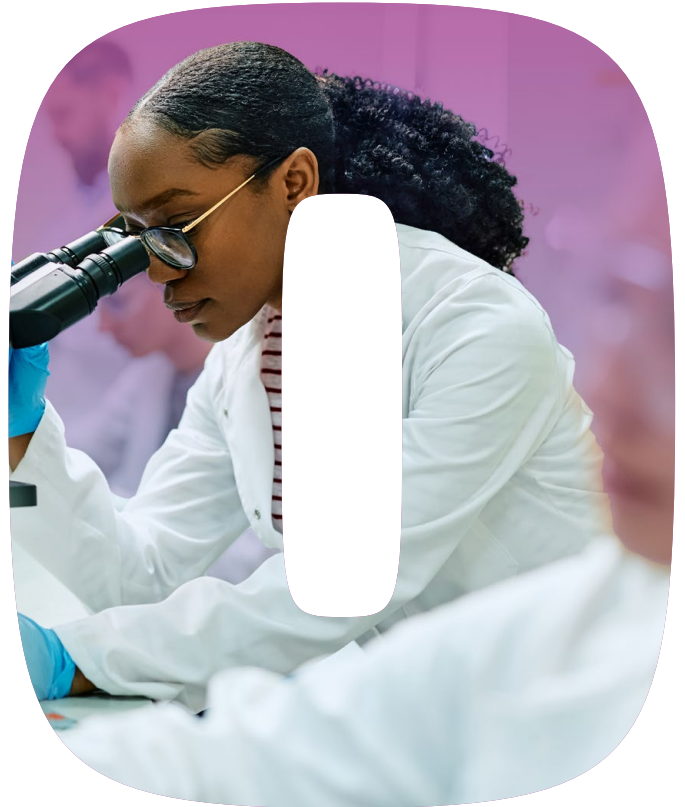
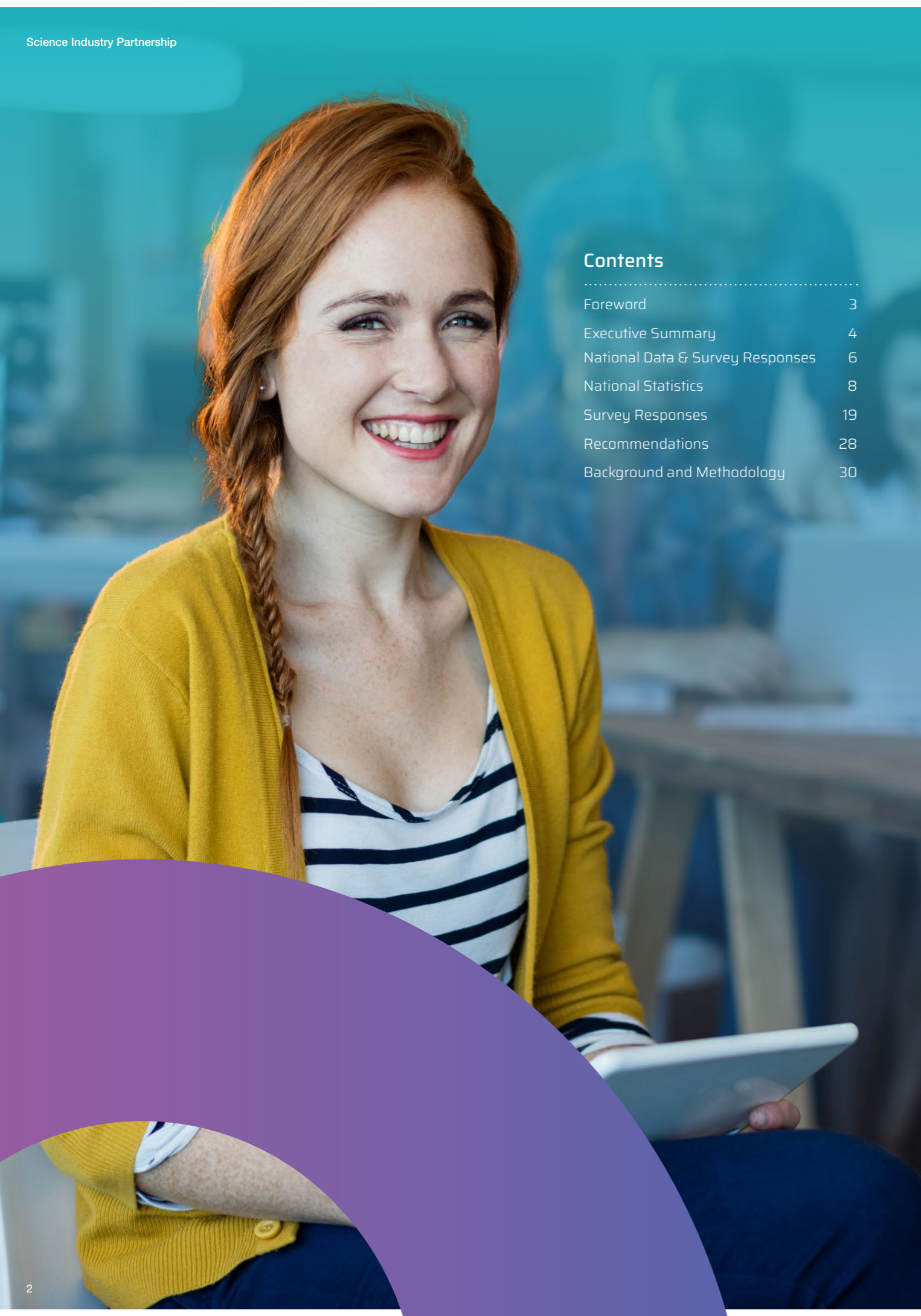


