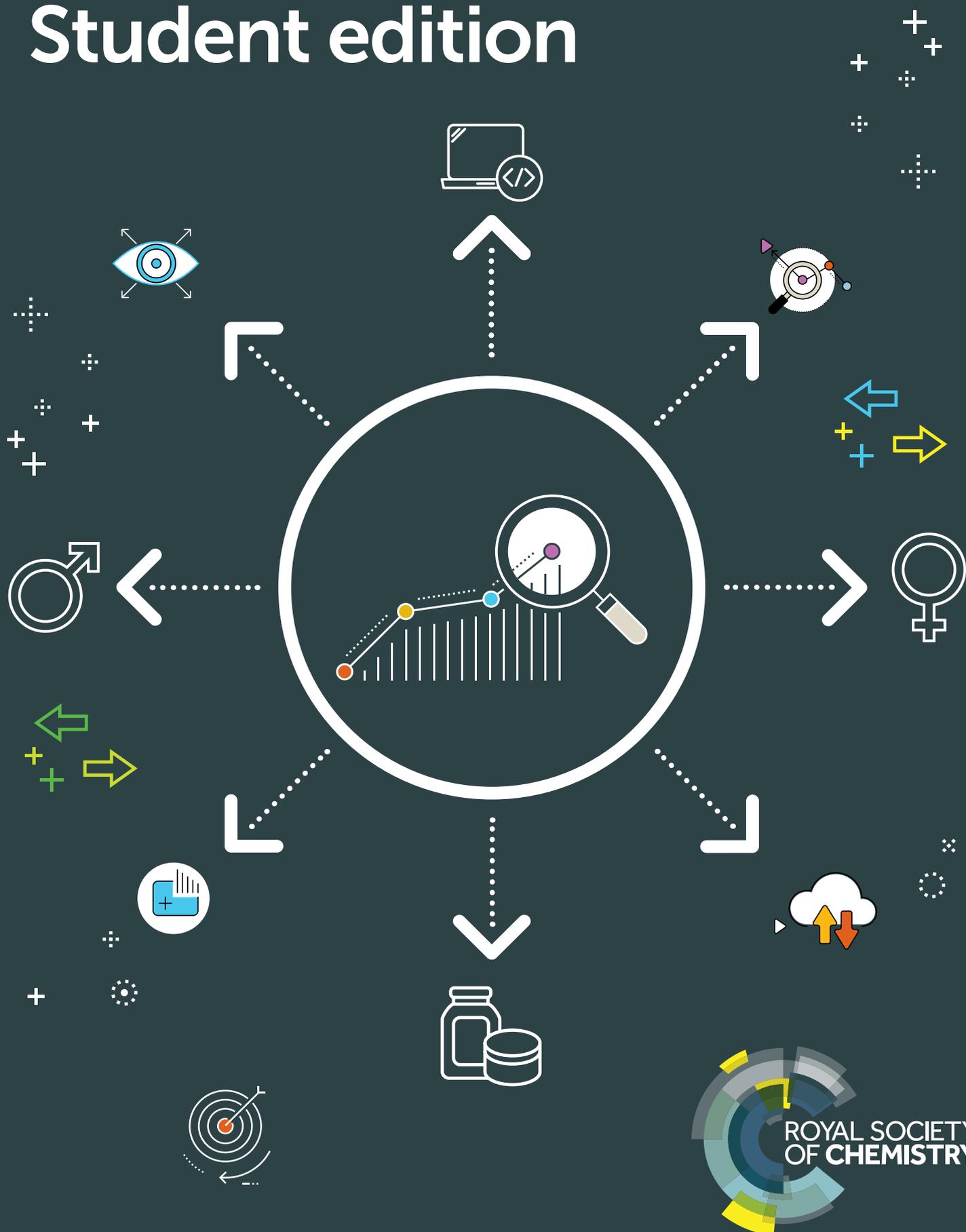


# Pay and Reward Survey report 2017 Student edition



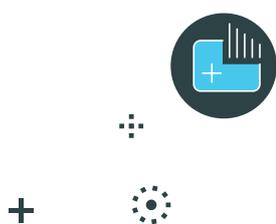
ROYAL SOCIETY  
OF CHEMISTRY



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# Foreword

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Welcome to the student edition of the 42nd Royal Society of Chemistry's Pay and Reward survey report on salaries, benefits and perceptions of career prospects from members working in the chemical sciences.

This year we have produced a condensed version of the report combining Higher Education outcomes data, which surveys graduates 6 months after completing their course, with data from the 2017 Pay and Reward biennial survey. This is to show the long-term career prospects in the chemical sciences and to help you make your next career decision. It brings together salary expectations, information about the recruitment market for chemistry graduates in the UK, and the variety of sectors and roles in which chemistry graduates work. It also discusses the prevalence and impact of further study, opportunities for skills and career development, information about the gender pay gap and job satisfaction within the sector.

A key finding is that an increasing number of organisations employing chemical science professionals offer flexible working and a wide range of benefits. Leadership skills, strategic planning and management were highlighted as the skills that members felt they most needed to progress in their careers. Most salaries have also risen since the last survey in 2015 but the gender pay gap continues.

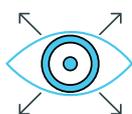
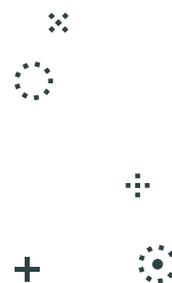
The full report is available for members to download at <http://www.rsc.org/Membership/Memberzone/profserv/Trends.asp>

If you would like to make any comments or observations then please contact [careers@rsc.org](mailto:careers@rsc.org)

## Hilary White

Manager, Membership

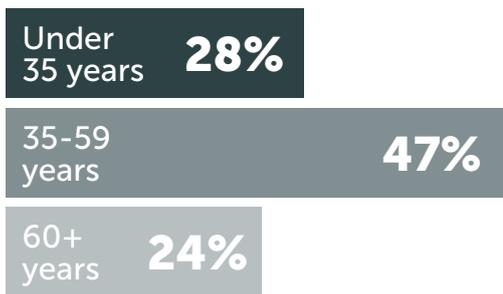
Royal Society of Chemistry



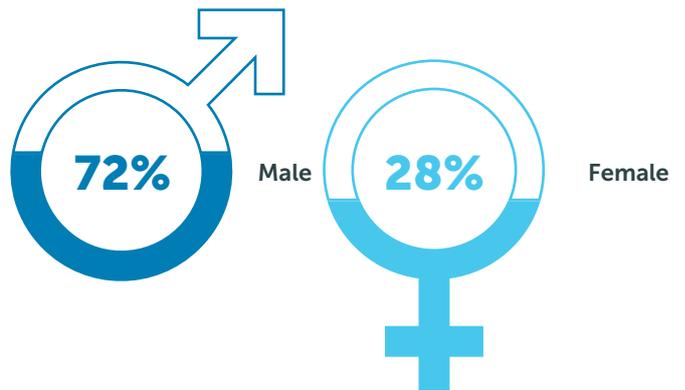
# Introduction

In 2017, **6,967** members took part in our Pay and Reward Survey, representing a response rate of **19%**. Those who took part are a representative sample of our whole membership.

