

Bearing up in the Brexit breeze

The Engineer's 2017 Salary Survey asked engineers from across the different sectors of UK industry about their role and earnings

The UK has experienced considerable political upheaval over the past 12 months, with the vote to leave the European Union triggering an immediate change in leadership and more recently a General Election. But has uncertainty over the UK's future relationship with Europe following the Brexit vote affected salaries and job security

in engineering? Have engineers in some sectors fared better than others over the past year?

The Engineer has once again surveyed professionals from across the different sectors of UK industry, to find out how much they earn, where they work, and how they feel about their chosen career.

With 2,743 engineers taking part in our 2017 survey from 11 different sectors, we have analysed the results to reveal which industries and regions offer the best salaries, what proportion of professionals are women or people from ethnic minorities, and where levels of job satisfaction are at their highest.

By comparing the results with our 2016 survey, we can

“Uncertainty over Brexit has yet to have a negative impact on wages in the profession”

also see how life has changed for engineers over the past 12 months.

The average salary for UK engineers across all sectors in 2017 is £48,197, a significant increase on last year's average of £45,367, showing that uncertainty over Brexit has yet to have a negative impact on wages in the profession. Once again, this figure compares well with average salaries across other professions in the UK, sitting slightly below the average salary for qualified accountants of £52,076 and those in banking on £50,580, but above those in the financial services sector, on £47,109.

Almost 60 per cent of engineers surveyed are concerned about the potential impact of Brexit on the future of UK industry. But on a personal level, only 37.4 per cent are worried about its potential impact on their own job security.

Among the different sectors, engineers in the oil and gas industry continue to command the highest salaries, with an

£43.8k-£54.5k

Average salary by sector



David Leyshon chairman, CBSbutler



This year's edition of the Salary Survey has given us valuable insight into the changing trends and attitudes people in engineering are experiencing. An industry that thrives in the development of projects, ideas and innovation has become a cause for concern. It is very apparent that we are still witnessing the same disillusionment with career prospects, which has plagued the industry for many years.

We have an ageing sector; a growing skills gap; a real lack of gender and cultural diversity; and the highest-paid salaries in the most depressed sectors (oil & gas) in engineering and manufacturing still lag behind other industries.

One of the most significant issues our industry faces is a lack of gender diversity; with women engineers accounting for only 7 per cent of respondents to this survey. That's why at CBSbutler we like to promote and champion opportunities particularly in the untapped talent pools: women in STEM vocations and young people who still harbour stereotypical impressions of the sector.

With decades of experience in recruiting within engineering across a wide range of sectors, CBSbutler can attest to having specialist insight into the challenges and opportunities afforded to job seekers. Well-qualified, highly trained and experienced engineers really do have a wealth of options at their disposal. Those individuals who prefer flexibility in their work will find strong demand, lucrative earnings and continuity of employment via freelance contracting.

We really cannot ignore some of the less positive findings in this survey. We need to start investing in our young talent, offering diversity in job opportunities that will reward and stimulate them. Technology and engineering is moving at such an incredible pace that we often question the adaptability of our ageing engineers; can they really embrace new tools and inventions quickly? The survey reveals that aerospace has the highest proportion of ageing engineers where automotive has the youngest, which could explain why 54 per cent feel there is a real lack of industry knowledge and experience.

The world as we know it is evolving rapidly, innovation is hammering at our doors searching for new talent and we simply cannot keep up with the demand for skilled workers to fulfil these ambitious projects. Engineering as a profession has got to start promoting itself as a career of choice, enticing the next generation with powerful messages and thought leaders who can tap into millennial minds.

Engineering thinkers such as Sir James Dyson have tried to position engineering at the heart of our society. The UK needs niche, academic institutions with degree-awarding powers, attracting young talent, with an earn-while-you-learn work ethic.

In summary, at last there is a realisation that engineers are central to building our economy and placing the UK on the map. We need a big focus on technical schools and colleges offering incentives, placements and mentoring so young people can finally get rid of the stigma behind the industry. Any preconceptions of it being a boring and dirty job by male-dominated figures needs to be squashed, so we can drive more individuals into this industry. A diversified talent pool filled with women and men of all ages and races is what we need to enrich our industry, and it's about time their skills are valued and rewarded accordingly. Maybe then we will see that in next year's Salary Survey figures, that over half will be content in their jobs and feel valued by their employers rather than the 36 per cent this year that felt their jobs made them happy.

average of £54,461. What's more, salaries have increased in the sector since our 2016 survey, when the average was £51,370.

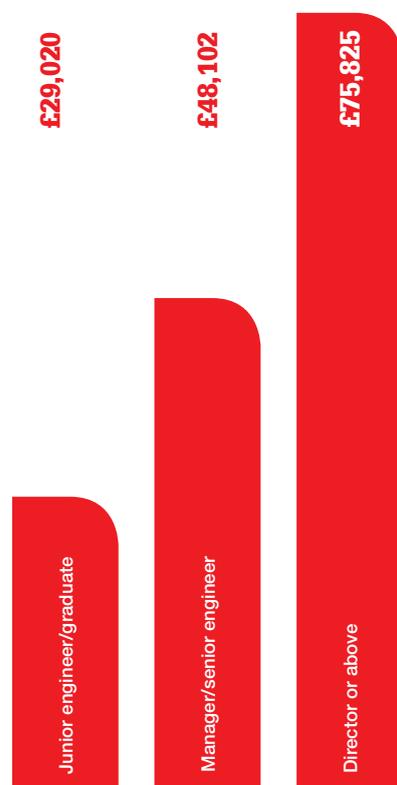
The energy, renewables and nuclear sector once again recorded the second-highest average salaries across industry, at £51,953. This figure is up from £50,132 in 2016, showing that helping to keep the nation's cars running and its lights on remains the surest path to achieving the highest earnings.

The automotive and aerospace industries employ a quarter of the engineers who took part in our survey, a similar figure to that of 12 months ago, while once again three quarters of respondents describe themselves as senior engineers or managers.

£48k

Average salary for engineers across all sectors

Average salary by seniority



The Midlands and East Anglia, the UK's traditional manufacturing base, is home to the highest percentage of engineers among the country's regions, at 27.7 per cent. This is followed by London and the South East, where 20.1 per cent of engineers surveyed said they were based.

Over 90 per cent of the engineers surveyed are male, while almost 90 per cent are white. The average age of engineer surveyed is 45.4, two years older than the 2016 average, while 60 per cent have been in the profession for over 20 years.

The vast majority of engineers remain happy in their chosen career, with 81.9 per cent expecting to stay in the profession for at least the next five years.

Over the following pages we have looked in more detail at the findings of this year's survey, and considered what they tell us about engineering in 2017.

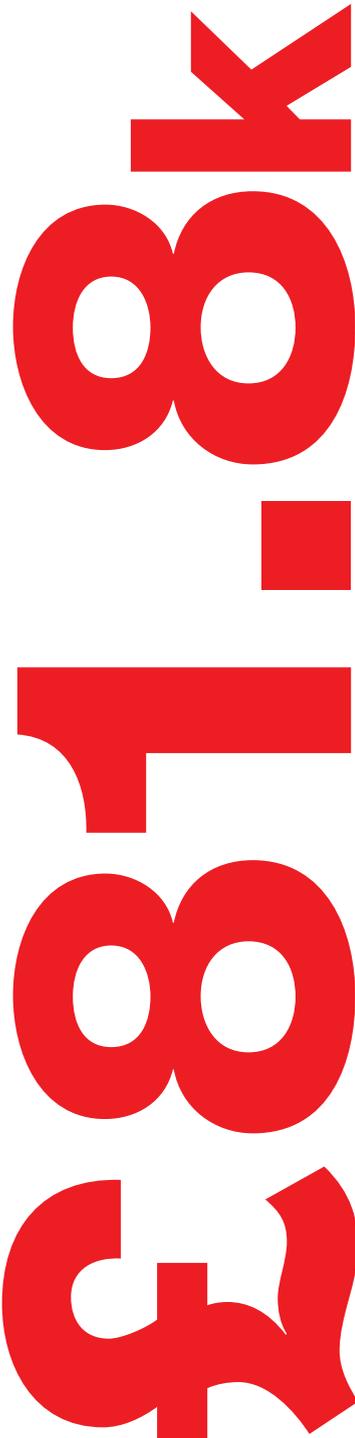
An even more detailed report, along with an interactive tool that enables you to benchmark your salary can be found at www.theengineer.co.uk >>

6.6%

Average year-on-year salary increase over the past 12 months

average salary by industry

The highest average salaries are found at director level in the oil & gas sector



junior engineer

Chemicals & Pharma/Medical	£33,966
Academia	£32,153
Defence & Security/Marine	£30,929
Energy/Renewables/Nuclear	£30,877
Automotive	£29,774
Aerospace	£29,581
Materials	£28,745
Oil & Gas	£27,894
Rail/Civil & Structural	£27,323
Telecoms & Utilities/Electronics	£25,520

1. seniority

Over 80 per cent of those engineers responding to our survey describe themselves as senior managers or above.