# Science Industry Partnership Apprenticeship Survey 2025





**Contents**

.....	
Foreword	3
Executive Summary	4
National Data & Survey Responses	6
National Statistics	8
Survey Responses	19
Recommendations	28
Background and Methodology	30

**Foreword**

The science sector plays a vital role across many aspects of our national life and has a crucial economic function as well. This is underlined by the Government including one of its industries - life sciences - as among the key areas it has committed to returning to high levels of growth in the coming years.

The SIP's Apprenticeship Survey 2025 demonstrates a consistent uptake of apprenticeships in larger employers, as well as increasing numbers in key industries - and the continuing importance of higher-level apprenticeships in upskilling existing employees.

However, there are some findings which underline the scale of the challenges we face as a sector in ensuring smaller employers - as well as some industries - are supported to increase apprenticeships.

Apprenticeships are at the centre of the health of the sector's long-term talent pipeline, which is critical for future innovation and growth. A fall in starts means fewer people gaining skills and experience in a sector already suffering from skills shortages in key technical roles.

The sector's apprenticeship system has a clear need for higher-level qualifications, reflecting the demand for advanced, industry-specific skills. While life sciences shows promising growth, the decline elsewhere show there are challenges we must face head-on. Ensuring accessibility and fostering strategic partnerships will be key to building and sustaining a highly skilled, future-ready workforce.

Clearly, apprenticeships are valued across the science landscape, in all industries and all parts of the UK. Such demand demonstrates how learners and employers alike benefit from their unique mix of hands-on professional experience and formal learning.

Employers, providers and government have a unique opportunity to harness the potential of apprenticeships by reforming the skills landscape, tackling these challenges and ensuring the science sector has a workforce which is fit for the future.

While there are some challenges to address, the outlook for apprenticeships in the sector is positive and I'm confident we'll rise to the task of ensuring science employers play a important role in boosting economic growth in the years to come.



**Alex Felthouse**  
Chair of the Science Industry Partnership

## Executive Summary

### Overview

The apprenticeship landscape in England's science sector underwent significant changes between 2017/18 and 2021/22. One of the most striking changes was the rise in higher or 'degree apprenticeships', which grew from comprising 2 per cent to 18 per cent of all sector apprenticeship starts.

Starts rose in key sectors, such as in pharmaceuticals (31 per cent) and scientific research and development (R&D) (38 per cent). This picture is dominated by large companies (250+ employees), which accounted for 67 per cent of all starts in 2021/22.

Starts at large companies remained largely consistent during this period. There has been a decline at small and medium-sized enterprises (SMEs), which dropped by 39 per cent, from 1,630 in 2017/18 to 1,000 in 2021/22.

### Key Findings and Challenges

Apprenticeships in science employers:

- Higher apprenticeship starts have risen from two per cent to 18 per cent over five years.
- Apprenticeship starts in the sector fell by 16 per cent over five years, with industrial sciences driving much of this decline.
- Life sciences saw growth in apprenticeships in certain subsectors, driven by a take-up of higher-level qualifications.
- Pharmaceuticals apprenticeship starts grew by 31 per cent.
- Scientific R&D starts rose by 38 per cent.
- 1,500 degree-level apprenticeships were recorded in the past three years alone.

