average of £40,827.

Once again, the oil and gas sector offers the best rates of pay for engineers working outside the UK, who can command an average of £67,924. Leaving the UK has also proved lucrative for engineers in the telecoms, utilities and electronics industries, who receive an average of £53,514 for working overseas, almost £3,000 more than engineers working in the second-highest-paid region in the same sector, London and the South East.

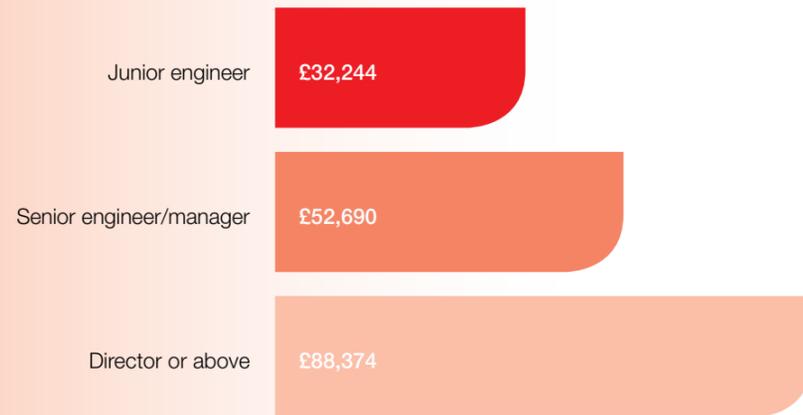
But unfortunately for engineers based overseas in the automotive and defence, security and marine sectors, salaries are around £10,000 lower than their highest-paid UK-based colleagues.

Engineers in the north of England are least likely to believe they are fairly remunerated (31.4 per cent), closely followed by those in the South West (31.7 per cent). Happiest with their pay though are engineers working outside the UK, with 34.9 per cent describing themselves as appropriately remunerated. Engineers in the Midlands and East Anglia were most likely to say they would be staying in the industry for the next five years (85.9 per cent). >>



3. oil & gas

average salary by seniority



£52.6k

The average salary of senior engineers working in the oil and gas sectors

average salary by region



The UK's oil and gas sector has had a torrid time over the past 12 months, with continued low oil prices putting a strain on investment and jobs.

According to the most recent figures from the industry's trade body Oil and Gas UK, by the end of this year, jobs in the sector will have fallen by an estimated 120,000 since their peak in 2014, when oil prices were double what they are currently.

But despite this challenging picture, the sector performed well in this year's survey, and, as in 2015, boasted the highest average salary (£51,370) of any sector covered by the report. Indeed, the sector boasts the highest average salaries for all levels of seniority, with junior engineers in the sector earning on average £2,000 more than their peers in the other areas of the energy industry, which were the next-best performing sectors in terms of remuneration.

Engineers working in this sector accounted for 7.2 per cent of total respondents, and, as with last year's results, were spread reasonably evenly throughout the UK with the biggest single grouping found in the north of England (28.6 per cent) followed by the Midlands and East Anglia (20.8 per cent).

The highest average salaries in the sector are found outside the UK, where respondents earn, on average, £67,924. This represents a significant increase on 2015's figures (£59,457) and is based on a similar sample size. Overseas respondents accounted for 11.4 per cent of the overall sample group. Back in the UK, the highest salaries are to be found in London and the South East (58,500) closely followed by Scotland, Wales and NI (£56,604).

Satisfaction levels are correspondingly high with the sector topping the table in terms of salary contentment (40.3 per cent) and general job satisfaction (55.2 per cent). This is perhaps a reflection of the fact that those working in the sector enjoy better-than-average benefits packages: with almost half receiving a bonus and private medical insurance.

Despite this, engineers in the sector are also among the most likely to be moving on, with 18.1 per cent considering leaving engineering altogether, and 77.4 per cent considering a move to another sector of industry. As with many other sectors there have been numerous efforts to boost diversity of the workforce. But the survey results suggest there has been no improvement in this area. Indeed, with women accounting for just 4.7 per cent of respondents, and only 7.7 per cent describing themselves as Black, Asian, or minority ethnic (BAME), there has, in fact, been a decline on last year's figures.

4. energy/renewables/ nuclear

average salary by seniority



£52.5k

The average salary of senior engineers working in the energy/renewables/nuclear sectors

average salary by region



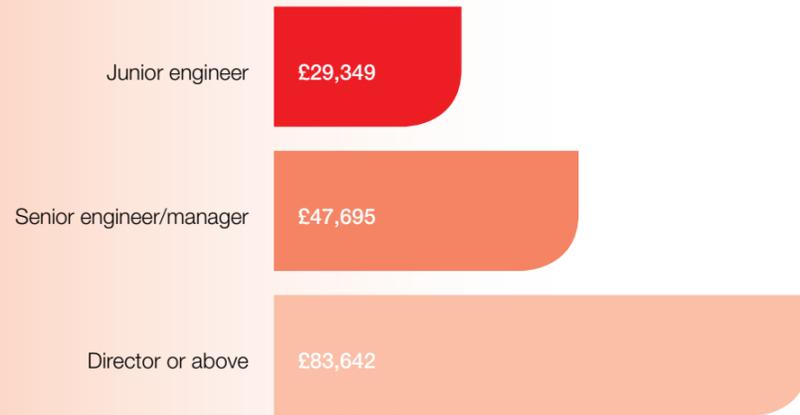
In a near-constant state of flux for the past decade, the energy, renewables and nuclear sectors are seeing changes almost unprecedented in the engineering industry. Barely existing as recently as 15 years ago, the renewables sector is handling a huge increase in installed capacity in the challenging offshore environment, while also developing and testing entirely new technologies and refining existing ones for greater output, while the conventional, fossil-fuel-powered electricity generation sector is still adjusting to the changes forced upon it by environmental concerns. The nuclear sector, meanwhile, is engaged with maintaining Britain's existing reactor fleet and awaiting a final decision on the building of new reactors, with the first projects likely to be in Somerset and Cumbria.

This is a well-paid sector, second only to oil and gas with an average salary of £50,132. This figure is, however, 8 per cent lower than last year's, although we have to give the usual provisos of a small and self-selected sample. Engineers in these sectors made up 7 per cent of our total sample, and of these, 58.3 per cent were in the energy sector, 32.1 in nuclear and 10 per cent in renewables. The gender balance is slightly more even than the general picture, with just under 10 per cent of respondents female. Ethnic diversity is low, with only 7.8 per cent of respondents identifying as non-white.

The highest salaries for these sectors is in the South East, where the average salary is £54,276. The lowest salaries are in Scotland, with £46,437; ominously for the planned new build at Hinkley Point, salaries in the South West are only just above this level.

Seniority is particularly valuable in these sectors, it seems. At director level and above, engineers earn almost £74,000 per year, compared with £30,667 as junior engineers or graduates. The average age of respondents in these sectors was at the younger end of the scale, at 42.7, but levels of contentment with salaries were also low, at 39.6 per cent. Less than half – 47.8 per cent – were happy in their current job, and the second-lowest proportion of any sector, 33.5 per cent, felt valued in their role. Slightly over three-quarters would consider moving to a different engineering discipline, with defence and aerospace the most popular non-energy destination considered.

average salary by seniority



£47.6k

The average salary of senior engineers working in the chemicals and pharmaceuticals sector

average salary by region



5. chemical/ pharma/ medical

Perhaps more than any other, the chemical/pharmaceutical/medical sector are the ones most likely to be impacted by the referendum result, with their heavy reliance on research funding and international collaboration. An average salary of £47,500 makes engineers here the third-highest-paid overall, coming in just behind their peers working in the various strands of the energy industry.

Respondents from chemical/pharmaceutical/medical made up 8 per cent of the overall sample group, but only one in 25 of these were women, making it the second-most male-dominated sector behind aerospace.

Salaries for women are on average almost £9,500 below those of their male counterparts, but, as with the overall pay gap in engineering, this can in large part be attributed to differences in seniority across the gender divide. The sector is also one of the least ethnically diverse, as less than 2 per cent of respondents identified as non-white.

Salaries on the whole have increased, with 70 per cent reporting pay rises over the past 12 months, and just 3 per cent taking a pay cut. Nine out of 10 engineers in the sector received a bonus in the past year, the average payout being around 11 per cent of base salary.

London and the South East is where the highest number of engineers are based, with almost 30 per cent of respondents working there. The north of England was the next biggest employer with 25 per cent, while the Midlands/East Anglia is home to 20 per cent.

Just under half (49.8 per cent) said they were happy in their job, but only 36.6 per cent are happy with their salary. Apart from academia (79.3 per cent), chem/pharma/medical has the next lowest proportion of engineers (80.1 per cent) who see themselves staying in their industry over the next five years.