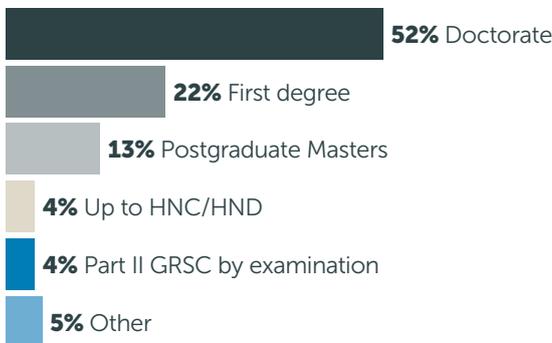
## Age



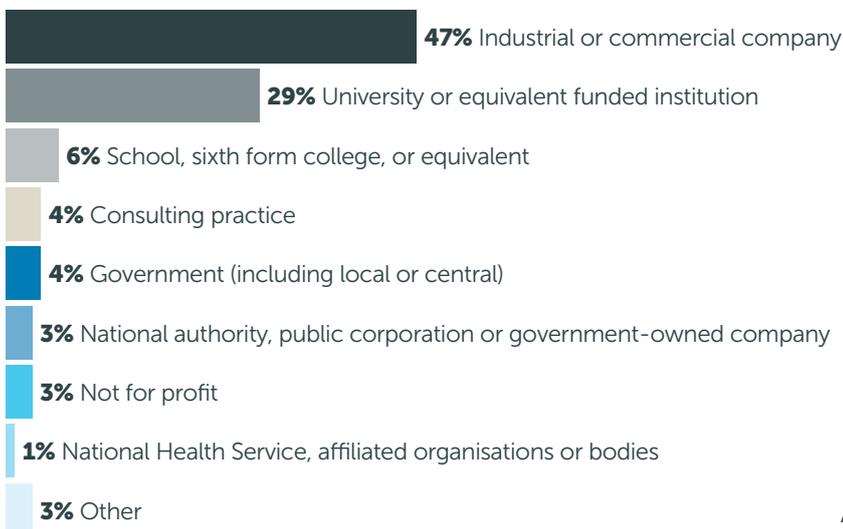
## Gender



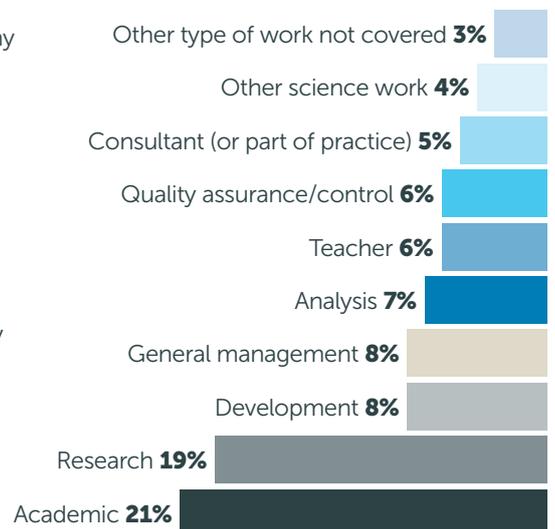
## Highest qualifications



## Sector type



## Job type (top 10)



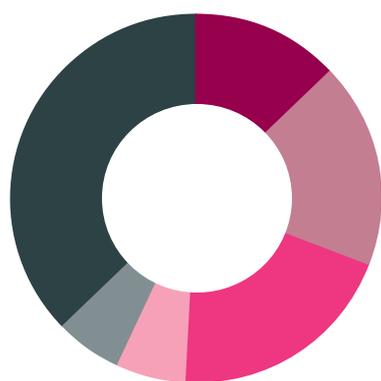
# Part one: What chemistry graduates do?

According to the Higher Education Statistics Agency 2017/18 survey<sup>1</sup>, which surveys graduates six months after graduation, **33%** of chemistry undergraduates in 2016 went into further study (PhD, Masters or postgraduate qualification in education) which is the highest percentage amongst science students.

Year	% of those in further study	Number of new chemistry graduates
2014	31%	3,540
2015	32%	3,680
2016	33%	3,555

Six months after graduation, 55.6% of chemistry graduates were employed<sup>1</sup>. They went into a diverse range of jobs with a large portion going into business, HR and finance roles demonstrating the transferable skills gained during a chemistry degree that are valued by UK employers.

## What chemistry graduates do?



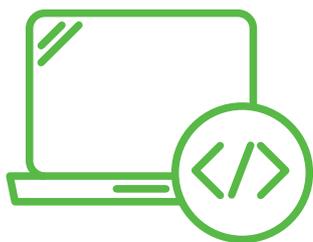
- 13%** Business, HR and finance
- 18%** Science professionals
- 20%** Other professionals, associate professionals and technicians
- 6%** Education professionals
- 6%** Marketing, PR and sales professionals
- 37%** Other

<sup>1</sup> Higher Education Statistics Agency 2017/18 survey

[https://www.hecsu.ac.uk/assets/assets/documents/what\\_do\\_graduates\\_do\\_2017.pdf](https://www.hecsu.ac.uk/assets/assets/documents/what_do_graduates_do_2017.pdf)

## Part two: Salaries increased across job types in 2017

Overall, there was an increase in salary for most job types within the chemical sciences in 2017. The most notable boosts compared to 2015 come from those working with IT/ computer software. The global shortage of data scientists, programmers and data analysts is driving up salaries for these highly sought after roles and this trend appears set to continue. In 2015, the European Commission reported an expected 160% rise in demand for data scientists between 2013 and 2020 to meet Europe's business needs<sup>2</sup>. These roles cut across sectors as organisations increasingly utilise big data to improve customer experience and inform their business strategies, in turn providing opportunities for data-savvy chemistry graduates in a range of industries, not just retail and healthcare.



IT & computer software



Cosmetics & toiletries

Salary growth is seen in the nuclear industry which in the UK is set on delivering a programme of new nuclear reactors that were approved in 2016. This is coupled with older sites, such as Sellafield, transitioning through the long and complex decommissioning process with support from the National Nuclear Laboratory. The industry is also experiencing a severe skills shortage that is being addressed through the **NuclearGrads graduate recruitment programme** that aims to upskill graduates to ensure the long-term success of nuclear energy generation in the UK.