### Demand for Higher-Level Apprenticeships

Demand for higher-level apprenticeships in the science sector continues to grow, with a clear shift toward advanced and degree-level qualifications. Intermediate (Level 2) apprenticeships dropped significantly, representing just 12 per cent of starts in 2021/22 compared to 42 per cent in 2017/18. Advanced (Level 3) programmes remained the most popular, accounting for 51 per cent of starts, while degree-level (Level 6) apprenticeships surged from two per cent to 18 per cent.

Subsector trends reveal industrial sciences still favour Level 3 apprenticeships (61 per cent of starts in 2021/22), whereas life sciences emphasise degree-level apprenticeships, which now represent 30 per cent of starts compared to just five per cent for Level 2.

With Skills England set to reform the apprenticeship landscape in the coming years, any decisions which negatively impact funding of Level 7 apprenticeships in the life sciences sector would be detrimental to the flow of talent into this traditionally high-growth sector.

### Opportunities to Broaden Participation

To strengthen apprenticeships in the science sector, SMEs should be supported with targeted incentives, simplified funding access, and raised awareness about the strategic benefits of apprenticeships. Partnerships with larger enterprises can bolster resources and mentorship, while training programmes must align with industry needs, including advanced skills and emerging technologies.

Expanding degree-level apprenticeships and maintaining flexible, high-quality standards through employer collaboration are essential for meeting future workforce challenges.

### SME Challenges

The 16 per cent decline in apprenticeship starts across the sector – from 4,150 to 3,480 – is due in large part to a decline at SMEs, which constitute 76 per cent of science employers.

This reflects a combination of barriers in the system and sector-specific challenges. This accounts for much of the decrease in sectors such as polymers (44 per cent) and chemicals (14 per cent).

This decline is concerning for the health of the sector's long-term talent pipeline, which is critical for future innovation and growth.

### Innovative Collaborations to Shape the Future

The Science Industry Apprenticeship and Technical Education (SIATE) group is instrumental in fostering growth and resilience across the UK's science sector. By working alongside employers and training providers, SIATE develops high-quality apprenticeship standards from Levels 2 to 7.

These programmes attract and develop talent in critical areas, such as laboratory technicians, bioinformatics, and regulatory affairs. Sustained employer collaboration is essential to ensure these apprenticeship standards evolve alongside technological advancements and emerging industry trends.

### Final Observations

The science sector's apprenticeship system has a significant requirement for higher-level qualifications, reflecting the demand for advanced, industry-specific skills. While life sciences show promising growth, the decline in industrial sciences and SME participation highlights critical challenges. Addressing accessibility issues and fostering strategic partnerships will be key to sustaining a highly skilled, future-ready workforce.

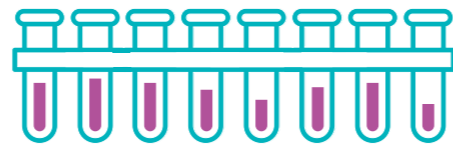
By leveraging opportunities to engage SMEs, aligning training with workforce needs, and continuing collaboration through groups like SIATE, the UK's science sector can strengthen its global competitiveness and foster long-term innovation.

Moving forward, concerted efforts are essential to ensure apprenticeships remain a compelling route for attracting and developing the next generation of talent.

Higher  
apprenticeship  
starts have risen  
from two per cent  
to 18 per cent  
over five years

## National Data

**3,480** apprenticeship starts recorded across **910** science sector companies



**67%** of apprenticeship starts in the science sector were at large companies

Apprenticeship starts at science sector SMEs have **declined by 39%** over the past five years



**1,500** degree-level apprenticeship starts in the past three years



### Age

Under 19	22%
19-24	26%
25+	52%

**GENDER**

Male 70%

Female 30%

Ethnicity	
Asian/Asian British	4%
Black/African/Caribbean/Black British	1%
Mixed/Multiple ethnic groups	1%
Other ethnic group	0%
White	93%
Unknown	1%

Life sciences: starts up **11.8%** ↑ Industrial sciences: starts down **29.6%** ↓

## Survey Responses

Employers reported annual levy contributions totalling

**£24.4** MILLION

Levy recovery rate:

**35%**

**1,301** apprentices currently in training:

60% new recruits; 40% existing employees retraining or upskilling



Two-thirds of respondents are 'satisfied' or 'very satisfied' with how the apprenticeship system works for their business