This is strikingly similar to the picture in 2016, and broadly reflects the seniority levels of the readership of this magazine as a whole.

Senior managers make up the largest group of respondents to our survey, at 44.3 per cent, which is up from 42.8 per cent in 2016. Of the remaining respondents, 30.9 per cent describe themselves as managers, 12 per cent as junior engineers, 7.2 per cent as directors, and 2.6 per cent as graduate trainees and apprentices.

“Encouragingly, average salaries have increased for engineers across all levels of seniority”

Encouragingly, average salaries have increased for engineers across all levels of seniority over the past 12 months, despite the uncertainty within industry over the future of our trading relationship with Europe.

Perhaps unsurprisingly, directors have seen the biggest increase in pay over the past year, up from £71,573 in 2016 to £75,825 in 2017.

At the other end of the scale, salaries among junior engineers and graduate trainees have increased marginally, up from £28,771 to £29,020, while senior engineers' salaries have risen from £46,428 to £48,102.

As with the average salaries for engineering as a whole, there remains a considerable gap between what engineers at various levels of seniority can expect to earn in some industrial sectors when compared to others. This can be seen most strikingly among directors, where those in the oil & gas industry take home an average salary of £81,805, while those in academia earn around £58,500.

Similarly, senior engineers and managers in academia earn less than those at the same level elsewhere, with an average of £43,888. However, the gap at this level of seniority is not as wide, with senior engineers and managers in the top-earning oil and gas sector earning £10,000 more, on average.

Surprisingly, junior engineers in the oil and gas industry, however, who take home an average of £27,894, have dipped below their equivalents in a number of other sectors, including the chemical and pharmaceutical; energy, renewables and nuclear; defence, security and marine; and academic sectors, all of whom earn over £30,000.

Junior engineers in the food and drink and consumer sectors earn the lowest average salaries across industry, at £24,955.

The average age of engineers surveyed is 45.4, two years older than in 2016, with almost half of all respondents in their 50s or above. Of the remaining respondents, around a quarter are in their 40s, while 18.5 per cent are in their 30s, and 10.9 per cent in their 20s.

senior engineer/manager

Oil & Gas	£53,896
Energy/Renewables/Nuclear	£52,337
Chemicals & Pharma/Medical	£48,887
Rail/Civil & Structural	£48,864
Aerospace	£48,685
Food & Drink/Consumer Goods	£48,626
Automotive	£47,550
Defence & Security/Marine	£46,954
Telecoms & Utilities/Electronics	£46,844
Materials	£45,567
Academia	£43,888

director or above

Oil & Gas	£81,805
Defence & Security/Marine	£80,853
Chemicals & Pharma/Medical	£80,023
Telecoms & Utilities/Electronics	£77,863
Automotive	£74,992
Rail/Civil & Structural	£73,413
Energy/Renewables/Nuclear	£71,389
Materials	£70,808
Food & Drink/Consumer Goods	£67,980
Aerospace	£67,538
Academia	£58,500

2. regions

Engineers from the UK work in a diverse range of locations, throughout the British Isles and beyond. Once again the largest population of engineers can be found in the manufacturing heartland of the Midlands and East Anglia, although this is down slightly compared to last year, from 29.8 per cent in 2016 to 27.9 per cent in 2017.

But there are also a sizeable number of engineers working in London and the South East (20.4 per cent) and in the North of England (18 per cent). Engineers in London and the South East have overtaken those working overseas to become the highest earners in 2017, with an average salary of £51,743. This perhaps reflects the high cost of living in the capital.

Of those working in London and the South East, engineers in the oil and gas and the

where are the UK's engineers?

27.9%	Midlands and East Anglia
20.4%	London & South East
18%	North
11.6%	South West
9%	Scotland, Wales & Northern Ireland
12.4%	Outside UK

chemical, pharmaceutical and medical industries command the highest salaries, at £56,575 and £56,500, respectively.

Spare a thought for engineers in the South West, who are once again the lowest earners among the different regions, earning an average of £45,022. On the plus side, however, this does represent a significant year-on-year increase from an average of £40,827 in our 2016 report. Given that the size and demographic spread of this sample group is broadly the same this year, this increase would appear to be significant.

Among the engineers working outside the UK, those in the oil and gas industry receive the highest average salary, although this has dropped to £62,716 from £67,924 in 2016.

Engineers working outside the UK are the least likely to be satisfied with their pay, with 31.3 per cent describing themselves as happy with their remuneration package.

This is surprising, since this group were the most likely to be happy with their salary in 2016. >>

Midlands or East Anglia

Materials	£51,071
Automotive	£50,708
Chemicals & Pharma/Medical	£50,218
Energy/Renewables/Nuclear	£49,822
Aerospace	£49,380
Academia	£48,208
Food & Drink/Consumer Goods	£47,534
Telecoms & Utilities/Electronics	£47,246
Defence & Security/Marine	£46,722
Oil & Gas	£43,305
Rail/Civil & Structural	£41,222

North (England)

Defence & Security/Marine	£57,473
Energy/Renewables/Nuclear	£56,750
Chemicals & Pharma/Medical	£51,815
Oil & Gas	£47,195
Materials	£46,565
Food & Drink/Consumer Goods	£46,411
Automotive	£45,950
Aerospace	£44,340
Rail/Civil & Structural	£43,500
Telecoms & Utilities/Electronics	£42,028
Academia	£37,647

Outside UK

Oil & Gas	£62,716
Energy/Renewables/Nuclear	£52,660
Defence & Security/Marine	£50,023
Telecoms & Utilities/Electronics	£49,899
Chemicals & Pharma/Medical	£48,391
Aerospace	£47,697
Materials	£46,817
Automotive	£40,802
Food & Drink/Consumer Goods	£40,215
Rail/Civil & Structural	£39,582
Academia	£33,950

Scotland, Wales or Northern Ireland

Oil & Gas	£72,480
Chemicals & Pharma/Medical	£51,250
Energy/Renewables/Nuclear	£50,782
Rail/Civil & Structural	£46,875
Food & Drink/Consumer Goods	£46,722
Materials	£45,571
Academia	£43,800
Automotive	£42,380
Defence & Security/Marine	£40,583
Telecoms & Utilities/Electronics	£40,384
Aerospace	£38,190

South West (England)

Materials	£53,000
Energy/Renewables/Nuclear	£50,523
Food & Drink/Consumer Goods	£48,703
Rail/Civil & Structural	£48,100
Oil & Gas	£46,909
Chemicals & Pharma/Medical	£45,411
Aerospace	£45,129
Defence & Security/Marine	£44,145
Automotive	£43,388
Telecoms & Utilities/Electronics	£40,891
Academia	£40,777

London or South East (England)

Oil & Gas	£56,575
Chemicals & Pharma/Medical	£56,500
Telecoms & Utilities/Electronics	£53,300
Automotive	£50,737
Academia	£50,588
Rail/Civil & Structural	£49,422
Materials	£49,076
Energy/Renewables/Nuclear	£49,066
Aerospace	£47,931
Defence & Security/Marine	£47,773
Food & Drink/Consumer Goods	£47,413

3. academia

average salary by seniority



£43.8k

Average salary of an engineer working in the academic sector

average salary by region



Since academia is once again the smallest standalone sector in the salary survey, consisting of just 3.1 per cent of respondents, it is not as statistically robust as the other industries.

However, engineering academics will be relieved to see that 2016's £5,000 drop in average salary has been recovered. In 2017, the average salary for the sector is £43,809, still the lowest for all the industries surveyed, but significantly improved when compared to last year.

With 56.2 per cent of respondents having worked in engineering for over 20 years, and 54 per cent over 50, academia is the oldest sector, with an average age of 47. It is also highly qualified, with 36.6 per cent saying they have a masters degree, up a fraction from 35 per cent in 2016, and 30.5 per cent saying they have a doctorate, up from 25 per cent last year.

Just under 90 per cent of respondents are white and male (88.8 per cent and 89.2 per cent respectively).

Engineers in academia are well spread out, with 28.9 per cent based in the Midlands and East Anglia, 20.5 per cent in both London and the South East and the North of England, 13.3 per cent outside the UK, 10.8 per cent in the South West, and 6 per cent in Scotland, Wales and Northern Ireland.

Academics in London and the South East earn the highest rates, with an average salary of £50,588, followed by £48,208 in the Midlands and East Anglia. These both represent a significant rise on 2016 salaries for the two regions, when the averages were just over £43,000 and £39,260 respectively.

