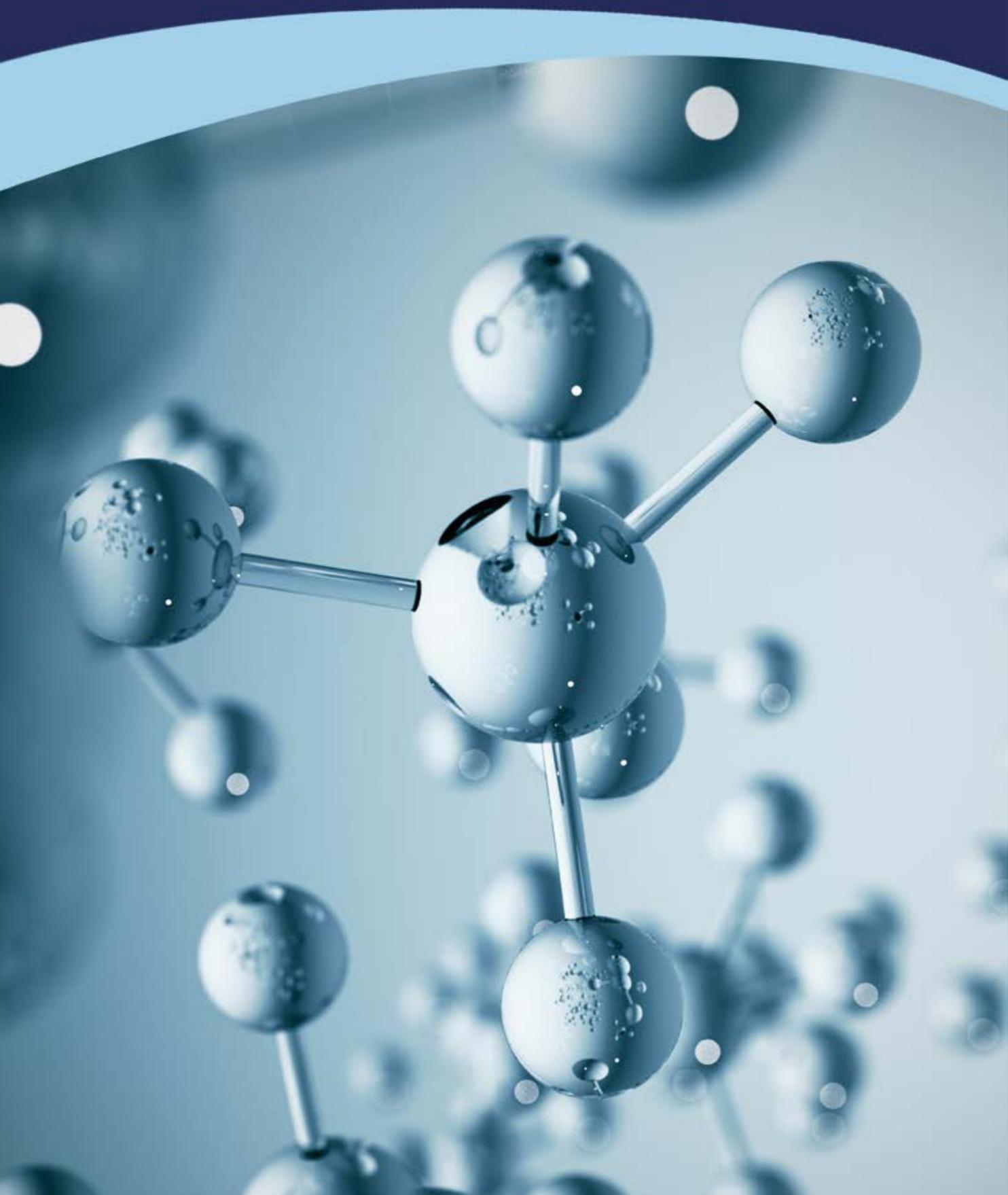


---

# BUSINESS OF SCIENCE

2018 Survey Report



	<b>PAGE:</b>
<b>INTRODUCTION</b>	<b>4-5</b>
<b>EXECUTIVE SUMMARY</b>	<b>6-7</b>
<b>KEY FINDINGS</b>	<b>8-9</b>
<b>ANALYSIS</b>	<b>10-11</b>
<b>SCIENCE</b>	<b>12-15</b>
<b>INNOVATION</b>	<b>16-23</b>
<b>SKILLS</b>	<b>24-27</b>
<b>ABOUT THE BUSINESS OF SCIENCE SURVEY</b>	<b>28-29</b>
<b>AREAS FOR FUTURE CONSIDERATION</b>	<b>30</b>
<b>AUTHORS AND PARTNERS</b>	<b>31</b>

# INTRODUCTION

## Welcome to the second Business of Science Survey Report.

The original survey, produced in 2017 was developed to build on the growing success of the Business of Science conference, first held in Manchester in May 2016.

As the discussion and debate around the conference key theme of “the commercialisation of science” has developed, several key questions and topics have emerged. This survey, undertaken at the 2018 Business of Science Conference held in Liverpool, again explores those areas to provide further informed understanding of key themes for future examination.



**STEVE J. BENNETT**  
Founder and  
Managing Director  
Business of Science Limited

**THANK YOU** to those of you who contributed to this survey, and I hope you enjoy reading through the results.

The vision for the Business of Science conference is to:

- Explore and develop the relationship between business and science
- Support the commercialisation of science in its broadest sense
- Drive revenue, economic growth and societal benefit
- Act as an ambassador for the promotion and development of STEM (Science, Technology, Engineering and Maths) skills

Much has changed since the UK Government, in its 2016 Autumn statement, announced its commitment to invest a further £4.7bn of funding over the period 2017 to 2021, into research, innovation and industrial strategy to boost productivity and economic growth.

The ongoing development of the new “Industrial Strategy Challenge Fund (ISCF) to encourage collaboration between business and academia and to provide a broader boost to UK capacity in research and innovation, along with Industry 4.0 and the increasing challenge of Brexit provided a complex background to the 2018 Conference.

To arrive at the survey results, attendees of the Business of Science conference, held on Thursday 17th May 2018, were invited to complete the survey in person at the conference, or afterwards online. The results, conclusions and resultant actions from those responses have provided the data and commentary for this Survey Report.

The Business of Science Survey was undertaken in order to develop an understanding of the views held by the Business of Science Conference audience, who are drawn from all areas of the science sector – business, academia, research, education, public and third sector. Questionnaires were completed primarily by attendees at the third annual Business of Science Conference on 17 May 2018 in Liverpool.

As with the previous survey in 2017, there was continuing uncertainty as to the future of the economy and markets, with Brexit (rather than a general election) very much at the forefront of business leaders' concerns.