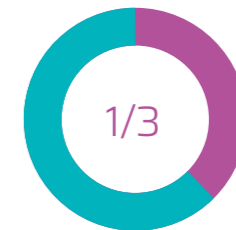


**46%** struggle to effectively communicate their organisation's position on key elements of the system

**92%** are 'satisfied' or 'very satisfied' with the quality of apprenticeship training



One-third would 'somewhat' or 'significantly' reduce apprenticeship uptake if levy funds were available for non-apprenticeship training



**96%** 'agree' or 'strongly agree' with proposals to allow levy funds to be spent on non-apprenticeship training

**88%** would offer 'somewhat' or 'much more' workplace training overall if levy funds could be spent on non-apprenticeship training



## National Statistics

### Policy Context

The UK-wide apprenticeship levy, introduced in April 2017, mandates that all UK employers with an annual pay bill exceeding £3 million contribute 0.5 per cent of their total annual pay bill to the levy. Employers can subsequently reclaim this funding to invest in apprenticeship training.

Before the introduction of the levy, approximately 494,900 apprenticeship starts were registered in England across the entire economy in the academic year 2016/17. Within a year, starts had fallen by 25 per cent to 375,800 and have continued to decline, reaching approximately 339,580 in 2023/24.<sup>1</sup> This decrease has largely been driven by a reduction in the number of SMEs (i.e. non-levy payers) engaging with the system.

A significant change that coincided with the decline in apprenticeship starts was the transition from apprenticeship frameworks to apprenticeship standards. The traditional frameworks were generally more accessible and flexible but often lacked alignment with industry needs and rigorous assessment. In contrast, apprenticeship standards, while addressing these issues by involving employers and enhancing quality and rigour, have introduced complexities and accessibility challenges.

The focus of the apprenticeship system should extend beyond merely increasing the number of starts. The quality of the training and breadth of available options are equally important, and there has been growing support for higher-level and degree-level apprenticeship standards—options that were rarely available within the framework model. However, this wider context does suggest the potential for increased

engagement with apprenticeships, particularly from SMEs, provided they receive enough support to overcome barriers and can access an appropriate range of courses.

### Apprenticeship Starts

The number of apprenticeship starts at science companies in England has dropped by 16 per cent over the past five years, from approximately 4,150 in 2017/18 to 3,480 in 2021/22. This trend reflects wider pressures on the apprenticeship system and workforce training.

The data show a notable decline in apprenticeship starts in key industrial science subsectors, with polymers seeing a significant reduction of 44 per cent (from 2,020 starts in 2017/18 to 1,140 in 2021/22). Similarly, the chemicals subsector experienced a decline of 14 per cent during the same period. However, some subsectors have shown resilience. For example, apprenticeship starts in downstream oil more than doubled, albeit from a low baseline, increasing from 50 in 2017/18 to 110 in 2021/22.

Life sciences subsectors present a mixed picture. Pharmaceuticals experienced modest growth of 31 per cent over the five years, increasing from 350 to 460 starts, while scientific research and development maintained steady growth, rising by 38 per cent from 580 starts in 2017/18 to 800 in 2021/22. In contrast, medical technology saw a sharp decline of 40 per cent over the same period, dropping from 420 starts in 2017/18 to just 250 in 2021/22.

This variation highlights the differing trajectories of apprenticeship use across the science sector, with industrial sciences driving the overall decline while certain life sciences subsectors demonstrate more stability or growth.

At least  
18,800  
starts across the  
sector in the past  
five years

Apprenticeship starts at science companies by subsector, England only

Subsector	2017/18	2018/19	2019/20	2020/21	2021/22
Downstream Oil	50	80	80	50	110
Chemicals	730	990	770	560	720
Polymers	2020	1730	1380	970	1140
Pharmaceuticals	350	360	430	450	460
Medical Technology	420	450	320	270	250
Scientific R&D	580	780	770	730	800
<b>Total</b>	<b>4,150</b>	<b>4,390</b>	<b>3,750</b>	<b>3,030</b>	<b>3,480</b>

1. Department for Education: Apprenticeships and traineeships, Academic year 2023/24



## Company Engagement

Beyond the data for apprenticeship starts, it is also useful to look at the number of individual companies that register apprentices. The number of science companies in England registering apprenticeship starts has remained relatively stable over the past five years, with a total of 910 companies in 2021/22, recovering from a low of 810 in 2020/21. While the figures have fluctuated, industrial sciences and life sciences continue to show distinct patterns of engagement.