The cosmetics industry has also seen continual growth in recent years. Men's toiletries in particular saw 300% growth at the start of 2016 (Mintel, 2016 via Independent<sup>3</sup>), with no signs of slowing down. This sustained growth across the industry goes some way to explaining the increase in salaries seen among our members at companies such as Unilever, Procter & Gamble, Johnson & Johnson and Reckitt Benckiser.

Doing a PhD after your first degree will be very beneficial if you are seeking a career in research. From our data, 92% of survey respondents working in academia and 76% of those doing research hold a PhD. If you're considering an academic research career then one of your biggest challenges will be securing funding. It is vital to establishing a successful track record in research, which can lead to a permanent – or tenure role – on a research faculty. After completing a PhD, most researchers start in post-doctoral positions (where funding has already been secured), and gain experience with small grant applications or writing applications with others, before progressing to larger proposals as a 'named researcher' or 'principal investigator' (PI). Many academic researchers combine their research with teaching to broaden their skills base and increase their employability, while some seek to teach full time. Most permanent academic roles combine teaching and research but these roles are in short supply and are very competitive. The highly competitive nature of academic research roles could explain the decrease in salary seen in 2017.

Commercial research and development (R&D) is different from academic research. It is faster, with more emphasis on trying to achieve a commercial end goal. R&D provides opportunities for chemistry graduates across industries such as pharmaceuticals, biotechnology, gas and oil, sustainable energy, environmental clean-up and protection, and from aerospace to textiles or food manufacturing. These opportunities arise in all sorts of companies, from large multinationals to small or medium size enterprises (SMEs), to new start-ups and spin outs from universities. It offers the opportunity to work on a wide range of projects, building up your experience and technical knowledge as well as a range of salaries.

Overall, the picture of graduate recruitment in 2018 is healthier compared to the decline seen in 2017 that reflected business's uncertainty following the UK's vote to leave the European Union. This is good news for chemistry graduates whose sought after skills offer a wide choice of career options across a range of industries and sectors post-graduation.

<sup>2</sup> ITPRO, Data scientist jobs: Where does the big data talent gap lie?, 2017

<http://www.itpro.co.uk/careers/28929/data-scientist-jobs-where-does-the-big-data-talent-gap-lie-1>

<sup>3</sup> Independent, Men's grooming is a multi-billion pound worldwide industry, 2016

<http://www.independent.co.uk/life-style/fashion/features/mens-grooming-is-now-amulti-billion-poundworldwide-industry-a6813196.html>

**Salary changes by job type since 2015**

- Increase
- No change
- Decrease

	2017	2015	Upper quartile	Lower quartile
Academic (n=833)	£49,000	£50,000	£68,900	£36,000
Analysis (n=319)	£32,100	£34,800	£43,000	£25,000
Commercial/financial (n=20)	£57,500	£55,200	£71,000	£42,800
Computer systems (n=23)	£58,000	£45,000	£90,000	£40,500
Consultant (or part of practice) (n=152)	£52,400	£50,000	£75,000	£36,200
Development (n=378)	£46,000	£46,000	£65,000	£34,000
Environmental monitoring (n=63)	£38,300	£40,000	£52,200	£31,000
General administration (n=28)	£25,100	N/A	£43,300	£19,950
General management (n=358)	£70,000	£65,000	£103,000	£51,500
Health and safety (n=74)	£49,900	£54,000	£76,000	£35,700
Production (n=102)	£48,500	£47,200	£69,000	£39,000
Quality Assurance/control (n=300)	£46,000	£45,000	£67,000	£33,000
Research (n=842)	£40,300	£40,200	£58,000	£32,000
Sales and marketing (n=100)	£60,500	£60,000	£88,000	£45,000
Self-employed (n=22)	£41,500	£32,200	£60,000	£20,000
Teacher (n=235)	£36,000	£38,000	£46,000	£26,000
Technician (n=88)	£24,600	£23,400	£29,400	£18,700
Other science work (n=181)	£42,000	£40,000	£59,000	£20,900
Other non science work (n=42)	£36,900	£37,700	£37,300	£37,700
Other type of work not covered (n=114)	£47,000	£41,000	£65,000	£37,500

**Salary changes by field of employment**

	2017	2015
IT/Computer Software (n=31)	£60,000	+ £57,600
Electricity Generation (n=36)	£53,800	+ £53,000
Pharmaceuticals (n=692)	£53,000	+ £52,000
Plastics/Rubbers (n=116)	£52,000	+ £48,000
Agrochemicals (n=57)	£50,300	+ £47,000
Petrochemicals (n=130)	£50,000	- £54,800
Dyes/Pigments (n=23)	£49,900	+ £44,900
Industrial Gases (n=15)	£49,000	+ £39,400
Nuclear Industry (n=138)	£48,800	+ £48,000
Other Manufacturing Industry (n=228)	£48,400	+ £48,000
Engineering (n=96)	£48,000	- £49,400
Cosmetics/Toiletries (n=64)	£48,000	+ £40,600
University (n=928)	£45,400	+ £41,900
Other Service-Based Industry (n=102)	£45,000	= £45,000
Specialised Organics (n=56)	£45,000	- £45,900
Other Higher Education (n=44)	£44,300	+ £40,000
Local Government (n=27)	£44,000	+ £40,000
Biotechnologies (n=103)	£44,000	+ £43,000
Soaps/Detergents (n=51)	£43,000	- £44,000
Coatings, Paints, Inks (n=91)	£43,000	+ £42,500
Central Government (n=73)	£43,000	+ £42,800
Food and Beverage (n=88)	£42,500	+ £40,700
Building and Construction (n=32)	£42,500	- £47,000
Hospital (n=24)	£42,300	- £55,000
Research Association/Centre (n=222)	£38,000	= £38,000
Environmental Product/Services (n=89)	£38,000	+ £36,300
Organics (n=37)	£36,500	- £37,000
School (n=225)	£35,800	- £38,900
Water Industry (n=98)	£34,500	+ £32,900
Publishing (n=56)	£34,500	+ £27,500
FE/Sixth Form College (n=40)	£32,000	+ £31,100

**Salary changes by sector since 2015**

● Increase

● Decrease

	2017	2015	Upper quartile	Lower quartile
Consulting practice (n=115)	£50,000	£43,000	£82,500	£31,000
Industrial or commercial company (n=2150)	£48,300	£47,300	£70,000	£34,500
National authority, public corporation or government-owned company (n=146)	£41,100	£47,000	£59,600	£34,000
University or equivalent funded institution (n=1206)	£44,000	£41,000	£63,800	£31,000
Government (including local or central) (n=172)	£41,900	£41,300	£54,000	£29,500
National Health Service, affiliated organisations or bodies (n=38)	£41,500	N/A	£61,300	£24,000
School, sixth form college, or equivalent (n=253)	£35,700	£38,000	£45,000	£24,200
Not for profit (n=112)	£35,000	£31,900	£54,500	£28,500