6. automotive

The automotive sector remains one of the UK's biggest, yet least appreciated, success stories. While a single factory – Nissan in Sunderland – produces more than every car plant in Italy combined, the image of a sector ruined by the poor management and industrial strife in the 1970s and 1980s is proving very hard to shift. Particularly innovative at the niche vehicle end of the market, manufacturers producing small volumes of high-value vehicles, such as McLaren and Aston Martin, are proving that British manufacturing and management can match the best that the rest of the world has to offer, while UK universities are collaborating with global volume producers to develop the advanced hybrid systems that will form the drive trains of the future; led by the world-leading motorsport sector.

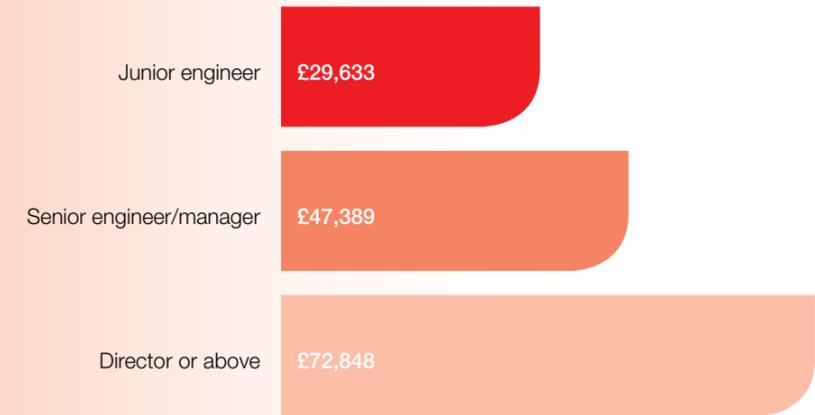
Automotive also provided the largest response of any sector, with 494 respondents, 13 per cent of the total. The average salary of £45,879 was near the overall engineering industry average, although it was also down 6 per cent on last year's average. It will not surprise anyone who has visited an automotive company that the sector is male-dominated, with only 4.5 per cent female employees, behind the general trend.

Slightly more than half of employees – 51.2 per cent – said that they were happy in their job, although almost the same proportion said that they were actively looking to change employers. This might be related to a relatively low proportion who were happy with their salary – 32.4 per cent – while 39.3 per cent said they felt valued. Three-quarters said that their primary reason for finding a new job was to get a higher salary.

This is another industry well-represented in the Midlands, with the largest group of respondents, 45.6 per cent based there, and 16 per cent in London and the South East and 1 per cent in the north. The Southeasters command the highest average salaries, on £50,067, but the Midlands are not far behind on £48,050.

Salaries in the sector rise steeply with seniority. Junior engineers and graduates are on a relatively modest £29,633, but senior engineers and managers receive £47,389 and directors £72,848.

average salary by seniority



£72.8k

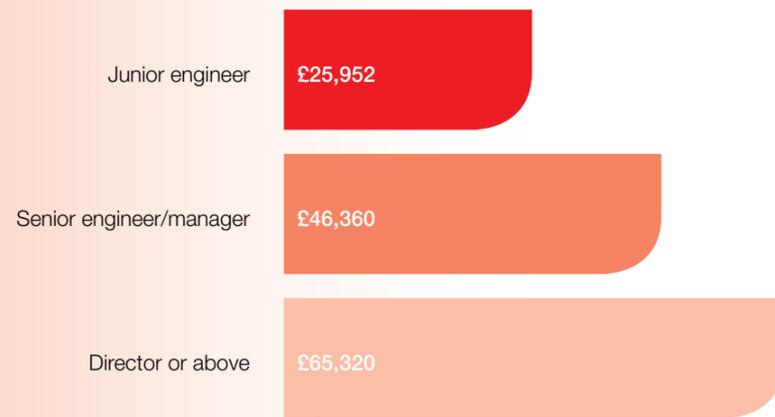
The average salary of directors or above working in the automotive sector

average salary by region



7. telecoms and utilities/ electronics

average salary by seniority



£46.3k The average salary of senior engineers working in the telecoms utilities and electronics sectors

average salary by region



Just as in 2015, exactly 8.4 per cent of respondents this year come from the telecoms/utility/electronics sectors. That 8.4 per cent won't be too happy to see that the average salary across the sector has fallen though, from £46,500 last year, to £44,900 in 2016, putting its engineers just below the overall industry average (£45,000). Despite this, just 4 per cent of our respondents reported that they had taken a pay cut in the past 12 months.

Once again, London and the South East is the top region for employment, with 29 per cent of the sector's engineers working in and around the capital. The South West and the Midlands/East Anglia each account for just under 20 per cent of UK jobs.

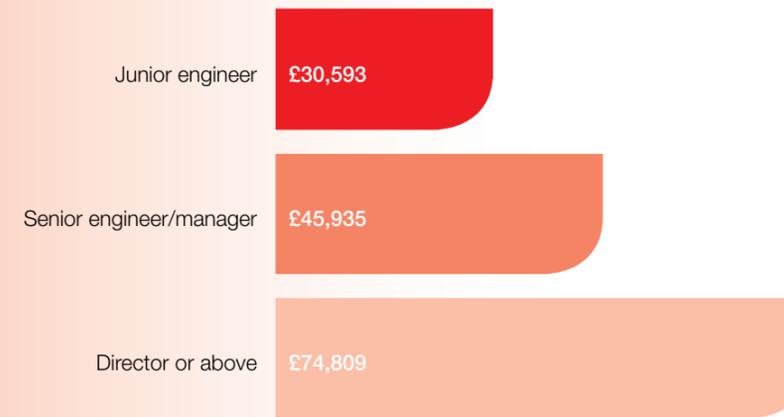
With an average age of 44.6, the sector has the one of the oldest profiles across industry, second only to academia's 44.8. Unlike their academic colleagues however, the majority of engineers working in telecoms/utility/electronics have taken home a bonus in the past year, 93 per cent receiving a top-up on their base salary.

When it comes to job satisfaction, exactly half say they are happy with their current job, and 83 per cent see themselves still working within the industry in five years' time. However, almost three-quarters of those surveyed said they would consider switching to another engineering sector. Aerospace and automotive are the biggest draws for those contemplating a change, with renewables close behind. Almost half (48 per cent) said they would consider a position overseas.

Just under 95 per cent of our respondents in the sector were male, which correlates closely to the figures from last year's survey. People who identified as white made up 91 per cent of the pool, with only 6 per cent of engineers coming from black, Asian, or mixed-race backgrounds.

8. aerospace

average salary by seniority



£45.9k The average salary of senior engineers working in the aerospace sector

average salary by region



According to trade body ADS, Britain's aerospace industry has grown 39 per cent since 2010 with 128,000 direct employees helping the sector turn over £31bn.

Those entering the aerospace sector as a junior engineer can expect to earn the third-highest average salary (£30,593) behind their peers in oil and gas (£32,244) and energy/renewables/nuclear (30,667).

However, compared to The Engineer's 2015 Salary Survey, the average remuneration for junior engineers has risen only marginally (£30,381 in 2015) and the situation hasn't improved a great deal for those at senior engineer/manager level with 2016's results showing an average salary of £45,935, compared with £45,047 the previous year.

A startling discrepancy can be found at director level or above, where at £74,809, those filling such roles are earning £3,612 less than last year's average, although similar drops in salary have been experienced at director level across five of our professional categories, notably in energy/renewables/nuclear.

Engineers working in the aerospace sector make up 11 per cent of respondents and a quarter said they did not receive a pay rise in the last 12 months compared to 27 per cent in automotive, the sector seen by aerospace engineers as one they'd consider moving into (62 per cent).

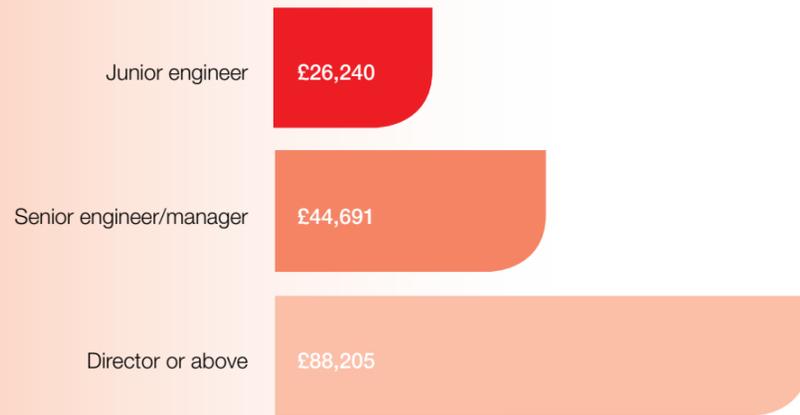
In fact, 82 per cent said they'd consider transferring to a different engineering sector, with salary (73 per cent) a motivating factor, followed by the desire to face new challenges.