For the sake of consistency and to facilitate comparison with last year's survey, respondents were again asked a number of questions that tied in with the three principal themes of the conference:

SCIENCE

INNOVATION

SKILLS

There was an increase this year in the number of respondents stating that career opportunities in the science sector are better than in other sectors with over half of respondents expressing this view, compared with 40% in the 2017 survey. A similar percentage also believe that careers in science are well paid, again an increase on last year's survey. Underpinning these figures is a belief by just under 80% of respondents that the science sector's contribution to the economy is

undervalued, although this has 'improved' from last year when 90% of respondents held this view.

In terms of the conference audience's involvement in the science sector, this year, just over 70% of respondents said they were involved in commercialising science, with the remainder stating that they were involved in developing or helping to develop science, i.e. researching and developing new ideas.

Once again, respondents were drawn from a broad range of organisation types. It is evident that it is not just large organisations involved with the commercialisation of science. There were similar numbers of respondents working for both large commercial organisations and SME businesses (31 and 29 respectively). Academic institutions accounted for 18 responses and the Charity / Third Sector, 6, with 7 responses coming from those working in the Public Sector.

Innovation continues to be a fundamental topic and it is reassuring to see that almost three quarters of respondents believe that in their organisations, innovation is encouraged and promoted at every opportunity. This is a slight increase on last year's survey.

The Skills Gap remains a considerable challenge for many organisations, with over half saying they have been unable to fill vacancies due a lack of STEM qualifications.

# KEY FINDINGS

# KEY FINDINGS

1.

73% of respondents believe that innovation is encouraged and promoted in their organisations

Coaching and mentoring are considered the most important elements to ensure that innovation is a cornerstone for organizational growth

2.

3.

88% of respondents agree that both Universities and Apprenticeships offer good pathways to careers in science

58% of female respondents consider careers in science are well paid, compared with 53% of total respondents

4.

5.

79% of respondents believe that the science sector's contribution to the UK is undervalued. This is an improvement from the 2017 survey, when 90% of respondents held this view.

32% believe that businesses are very good at commercialising science

6.

7.

80% of respondents agreed that technical expertise is just as important as commercial expertise for leadership in a science business. Interestingly, 67% believed that commercial expertise is more highly valued than technical knowledge.

Only 28% of respondents say that school leavers are coming to them with a suitable level of knowledge and skills. This is consistent with last year's survey findings.

8.

9.

50% said that a lack of STEM qualifications has resulted in vacancies not being filled

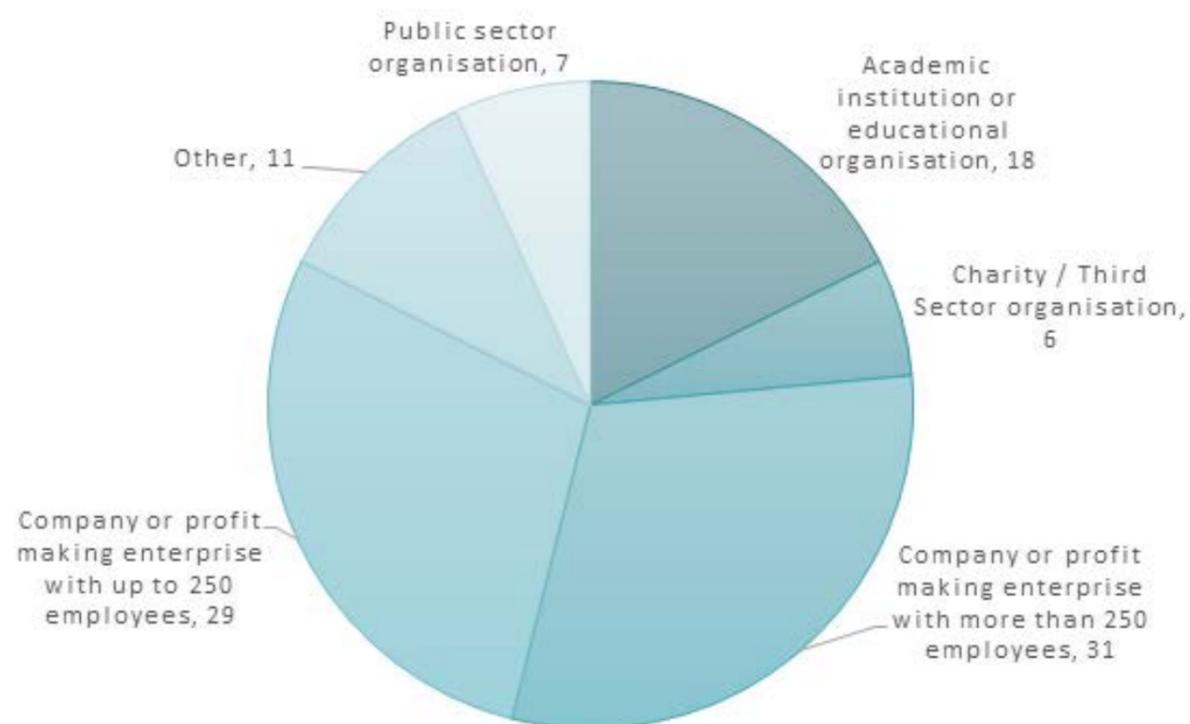
With just a small increase this year in the number of female respondents – up to 37% from 33% in 2017, the challenge remains to encourage more females into science careers and to ensure they have a voice at industry events such as the Business of Science Conference

10.

Respondents were asked to describe the organisation in which they work and to choose one of the following statements to describe their involvement with science in their current job role:

- I am involved in developing or helping to develop science – e.g. researching and developing new ideas, products or services
- I am involved in commercialising, or helping to commercialise science – e.g. using scientific innovation within a business or wider commercial context