With the lowest average salary across engineering, it is hardly surprising that pay satisfaction is not high, with only 31.7 per cent happy with their earnings. However, this represents a slight increase on last year (from 28 per cent), and means they are now more content than those in rail, civil and structural (29.3 per cent), and defence, security and marine (31 per cent).

4. aerospace

The UK has the largest aerospace industry in Europe and the second biggest in the world, behind only the US.

Average salaries in aerospace are the third lowest of all the sectors, on £46,362. Engineers entering the profession at junior engineer or graduate level can expect to earn £29,581 on average. This is down from £30,593 in 2016.

The average salary for directors in the sector has also declined, dropping from £74,809 in 2016 to £67,538 in 2017, although this may be the result of sample size.

Senior engineers and managers have seen their salaries rise, however, increasing from £45,935 in 2016 to £48,685 this year.

Engineers from the aerospace industry make up 10.8 per cent of respondents, the second highest group behind those in the automotive sector. Like last year, around a quarter did not receive a pay rise in the past 12 months, but 90.1 per cent received a bonus.

With the region around Bristol and Bath best known for its position as a hub for aerospace companies, it is perhaps a surprise that the highest number of engineers from the sector in our survey are based in the Midlands and East Anglia, at 30.1 per cent, with 22 per cent in the South West. Aerospace engineers in the Midlands also receive the highest average salary in the sector of £49,380 (up £3,230 on 2016), compared to £45,129 (up £3129) in the South West, and £38,190 in Scotland, Wales and Northern Ireland.

Three quarters of aerospace engineers said they would consider moving to a different engineering sector, down from 82 per cent last year, with the automotive industry being their most likely destination.

Although the majority of engineers still expect to remain in industry for the next five years (78.5 per cent), this figure is down slightly on last year's survey (84 per cent).

While the aerospace industry remains very male-dominated, the percentage of women in the sector has increased slightly, from 3 per cent in 2016, to 6.6 per cent this year. The percentage who describe themselves as black, Asian or minority ethnic has also increased slightly, from 5.3 per cent in 2016 to 6.7 per cent in 2017.

average salary by seniority



£46.4k

Average salary of an engineer working in the aerospace sector

average salary by region



5. automotive

average salary by seniority



£48.1k

Average salary of an engineer working in the automotive sector

average salary by region



The UK's automotive industry received a welcome boost in the autumn, with Nissan's announcement that it will build its new Qashqai and X-Trail SUV models at its Sunderland plant.

The announcement also prompted speculation about what assurances the company had received from the government about its support for the automotive industry following the Brexit vote. The industry is likely to be particularly affected by any trade tariffs that could be imposed as a result of the agreement reached between the UK and EU.

But despite this, the sector remains one of UK manufacturing's success stories, with demand high for skilled automotive engineers as a result.

Once again, automotive engineers make up the largest section of our sample, with 395 respondents, 14.9 per cent of the total. The average salary for engineers in the sector is close to the industry-wide average, at £48,100, but this is up from £45,879 last year.

The sector is the most male-dominated of those surveyed, with just 2.8 per cent female employees.

Almost half of respondents from the sector work in the Midlands and East Anglia (47.1 per cent), with 16 per cent based in London and the South East and 15.5 per cent in the North of England.

Automotive engineers in London and the South East and the Midlands command strikingly similar average salaries, at £50,737 and £50,708 respectively. The lowest salaries in the sector can be found amongst those working outside the UK, where engineers earn £10,000 less than those in London and the South East.

Like last year's survey, this year's results reveal that salaries in the sector increase considerably with seniority, with junior engineers earning a modest £29,774. Senior engineers and managers earn an average of £47,550, in contrast, rising to £74,992 for directors.

Over half of engineers in the sector describe themselves as happy in their job, while around one third (34.5 per cent) are satisfied with their salary. A relatively high proportion (83.7 per cent), said they are likely to remain in the industry for the next five years, and 41.3 per cent feel valued by their employers.

6. chems/pharma/healthcare

Before last year's referendum, the chemical, pharmaceutical, and medical sector was considered to be one of the most at risk from a leave vote, as a result of its reliance on European cooperation and funding.

But despite this, concerns amongst engineers in the sector about the impact of Brexit are only slightly higher than the average for industry as a whole, at 62.5 per cent, while a lower than average 35.7 per cent are worried about its impact on their jobs.

The average salary among engineers is £51,750, making it the third highest paid sector behind oil and gas and the energy industry.

Respondents from the sector make up 6.8 per cent of our sample group, a slightly lower percentage than 2016. Just 3.4 per cent of respondents are female, around half the level of engineering as a whole, and once again making it the second-most male-dominated sector.

The survey would seem to suggest that ethnic diversity has improved in the industry, with less than 2 per cent of respondents describing themselves as non-white in 2016, compared to 7.8 per cent in 2017, although this may be the result of the sample size.

The highest salaries in the sector can be found in London and the South East, where the average is £56,500. This is also the region in which the highest percentage of chemical, pharmaceutical and medical engineers are based for work (28.7 per cent).

For each seniority level, average salaries are higher in the sector than for engineering as a whole. Directors in the industry earn an average of £80,023 for example, while senior engineers and managers earn £48,887, and junior engineers and graduates earn £33,966.

This is reflected in satisfaction levels, where 40.8 per cent of engineers in the sector are happy with their salary, the third highest behind the telecommunications, utilities and electronics industry and oil and gas, and an increase on last year's figure of 36.6 per cent. Similarly, 57.4 per cent are happy in their current job, up from 49.8 per cent in 2016, while 83.4 per cent of engineers expect to remain in the industry for the next five years.

average salary by seniority



£51.8k

Average salary of an engineer working in the chems/pharma/healthcare sectors

average salary by region



7. defence/security/marine

average salary by seniority



£46.8k Average salary of an engineer working in the defence and security sectors

average salary by region



The defence industry employs 142,000 people, and has a turnover of £24bn, according to the most recent figures from industry body ADS. Productivity in the sector has also increased by 29 per cent in the last five years, compared to just 2 per cent for the rest of the economy.

The security industry, which includes cyber security and airport protection, has a turnover of £9bn.

Engineers in the sector make up 7.3 per cent of our respondents. The industry has the lowest percentage of graduates, with 45 per cent of engineers having earned a degree, compared to 58.6 per cent in energy, renewables and nuclear.

The average salary of engineers in the sector is a healthy £46,838, up from £43,698 in 2016. Indeed, salaries at all seniority levels in the sector have risen this year, with pay for junior engineers and graduates increasing by £2,289 to £30,929. Among senior engineers and managers, who make up three quarters of our sample from the sector, the average salary has increased from £44,505 to £46,954 in 2017.

Meanwhile, after a significant drop last year, directors have seen their average pay recover from £64,430 to £80,853, taking them back to the level last seen in 2015.

As a result, levels of pay satisfaction have also increased marginally this year, from 28 per cent in 2016 to 31 per cent today.

The largest percentage of defence and marine engineers in our sample are based in London and the South East (27.8 per cent), followed by the South West (24.7 per cent) and the Midlands and East Anglia (19.1 per cent).

By far the best salaries among those in the defence industry responding to our survey can be found in the North of England, with an average pay of £57,473, a considerable increase on last year (£45,217). Salaries have also increased in the Midlands and East Anglia, albeit with more modest gains, rising from £44,441 to £46,722. And amongst engineers working outside the UK, where salaries had been cut in half last year to £34,337, average pay has also increased significantly to £50,023.

This is reflected in the percentage of defence engineers expecting to stay in the industry for the next five years, which at 88.2 per cent is the highest amongst the sectors. Meanwhile, 43.5 per cent of defence and marine engineers are considering a change of job, the third lowest behind materials and oil and gas.

8. energy/renewables/ nuclear

It has been another turbulent year for the energy industry, with concerns mounting over the impact of Brexit on the sector.

There are fears that uncertainty over whether the UK will continue to be a member of the EU's internal energy market could threaten future projects. And the Brexit bill made clear that as well as leaving the EU, the UK will be leaving Euratom, the European atomic energy regulator, which is expected to complicate plans to build a new generation of nuclear power stations across the country.

But despite this uncertainty, there has also been a considerable amount of activity across each of the energy sectors, with work starting on construction of EDF Energy's Hinkley Point C nuclear power station, alongside major offshore wind projects such as Dong Energy's 1GW Hornsea Project One farm off the Yorkshire coast, and Scottish Power's £2bn East Anglia One project.

The sector remains the second highest paid industry behind oil and gas, with an average salary of £51,953, up from £50,132 in 2016.

Engineers in this sector made up 9 per cent of respondents to our survey this year, and of these, 54 per cent work in the energy industry, 30.8 per cent in nuclear and 15.2 per cent in renewables.

The gender balance is broadly in line with the rest of engineering, with women making up 8 per cent of our sample, while 10.6 per cent describe themselves as non-white, compared to 8.6 per cent for industry as a whole.