The majority of aerospace engineers who took the survey (84 per cent) said they were either likely (24 per cent) or very likely (60 per cent) to remain in the engineering industry for at least the next five years, compared to 12 per cent who are looking to move outside of the engineering profession.

Across England's regions, 32 per cent of respondents from the sector are based in the Midlands or East Anglia, and receive an average salary of £46,150 (down £1,278 compared to 2015), a quarter are in South West England (£42,000, up £2,509), 12 per cent are in the north (£43,080, up £3,603), with the remainder in London and the South East (£46,012, down £1,278). Scotland, Northern Ireland and Wales are home to 6 per cent of aerospace engineers in our survey (£46,520, up £4,853) and another 6 per cent are based outside the UK (£43,547).

It may not come as a surprise to see aerospace dominated by men (97 per cent) who class themselves as 'White' (93 per cent), but a total of 30 per cent of those who responded indicated that this might be to the detriment of the sector.

average salary by seniority



£88.2k The average salary of directors or above working in the food & drink, and consumer sectors

average salary by region



**9. food & drink/
consumer goods**

Figures from UKTI show that the food and drink industry is Britain's largest manufacturing sector with 400,000 people employed by 7,000 companies.

Around 10,000 new products are introduced every year and the Food and Drink Federation predict the need for 45,000 new management and professional workers by 2017.

Despite the favourable headwinds, the key message to those starting out in the sector is to stick with it because – judging by this year's Salary Survey – remuneration will improve markedly with seniority.

At £26,240, the mean salary of the junior engineer in food and drink/consumer goods is down £3,969 on last year's average, and ranked just above rail/civil and structural, whose junior engineers command £26,204 at the start of their careers.

This year's survey has found that the overall average salary for engineers in the food and drink/consumer goods sectors is £44,196, with those classing themselves as senior engineers or managers enjoying an upturn of £1,804 compared to last year.

Things are markedly different at director level and above – or six per cent of respondents from these categories – where salaries have risen from £53,150 in 2015 to a staggering £88,205 this year.

A similarly buoyant uplift has been experienced in chemicals & pharmaceuticals/medical where engineers in comparable positions are bringing home on average £20,900 more than last year.

By way of comparison, engineers at a similar level of seniority in defence and security/maritime have seen their mean salaries plummet from £81,500 to £64,428.

However, the vast majority of engineers from food and drink/consumer goods classify themselves as senior engineers (44 per cent) and managers (34 per cent), and with modest year-on-year gains, it maybe comes as no surprise to see respondents from these sectors among the least likely to be happy in their jobs (44 per cent) and content with their salary (30 per cent).

Compared to 2015, the food and drink/consumer goods sectors have seen a 3.5 per cent upswing of female engineers and a fairly static number of engineers identifying themselves as being from black, Asian, or mixed/multiple ethnic groups.

**10. defence and
security/marine**

The defence sector represents the fourth-largest area of government expenditure and, with a budget of £34bn rumours of its demise have been somewhat exaggerated.

Companies looking to supply the domestic market also have thriving overseas territories to target and research from IHS shows that they've been doing just that with UK defence exports set to increase from \$3.9bn in 2015 to \$4.4bn this year.

Similarly, as an island nation our marine industries generate over £10bn in turnover, employs 90,000 people and contributes nearly £3.5bn GVA to GDP.

Despite the headline figures from industry, only 28 per cent of respondents from defence and security/marine – who make up 6.6 per cent of the survey – are happy with their salary, a figure broadly similar to that from 2015.

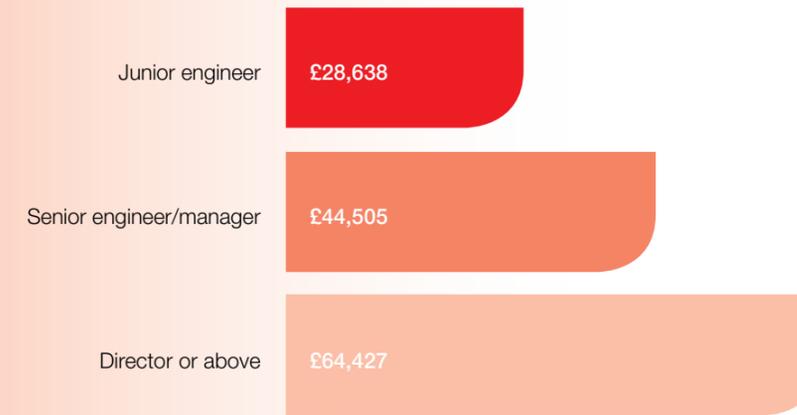
Year-on-year analysis shows that junior engineers' salaries have dropped from £32,570 in 2015 to £28,640, with senior engineers and managers taking a less severe cut from £45,390 last year to today's figure of £44,505. As in aerospace, the biggest difference in salaries can be found at the higher echelons, where director-level respondents have seen average salaries drop from £81,500 to £64,430.

Of the engineers from defence and security/marine, the greatest proportion is based in London and the South East and earn an average salary of £46,590 (up from £41,761 last year), followed by engineers based in South West England who are remunerated to the tune of £42,127, a £6,290 drop in average earnings. From the remaining regions in England, engineers in Midlands/East Anglia and north England saw increases to £44,441 and £45,217 respectively. In Scotland, Wales and Northern Ireland, salaries held steady at £39,600 and those working outside the UK saw their earnings cut in half to £34,337.

Overall, the average salary in defence and security/marine has fallen from £53,151 in 2015 to £43,699 and the downturn is reflected in sentiments regarding not being valued (34 per cent compared to 27 per cent in food & drink, and 28 per cent in rail/civil and structural) and the 81 per cent thinking about making the switch to another sector, with aerospace (66 per cent) being regarded as the sector to move into, followed by automotive at 46 per cent.

The average age of respondents from these sectors has risen slightly to 44, with nearly all describing themselves as 'White'. Just 5.3 per cent of those polled come from black, Asian or ethnic minority groups, up from 4.4 per cent last year.

average salary by seniority

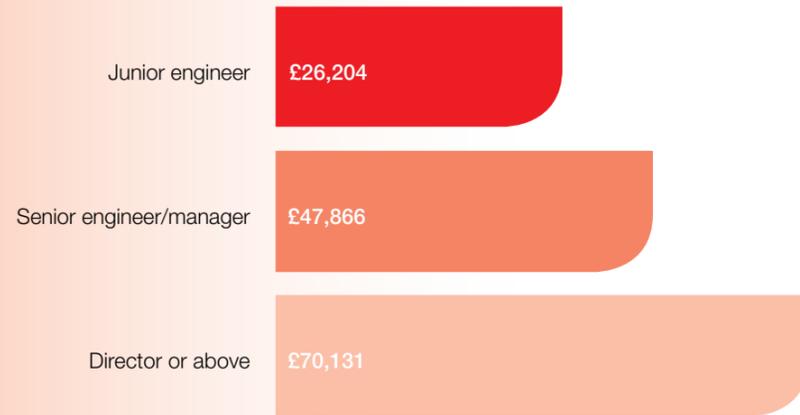


£28.6k The average salary of junior engineers working in the defence and security/marine sectors

average salary by region



average salary by seniority



£47.8k

The average salary of senior engineers working in the rail/civil and structural sectors

average salary by region



11. rail/civil & structural

The rail, civil and structural sectors have undergone something of a renaissance in the UK in recent years, with high-profile projects such as Crossrail in London, a renewed government focus on infrastructure, and something of a boom in large building projects, especially in our larger cities. At the time of writing, the intention to go ahead with the High Speed 2 intercity network project and even on to HS3, despite vociferous opposition, was as strong as ever.

These sectors made up 5 per cent of our total respondents, with 62.7 per cent of those in the sectors identifying themselves as civil or structural engineers. The sectors beat the average on gender split, with women accounting for 10.3 per cent of the sector respondents; in line with anecdotal impressions that women are well-represented especially in the civil sector (although this was somewhat lower than last year, when our self-selected sample was 15 per cent female). There was a fairly even spread of ages, with no one group dominating; the average age was about 43, not far off the average for engineering as a whole although there were dips in the representation of 35-44 year-olds and those over 60.