## Respondents by Organisation Type – n = 102

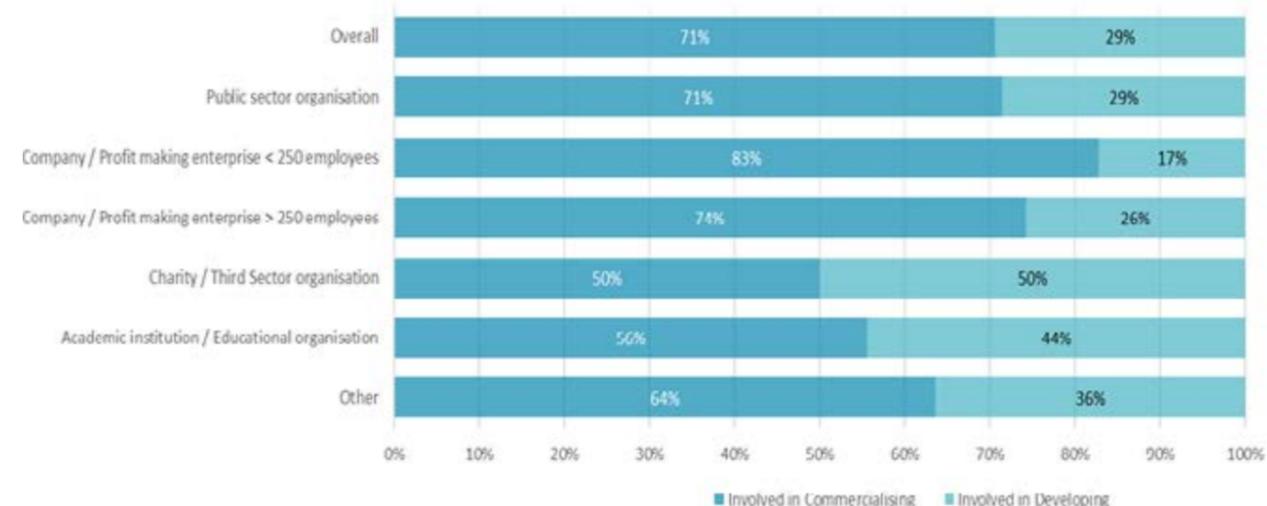


As with the 2017 survey, there is some overlap in terms of who is developing science and who is commercialising it. Both groups of respondents are both actively developing and commercialising science.

Overall, 71% of respondents are involved in commercialising, or helping to commercialise science, with 29% involved in developing or helping to develop science. On analysing the data, we see in the chart below that this is reflected identically in respondents from the public sector.

Four out of five respondents employed in the commercial sector are involved in commercialising science. However, respondents in the non-commercial sectors are more evenly distributed, both in the Academic / Educational Institutions category and in the Charities / Third Sector category where there is a 50 / 50 split across commercialising and developing science.

## Commercialising or Developing Role



# 5.1 SCIENCE

## a. The Science Sector

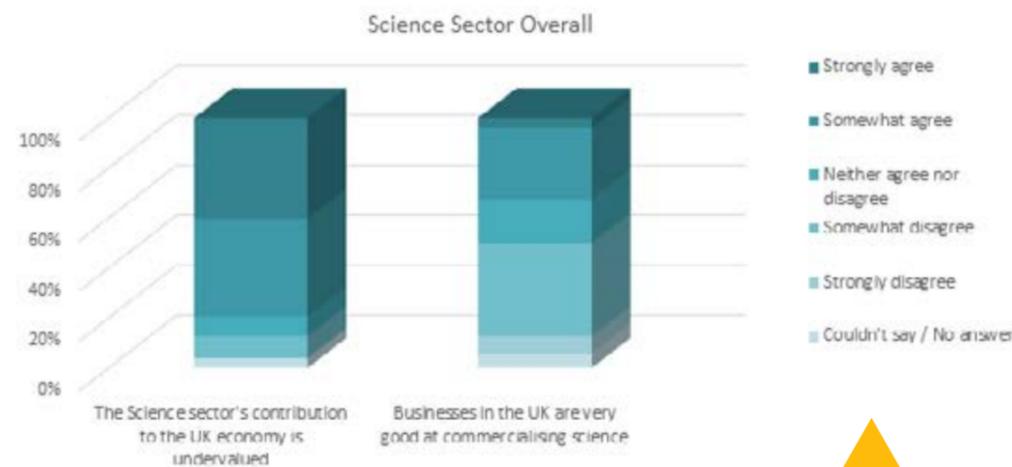
In this section, respondents were asked a number of questions in relation to science's contribution to the economy, careers in science and the importance of science to their organisations and roles over the next 3 years.

In the first instance, respondents were asked:

To what extent do you agree with the following statements?

\* **"The Science sector's contribution to the UK economy is undervalued"**.

\* **"Businesses in the UK are very good at commercialising science"**



It is interesting to note that once again a very high percentage of respondents (79%) believe that the science sector's contribution to the UK is undervalued. This view has slightly softened since the last survey, when 90% of respondents agreed with the statement.

Although a slight increase of 5% on last year, only 32% of respondents believe that UK businesses are very good at commercialising science. This suggests a

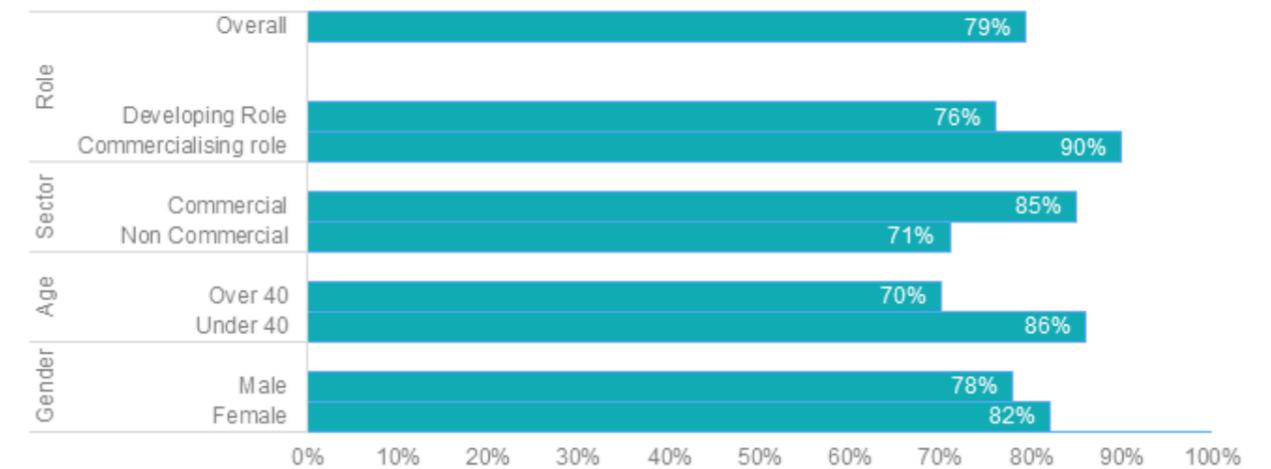
moderate improvement in collaboration between academia / research and business, but it does highlight the opportunity that exists for improvement and development in this area.

The sentiment that science is undervalued is relatively uniform across the different types of survey respondents. However, the chart below does provide some interesting insights.

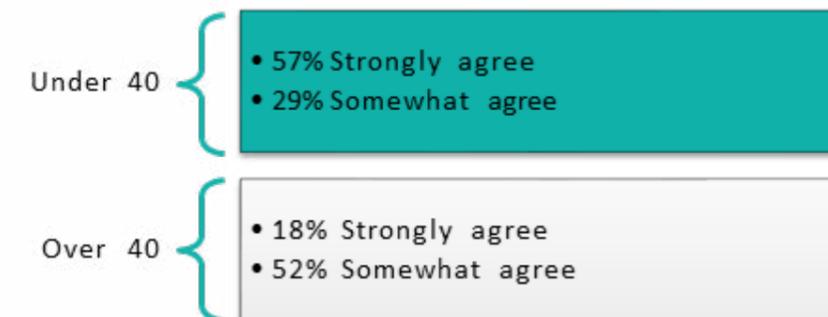
# 5.1 SCIENCE

## a. The Science Sector

The Science sector's contribution to the UK economy is undervalued - % Agree



There is a small difference between male and female respondents' views, but there is greater disparity between those over and under 40, with a greater percentage of those in the younger age group (57%) strongly agreeing with the statement. And this is a marked increase compared to the 2017 survey, when just 12% of respondents under 40 strongly agreed with the statement.