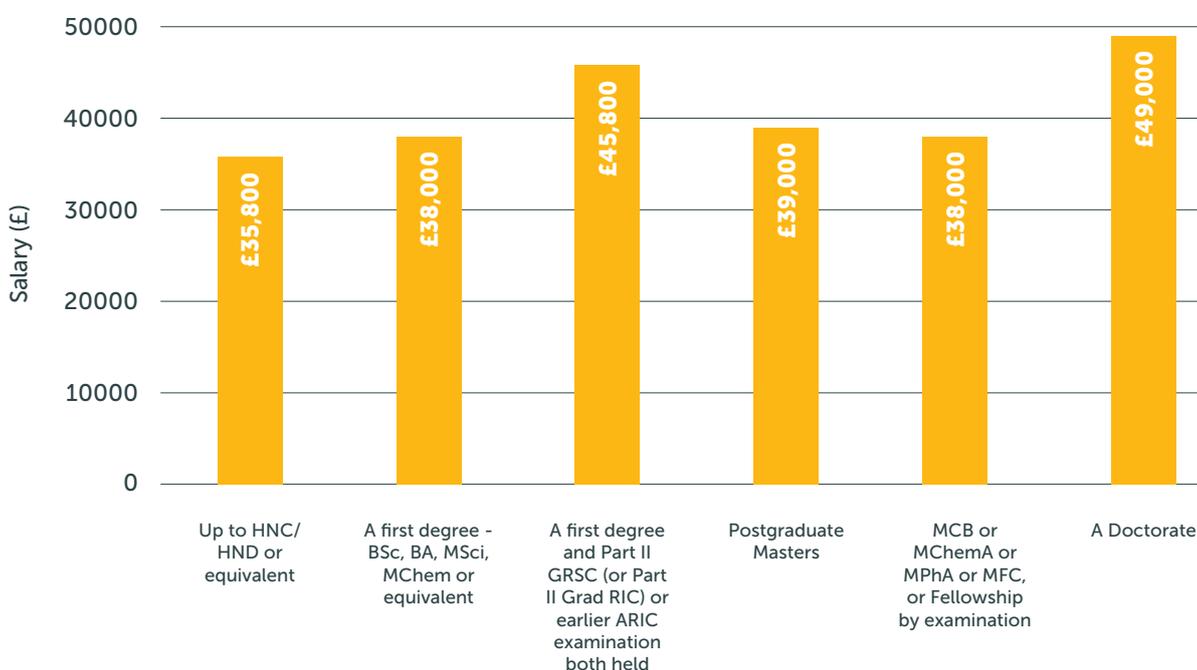
The range of salaries in sixth form, school and equivalent sectors is relatively narrow in our sample, and will have been constrained by the Public Sector pay restrictions.

# Part three: Qualifications across the chemical sciences

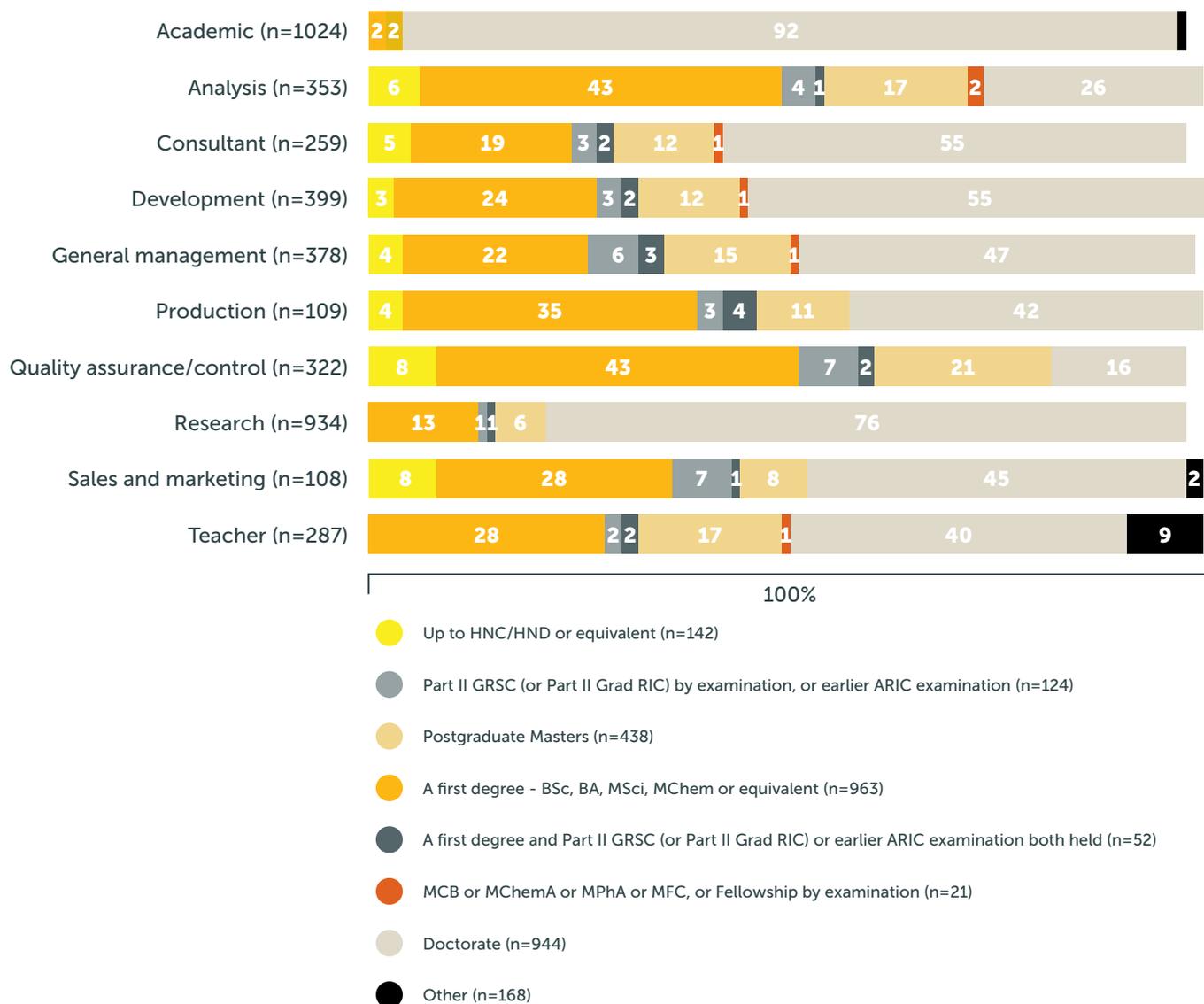
## Your qualifications will affect your earning potential

Most respondents hold only a first degree, apart from those working in academic or research roles, where the majority hold PhDs.