The average salary remained at the lower end of the range, coming in at £43,181 – almost 8 per cent lower than last year, and dipping below telecoms, utilities and electronics. Despite this, a good proportion of engineers in these sectors declared themselves happy in their jobs – 55.4 per cent, although perhaps unsurprisingly a smaller proportion, 36.1 per cent, were happy with their salary, although 63.5 per cent had received a pay rise in the past year. Seniority has its rewards, with managers' average salary of almost £48,000, compared with a junior engineer or graduate salary average of a little above £26,000.

Not many were prepared to take action on their discontent, though: 50.9 per cent were considering a change of job, with automotive and energy seen as the most likely destinations, with 40.5 per cent and 38.9 per cent respectively saying that they'd consider a move to these sectors: those thinking of going to the more highly paid oil and gas sector were fewer in number, amounting to 27.5 per cent, despite 78.4 per cent stating that a higher salary was the primary reason for looking for a new job. A high proportion, 47.6 per cent (the highest of any sector), said they felt valued in their current role.

The biggest proportion of engineers in these sectors, 35.1 per cent, are in the engineering heartlands of the Midlands; hardly surprising considering rail's traditional stronghold in Derby and the location of its supply chain companies. London and the South East, the location for much of the structural and civil work, is the home to 24.9 per cent, while 18.4 are in northern England. Presumably, as Crossrail nears its opening date of 2018, some will move out of the London area, and if HS2 does go ahead, more will move to the Midlands and the north. The expansion of Hitachi Rail's facilities in Newton Aycliffe, County Durham, may also boost the northern contingent.

12. materials

The materials sector has always been a critical and varied part of the engineering landscape – spanning the world of metals, plastics, composites, and working closely with all of the key industries. And with the UK leading the world in the development of composites technology, and applications of exotic materials such as graphene, it's only likely to become more important in the years ahead.

Engineers working in this sector accounted for 4 per cent of overall responses and earn on average £39,494. This is considerably lower than the average salary for all engineers (£45,000) and is among the lowest average salaries recorded by the survey, with only academia (£38,000) ranking lower.

The average salary for engineers in this sector also represents a £10,000 decrease on last year's figures, although it should be stressed that this is probably a result of the sample size, and the fact that last year's sample contained a higher number of engineers at director level or above.

Materials engineers are found throughout the UK, although the largest groups of respondents from this sector were found in the north of England (27.3 per cent) and the Midlands. The highest salaries are to be found in the north of England and Scotland, Wales and NI (£41,000).

Somewhat surprisingly, salaries in the South West, a centre of excellence for the growing field of composites, are among the lowest in this sector (£37,000).

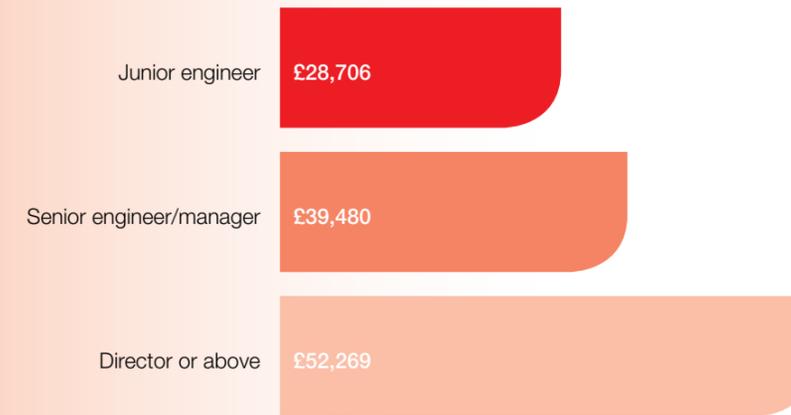
In terms of how seniority affects salary, the gap between junior engineers and directors – around £12,000 – is less pronounced than in other sectors. However, salaries for all levels of seniority are at the low end of the scale.

Despite this, satisfaction levels are reasonably high, with 53.4 per cent of those replying said they are happy in their jobs. Interestingly, this is a higher satisfaction rating than many industries, which pay considerably more. In automotive, for instance, where average salaries are more than £6,000 higher, 51 per cent say they are happy in their jobs. Engineers in this sector are also among the most likely to remain in industry for the next five years and have the lowest percentage of respondents considering a change of job (46.1 per cent).

There is a caveat, however, with just 32.1 per cent of engineers in this sector saying that they feel valued in their current role, the lowest from any sector.

One of the most striking things about the demographic of this sector was its relatively old workforce. Forty-two per cent of those responding were in the over-50 age bracket, and 11.2 per cent were 60 or over. Meanwhile, only 14 per cent of respondents came from the 30 or under category. This would suggest that the much discussed skills crisis could impact this sector's ability to grow in the future.

average salary by seniority



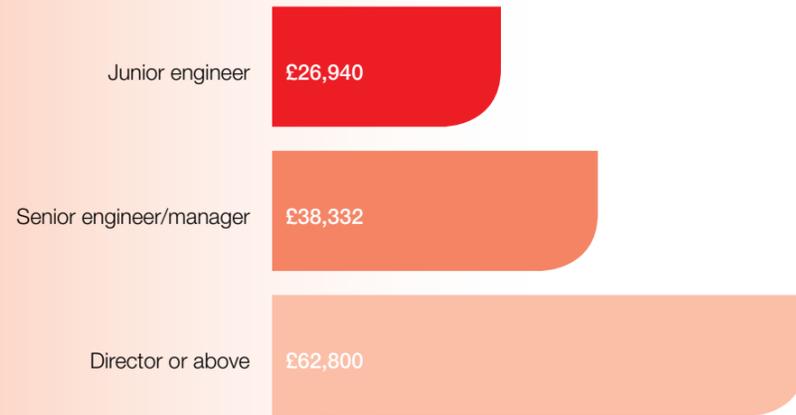
£52.2k

The average salary of senior engineers or above working in the materials sector

average salary by region



average salary by seniority



£38.3k The average salary of senior engineers working in the academic sector

average salary by region



13. academia

As they accounted for the smallest proportion of respondents to our survey (2.5 per cent), it's important to note that the figures for engineering academics are not as statistically robust as other sectors. Nonetheless, a drop in average salary of over £5,000 here is still worrying.

The average remuneration in last year's survey was £43,290. That drops to £38,030 in 2016.

With over 60 per cent of respondents having worked in engineering for more than 20 years, it doesn't make good reading for those considering a career in academia.

The picture gets worse still when you consider that nearly 35 per cent of engineers working in the sector have a masters degree, and almost 25 per cent have a doctorate. Nearly half of respondents (47.8 per cent) were over 50 years of age, and the overwhelming majority were white (90 per cent) and male (91 per cent).

Our engineering academics were reasonably well spread throughout the UK, with London/South East and Midlands/East Anglia the best represented, each with 22 per cent.

The latter region also boasted the highest average salaries, at just over £43,000. Just behind Midlands/East Anglia was the north of England at £42,700.

Average salaries in the South West were the lowest in the UK at £32,230, while the figure for academics in London and the South East dropped from £55,900 to £39,260.

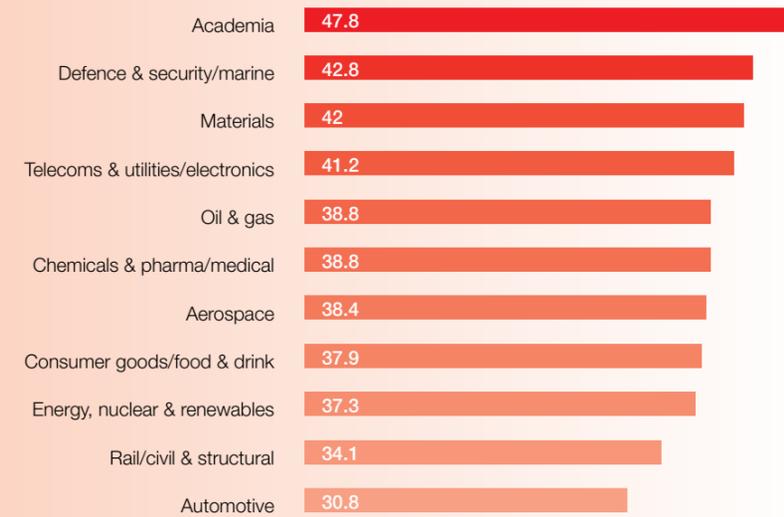
This year-on-year decline can almost certainly be attributed to the small sample size of academic engineers, rather than a salary collapse in the region.

Given that engineering academics have the lowest salaries of all sectors, it's no surprise that they are the least happy with their pay packets (just 28 per cent are content), and have the highest proportion of engineers who do not feel valued (34 per cent). Interestingly, however, the sector boasts the highest level of job satisfaction, with 56.1 per cent happy in their current role.