The highest salaries in the sector can be found in the North of England, where the average salary is £56,570. Surprisingly, the lowest salaries can be found in London and the South East, with £49,066, down from £54,276 in 2016, although this may reflect the size of the sample.

Directors in the sector earn £71,389 on average, a slight decrease on last year, while junior engineers and graduates are earning approximately the same as last year, on £30,877.

Engineers in the sector are reasonably content, with 38.8 per cent happy with their salary, and 83.1 per cent expecting to remain in the industry for the next five years. However, half of our sample are considering a change of job.

average salary by seniority



£51.9k

Average salary of an engineer working in the energy/renewables/nuclear sectors

average salary by region



9. food & drink/ consumer goods

average salary by seniority



£46.5k

The average salary of an engineer working in the food & drink, and consumer sectors

average salary by region



The food and drink industry is the UK's biggest manufacturing sector, larger than automotive and aerospace combined, according to the Food and Drink Federation. It contributes £28.2 billion to the economy, with exports alone worth £2 billion in 2016, the FDF says.

Salaries for junior engineers and graduates in food and drink are the lowest of all the sectors, with an average of £24,954, down from £26,240 in 2016 and the second year in a row that pay for those starting out in the industry has fallen.

For those who reach senior engineer or manager level, however, the average salary increases to £48,626, while directors can expect to earn around £67,980.

Overall, the average salary for engineers in the sector is £46,460, up from £44,196 in 2016.

Engineers from the sector make up 6.8 per cent of respondents, of whom half are working in consumer goods and half in food and drink.

A quarter of all respondents from the sector are based in the Midlands and East Anglia, followed by 19.8 per cent in the North of England, 16.4 per cent in London and the South East, 15.3 per cent in the South West, 13.6 per cent outside the UK, and 10.2 in Scotland, Wales and Northern Ireland. Engineers working in the South West earn the highest average salary in the sector, at £48,703.

Only 30.4 per cent of engineers in the sector feel they are appropriately paid, the second lowest across all of the industries behind rail, civil and structural. What's more, only 45.2 per cent are happy in their current role.

Despite this though, 81.6 per cent expect to remain in the industry for the next five years.

The sector has the lowest levels of professional registration of any of those surveyed, with just 27.8 per cent registered. While almost half of engineers in the sector have a degree, 45 per cent entered the profession through an apprenticeship, the second highest percentage behind oil and gas.

10. materials

Developments in materials underpin many of today's most significant technological breakthroughs, from the potential for graphene to revolutionise electronics, to the increasing use of composites in aircraft.

Respondents from the materials industry make up 4.2 per cent of our sample. Their average salary has increased considerably since last year's survey, rising from £39,494 to £48,318, meaning they have leapt from second from bottom of our table to the fourth highest paid sector in the past 12 months.

However, it must be stressed that the average salary for 2016 was itself £10,000 lower than that for 2015, suggesting that this may have been a blip caused by the sample size, and that the figure for 2017 is more representative of earnings in the sector.

If you are looking for the highest salaries in materials, the best place to head appears to be the South West, a centre of excellence for composites, where engineers in the sector can expect to earn around £53,000 on average. This is also a significant increase on last year, when the average was £37,000, although this again may be the result of the small sample size for the region. In the Midlands and East Anglia, materials engineers earn £51,071, while the average salary is £49,076 in London and the South East, and £46,565 in the North of England.

The highest number of engineers responding to the survey are based in the Midlands and East Anglia (27.3 per cent), followed by those working overseas (22.7 per cent) and in the North of England (20.9 per cent).

Women make up 10 per cent of our materials sample, just behind academia and rail, civil and structural in closing the gender divide.

Almost half (49 per cent) of respondents in the sector are over 50, while the mean age is 46.2, making it a slightly older industry than the average for engineering as a whole.

Materials engineers seem a reasonably content bunch, with 58.2 per cent happy in their current job, a higher rating than many industries, and a rise from 51 per cent last year. Meanwhile, 54.1 per cent feel valued by their employer, considerably above the 40.9 per cent for industry as a whole.

Just 76.5 per cent expect to remain in industry for the next five years however, which is the second lowest level after academia, although this may be the result of the higher age of many of the respondents.

average salary by seniority



£48.3k

The average salary of an engineer working in the materials sector

average salary by region



11. oil & gas

average salary by seniority



£54.5k Average salary of an engineer working in the oil & gas sector

average salary by region



After an extremely tough few years for the oil and gas industry, with weak demand and low prices, there are signs that the sector is beginning to recover.

Oil prices have risen, and expenditure is expected to continue following suit.

This will be good news for engineers in the sector, who once again top the table with the highest average salary for any industry. Engineers in oil and gas earn an average of £54,461, up from £51,370 in 2016.

The industry also once again boasts the highest earning senior engineers and managers (£53,896) and directors of any of the sectors.

Engineers working in oil and gas accounted for 7.3 per cent of respondents to our survey, a very similar percentage to 2016. Although Scotland is often seen as the hub of the oil and gas industry in the UK, engineers working in the sector are fairly evenly spread geographically, with around one-fifth working in the North of England, and similar numbers in London and the South East; outside the UK; and in the Midlands and East Anglia. The remaining fifth consists of 13.5 per cent working in Scotland, Wales and Northern Ireland, and 5.7 per cent in the South West.

However, the highest salaries in the industry can be found in Scotland, Wales and Northern Ireland, with an average of £72,480. This represents a significant increase on last year's salary rate for the region (£56,604).

Engineers in the oil and gas industry are reasonably content, with 41.2 per cent happy with their salary, second only to the telecommunications, utilities and electronics sectors. They are also amongst the least likely to be considering a change of job (42.9 per cent) and most likely to remain in the industry for the next five years (83.7 per cent).

The vast majority of those in the sector have been working in engineering for between 20 to 40 years.

Just over half of oil and gas engineers are concerned about the impact of Brexit on the industry, while around one third are worried about its effect on their own job security.

Diversity remains a difficulty within the industry, with women making up just 4.7 per cent of respondents from the sector, the same percentage as 2016, and 11.5 per cent describing themselves as Black, Asian or minority ethnic (BAME).

12. rail, civil and structural

It is an incredibly busy time for the UK rail, civil and structural engineering industries. With Crossrail nearing completion, plans for the High Speed 2 intercity rail network underway, and over £500bn of government infrastructure investment announced, demand for skilled engineers in the sector is high.

But despite this demand, salaries in the sector remain lower than the average for engineering as a whole, at £44,890, putting them just above academia. This is an improvement on 2016, however, when the average salary in the sector was £43,181.

Respondents from the sector make up 5.5 per cent of our sample, of whom 31 per cent work in rail and 69 per cent in civil and structural.

Engineers in the sector are the youngest of all those surveyed, with an average age of 42. Just 34 per cent are over 50, the lowest percentage in our sample.

Gender and racial diversity also remains one of the sector's strengths, when compared with other areas of industry. Women make up 10.3 per cent of respondents, for example, the same percentage as 2016 and the second highest in this year's survey behind academia. And the sector has the highest proportion of engineers from ethnic minorities, with 11.5 per cent describing themselves as black, Asian or minority ethnic.

Levels of job satisfaction have dropped significantly, however, perhaps reflecting the lower salary levels compared to other sectors. Only 29.3 per cent of engineers in rail, civil and structural are happy with their salary, the lowest percentage in our sample and down from 36.1 per cent last year. What's more, just a third of engineers felt valued in their current roles, down from almost half in 2016.

Engineers in the sector are also the most likely to be considering a change of job, with 56.5 per cent thinking about a move, compared to 42 per cent in materials.

Of those interested in a change of job, the renewables and defence sectors appear the most attractive to rail and civil engineers, with 42.5 per cent and 41.5 per cent saying they would consider a move to these sectors, respectively.

A third of engineers in the sector are based in London and the South East, reflecting the continuing rail and infrastructure improvement work going on in the city, including Crossrail and the Thames Tideway Tunnel. This is followed by 19.3 per cent in the Midlands and East Anglia, and 17.9 per cent in the North of England and outside the UK. The average salary is also highest in London and the South East, at £49,422.

average salary by seniority



£54.8k Average salary of an engineer working in the rail, civil and structural sectors

average salary by region



**13. telecommunications/
 utilities/electronics**

average salary by seniority



£46.6k

Average salary of an engineer working in the telecoms/utilities / electronics sectors

average salary by region



The telecommunications, utilities and electronics sector is a vibrant industry. According to techUK, the electronics industry alone contributes £80 billion to the UK economy, or 5.4 per cent of GDP.

Engineers in the sector make up 9.7 per cent of all respondents to the survey. The vast majority of these, 78.3 per cent, are working in electronics.

The average salary in the industry is £46,567, taking it back up to the level in 2015, after a dip in 2016 to £44,900.