In industrial sciences, the number of companies registering apprenticeship starts peaked at 710 in 2018/19 before declining to 520 in 2020/21. By 2021/22, this figure recovered to 620 companies. The polymers subsector has consistently led in industrial sciences, with 440 companies registering apprenticeship starts in 2021/22. Although this remains below the 2017/18 figure of 540, it reflects a partial recovery from the 390 recorded in 2020/21.

Life sciences has shown a steadier trend, with the number of companies registering apprenticeship starts increasing slightly from 250 in 2017/18 to 290 in both 2020/21 and 2021/22. Scientific research and development has been the most consistently engaged subsector within life sciences, growing from 100 companies in 2017/18 to 150 in 2021/22. This growth highlights its increasing importance in workforce training across the sector.

These figures underscore the resilience of science companies in maintaining apprenticeship engagement despite the challenges of recent years. Industrial sciences showed notable recovery, and life sciences maintained a consistent upward trend in key areas such as research and development.

and developing talent. This results in fewer people with training and experience in the sector, while many companies continue to suffer from skills shortages. Therefore, it is crucial

to ensure companies which do not pay the apprenticeship levy are incentivised and able to engage with the apprenticeship system and access the benefits it brings.

Science companies with registered apprenticeship starts by subsector (England only)					
Subsector	2017/18	2018/19	2019/20	2020/21	2021/22
Downstream oil	0	10	0	10	10
Chemicals	160	180	160	120	170
Polymers	540	520	430	390	440
Pharmaceuticals	30	40	60	50	60
Medical technology	120	90	90	100	80
Scientific R&D	100	110	130	140	150
<b>Total</b>	<b>950</b>	<b>950</b>	<b>870</b>	<b>810</b>	<b>910</b>

## Company Size

Apprenticeship starts in science companies are heavily concentrated within large enterprises (250+ employees), which accounted for 67 per cent of all starts in 2021/22. This represents a slight decline from the peak of 72 per cent in 2020/21 but continues to reflect the dominant role of large businesses in workforce training. In contrast, small and medium-sized enterprises (SMEs, 0-249 employees) collectively contributed 33 per cent of apprenticeship starts in 2021/22, an increase from 28 per cent in 2020/21 but still below their 44 per cent share in 2017/18.

Before the introduction of the apprenticeship levy in April 2017, the share of apprenticeship starts taking place at SMEs across all industries was consistently around 54 per cent. Within a year, this had dropped to 44 per cent and it has continued to fall to around 40 per cent in 2021/22.<sup>2</sup>

This downward trend is concerning, particularly as SMEs represent 76 per cent of science companies and are essential to the sector's innovation, growth, and adaptability. A decline in apprenticeship activity at SMEs not only weakens the talent pipeline but also deprives these businesses of the benefits apprenticeships offer in addressing skills shortages

Apprenticeship starts at science companies by company size, England only					
Enterprise size	2017/18	2018/19	2019/20	2020/21	2021/22
Small (0-49 employees)	11%	10%	7%	9%	10%
Medium (50-249 employees)	33%	31%	25%	19%	23%
Large (250+ employees)	56%	58%	68%	72%	67%

In industrial sciences, large enterprises followed a similar trajectory, accounting for 57 per cent of starts in 2021/22, down from 62 per cent in 2020/21. Meanwhile, SMEs, contributed 43 per cent, showing modest improvement from 38 per cent the previous year.

The disparity between large organisations and SMEs is even more pronounced in life sciences. Large companies consistently accounted for more than three-quarters of apprenticeship starts, peaking at 79 per cent in 2019/20 and 2020/21 before a slight reduction to 78 per cent in 2021/22. SMEs contributed just 22 per cent in 2021/22, reflecting their relatively limited role in apprenticeship activity within this subsector.

The data illustrates a growing reliance on levy-paying companies to sustain apprenticeship activity across the science sector. In 2021/22, 83 per cent of apprenticeship starts were at companies paying the apprenticeship levy – substantially higher than the 65 per cent average across all industries.<sup>3</sup> With levy-paying companies defined as those with an annual wage bill of £3 million or more, this trend underlines the critical role large enterprises play in supporting apprenticeship numbers. However, the relatively low participation of SMEs suggests that additional measures may be needed to address the barriers they face, such as navigating apprenticeship processes or accessing funding, to ensure they can play a stronger role in sector-wide skills development.

## Qualification Level

The nature of apprenticeships undertaken across science companies has shifted significantly between 2017/18 and 2021/22, with a clear trend towards higher-level qualifications.