This could be partially explained by other benefits the sector provides, such as the high proportion of engineers (35.7 per cent) receiving more than 30 days of paid annual leave.

14. age

% engineers over 50 by sector



43.5

Average age of respondents to The Engineer's 2016 Salary Survey

The impending skills crisis resulting from the ageing nature of the UK's engineering workforce continues to be a major concern for industry.

But despite these concerns, the average age of engineers across industry is just 43.5, six months younger than that of respondents in last year's survey. Engineers in the automotive industry are the youngest overall, with an average age of 42.5, while the oldest in the profession can be found in academia, at 44.8.

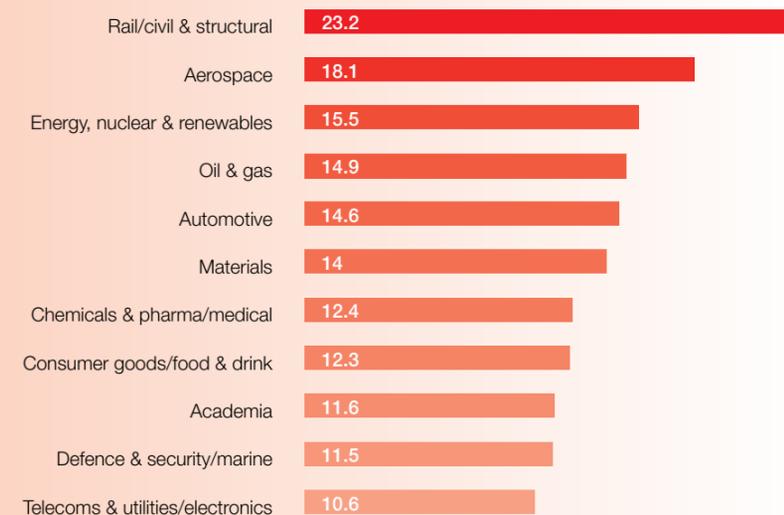
However, a closer look at the results once again shows that more engineers responding to the survey were in their 50s than any other age bracket, meaning they are likely to be retiring within the next 10 to 15 years. Indeed, there are twice as many engineers between the ages of 50 and 59 (28.9 per cent), than there are in their 20s (14.2 per cent).

These figures are very similar to the results of our 2015 survey, suggesting that the age gap is not improving greatly, although the number of engineers under 30 has increased slightly from 12 per cent in 2015.

There is considerable variation among the different sectors. In the civil, structural and rail industry, for example, 23.2 per cent of engineers are in their 20s, while 34.1 per cent are over 50. In contrast, in the defence, security and marine industry, 11.5 per cent of engineers are under 20, while 42.8 per cent are over 50.

Interestingly, in the automotive industry, where last year just 3.1 per cent of engineers were under 30 and over 40 per cent were over 50, there appears to have been a significant demographic shift. This year, 14.6 per cent of automotive engineers described themselves as in their 20s, while only 30.8 per cent were 50 or above, suggesting that the industry may be having some success in attracting younger people into the profession.

% engineers under 30 by sector



| Sector | Average salary (£) | Average age | Percentage content with salary | Percentage happy in current job | Percentage considering change of job | Percentage likely to stay in industry for five years | Percentage that feel valued in current role | Percentage that do not feel valued |
|---------------------------------|--------------------|-------------|--------------------------------|---------------------------------|--------------------------------------|--|---|------------------------------------|
| Oil and gas | 51,370 | 42.9 | 40.3 | 55.2 | 48 | 81.9 | 42.3 | 28.2 |
| Energy/renewables/nuclear | 50,132 | 42.7 | 39.6 | 47.8 | 49.2 | 85.7 | 33.5 | 26.8 |
| Chemicals and pharma/medical | 47,506 | 44.1 | 36.6 | 49.8 | 51.3 | 80.1 | 41.1 | 29.1 |
| Automotive | 45,879 | 42.5 | 32.4 | 51.2 | 51.1 | 86.5 | 39.3 | 31.1 |
| Telecoms/utilities /electronics | 44,898 | 44.6 | 30.8 | 50 | 47.9 | 83.1 | 37.1 | 31.5 |
| Aerospace | 44,580 | 42.7 | 33.4 | 51.3 | 47 | 84.1 | 36.3 | 33.2 |
| Food drink and consumer | 44,196 | 43.5 | 30.3 | 43.5 | 52.9 | 81.7 | 35.2 | 27.4 |
| Defence and security/marine | 43,698 | 44.4 | 28.3 | 50.7 | 47.2 | 83 | 39.4 | 33.8 |
| Rail/civil and structural | 43,181 | 42.7 | 36.1 | 55.4 | 50.9 | 85.5 | 47.6 | 28.3 |
| Materials | 39,494 | 44.1 | 32.8 | 53.4 | 46.1 | 84.7 | 32.1 | 32.8 |
| Academia | 38,029 | 44.8 | 28 | 56.1 | 49.4 | 79.3 | 35.4 | 34.1 |

15. job satisfaction

Although average salaries in UK engineering vary from sector to sector, those at both the top and bottom of the pay scale have declined since 2015.

The highest average salary can be found in the oil and gas industry (£51,370), but this is down from £55,265 for the same sector 12 months ago.

Similarly, at the bottom of the scale, the lowest average salary in the 2016 survey was £38,029, found in academia. Last year's lowest average salary in contrast, found in the food and drink industry, was considerably higher, at £42,082.

However, it does not necessarily follow that lower salaries breed discontent, as engineers in academia tend to be the happiest in their jobs (56.1 per cent). Similarly, those in the materials industry, which has the second-lowest average salary (£39,494), were the least likely to say they were considering a change of job.

At the other end of the scale, higher salaries do

not necessarily guarantee a happy workforce either. Despite average salaries that sit just beneath the oil and gas sector at the very top of the table, engineers in the energy, renewables and nuclear industry were among the least likely to be happy in their jobs, on 47.8 per cent. They are also among the least likely to feel valued in their current role. Engineers in the sector were also among the least content in 2015, with more than half considering a change of job, perhaps suggesting there are wider concerns in the industry than gripes about pay. Uncertainty in the industry over the direction of future government energy investment decisions could perhaps be creating insecurity among engineers, for example.

Engineers in the food and drink and consumer goods industries are also a discontented bunch, being the least likely to describe themselves as happy in their jobs (43.5 per cent), while less than a third felt they were appropriately remunerated (30.3 per cent).

Professionals in the rail, civil and construction industries, in contrast, are among the most content, with 55.4 per cent happy in their job. They were also the most likely to say they felt valued (47.6 per cent).

Likewise, engineers in the oil and gas sector appear to be pretty pleased with their lot, being the most likely to say they felt appropriately paid (40.3 per cent), and among the most happy and valued in their work.

Among the sectors, engineers from telecommunications, utilities and electronics are the most likely to want a change of career, with 9.9 per cent unlikely to stay in the industry for the next five years. This is remarkably similar to last year's survey results, when engineers from the sector topped the table with 10 per cent expecting to leave the industry.

At the other end of the scale, engineers from the food and drink and consumer goods sectors were least likely to be planning a change of career, with

only 4.8 per cent saying they were unlikely to stay in the industry for another five years.

Rates of paid holiday are unsurprisingly highest in academia once again, with 35.7 per cent of engineers receiving over 30 days leave, compared to just 2.2 per cent in the materials industry.

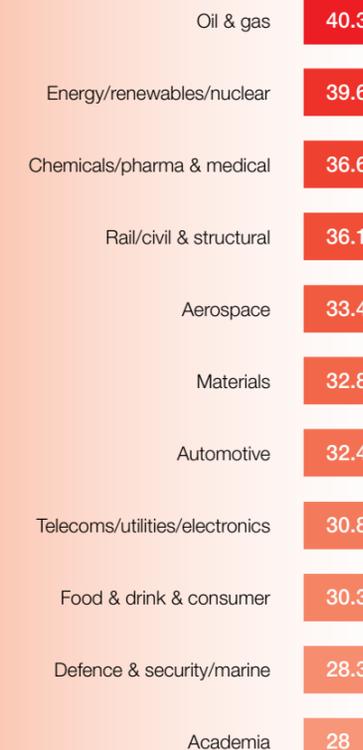
Over 90 per cent of engineers in the defence, security and marine sector have received a bonus in the last 12 months, compared to 77.3 per cent in the aerospace industry, the lowest figure in our survey. In terms of routes into engineering, the energy, renewables and nuclear sector once again has the highest percentage of engineers with a degree (53.1 per cent) outside academia, while the lowest proportion of graduates can be found in the food drink and consumer goods industry.