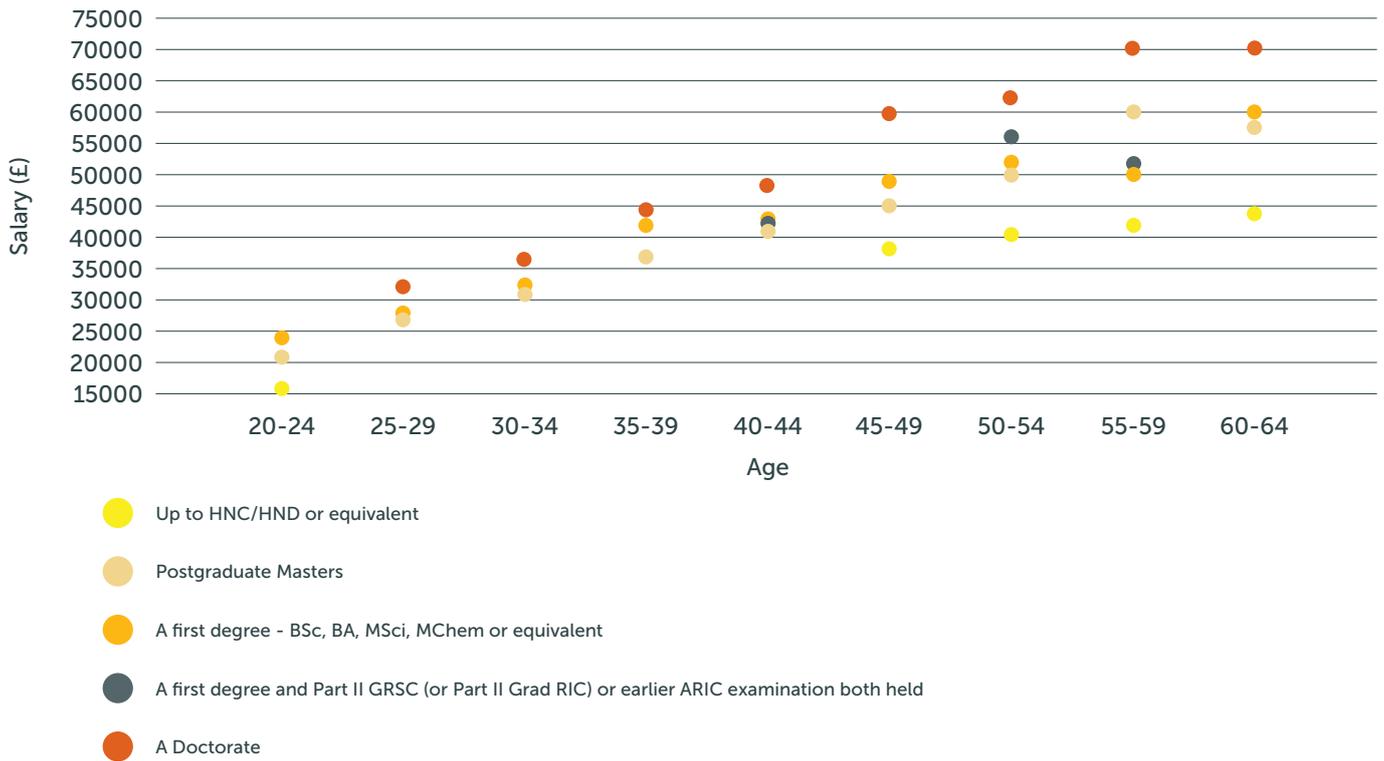
### Salary medians by level of qualification



**Qualification type by job role**



**Remuneration medians by age and further separated by qualification**



For the majority of members, salary increases with age and as additional responsibility is gained. This can be further emphasised when qualifications are also considered, and it appears that holding a doctorate gives a boost to earning potential, no matter the age of the holder.

## Part four: How prevalent is the gender pay gap in chemical sciences?

### Age-related salary increase is not assured for female workers

Male		Female	
2015	2017	2017	2015
£48,000	<b>£50,000</b>	<b>£37,000</b>	£36,100
£5,000	<b>£5,100</b>	<b>£2,200</b>	£2,500

Amongst survey respondents, the data showed that in terms of median salary, women are paid £13,000 less than men. Women also received significantly less of a bonus than men.

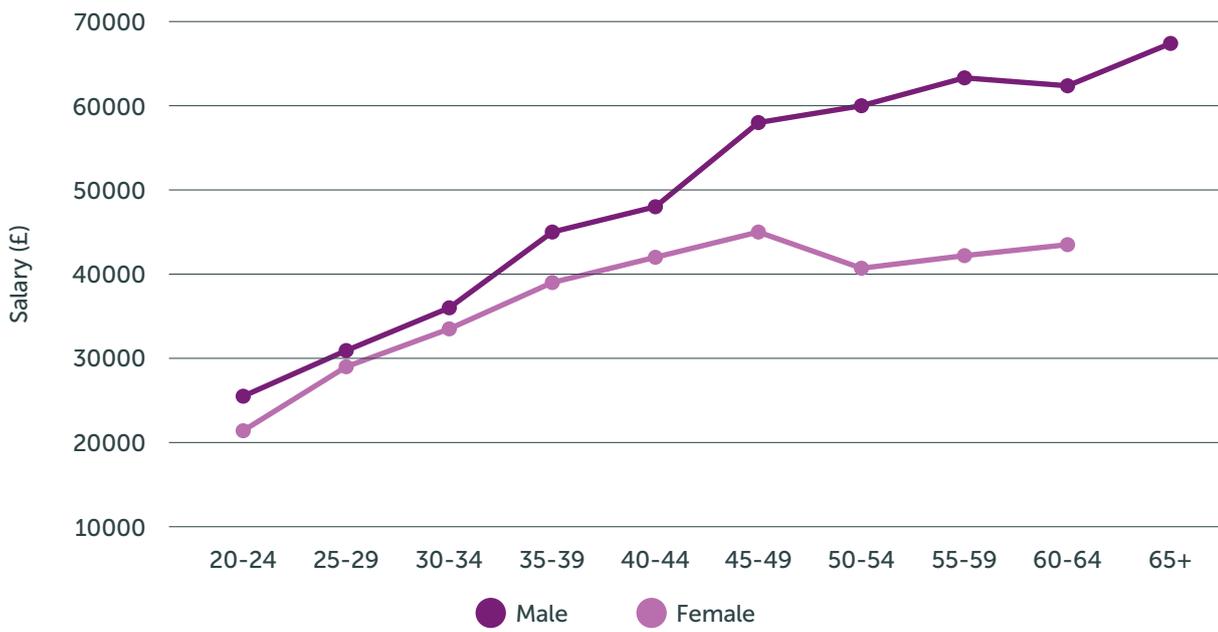
A recent talent trends report<sup>4</sup> highlighted that women now represent half of the educated labour force in most of the western world and are more likely to be in employment, or undertaking further study one year after graduation<sup>5</sup>. In addition, women are on track to earn more advanced degrees than their male counterparts<sup>4</sup>. The 'Diversity landscape of the chemical sciences'<sup>5</sup> report shows that the gender pay gap emerges for women in the first year after graduation despite no difference in achievements between male and female first degree students. Data from the 2017 Pay and reward survey respondents suggested that earning potential generally increased with age and experience, but the data suggests that this trend is less likely to apply to female survey respondents over the course of their careers.