Level 2 (intermediate) apprenticeships have experienced a steep decline, falling from approximately 1,850 starts (42 per cent) in 2017/18 to just 400 (12 per cent) in 2021/22. The number of Level 3 (advanced) apprenticeships has dropped slightly, from 1,850 to 1,650 over the same period, but they now account for 51 per cent of sector starts, compared to 47 per cent five years earlier. The decline in lower-level starts is linked to the fall in activity at non-Levy payers. National data show that apprenticeships taking place at SMEs are more likely to be at lower levels. A fall in SME engagement means fewer opportunities at lower levels.

Degree-level apprenticeships (Level 6+) have seen the most substantial rise, increasing from just 80 starts (2 per cent) in 2017/18 to 570 (18 per cent) in 2021/22, reflecting the significant demand for higher-level skills across the sector.

Degree-level apprenticeships have been widely welcomed and supported since their introduction. In the three academic years between 2019/20 and 2021/22, there were approximately 1,500 starts on apprenticeships at Levels 6 and 7 in science sector companies. Apprenticeships at these levels offer pathways that are increasingly aligned with industry needs, providing alternative ways for learners

2. Department for Education: Apprenticeships in England by industry characteristics, 2021/22

3. Department for Education: Apprenticeships in England by industry characteristics, 2021/22

to gain industry-relevant qualifications without following traditional academic routes. This is crucial not only for new talent entering the industry but also for current employees looking to enhance their skills and advance their careers.

The decline in lower-level qualifications is particularly evident in industrial sciences, with Level 2 apprenticeships dropping from 1,340 (52 per cent) in 2017/18 to 320 (18 per cent) in 2021/22. Level 3 apprenticeships have remained relatively stable, falling slightly from 1,160 to 1,070. However, due to the overall drop in apprenticeship activity, they now represent 61 per cent of industrial science apprenticeship starts, up from 45 per cent, making them the most common

apprenticeship level in this subsector. While still less common, degree-level apprenticeships have shown steady growth, increasing from a reported zero starts to 130 (7 per cent) in 2021/22.

Life sciences companies exhibit an even stronger trend towards higher-level training. Apprenticeships at Level 2 have dropped sharply, from 310 starts (23 per cent) in 2017/18 to just 80 (5 per cent) in 2021/22. Degree-level apprenticeships have experienced significant growth, increasing from 80 starts (6 per cent) in 2017/18 to 440 (30 per cent) in 2021/22. Level 3 apprenticeships remain the most prevalent, with 580 (39 per cent) of starts in 2021/22.

The list also captures operational roles that are critical to maintaining the day-to-day functioning of science production environments. Standards such as the Level 3: Science Manufacturing Technician and the Level 3: Maintenance and Operations Engineering Technician, each with 70 starts, highlight the ongoing need for specialised technical expertise. Meanwhile, entry-level roles like the Level 2: Lean Manufacturing Operative (60 starts) and Level 2: Engineering Operative (50 starts) demonstrate the sector's continued reliance on foundational skills in manufacturing and engineering.

The inclusion of standards such as Level 3: Business Administrator (110 starts) and Level 7: Senior Leader (30 starts) underscores the need for strong administrative

and strategic leadership capabilities alongside technical expertise. Additionally, niche roles such as the Level 6: Product Design and Development Engineer (degree) and Level 6: Digital and Technology Solutions Professional (integrated degree) reflect the sector's push towards innovation and technological advancement.

Overall, the range of apprenticeship standards undertaken in 2021/22 highlights the science sector's commitment to building a multifaceted workforce. The data reflects a balance between developing future leaders, strengthening technical expertise, and supporting operational needs, ensuring that businesses are equipped to address both current and emerging challenges.

**Apprenticeship starts at industrial sciences companies by qualification level (England only)**

Qualification level	2017/18	2018/19	2019/20	2020/21	2021/22
Level 2	52%	36%	28%	22%	18%
Level 3	45%	52%	50%	59%	61%
Level 4	2%	7%	8%	6%	7%
Level 5	2%	3%	5%	9%	6%
Level 6+	0%	2%	9%	4%	7%

**Apprenticeship starts at life sciences companies by qualification level (England only)**

Qualification level	2017/18	2018/19	2019/20	2020/21	2021/22
Level 2	23%	20%	13%	6%	5%
Level 3	52%	46%	43%	39%	39%
Level 4	9%	8%	14%	18%	18%
Level 5	10%	15%	8%	11%	8%
Level 6+	6%	11%	22%	26%	30%

**Popular Standards**

The diversity of apprenticeship standards undertaken at science companies in 2021/22 demonstrates the breadth of skills and roles needed to support the sector. The top standards highlight demand across managerial, technical, and operational roles, reflecting the science sector's varied and dynamic workforce requirements.