# 5.1 SCIENCE

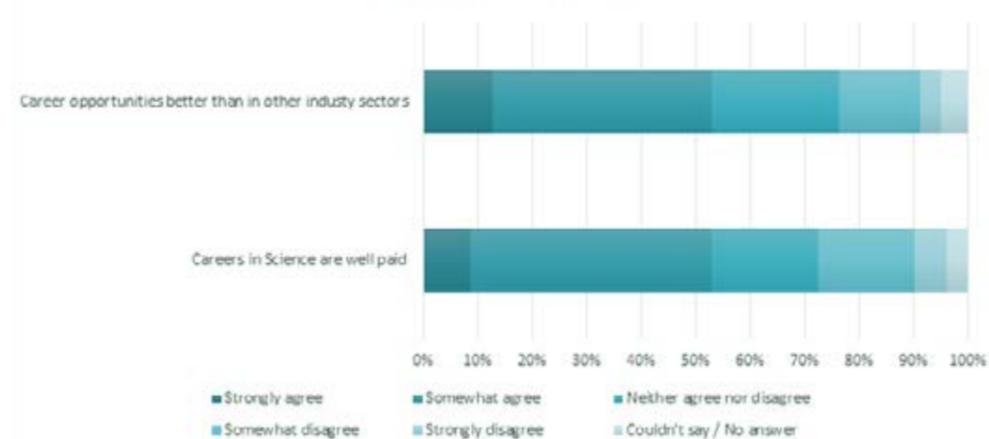
## b. Career Attractiveness

Respondents were asked:

To what extent do you agree with the following statements about careers in science?

- Career opportunities in the Science sector are better than in other industry sectors
- Careers in Science are well paid

Careers in Science



Over half of respondents agree that careers in the science sector are better than other sectors and a similar number believe that careers in science are well paid. This has increased since the 2017 survey, when the corresponding figure for both was 40%.

Further analysis indicates that those under 40 (60%) are more optimistic than

their older counterparts (those over 40) about career opportunities in science than in other industry sectors. The comparative figure for over 40s is 43%.

Female respondents, the under 40s and those involved in commercialising science were also more likely to say careers in science are well paid, all at around 60%.

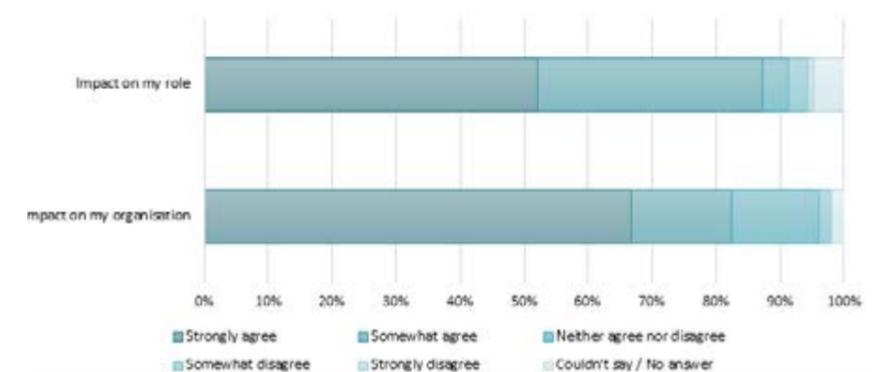
# 5.1 SCIENCE

## c. Importance of Science in the Future

To what extent do you agree with the following statements about the role of science in your organisation / role?

- Science will play a significant role in my organisation's development in the next 3 years
- Science will have a significant impact on my role in the next 3 years

Importance of Science



Positive responses are especially prevalent in this area, with eight out of ten respondents agreeing with both statements; that science will have a significant impact in the next three years, both organisationally and in terms of respondents' own roles.

A higher percentage of respondents (67%) strongly agree that the impact on their organisation will be greater, compared to 52% who strongly agree that science will have an impact on their roles.

Further analysis of the different demographics indicates that male respondents, those in the non-commercial sector and those involved in developing science roles, are all more likely to strongly agree that science would affect their organisation, at around 70%.

Two thirds of respondents involved in developing science strongly agree that science will have an impact on their role over the next 3 years.



# 5.2 INNOVATION

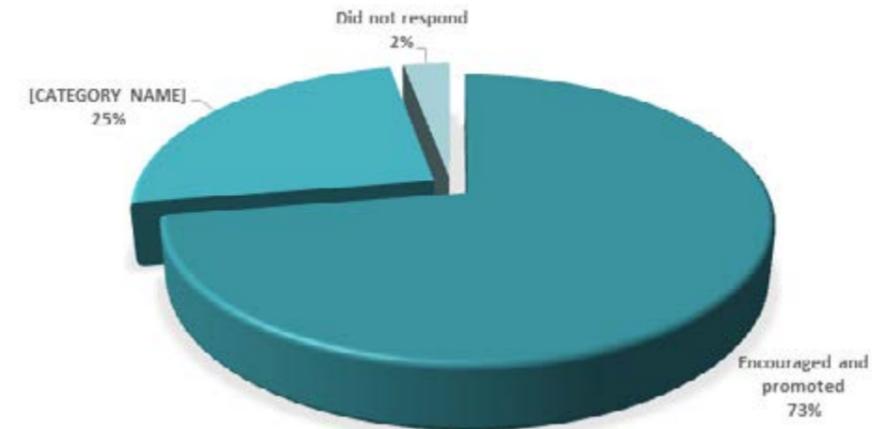
## d. Approach to Innovation

# 5.2 INNOVATION

## d. Approach to Innovation

In this section, respondents were asked the following:

1. their views on innovation and the extent to which it is encouraged in their organisations
2. their views on the most appropriate drivers for a successful innovation culture
3. to give an indication on innovation, as it applies to new product and service development / introduction.