Employers are starting to address the many complex reasons for the pay gap through flexible working arrangements, shared parental leave, more transparent pay scales and ensuring women and men receive equal pay for equal work. However, those at the early stage of their careers can directly tackle the gap by understanding their skills and knowing their worth to an employer. Researching the pay scales for similar roles at other companies is invaluable and individuals should always consider negotiating their salary and benefits package. This is particularly important for women at an early career stage. They should also remain aware of career advancement opportunities such as promotions, mentoring and coaching.

<sup>4</sup> <https://orcinternational.co.uk/wp-content/uploads/2017/03/Talent-Trends-Women-in-Leadership.pdf>

<sup>5</sup> Royal Society of Chemistry, Diversity landscape of the chemical sciences, 2018  
[http://www.rsc.org/globalassets/02-about-us/our-strategy/inclusion-diversity/cm-044-17\\_a4-diversity-landscape-of-the-chemical-sciences-report\\_web-2.pdf](http://www.rsc.org/globalassets/02-about-us/our-strategy/inclusion-diversity/cm-044-17_a4-diversity-landscape-of-the-chemical-sciences-report_web-2.pdf)

Remuneration medians by age and further separated by gender



# Part five: Skills needed to develop your career

## Leadership skills are key to further development

Overall 51% of survey respondents highlighted leadership as the skill they felt they needed to progress in their career. Strategic planning (42%) and management (41%) were also highlighted as desirable skills. It is worth noting that leadership and management skills are not the same thing. A leader does not have to be a manager but could be a group leader, someone who encourages a team or steps up to see a project through to completion.

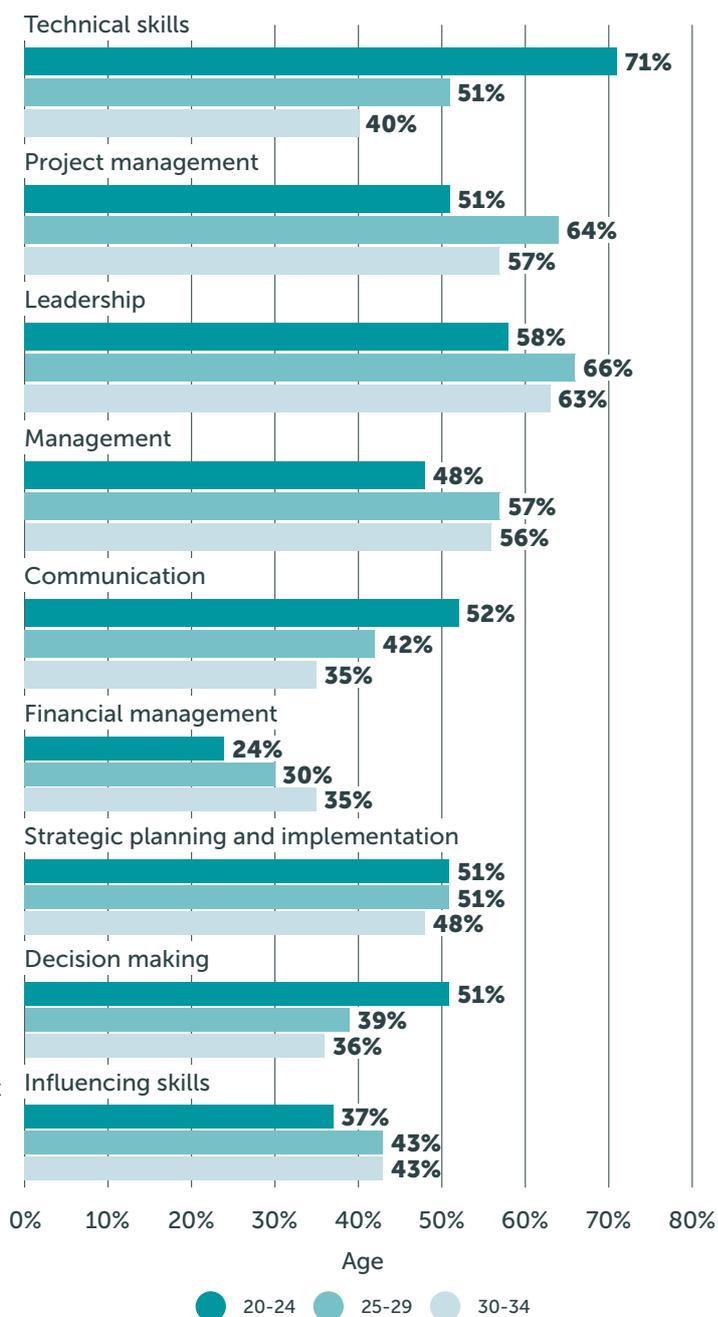
You can cultivate decision-making and influencing skills, as well as other skills, at university by taking on additional responsibility in the lab, tutoring, being a student ambassador, a summer intern or through volunteering or taking part in university clubs and societies. This experience, as well as work experience, will help you stand out to future employers. Your experience does not need to be chemistry-related to be valuable to employers, however our survey found that 25% of students found paid work related to chemistry.

Whether paid or unpaid jobs, future employers will be looking at your approach to the work, what you learnt, what skills were developed and your overall achievements in the role. These experiences along with a self-awareness of the strengths and weaknesses you possess are highly valued by employers. They will help you focus on your personal development, apply what you have learnt at university and take on the challenges of a rapidly changing workplace.