Half of all engineers in the aerospace industry entered the profession through an apprenticeship, compared to just over a quarter working in the materials sector.

percentage happy with salary by region



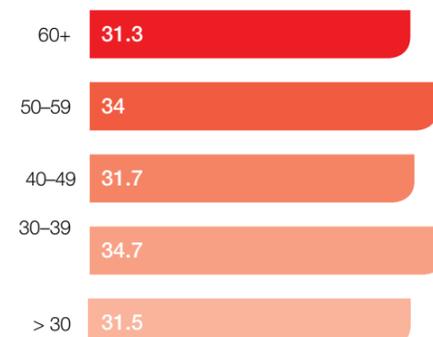
percentage happy with salary by sector



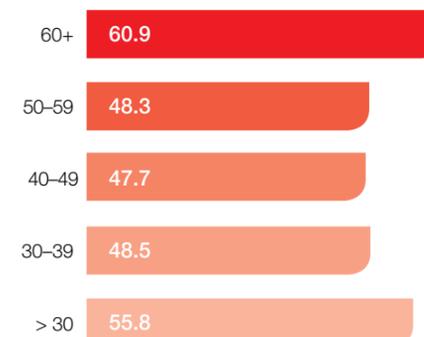
% happy with salary by seniority



% happy with salary by age



% happy in job by age



16. change of job/leaving industry

As with last year's survey, despite the satisfaction and salary concerns reported in the previous section respondents are, on the whole, a pretty settled bunch

83.8 per cent expect to stay in engineering for at least five years, 7.1 per cent indicating that it's likely that they could be leaving industry. This is almost exactly in line with our 2015 results.

Of those that are considering a change of profession outside of industry the biggest motivation is a new challenge (70.9 per cent), closely followed by a desire to earn more (59.4 per cent). For those considering a change of job within industry – approximately 42 per cent of our overall sample group – the biggest motivation for change is pay (73.4 per cent)

Interestingly just over half of the entire sample group would consider taking a position overseas. And just under 80 per cent of this group identifies North America and Europe as the most desirable destinations.

The most appealing sectors for engineers considering a job change were automotive (44.3 per cent) and aerospace (47.5 per cent). Somewhat surprisingly,

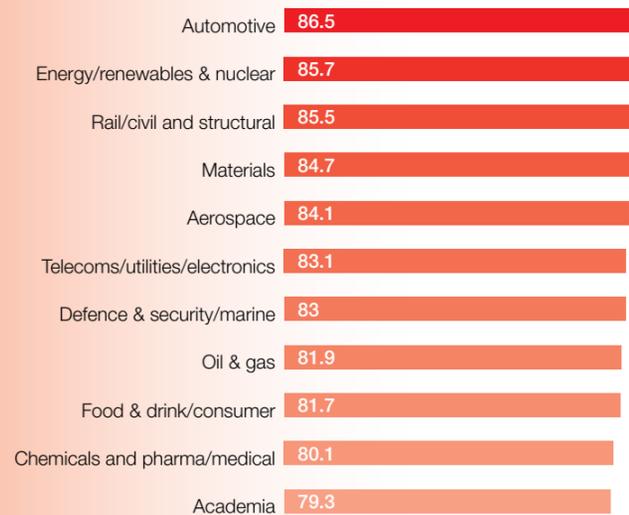
given its good salaries and excellent opportunities the civil and structural sector was the least appealing to our sample group, with just 14.8 per cent saying that they would consider a move to the sector.

Among the different sectors, those working in the food & drink/consumer sectors are the most likely to be considering a change of job (52.9 per cent), while engineers in the materials sector, despite the relatively poor remuneration, are apparently the least likely to want to move (46.1 per cent).

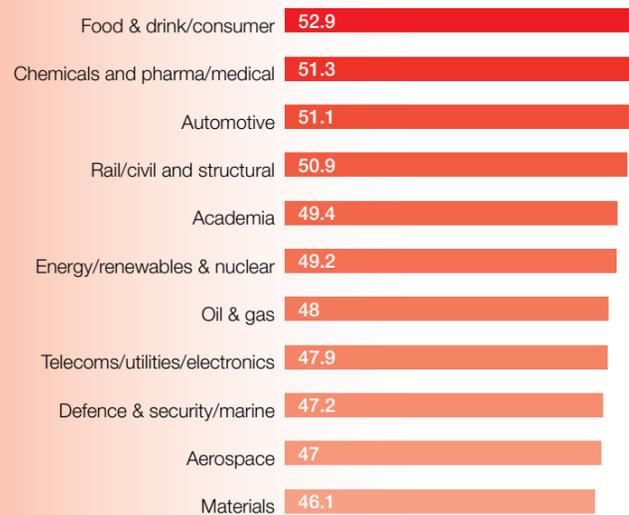
Similar percentages of male and female respondents – just over 5 per cent – told us that they expect to leave industry within five years. However a greater percentage of female respondents (81.6 per cent) are considering a move to another sector. This compares to 77.6 per cent for male respondents.

Both men and women are drawn to the aerospace sector – 47.6 per cent and 45.9 per cent – but the automotive sector appears to be more appealing to male engineers, with 45 per cent of male respondents considering a move to the sector, compared to 34.6 per cent of women who are considering a change.

% likely to remain in industry (next five years) by sector



% considering a change of job by sector



top three motivations for considering a change of job within industry (%)



top three motivations for considering a change of job outside industry (%)



17. benefits & bonuses

Engineers looking for a bonus on top of their annual salary would be wise to head for the energy, nuclear and renewables industry.

The industry has the highest percentage of engineers who receive a bonus, at 54.9 per cent. This is closely followed by the chemicals and pharmaceuticals industry – last year's leader – where 54.5 per cent of engineers receive a bonus.

However, while chemicals and pharmaceuticals remains one of the most generous sectors in terms of bonuses, the percentage of engineers in the industry receiving a payment has dropped noticeably from 62 per cent in 2015, perhaps reflecting more difficult economic times.

Overall, 45.3 per cent of engineers across all sectors receive a bonus, with the materials sector also having an

| Sector | % receiving private medical insurance | % benefiting from flexible working |
|----------------------------------|---------------------------------------|------------------------------------|
| Academia | 3.6 | 48.2 |
| Aerospace | 25.3 | 43.4 |
| Automotive | 38 | 26.9 |
| Chemicals & pharma/medical | 46.2 | 27.4 |
| Consumer goods/food and drink | 44.8 | 22.4 |
| Defence & security/marine | 25.1 | 39.6 |
| Energy/nuclear & renewables | 39.8 | 33 |
| Materials | 36.7 | 20.1 |
| Oil & gas | 48 | 29.8 |
| Rail/civil & infrastructure | 37.7 | 26.3 |
| Telecoms & utilities/electronics | 38.8 | 34.4 |

above average percentage of 50.4 per cent.

At the other end of the scale, just 4.8 per cent of engineers in academia receive a bonus, down even on last year's low figure of 6 per cent.

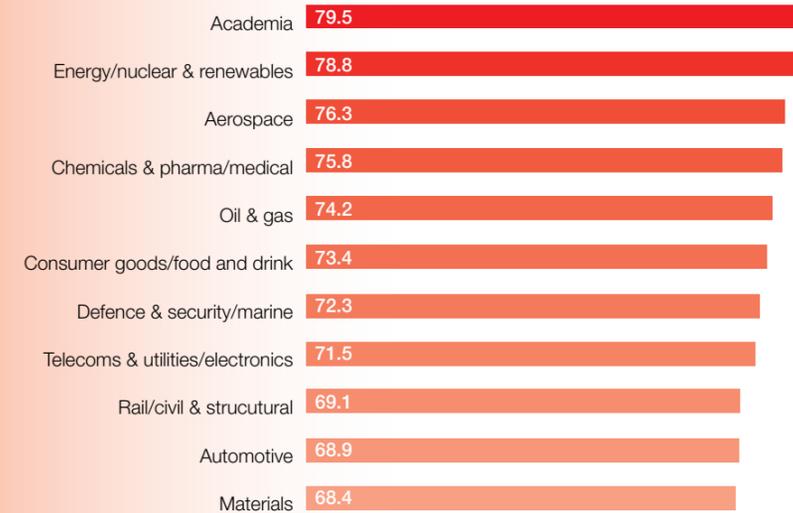
In total, 81.9 per cent of engineers receive some form of pension, a very similar figure to last year's survey (80.9 per cent). Meanwhile, 73.1 per cent benefit from a contributory pension, up slightly from 70.9 per cent in 2015.

Just as in 2015, among the different sectors those in academia are the most likely to be enrolled on a contributory pension scheme (79.5 per cent), while those in the materials industry are the least likely (68.4 per cent).