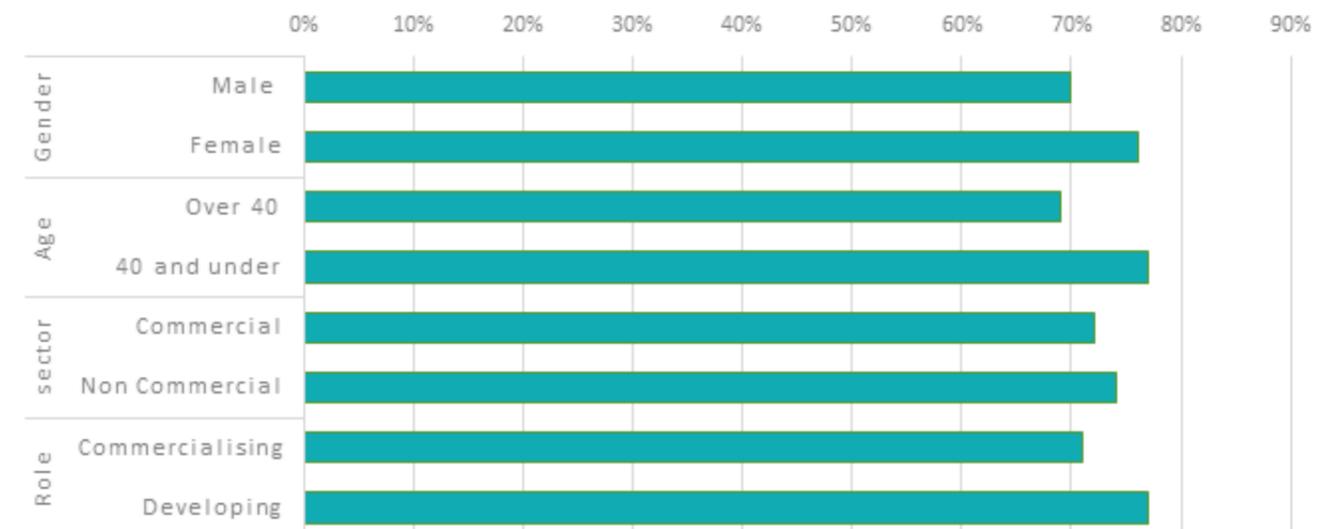
The percentage of respondents stating that innovation is actively encouraged and promoted is high, at 73%, and slightly up on the 2017 survey figure (70%). Only a small number (2%) did not respond at all.

In the chart below, it is also encouraging to note that this view is consistent across the different types of respondent. Scores were particularly high amongst those that are involved in developing science and the under 40s.

Respondents were asked -  
Which of the following statements most accurately describes your organisation's approach to innovation?

- Innovation is encouraged and promoted at every opportunity
- Innovation is something that's talked a lot about, but doesn't really happen
- Innovation is rarely discussed, and is not encouraged or valued

Innovation is encouraged and promoted at every opportunity



# 5.2 INNOVATION

## e. Launching New Products & Services

In relation to Innovation, respondents were also asked to state whether -

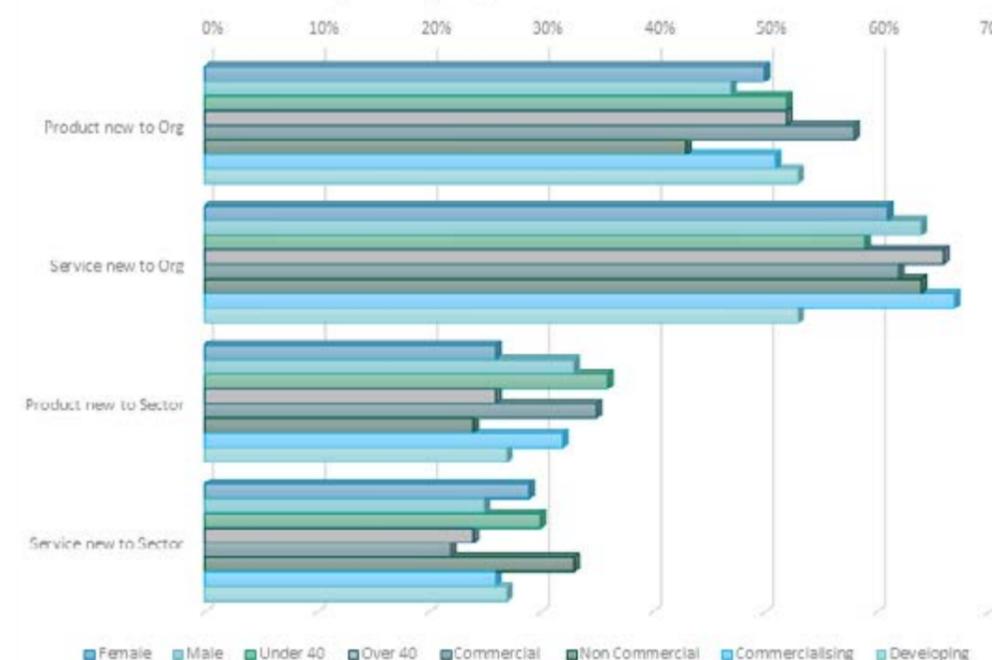
In the last 2 years, my organisation has.....

- Launched a new product that is new to our organisation
- Launched a new service that is new to our organisation
- Launched a new product that is new to our industry sector
- Launched a new service that is new to our industry sector
- None of the above

# 5.2 INNOVATION

## e. Launching New Products & Services

In the last 2 years my organisation has launched a new...



In the last 2 years my organisation has launched a new...



64% of respondents say that their organisation has launched a new service in the last 2 years. This is a modest increase from last year's figure of 59%. The increase is more marked for organisations launching new products - up to 53% from 41% - indicating overall, that investment in new product and / or service development programmes continues to grow.

The number of organisations that have launched a product or service that is new to their sector as a whole, although significantly lower than to their organisation, increased to 31% and 27% respectively.

Looking in more detail at the different categories of respondent, perhaps a surprising result is that respondents who are involved in 'developing' roles reported fewer product / service launches, both within their organisations and to the sector. Given their roles in their organisations, a higher score might have been expected.

# 5.2 INNOVATION

## f. Organisational Approach

Respondents were asked:

What is the one thing that needs to change to ensure that innovation is viewed as a cornerstone for organisational growth?

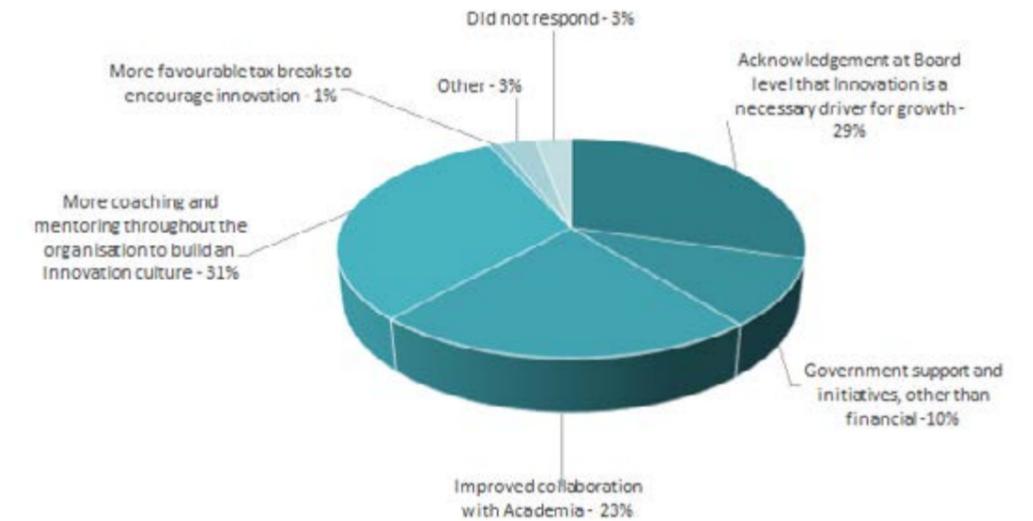
- Acknowledgement at Board level that Innovation is a necessary driver for growth
- Improved collaboration with Academia
- More favourable tax breaks to encourage innovation
- More coaching and mentoring throughout the organisation to build an Innovation culture
- Government support and initiatives, other than financial
- Other (respondents were given the option of adding their own suggestions)