Engineers working in the industry are fairly well spread out geographically, with the highest number to be found in either London and the South East (21.5 per cent) or the Midlands and East Anglia (21.1 per cent).

Average salaries in the sector vary considerably by region, with those in the highest paid region, London and the South East, earning £53,300 on average, £13,000 more than those in the lowest paid region, Scotland, Wales and Northern Ireland.

Overall though, engineers in the sector are the happiest with their salaries of all those in our sample (42.3 per cent). Job satisfaction has also increased, with 52.7 per cent describing themselves as happy in their current role, compared to 50 per cent last year. This may help to explain why only 43.7 per cent are considering a change of job, the third lowest percentage for all of our sectors.

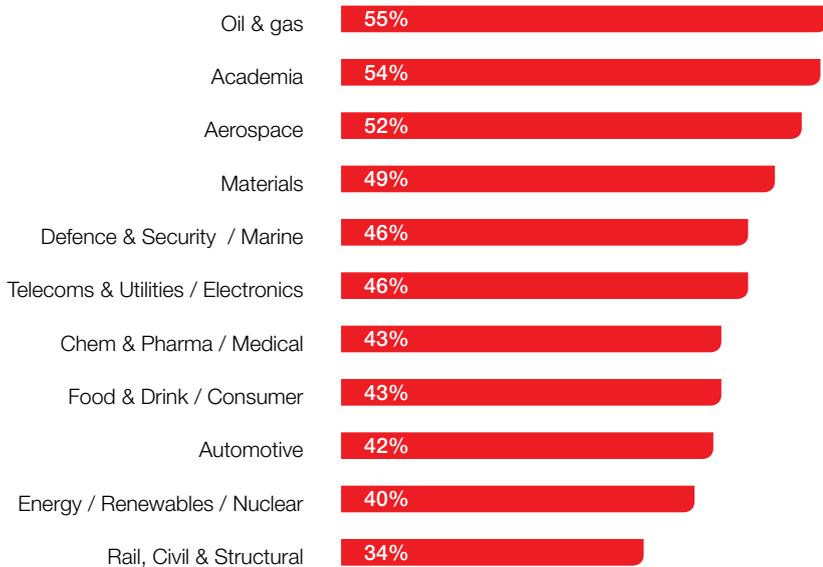
Of those that are considering a change of job, two-thirds are looking for a fresh challenge and a better salary.

Over half of engineers in the sector have a degree, while 32.1 per cent entered the profession via an apprenticeship.

The sector appears to be doing a better job than most at attracting talent from the ethnic minorities, with 10.6 per cent describing themselves as black, Asian or minority ethnic, second only to the rail, civil and structural engineering industry.

14. age

% engineers over 50 by sector



45.4

Average age of engineers across industry

The aging nature of the UK's engineering workforce, and the impending skills crisis as large numbers of trained professionals retire from industry, continues to be a cause for concern.

The average age of engineers across industry is 45.4, almost two years older than last year's survey. Engineers in rail, civil and structural are the youngest overall, with an average age of 42, while those in academia are the oldest, at 47, up from 44.8 in 2016.

Once again though, more engineers are in their fifties than any other age bracket, with 32 per cent aged between 50-59, compared to 28.9 per cent last year. This indicates that the proportion of professionals heading towards retirement age is increasing.

Indeed, there are more engineers over 60 (14.1 per cent) than there are in their twenties (10.9 per cent), although this may be the result of a smaller sample size this year. Finally, 18.5 per cent of engineers are in their thirties, and 24.4 per cent in their forties.

There remains a considerable demographic difference amongst the various sectors. In the oil and gas industry, for example, 55 per cent of engineers are over 50, the highest proportion of all the sectors. At the other end of the scale, 26.5 per cent are in their 20s and 30s.

In rail, civil and structural, in contrast, just 34 per cent of engineers are over 50, while 41.5 per cent are in their twenties and thirties. This suggests the industry is doing well in attracting young people into engineering. The younger age of engineers in the sector may also partly explain why it also has the highest percentage of professionals considering a change of job (56.5 per cent) of any industry, since people tend to move around much more in the early stages of their career.

Interestingly, those at either end of the age scale tend to be the most content with their roles, with 58.7 per cent of those in their 60s and 59.5 per cent of under thirties describing themselves as happy in their job.

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
Academia	43,809	47	31.70	61	44.40	71.60
Aerospace	46,362	46.4	37.5	54.9	45.8	78.5
Automotive	48,100	45	34.5	52.7	45.7	83.7
Chemicals & Pharma/Healthcare	51,750	46.6	40.8	57.4	43.8	83.4
Defence & Security/Marine	46,838	44.7	31	50.3	43.5	88.2
Energy/Renewables/Nuclear	51,953	44.6	38.8	45.7	50	83.1
Food & Drink/Consumer Goods	46,460	44.6	30.4	45.2	47	81.6
Materials	48,318	46.2	34.7	58.2	42	76.5
Oil & Gas	54,461	46.5	41.2	48.6	42.9	83.7
Rail/Civil & Structural	44,890	42	29.3	45.9	56.5	80.5
Telecoms & Utilities/Electronics	46,567	45.4	42.3	52.7	43.7	80.1

15. job satisfaction

Despite concerns over the potential damage to the economy following the Brexit vote, and particularly over its impact on industry, salaries have risen across all sectors since 2016.

Once again, the highest salaries in engineering can be found in the oil and gas industry, with professionals earning an average of £54,461, compared to £51,370 twelve months ago.

This is followed by those in the energy, renewables and nuclear industries, who earn £51,953 on average, up from £50,132 in 2016.

At the other end of the pay scale, where engineers in academia are earning over £10,000 less than their highest paid peers in the oil industry, average earnings are £43,809. However, this is an increase on 2016, when academics were earning £38,029 on average.

But proving once again that money does not buy happiness, academics continue to be the most

content in their jobs. Of those surveyed, 61 per cent of engineers in academia said they were happy in their jobs, compared to 56.1 per cent in 2016.

And despite sitting in the lower half of the earnings league table, engineers in the telecoms, utilities and electronics industries are the happiest with their salary (42.3 per cent), closely followed by those working in oil and gas (41.2 per cent).

Engineers in the materials industry, meanwhile, are the least likely to say they are considering a change of job, and the most likely to feel valued in their role (54.1 per cent).

Those in the defence, security and marine sector are the most likely to see themselves staying in the industry for the next five years.

Not everyone is happy with their lot, however. Engineers in the food and drink and consumer goods industries are the least likely to describe themselves as happy in their jobs (45.2 per cent), while despite

enjoying their roles, engineers in academia are the least likely to feel valued (33.6 per cent).

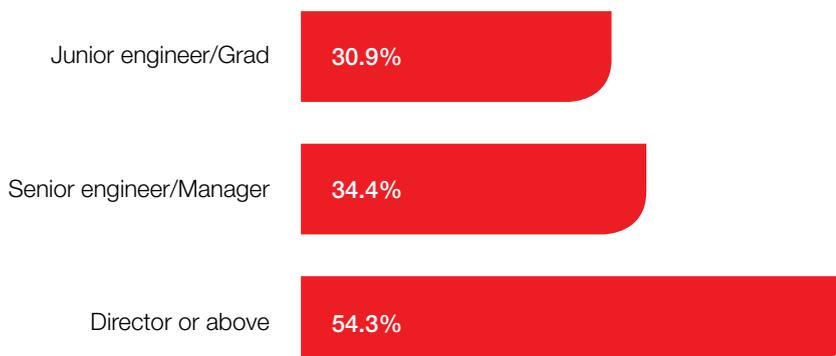
Amongst the least content are engineers in the rail, civil and structural industries, where over half are considering a change of job (56.5 per cent). They are also the least content with their salaries, with just 29.3 per cent describing themselves as happy with their pay.

Rates of holiday are highest in academia, where 41.5 per cent receive more than 30 days paid leave, up from 35.7 per cent in 2016, and 39 per cent receive between 26 to 30 days. Outside academia though, engineers in the car industry are most likely to receive 26 to 30 days paid leave (35.7 per cent).

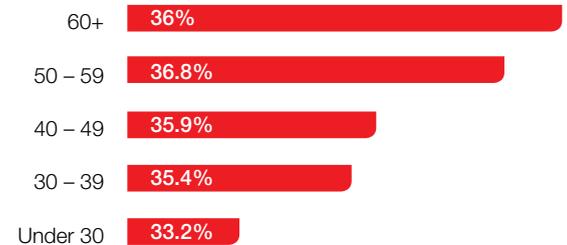
Engineers in the rail, civil and structural sectors are the least likely to receive over 30 days paid leave (4.5 per cent), while just 22.3 per cent of those working in materials receive between 26 to 30 days.