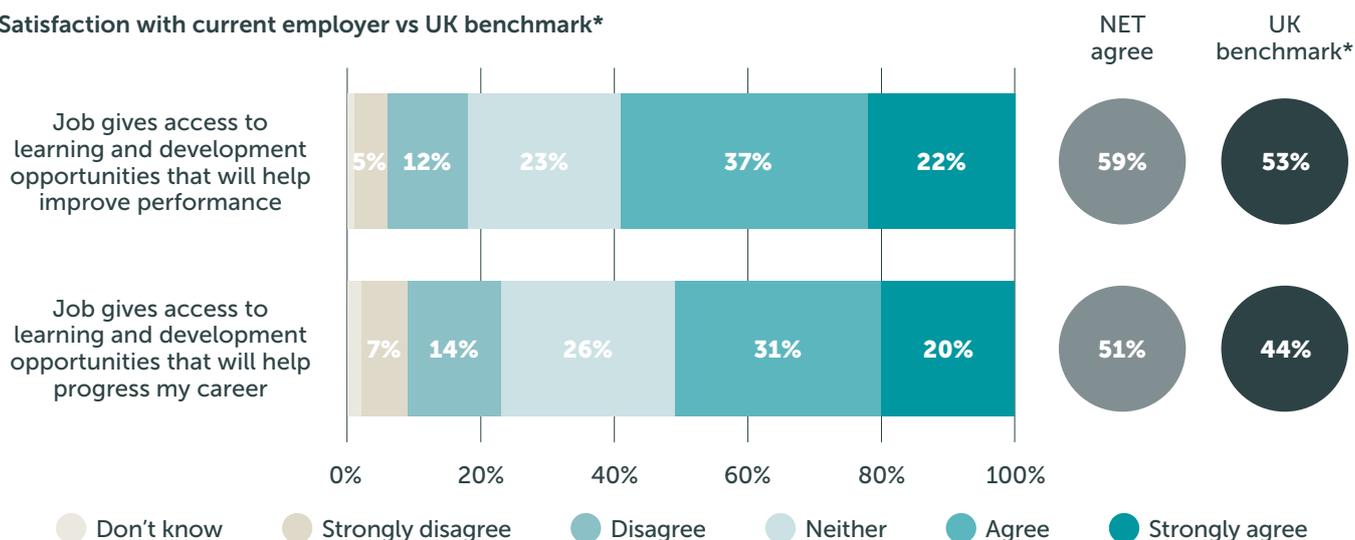
Getting involved on a voluntary basis with the Royal Society of Chemistry is another way of developing skills to enhance your career. You could take part in local sections, interest groups or arrange events or speakers to talk to your university chemical society, at the student union or other clubs. These contacts can be useful sources of information about the skills that are required in different sectors and roles as well as expanding your network. Find out how you can get involved at [rsc.li/volunteer](http://rsc.li/volunteer).

A large proportion of younger respondents also felt that they needed technical skills to progress in their career. This reflects employers' observations in the 2017 Institute of Student Employers survey<sup>6</sup> that graduates do not always have the technical skills employers need. This could include skills such as calibrating and maintaining new equipment, handling waste, running automated instruments, applying new areas of chemistry and proposing technical solutions in response to workplace demand. Graduates may find looking at the **Chartered Chemist** competencies and the **CPD record** as a good way to identify their skills and what they need to further develop.

Skills needed to develop in career by age



**Satisfaction with current employer vs UK benchmark\***



In addition, a large portion of survey respondents under 30 felt that their skills were underutilised by their employer, commonly termed 'underemployment'. That resonates with another key finding that there may be a disconnect between the skills students gain at university and the skills required for graduate jobs. This is further emphasised by the changing nature of roles, particularly at entry level. The 2017 Institute for Student Employers survey<sup>6</sup> found that graduates possessed a shortage of soft skills, such as influencing others, affecting managerial decisions, commercial awareness and business communication. These skills are developed whilst working and over the course of a career. University career services are also looking to support their students to better identify what industries the skills they hold best relate to, in order to fill skills gaps and increase feelings of fulfilment at work<sup>7</sup>.

The chemical sciences offer individuals many opportunities to access learning and development and our industry outperforms the UK benchmark. It is particularly important at the start of your career to reflect on which of your skills need improving and what skills your industry or role particularly needs. This self-awareness can help you stand out to employers and support your career development. Using a **CPD tool** can be beneficial when you think about where you want your career to go and how you can get there. Your skills development is your responsibility, not your employer's.

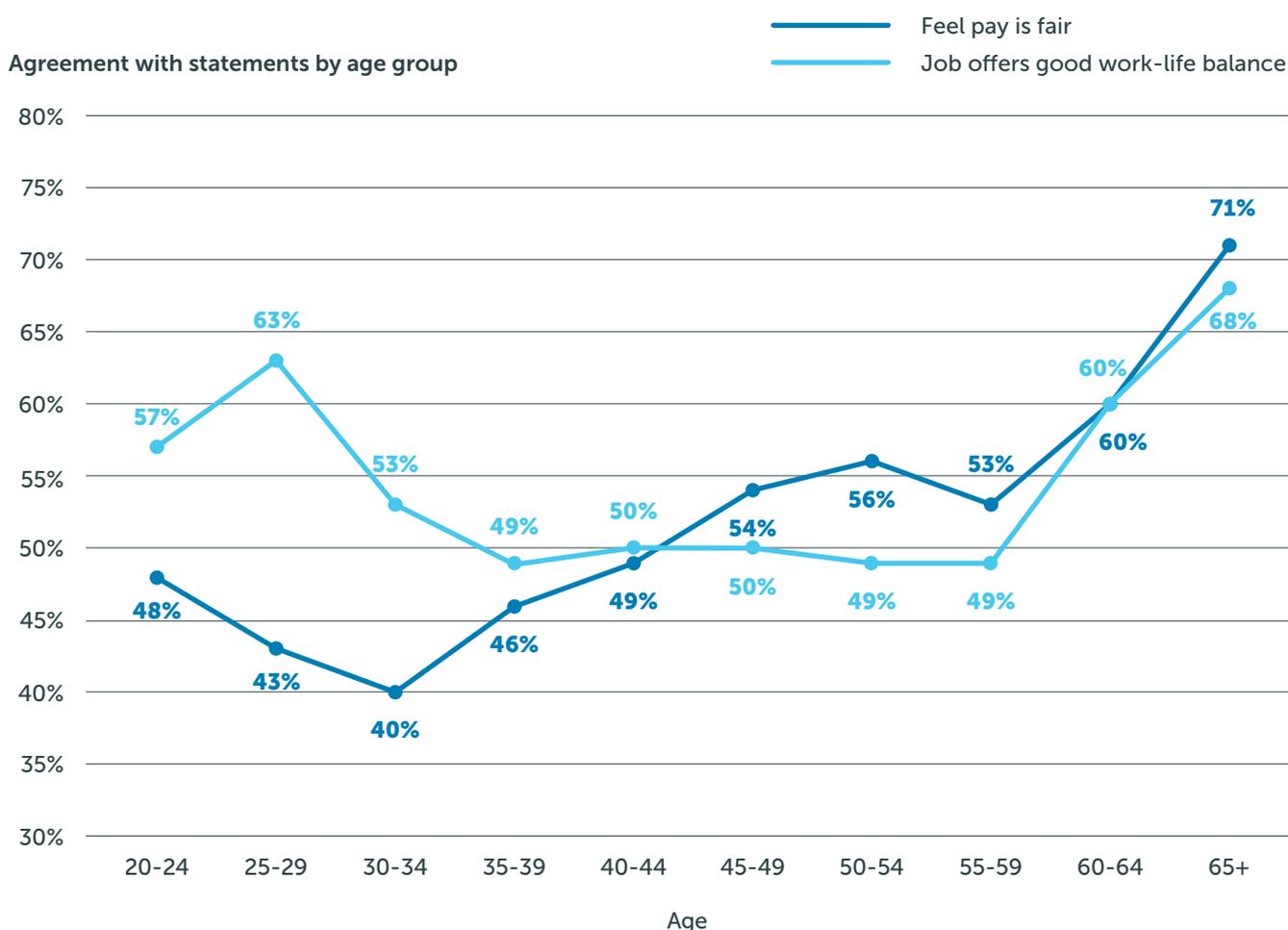
<sup>6</sup> 2017 Institute of Student Employers annual survey  
<https://ise.org.uk/general/custom.asp?page=ISESurveys>