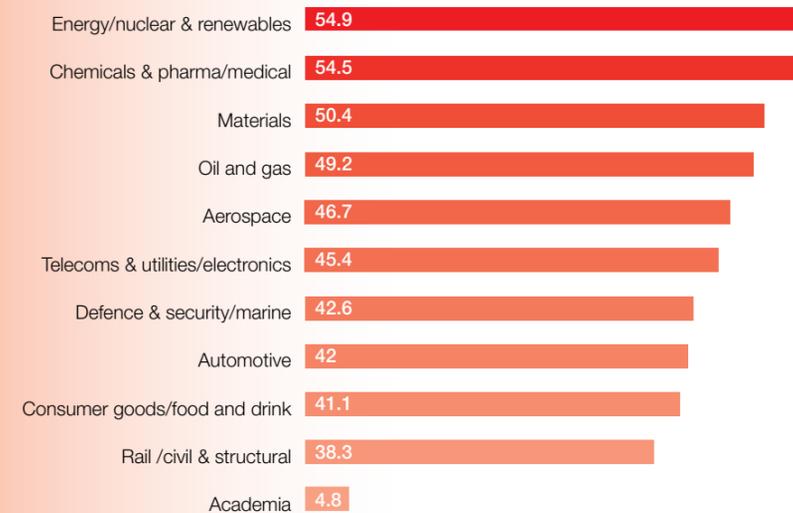
Of the other perks that engineers receive, 37 per cent of professionals benefit from private medical insurance, while 30.3 per cent can take advantage of flexible working arrangements.

Once again, engineers in academia have the longest holidays of all those surveyed, with over one third receiving more than 31 days of paid leave, compared to just 2.2 per cent of those in the materials industry.

% receiving contributory pension by sector



% receiving bonus by sector



% receiving bonus by seniority



18. routes into industry

Around half of all engineers working in industry today have a degree, while over one third entered the profession via an apprenticeship.

Like 2015 though, there is a significant age divide when it comes to the route engineers have followed into the profession. On the whole, younger engineers favour entry via a degree, while older professionals tend to have more often worked their way up through an apprenticeship.

So, for example, engineers between the ages of 30 and 39 are the most likely to have a degree (55.4 per cent), closely followed by those between 40 and 49 (53.8 per cent). Engineers between 30 and 39 were also the least likely to have undertaken an apprenticeship (22.2 per cent).

Meanwhile, engineers over 60 were the least likely to have a degree (37.3 per cent) and the most likely to have undertaken an apprenticeship (59.3 per cent).

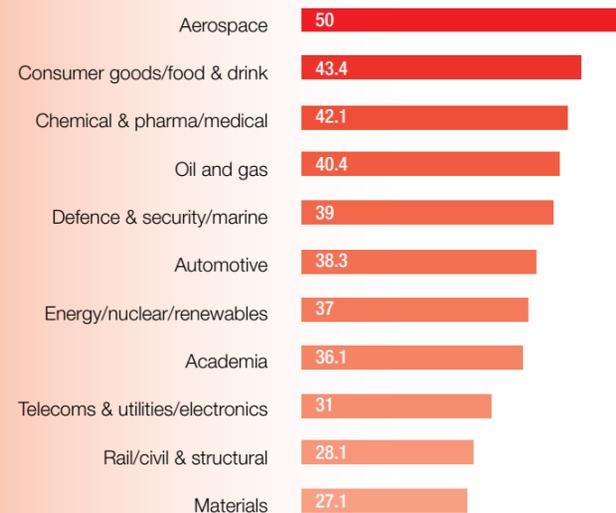
However, among the under 30s, the percentage of engineers entering industry

via an apprenticeship has increased slightly since 2015, up from 23.5 per cent to 26.3 per cent. At the same time, the percentage of professionals under 30 with a degree has also dropped marginally, from 55.1 per cent to 52.1. This suggests that young people are beginning to show more interest in on-the-job training, perhaps as a result of the rising cost of higher education, or government efforts to promote apprenticeships.

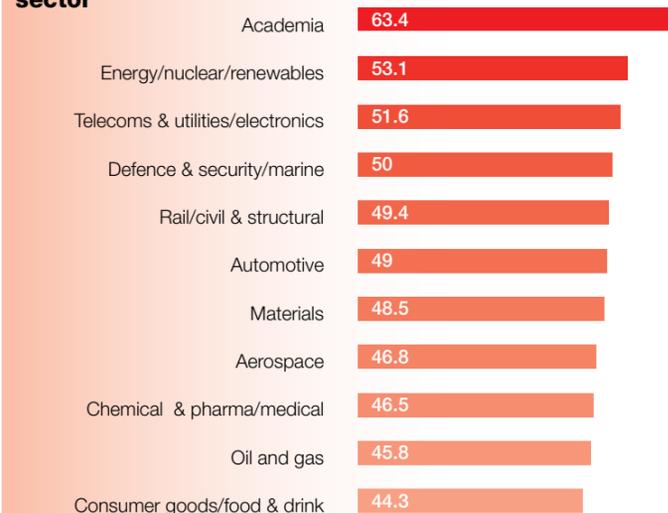
Across industry, aerospace, one of the UK's largest sectors, has by far the greatest percentage of engineers who have undertaken an apprenticeship, with half having entered the profession in this way. At the other end of the scale, just 28.1 per cent of engineers in the rail, civil and structural engineering sectors entered via an apprenticeship.

Unsurprisingly, engineers in academia were most likely to have a degree (63.4 per cent), followed by those in energy, nuclear and renewables (53.1 per cent).

% qualified by apprenticeships by sector



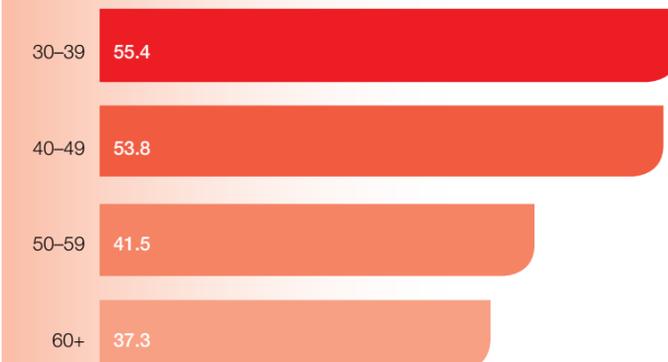
% qualified by bachelor/honours degree by sector



% degrees by age



% apprenticeships by age



19. professional registration

Pursuing professional registration remains a low priority for many in industry, with only around a third having chosen to do so.

This is a similar figure to last year's survey, and suggests that the continuing efforts of the engineering bodies to promote professional registration are making little headway.

However, like 2015 the percentage of professionally registered engineers increases the further up in seniority they rise. So while just 30.9 per cent of junior engineers are registered, this rises to 37.1 per cent for managers and senior engineers, and 43.4 per cent for directors or above.

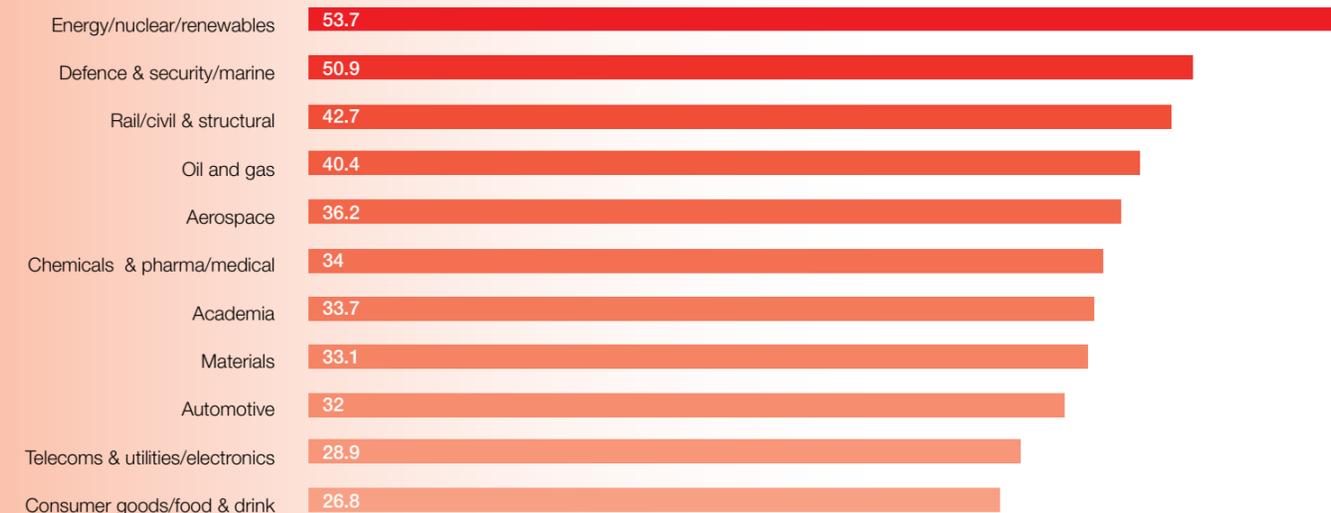
There is also considerable variation among the different industries, with over half of engineers in the energy, nuclear and renewables sectors having chosen to pursue registration (53.7 per cent), compared to just a quarter of those in consumer goods and food and drink (26.8 per cent).