As in 2016, engineers in the defence, security and

% happy with salary by seniority



% happy with salary by age



	Percentage that feel valued in current role	Percentage that do not feel valued
	33.60	30.50
	34.9	33.8
	41.3	28.5
	47.3	24.3
	37.4	25.7
	37.4	28.8
	38.1	29.8
	54.1	22.4
	42.9	26
	34.6	32.3
	42.7	22.8

percentage happy with salary by region



marine industry are the most likely to have received a bonus in the last 12 months, with 95.4 per cent on the receiving end.

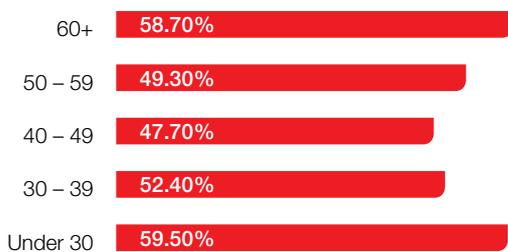
Surprisingly though, engineers in the oil and gas industry are the least likely to have received a bonus in the past 12 months (82.1 per cent).

In terms of qualifications, once again more engineers in the energy, renewables and nuclear industries have a degree than any other sector, at 58.6 per cent, closely followed by rail, civil and structural (58.2 per cent).

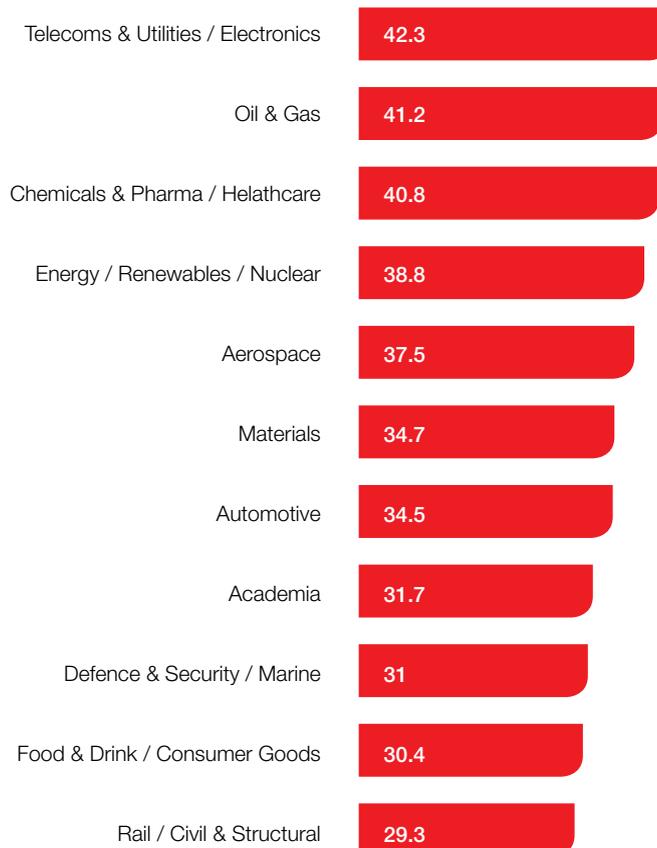
The defence, security and marine industries have the fewest graduates, with 45 per cent of engineers having received a degree.

The oil and gas industry, meanwhile, has the highest proportion of engineers who have worked their way into the industry through an apprenticeship (48 per cent), while the energy, renewables and nuclear has the lowest number (28.8 per cent).

% happy in job by age



percentage happy with salary by sector



16. change of job/leaving industry

Despite the odd grumble over pay and workload, very few engineers in the UK are planning a change of career. Of those surveyed, 81.9 per cent said they expected to remain in the industry for the next five years, a slight decrease on last year's figure of 83.8 per cent. Conversely, just 8.9 per cent consider it unlikely or highly unlikely that they will still be in the industry in five years, although up slightly from 7.1 per cent in 2016.

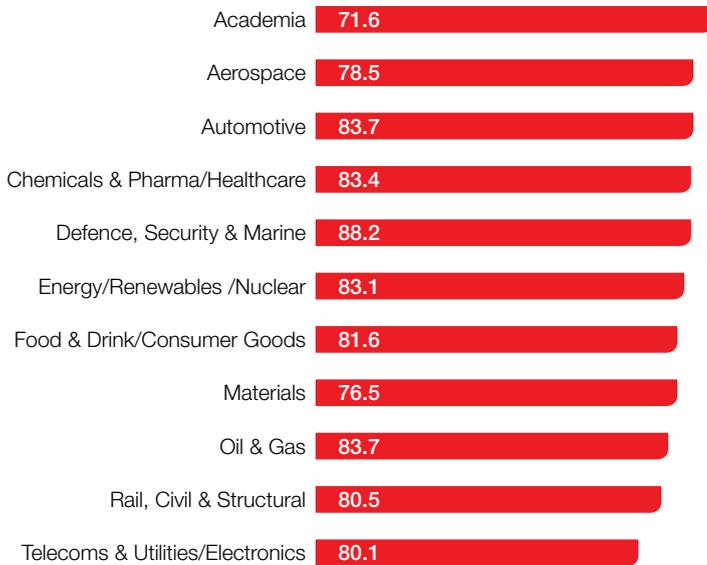
For those looking to leave the industry, the biggest motivation is once again a new challenge (66.2 per cent), followed by a better salary (58.8 per cent). For those looking for a change within the engineering industry, the desire for a more lucrative salary is once again the biggest draw (71.2 per cent). Around half of all engineers would consider a position overseas, a similar figure to last year. Of these, Europe is the most popular destination (78.9 per cent) followed by the US (74 per cent).

Slightly under half of our sample (45.1 per cent) are considering a change of job, while 73.8 per cent of all engineers surveyed could envisage moving to a

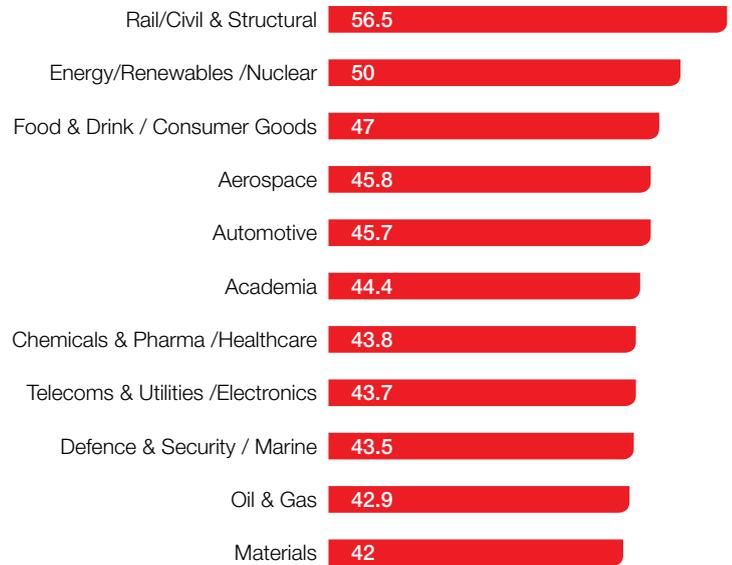
different sector of industry. The most attractive destination sectors for engineers considering a change were aerospace (44.7 per cent), energy (40.9 per cent), and automotive (40.4 per cent).

Sadly, once again the civil and structural sector was the least appealing to engineers considering a move, with just 14 per cent saying they would consider switching to the industry, a very similar figure to last year. However, this may reflect the different skill sets involved in civil and structural engineering, compared to those used in other areas of industry. The rail, civil and structural sector also has the highest percentage of engineers considering a job change, with 56.5 per cent pondering a move. Like 2016 engineers in materials, a sector with a considerable increase in salaries over the last 12 months, are the least likely to be considering a change of job (42 per cent). A higher proportion of women (12.2 per cent) than men (9 per cent) expect to leave engineering in the next five years. However, both these figures are higher than last year's survey, when just over 5 per cent of men and women were expecting to leave.

% 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

This year the sector to head for if you are an engineer looking for a bonus to top up your salary is chemicals, pharmaceuticals and medical.

The sector has by far the highest percentage of engineers receiving a bonus, at 60.5 per cent. The industry is consistently one of the most generous when it comes to handing out bonuses, coming in second last year with 54.5 per cent, and first in 2015 with 62 per cent.

The second most generous industry for bonuses this year is oil and gas, where 52.2 per cent of engineers received a payment.

Overall, 46.8 per cent of engineers across our sample receive a bonus, a slight increase on last year's 45.3 per cent.

But spare a thought for engineers in academia, of whom only 11 per cent received a bonus. This means academia has been the least likely sector to hand out bonuses for three years in a row, with 4.8 per cent last year and 6 per cent in 2015.

The percentage of engineers enrolled on a contributory pension scheme has remained largely the same this year, increasing only fractionally from 73.1 per cent in 2016 to 73.8 per cent in 2016.