Among the most common standards, Level 3: Team Leader or Supervisor accounted for 390 starts, indicating a strong focus on developing leadership capabilities early in careers.

Similarly, technical roles such as Level 3: Engineering Technician (280 starts) and Level 5: Operations or Departmental Manager (190 starts) showcase the need for skilled employees who can manage and maintain complex scientific and engineering processes.

Higher-level apprenticeships, such as Level 6: Laboratory Scientist (degree) and Level 4: Data Analyst, each with 130 starts, reflect the sector's emphasis on analytical and research-oriented capabilities. These roles align with the increasing demand for advanced technical skills in areas such as laboratory sciences and data-driven decision-making.

**Apprenticeship starts at science companies by aim title, Top 15, 2021/22 (England only)**

Aim Title	Starts	Count
Level 3: Team Leader or Supervisor	390	1
Level 3: Engineering Technician	280	2
Level 5: Operations or Departmental Manager	190	3
Level 4: Data Analyst	130	=4
Level 6: Laboratory Scientist (degree)	130	=4
Level 3: Business Administrator	110	6
Level 3: Maintenance and Operations Engineering Technician	90	7
Level 3: Improvement Technician	70	=8
Level 3: Science Manufacturing Technician	70	=8
Level 4: Improvement Practitioner	70	=8
Level 2: Lean Manufacturing Operative	60	=11
Level 4: Laboratory Technician	60	=11
Level 2: Engineering Operative	50	=13
Level 6: Product Design and Development Engineer (degree)	50	=13
Level 3: Assistant Accountant	30	=15
Level 3: Science Industry Maintenance Technician	30	=15
Level 3: HR Support	30	=15
Level 7: Senior Leader	30	=15
Level 6: Digital and Technology Solutions Professional (integrated degree)	30	=15

## Level 7 Apprenticeships

Level 7 apprenticeships play a critical role in the science sector, addressing the demand for advanced skills and supporting workforce development in key areas. These programmes are essential for upskilling employees and equipping them with the expertise required to succeed in specialised and leadership roles, while also helping companies meet their strategic objectives.

As discussions around the proposed Growth and Skills Levy continue, it is crucial to protect funding for Level 7 apprenticeships. These programmes not only provide a pathway for new postgraduate talent to enter the sector but also enable existing employees to gain advanced qualifications, particularly in areas where skills shortages persist. For instance, Level 7 apprenticeships in Regulatory Affairs, Bioinformatics, and Advanced Therapies support the growth of emerging fields that are vital to the UK's global competitiveness in science and innovation.

The flexibility of Level 7 apprenticeships allows businesses to align training with their operational needs, while individuals benefit from the ability to work and learn

simultaneously. This ensures talented employees can progress without the financial burden of self-funded postgraduate study, creating a more inclusive and accessible route to advanced qualifications.

Additionally, Level 7 apprenticeships enhance workforce planning by enabling companies to develop internal talent for leadership roles through programmes such as the Senior Leader apprenticeship. This supports succession planning and reduces reliance on costly external hires to fill senior positions, ensuring continuity and sustainable growth within businesses.

As the Growth and Skills Levy introduces new policies, including funding for shorter apprenticeships and foundation programmes, it is imperative that Level 7 apprenticeships remain a core component of the system. Their value in addressing high-priority skills gaps and driving innovation across the science sector is unparalleled, and their continued funding will be essential to maintaining the UK's position as a global leader in science and technology.

Life sciences saw growth of apprenticeships, driven by a take-up of higher qualifications

## Level 7 Case Studies

Ellen Collins started a Paralegal Apprenticeship with Pfizer in September 2017, which she completed successfully two years later and moved onto a Solicitor Apprenticeship, before achieving a LLB (Hons) Legal Practice Law Degree in August 2024. She has since passed the Solicitors Qualifying Exam.

While Ellen found the demands of study and work challenging, she believes the key to finding the right work/life balance was being organised and using schedules to plan her time efficiently.

Ellen recognises the positive impact made by her team at Pfizer: colleagues made a conscious effort to involve her and feed back on her work, even during busy periods. She credits this as a significant part of her development, along with their support and helping her grow in confidence.