These figures are again very similar to the results of the 2015 survey, suggesting some sectors continue to prize registration more highly than others.

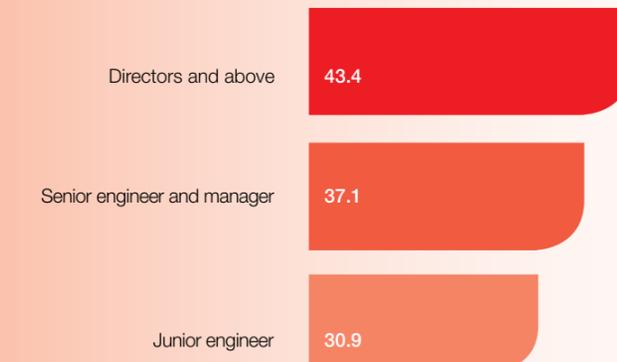
The percentage of men and women pursuing registration is fairly similar, at 35.2 per cent and 36.6 per cent respectively, indicating that gender plays little part in the decision. Across the different age brackets the percentages are also strikingly similar, with only a slight dip between the ages of 50-59.

However, there is a small but noticeable difference between the percentages of white (36.4 per cent) and Black, Asian and minority ethnic (BAME) respondents (39.8 per cent) having chosen registration. This is consistent with last year's survey, and demonstrates that BAME engineers continue to place greater value on professional registration than their white peers. As further evidence of this, BAME respondents were once again more likely to agree with the statement that being professionally registered leads to higher salaries than their white peers.

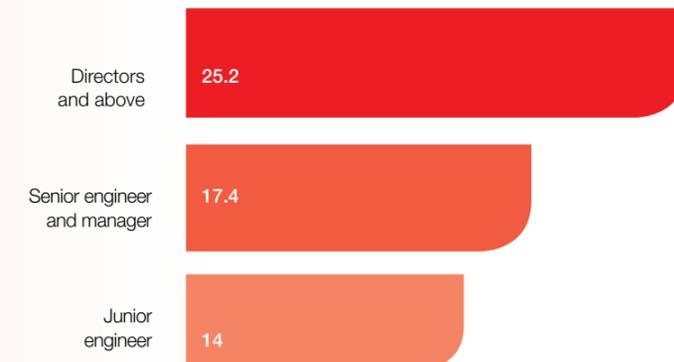
% professionally registered by sector



% professionally registered by seniority

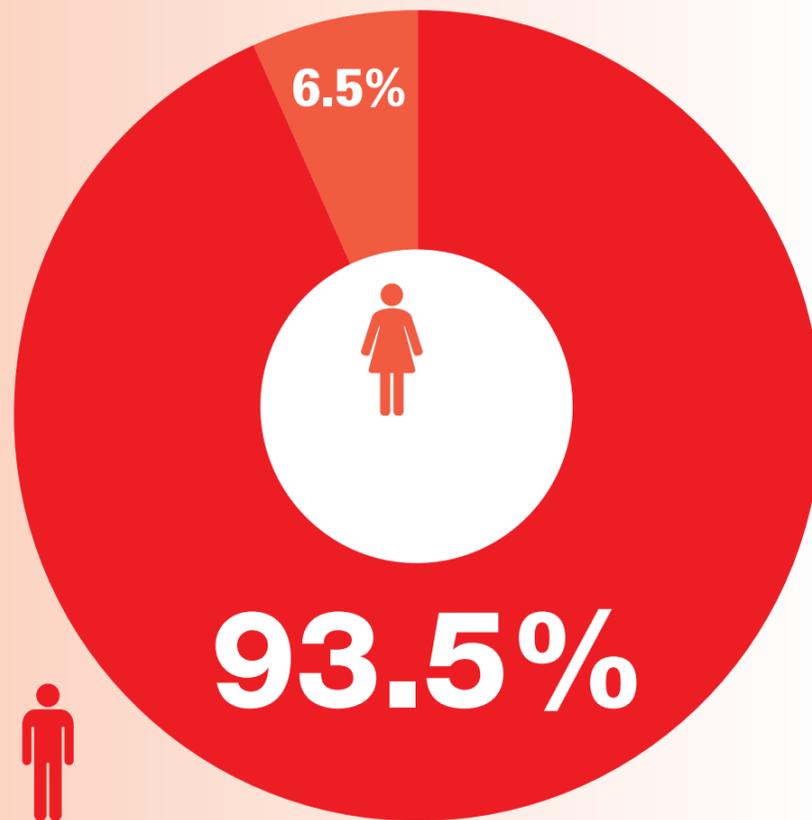


% agree professional registration leads to higher salary by seniority



20. gender & diversity

gender split



average salary by gender



Despite the best efforts of industry and the professional bodies to encourage more women into engineering, the gender imbalance continues to be a major concern for industry.

Although the percentage of women in engineering has risen very slightly since 2015, up from 5.5 per cent to 6.5 per cent in 2016, it remains extremely low, particularly when compared with other professions. For example, around half of all practising solicitors in 2015 were women, according to figures from the Law Society.

In the individual sectors, the industry with the highest percentage of female engineers is rail, civil and structural engineering (10.3 per cent). This does mark a decline on last year's share, when 15 per cent of respondents from this sector were female, but this could be explained by the relatively low overall sample size (there were 185 respondents from this sector).

Closely behind is the materials industry, where 9.8 per cent of engineers are women, and the energy, nuclear and renewables industries (9.6 per cent).

In contrast, just 3.4 per cent of the professional workforce in the aerospace industry is female, and 3.9 per cent of the chemicals and pharmaceuticals sector.

The average salary for women in engineering continues to be £10,000 less than their male counterparts, at £36,201. But once again, this is due in large part to the differences in seniority between male and female engineers. Just 13.3 per cent of men described themselves as junior engineers, for example, compared to 24.4 per cent of women.

At the other end of the seniority scale, however, there has been some improvement, with 31.7 per cent of men describing themselves as managers, compared to 29 per cent of women.

Job satisfaction levels remain fairly evenly spread between the sexes, with 47.4 per cent of women and 50.6 per cent of men happy in their jobs, and a similar percentage declaring that they feel valued by their employers. Even when it comes to salaries, the gap in satisfaction levels does not reflect the size of the difference in pay, with 29.1 per cent of women and 33.2 per cent of men saying they felt appropriately remunerated.

The gender gap remains a priority for many in the profession, with a quarter of respondents agreeing it is an important issue, a similar percentage to last year's survey.

The diversity gap, meanwhile, has if anything widened very slightly since the 2015 survey, with 92.1 per cent of engineers describing themselves as white, compared to 89.9 per cent in the previous year. Just 6 per cent described themselves as BAME (Black, Asian and minority ethnic).

However, the percentage of ethnic minorities varies considerably across the different sectors. In the materials industry, for example, 7.7 per cent of engineers described themselves as BAME, of whom 6.9 per cent were Asian. Similarly, 7.3 per cent of engineers in the oil and gas sector said they were from an ethnic minority.

In contrast, just 1.6 per cent of engineers in the chemicals and pharmaceuticals industry described themselves as BAME, down from the already low percentage of 2.8 per cent last year. Indeed, there were no black engineers in the sector at all.

Black, Asian and minority ethnic engineers also continue to fare less well than white engineers in terms of their average salaries. White engineers responding to the survey said they earn £46,892 on average, compared to the £40,979 earned by BAME engineers. This gap of just under £6,000 is slightly lower than the figure for last year, however,

which is perhaps a tentative sign that things are improving.

Like the salary gap between women and men, at least part of this may be explained by the difference in seniority of those responding to the survey. While the number of BAME respondents describing themselves as senior engineers is roughly the same as the number of white senior engineers (42.9 per cent and 42.7 per cent, respectively), just 13.4 per cent of White respondents were junior engineers, compared to 22.5 per cent of BAME professionals. What's more, 21.4 per cent of BAME respondents described themselves as managers, compared to 32.1 per cent of white engineers.

% women by seniority



% BAME (black, asian, minority ethnic) by seniority