Engineers in defence, security and marine are the most likely to receive a contributory pension (78 per cent), followed by those in chemicals, pharmaceuticals and medical (76.2) unlike 2016, when academics were more likely to be enrolled on a scheme. Meanwhile those in telecoms, utilities and electronics are the least likely to be enrolled in a contributory pension scheme this year.

In total, 37.6 per cent of engineers receive private medical insurance, rising to 51.6 per cent in the oil and gas industry. But just 6.1 per cent of academics receive medical insurance. Around a third of engineers are able to take advantage of flexible working arrangements (32.9 per cent), up from 30.3 per cent in 2016.

	Medical insurance	Flexible working	Contributory pension	Bonus
Academia	6.1	45.1	74.4	11
Automotive	38.6	29.4	73.8	43.9
Chem & pharma / medical	57	32.6	76.2	60.5
Defence & Security / Marine	28.8	53.9	78	45.6
Energy / Renewables / Nuclear	36.4	38.7	71.6	44.9
Food & Drink / Consumer	39	22.1	73.3	49.4
Materials	45.2	31.7	75	48.1
Oil & gas	51.6	21.2	72.8	52.2
Rail / Civil & Structural	39.6	27.6	73.1	42.5
Telecoms / Utilities & Electronics	39.4	35	70.3	51.2

18. routes into industry

As was the case last year, around half of all engineers in our sample have a degree, while 38.5 per cent entered the profession through an apprenticeship, up slightly from 2016.

However, just as in 2016, the percentage of engineers who have undertaken an apprenticeship rises considerably with age. So while 28.1 per cent of engineers under 30, 20.8 per cent of those in their thirties and 29.9 per cent in their forties have entered the profession via an apprenticeship, this rises to 50.7 per cent of professionals in their 50s, and 55.9 per cent of those in their 60s.

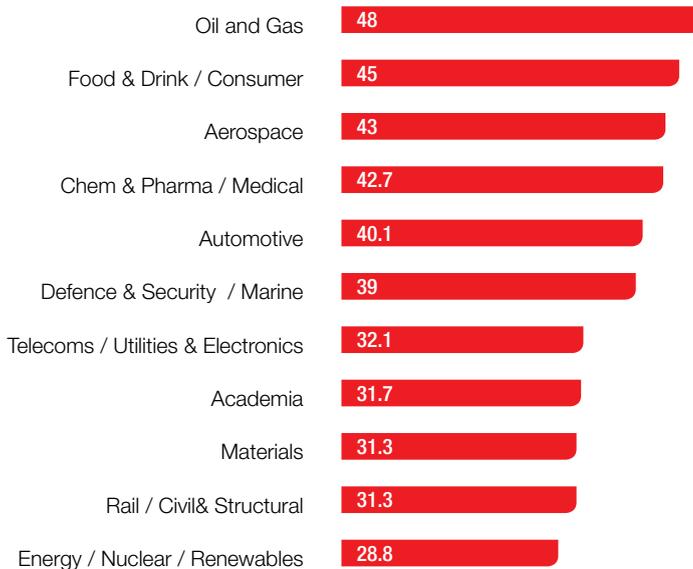
However, unlike our 2016 survey, in which the percentage of engineers with a degree decreased with rising age, this year professionals in their forties are most likely to have a degree (58.2 per cent). This is closely followed by engineers in their twenties and thirties, both on 56.9 per cent, but drops amongst professionals in their fifties (45.3 per cent) and sixties (39.5 per cent).

Among the sectors, the oil and gas industry has the highest percentage of engineers who have qualified via an apprenticeship (48 per cent), followed by food and drink and consumer goods (45 per cent) and aerospace, last year's leader (43 per cent). The lowest proportion of engineers who have completed an apprenticeship can be found in energy, renewables and nuclear (28.8 per cent).

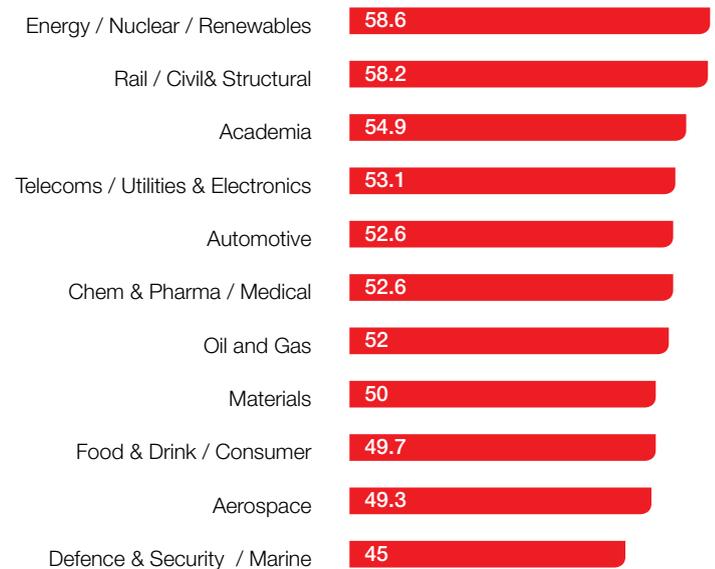
Surprisingly there are more graduates in both energy, renewables and nuclear (58.6 per cent) and rail, civil and structural (58.2 per cent) this year than there are in academia (54.9 per cent).

A much higher percentage of men have entered the profession through an apprenticeship (40.3 per cent) than women (12.1 per cent), suggesting that this route has been more attractive to boys than girls in the past. Conversely, a higher proportion of female engineers have degrees (58.9 per cent) than men (50.5 per cent).

% qualified by apprenticeships by sector



% qualified by bachelor/honours degree by sector



19. professional registration

For the majority of engineers, pursuing professional registration does not score very highly on their list of career-related priorities.

Overall, 38.5 per cent of engineers have chosen to pursue registration, a similar percentage to previous surveys. But like our 2016, and indeed 2015 surveys, the percentage of engineers who are professionally registered increases in line with seniority. While 33.3 per cent of junior engineers are registered, compared to 30.9 in 2016, among senior engineers and managers the figure is 38.6 per cent (37.1 per cent in 2016). But almost half of directors (45.1 per cent) are professionally registered, compared to 43.4 per cent in 2016.

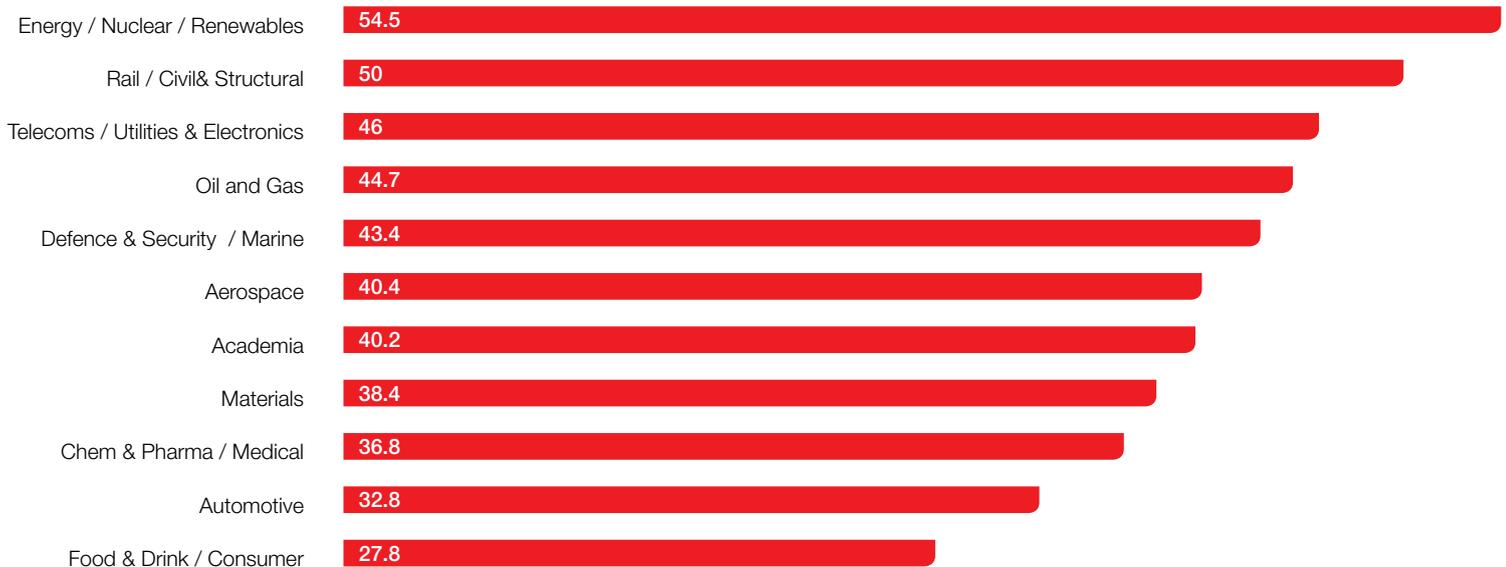
Amongst the different sectors, there is also considerable variation, with 54.5 per cent of engineers in energy, renewables and nuclear having chosen professional registration, while just 27.8 per cent of those in the food and drink and consumer industries have done the same.