It is interesting to note that 83% of respondents believe that the drive to build an innovation culture depends on internal rather than external factors for success. 31% believe that more coaching and mentoring is required to build an innovation culture, whilst 29% state that the one thing that needs to change is 'acknowledgment at Board level that innovation is a necessary driver for growth'. A further 23% believe that improved collaboration with academia is important. Only 10% take the view that government support and initiatives need to improve or change.

# 5.2 INNOVATION

## f. Organisational Approach

Innovation for Growth:

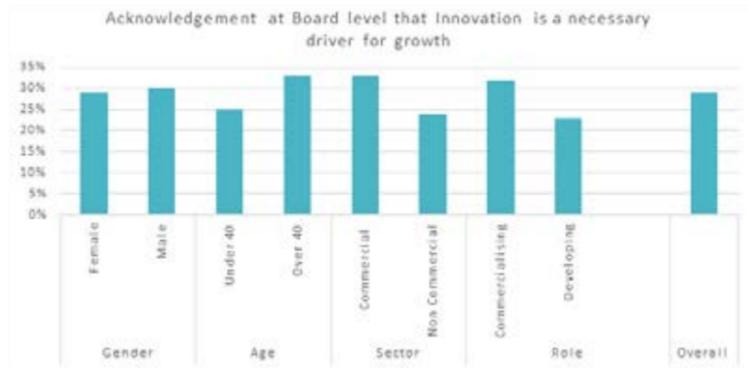


Further analysis across the different respondent categories indicates that a higher percentage of those over 40, those working in commercial organisations or those in commercialising science roles believe that the one thing that needs to change is "acknowledgement at Board level that innovation is a necessary driver for growth".



# 5.2 INNOVATION

## f. Organisational Approach



Coaching and mentoring are viewed as being important for a higher percentage of female respondents (39%), compared to 28% of male respondents. This is an interesting contrast to the 2017 survey, as the next chart shows. And although the overall percentage is down this year – 31% compared to 37% in 2017, it remains the most important factor for respondents.

Improved collaboration with academia was the third highest scoring factor overall and, in terms of the different categories of respondent, provided the greatest variation.

Twice as many respondents from the non-commercial sector believe improved collaboration with academia is important compared to those in the commercial sector. And 27% of male respondents compared to 16% of female respondents take the same view.



# 5.2 INNOVATION

## f. Organisational Approach



# 5.3 SKILLS

## g. Qualifications & Career Access

In this section, respondents were asked for their views on science careers, the level of skills provided by universities and through apprenticeships and the relative importance of technical skills over commercial expertise.

Respondents were asked:

To what extent do you agree with the following statements about qualifications / accessing careers in science?

- We have been unable to fill vacancies that require STEM qualifications
- School leavers come to us with a suitable level of knowledge and skills in STEM subjects
- Universities are a good way to enable people to access careers in science
- Apprenticeships are a good way to enable people to access careers in science

In response to the first 2 items above:

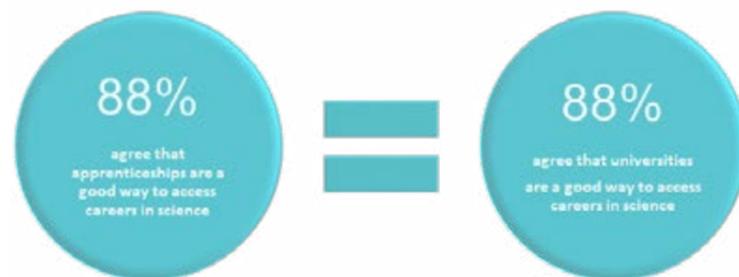
**52%** state they have not been able to fill vacancies that required STEM qualifications

**28%** state that school leavers come with a suitable level of knowledge & skills in STEM subjects

Over half of respondents state that they have not been able to fill vacancies due to a lack of STEM qualifications. This is a significant increase from last year's survey, when the figure was 32%. This suggests that the skills shortage is continuing and nearly half of vacancies in the science sector are not getting filled. And with only 28% of school leavers coming into the world of work with the required level of knowledge in STEM subjects, any

improvements in these figures will take a long time to filter through.

It should be noted that a number of respondents were unable to answer the first two items, and this may be because they do not have access to recruitment data or do not have responsibility for recruitment within their organisations.



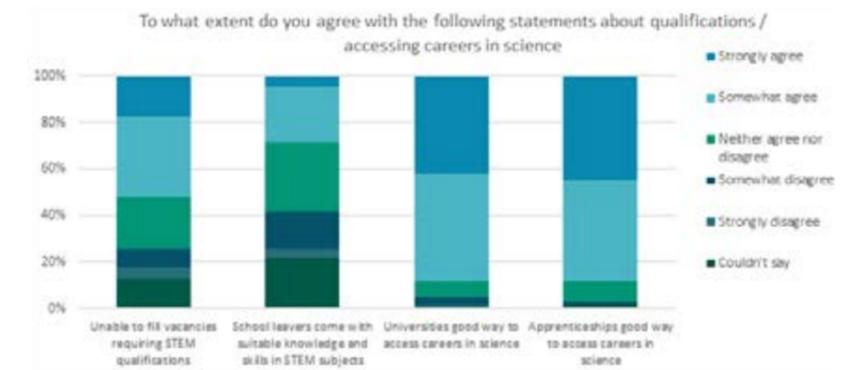
# 5.3 SKILLS

## g. Qualifications & Career Access

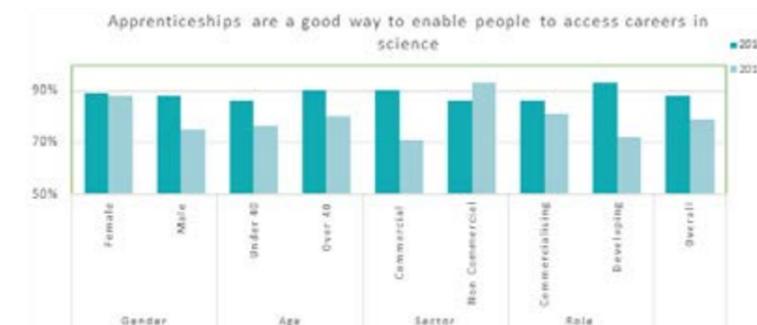
Respondents agree that formal qualifications, whether via the traditional university route or the more vocational apprenticeship route, are good ways to access careers in science.