<sup>7</sup> The Guardian, Too many graduates are mismatched to their jobs. What's going wrong?, 2018  
<https://www.theguardian.com/higher-education-network/2018/jan/25/too-many-graduates-are-mismatched-to-their-jobs-whats-going-wrong>

\*UK benchmark is an average score derived from all UK-based employee surveys conducted by ORC International in the past 2 years across all sectors and industries. The total number of surveys making up the benchmark is 370.

# Part six: Chemical science employers offer good work benefits

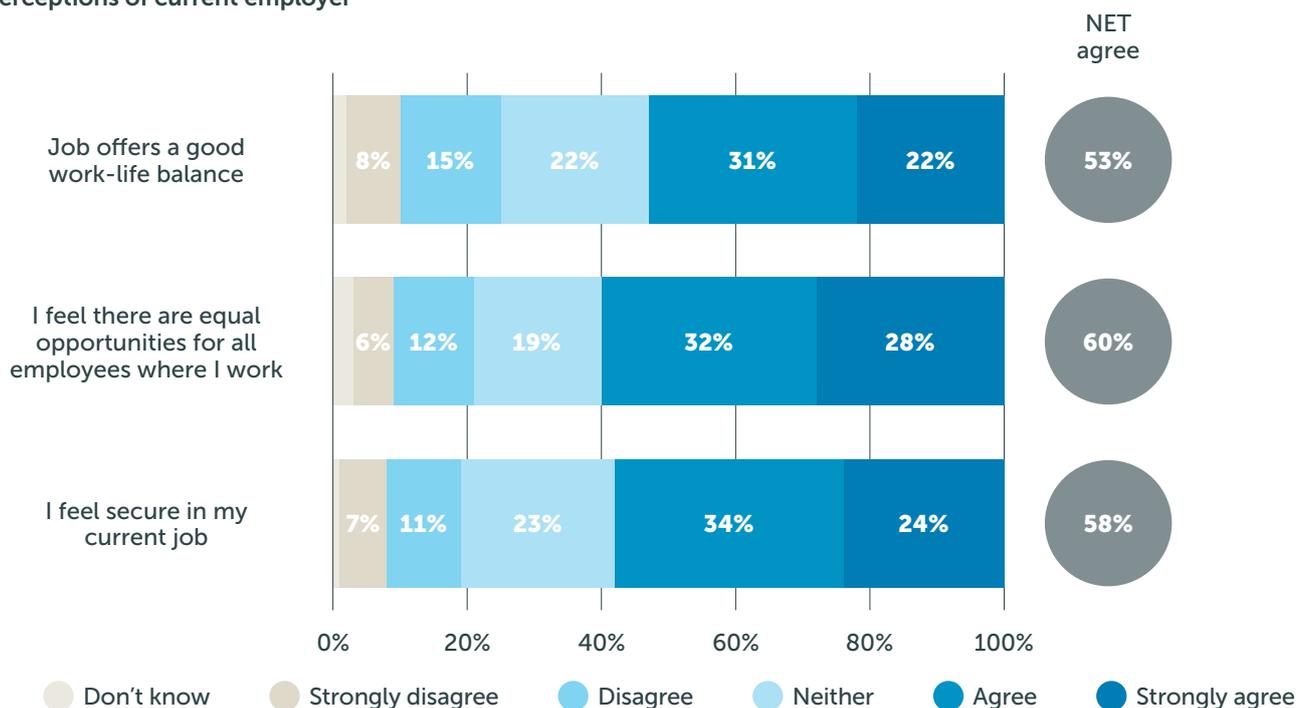
A good work/life balance is important for job satisfaction



Nielsen reports that the recent global focus on health and wellbeing has raised awareness about its importance<sup>8</sup>. Today, organisations employing chemical science professionals offer a wide range of benefits. This is reflected in our members reporting that a third of employers now offer wellbeing-related benefits such as health insurance and staff counselling.

Another key worldwide trend is flexible working as 73% of our members under 35 reported that flexible working hours / flexi-time were extremely or very important to them. It is good to know that an increasing number of employers in the chemical sciences are responding to this need. 62% of members reported that their employer offered flexible working, allowing them to choose when they worked within the boundaries of core working hours. This is an increase of 5% compared to 2015. A large portion of companies also offered part-time working and home working. This may be beneficial to those thinking of doing further study or additional work-based qualifications after they graduate.

**Perceptions of current employer**



Work-life balance is particularly good for the 25-29 age bracket but overall the industry has a lower work-life balance than the UK benchmark across all ages, sectors and roles. However, members do feel that their employers offer equal opportunities for all employees and that the sector is almost on par with the UK benchmark for job security.

The chemical sciences have a lot to offer graduates in terms of learning and development opportunities, access to good benefits and flexible working, finding challenging work and developing skills.

<sup>8</sup> Nielsen, Capitalizing on Health & Wellness Trends, 2017, <http://www.nielsen.com/us/en/insights/reports/2017/capitalizing-on-health-and-wellness-trends.html>

The report is on the pay and rewards of professionally qualified chemical scientists who are working in the UK (except where specified). Where the number of survey respondents outside the UK has permitted, we have reported on these findings. The 2017 survey data is unweighted, as the sample aligns very closely with the overall profile of our membership. All reported data has a sample size larger than 10. In some instances, respondents gave more than one answer to a question, or did not respond. In those cases, we have rounded the percentage but the total may not equal 100%. Salary medians throughout the report excludes members who are fully retired but includes retired members who are in part-time or occasional employment. This research was completed in partnership with ORC International.



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