This is very similar to our 2016 survey, when the two sectors with the highest and lowest levels of registration respectively. It suggests that there is a definite and difference over how highly professional registration is valued by various sectors.

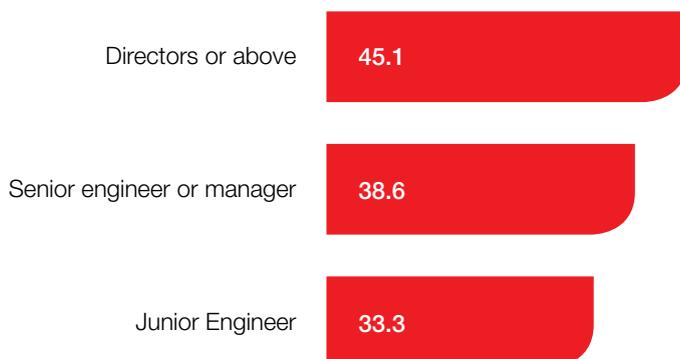
There is very little difference between the percentages of male and female engineers who have pursued registration, with 38.7 per cent of men and 36.3 per cent of women having chosen to do so. Rates of registration are very slightly higher among younger engineers, however, with 40 per cent of the under 30s and 41.9 per cent of those in their 30s having chosen registration, compared to 37.8 per cent in their 40s, 38.1 per cent in their 50s, and 35.2 per cent of the over 60s.

However, the difference in the percentage of white (37.5 per cent) and black, Asian and minority ethnic (48.8 per cent) engineers having chosen registration has widened compared to 2016, when the percentages were 36.4 per cent and 39.8 per cent respectively.

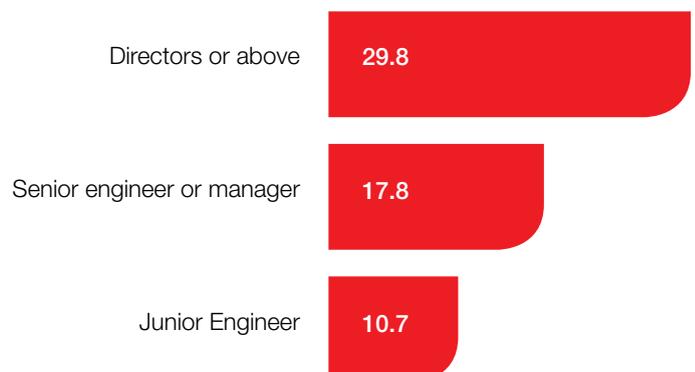
% professionally registered by sector



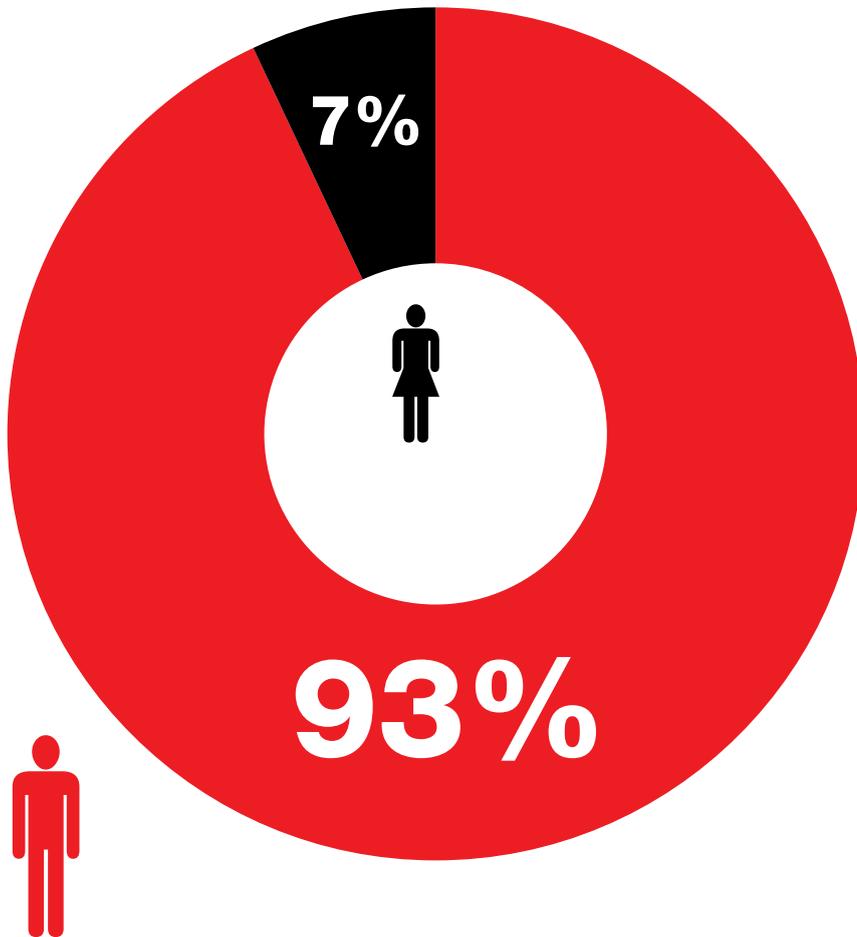
% professionally registered by seniority



% agree professional registration leads to higher salary by seniority



gender split



20. gender & diversity

The gender imbalance within engineering continues to be a problem for its various sectors, despite numerous initiatives designed to attract more women to the profession.

Just 7 per cent of the respondents to this year's survey are women, compared to 6.5 per cent in 2016, and 5.5 per cent in 2015.

Difficulties in attracting and holding on to female professionals is not one that is limited to engineering, but affects all of the STEM sectors. However, as the latest figures from the Women into Science and Engineering (Wise) campaign's STEM workforce analysis makes clear, engineering is particularly struggling.

The proportion of women in the STEM workforce as a whole was 21 per cent in 2016, while among ICT professionals it was 18 per cent, and among science professionals it was 41 per cent. However, the figure among engineering professionals was remarkably similar to our survey, at just 8 per cent.

Among the individual sectors, the industries with the highest proportion of women are academia (10.8 per cent) and rail, civil and structural (10.3 per cent), with the figure for the latter remaining unchanged since 2016.

These are followed by the materials industry, where 10 per cent of the sample are female.

At the other end of the scale, just 2.8 per cent of engineers in the automotive industry are women, 3.4 per cent of those in chemicals, pharmaceuticals and medical, and 3.6 per cent in defence, security and marine.

The average salary for women in engineering is £10,000 lower than their male counterparts – just as it has been in our previous surveys – at £38,109, compared to £48,866. This is a slight increase on the average salary among women in 2016, of £36,201. As with previous years, however, this may be partly a result in the difference in seniority among respondents, with 8.8 per cent of women describing themselves as graduates, for example, and 20 per cent as junior engineers, compared to 2.2 per cent and 11.5 per cent of men, respectively.

Of more concern, women at every level of seniority are, on average, paid less than their male colleagues. For example, at junior level women earn on average £4,000 less than their male colleagues. The gap widens at director level with women paid on average £20,000 less. A slightly lower percentage of women describe themselves as managers this year (25.9 per cent), compared to 2016 (29 per cent), although it must be said that the sample of female respondents is fairly small, meaning the results may not be as statistically robust.

Job satisfaction levels are only slightly higher among men than women, with 52.1 per cent of men and 49 per cent of women happy in their current role.

However, 36.5 per cent of men and just 25.8 per cent of women feel their salary level is appropriate, reflecting the pay gap between the sexes.

The diversity gap, meanwhile, has reduced slightly since last year, with 89.3 per cent of respondents describing themselves as white, compared to 92.1 per cent in 2016. Just 7.3 per cent describe themselves as BAME (black, Asian and minority ethnic), compared to only 6 per cent in 2016.

In the individual sectors, 11.5 per cent of engineers in the rail, civil and structural sectors describe themselves as BAME, of whom 7.6 per cent are Asian, and 3.1 per cent black. In contrast, just 2.1 per cent of engineers in defence, security and marine describe themselves as BAME.

average salary by gender

	Junior	Senior	Director
Male	29,536	48,422	76,611
Female	25,408	42,082	56,011

Salaries among black, Asian and ethnic minority engineers also continue to lag behind their white peers, with an average of £38,080 among BAME professionals – down from £40,979 in 2016 – compared to £49,071 among white respondents.

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