The corresponding figures for the 2017 survey were **79%** and **86%** respectively.

THE CHART BELOW GIVES A MORE DETAILED OVERVIEW



When considering the results from the different respondent categories, the commercial sector and those in developing roles seem to be experiencing more difficulty in filling vacancies requiring STEM qualifications.



Overall the view that apprenticeships are a good way for people to access science careers has improved since the last survey.

Interestingly this was consistent across respondents from all categories, apart from the non-commercial sector where the score fell by 7% to 85%. Comparatively, the significant movement was in those in developing roles where scores from the last survey rose substantially, from 71% to 92%.

# 5.3 SKILLS

## h. Technical Skills from Apprenticeship & Graduate Schemes and Technical vs Commercial Expertise

Respondents were asked:

To what extent do you agree with the following statements about technical skills provided by Apprenticeship / Graduate schemes?

- Science graduates are coming out of university with the right level of technical skills relative to their experience
- Apprenticeship programmes are delivering the right level of technical training to fulfil organisational needs
- Universities are offering the right science degree courses to deliver the future knowledge requirements of science businesses



The comparison with the 2017 survey is interesting, with significantly fewer respondents disagreeing with the three statements above, which is encouraging for both our graduates and apprentices and also for our academic institutions.

This reduction is even more marked with only **12%** believing that universities are not offering the right science courses, compared with **52%** last year.

To what extent do you agree with the following statements about technical / leadership skills?

- Technical expertise is just as important as commercial expertise for successful leadership in a science business
- Commercial expertise is valued more highly than technical expertise across businesses in general



# 5.3 SKILLS

## h. Technical Skills from Apprenticeship & Graduate Schemes and Technical vs Commercial Expertise

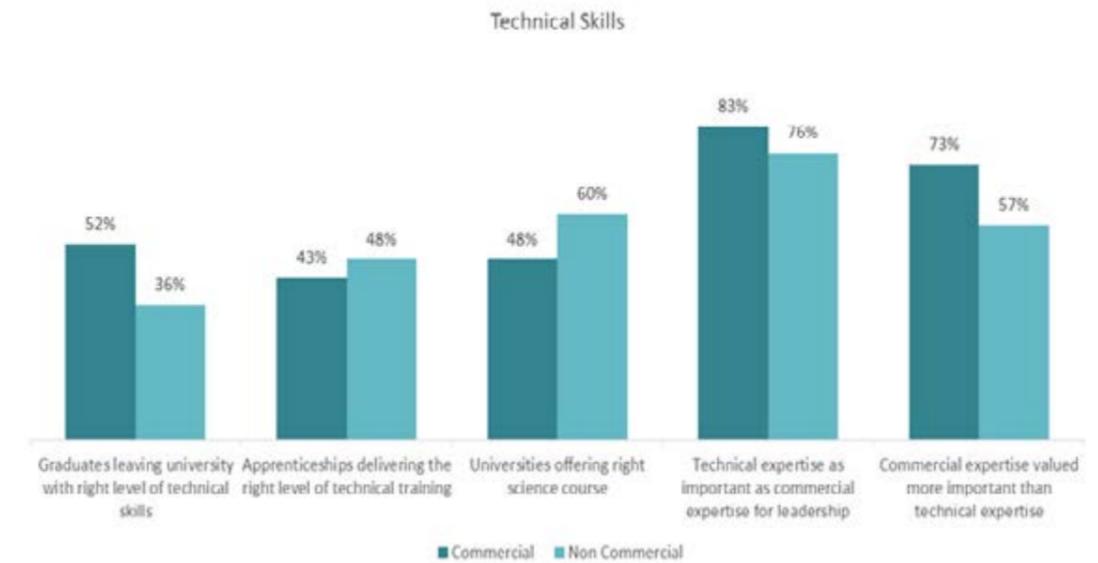
It is interesting that whilst **80%** of respondents believe technical skills are as important as commercial skills, there is still a sizeable majority (**67%**) that believes commercial expertise is more highly valued. This is higher than in 2017 when the corresponding figure was **56%**.

The following chart shows the comparison with respondents in the commercial and non-commercial areas.

52% of respondents in the commercial sector, compared with 36% in the non-commercial sector, believe that graduates are leaving university with the right level of technical skills. Does this mean that those in the non-commercial sector are more demanding or discerning in terms of evaluating these technical skills?

Less than half of respondents in both the commercial and non-commercial sectors believe that apprenticeships are delivering the right level of technical training, which is interesting, considering that 88% of all respondents agree that apprenticeships are a good way for people to access science careers.

This could indicate that, despite the positive shift towards apprenticeships, there is still work to be done by educators to improve confidence in the content being delivered.

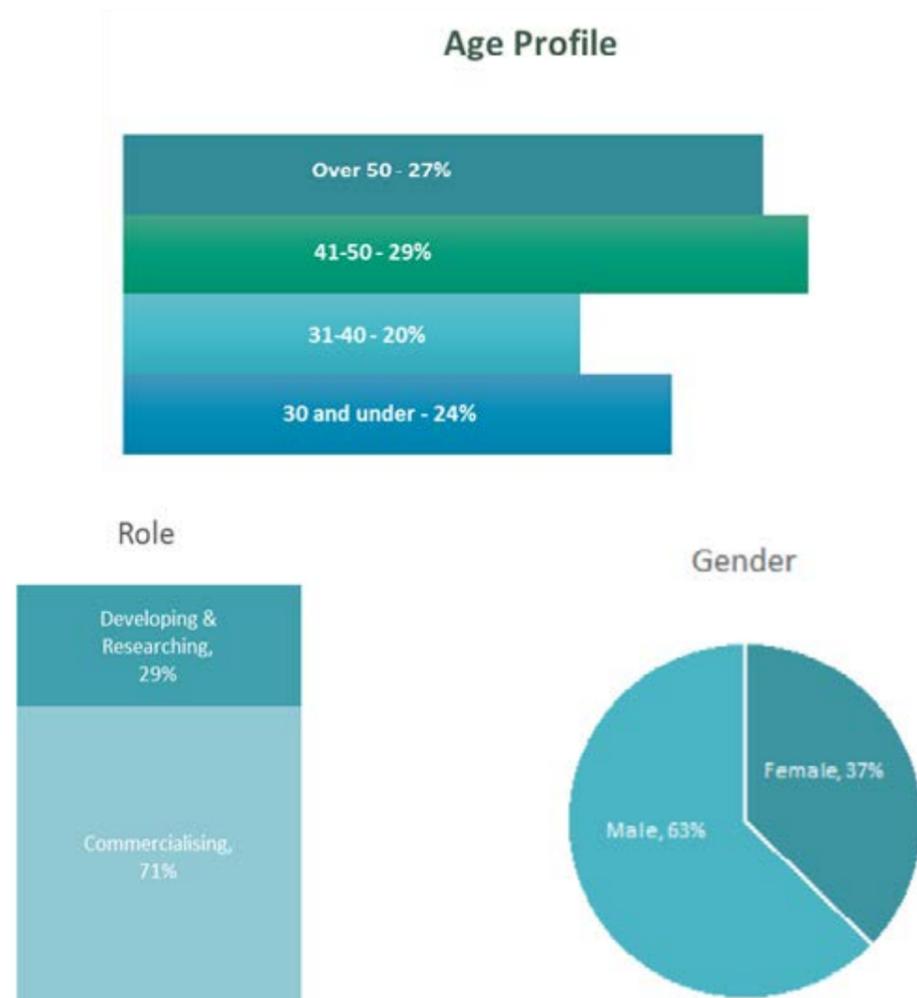


# ABOUT THE BUSINESS OF SCIENCE SURVEY

## THE DATA

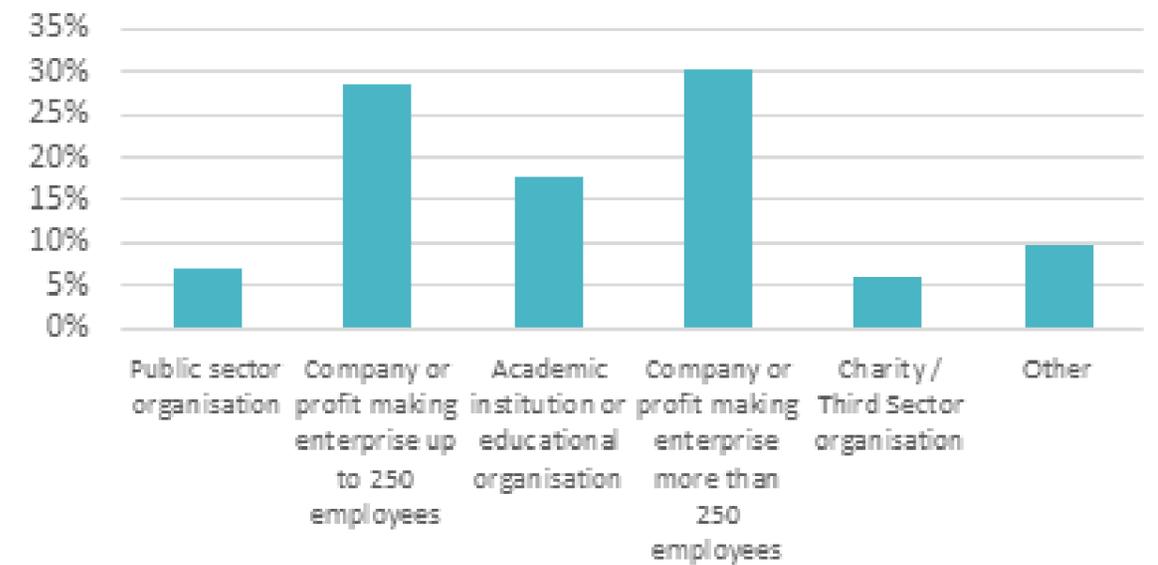
The data for this survey was collected primarily from delegates attending the Business of Science Conference in Liverpool on 17 May 2018, and subsequently online for a period of two weeks following the conference. A total of 102 surveys were completed and consolidated into a single dataset. The sample size compared to the 2017 survey is very similar, and although there was some overlap in terms of conference delegates attending both the 2017 and 2018 conferences, it should be noted that the survey was not completed by the exact same respondents in both years. Therefore, some variation in responses is to be expected.

The breakdown of the respondents is as follows:



# ABOUT THE BUSINESS OF SCIENCE SURVEY

## Type of Organisation



As with many surveys, not every question was answered by every respondent.

64 respondents were male, whilst 38 were female.

The most represented age group is the 41–50 year old age group with 30 respondents, followed by the over 50s at 28.

Small and medium sized businesses are well represented, with 29 responses from this group, a positive aspect illustrating that commercial science is not dominated by large research companies.

The highest number of responses (31) came from companies with more than 250 employees, with commercial businesses accounting for three out of every five respondents.

Academic and educational institutions were also well represented with 18 responses. Respondents from public sector organisations declined to 7 this year, from 14 in 2017.

# AREAS FOR FUTURE CONSIDERATION

Although innovation is viewed positively by nearly three quarters of respondents, there is still a sizeable audience that talks about, but doesn't deliver, an innovation environment to its employees. How can we encourage these organisations to transition from passive to active promoters of innovation?

With just 7% of survey respondents coming from the public sector, how can more employees from the public sector be encouraged to attend?

There was just a small increase this year in the number of female respondents – up to 37% from 33% in 2017 – so the challenge is twofold:

**a. encouraging more females who are already engaged in science to get more involved with industry initiatives such as the Business of Science Conference**

**b. attracting more females into science careers in the first place**

With just 28% of school leavers coming to employers with a suitable level of knowledge in STEM subjects, is there now a compelling argument to engage youngsters whilst they are in primary education?

With twice as many respondents this year compared to last year in the 30 and under category, how can we build further on this to ensure we garner the views of those who will become tomorrow's leaders?

The highest proportion of respondents (31%) cited the link between innovation and coaching / mentoring, highlighting how the latter contributes to a positive innovation culture. So how can we encourage more organisations to embrace coaching / mentoring, not just as a driver for innovation but also perhaps for continuous improvement?

With equal numbers of respondents (just under 90%) agreeing that both universities and apprenticeships are good ways in which to access science careers, how is this reflected in organisations' hiring and retention strategies?

# AUTHORS AND PARTNERS



## BUSINESS OF SCIENCE CONFERENCE

Science and the commercialisation of science continues to be fundamental to the economic growth of the North and throughout the UK economy.

Following 3 successful years in Manchester and Liverpool, the Business of Science conference will be moving to Leeds in 2019 to highlight that City and the wider region's successful role in the development of ground-breaking science, innovation and invention.

**With an exceptional Conference and Speaker Programme, this is a must attend event.**

To book tickets, please visit <https://businessofscience.co.uk/>



## LOOKOUT!

**LOOKOUT!** is an independent market research and insights consultancy.

**LOOKOUT!** works with start-ups, SMEs and International Organisations, providing comprehensive research and intelligent insights; helping clients make significant improvements to their business and providing clarity to them in a range of areas including:

- **Customer Profiling & Experience**
- **Market Analysis, Reporting & Monitoring**
- **Stakeholder Analysis & Mapping**
- **Competitor Analysis**
- **Investment & Feasibility**

[www.wearelookout.com](http://www.wearelookout.com)



---

**BUSINESS OF SCIENCE**  
CONFERENCE