End Point Assessment had evolved by the time she completed her apprenticeship but with the support she received from Pfizer, Cogent, her family and peers at university, she felt it was manageable - indeed she credits this as a key motivation, which in turn led to a rewarding outcome.

Ellen now has a permanent role with Pfizer as Assistant Corporate Counsel and is looking forward to continuing her professional and personal development.

She strongly advocates for apprenticeships and is now exploring ways she can continue to contribute to the work Pfizer does on apprenticeships.

Ellen said: "I learn best by putting academic principles into practice - which is why I felt an apprenticeship was the best option for me.

My experience at Pfizer as an apprentice has been thoroughly rewarding. Overall, I think the impact of the programme is nothing but positive. I can't emphasise enough the gratitude I feel for my team's support every step of the way."



**Ellen Collins**  
Assistant Corporate Counsel  
Pfizer

James Fox is a Senior Data Scientist, Informatics, at AstraZeneca. After leaving university with a first-class degree, James knew he wanted to pursue Bioinformatics further but was worried about the costs of studying for a Master's degree full time.

After taking some advice, he applied for a Level 7 Bioinformatics apprenticeship at AstraZeneca and was among the first cohort to do so. After completing the two-year course - which combined face-to-face sessions including university study and part-time work - in 2022 he secured a full-time role with AstraZeneca. This gave him continuity with this previous experience and he has since been promoted to a more senior role.

He believes taking a higher level apprenticeship is one of the best choices someone can make as it combines acquiring advanced skills while working and gaining real world experience - all of which without the financial commitment of studying for a Masters full-time.

James added: "The apprenticeship had a really positive impact on my career as it has helped to land me a job in a very competitive industry. The team at AstraZeneca couldn't have been more supportive or helpful. They make sure you really enjoy your apprentice experience."



**James Fox**  
Senior Data Scientist  
AstraZeneca





### Standard Development

The Science Industry Apprenticeship and Technical Education (SIATE) group serves as a collaborative forum uniting employers, training providers, and stakeholders to shape the future of apprenticeships and technical education in the science sector. Its primary aim is to develop and maintain high-quality apprenticeship standards and training programmes that address the sector’s evolving skills needs. SIATE also advocates for the science industry in national policy discussions, ensuring the sector can build a skilled workforce to drive innovation and sustain the UK’s global competitiveness in science and technology.

The availability of relevant apprenticeship standards plays a key role in influencing the number of apprenticeship starts across the sector. The SIATE group has developed a broad range of science-specific apprenticeship pathways, spanning Levels 2 to 7, to support both entry-level roles and advanced, specialised positions. These standards cater to diverse job roles, including process operatives, laboratory technicians, maintenance engineers, and regulatory affairs specialists, providing structured career pathways for individuals entering the industry and existing employees seeking to upskill or retrain. At lower levels, standards like the Level 2 Science Manufacturing Process Operative offer accessible entry points into niche areas that are underserved by traditional academic routes. Meanwhile, higher-level standards, such as the Level 7 Regulatory Affairs Specialist and Research Scientist, equip individuals with the advanced skills required to drive innovation in strategically critical fields.

This breadth of standards bridges skills gaps in vital but niche areas of the industry but and serves as a practical route for employers to attract new talent and develop internal capabilities. For example, growth in the pharmaceutical industry has been supported by degree-level apprenticeship standards, including the Level 6 Clinical Trials Specialist and Level 7 Bioinformatics Scientist, which align training with the specific needs of employers. The sustained uptake of these standards underscores their value in addressing industry demands, with 2023/24 marking a record year for apprenticeship starts across all SIATE standards combined. This achievement reflects the growing importance of these programmes in developing a highly skilled and adaptable workforce.

Conversely, the absence of suitable apprenticeship standards can act as a barrier to uptake in certain areas. If employers perceive that existing standards do not meet their requirements, they are less likely to engage with the apprenticeship system altogether. This highlights the importance of continued employer involvement in developing and refining apprenticeship standards. Collaborative efforts between employers, training providers, and other stakeholders are essential to keeping programmes relevant, up-to-date and aligned with the sector’s strategic priorities.

By ensuring a robust and diverse portfolio of apprenticeship standards, SIATE helps to address both immediate and long-term skills needs, enabling the science sector to remain at the forefront of global innovation and competitiveness.

SIATE Standard	Academic year				
	2019/20	2020/21	2021/22	2022/23	2023/24
L2 Science Manufacturing Process Operative	37	121	168	63	61
L3 Laboratory Technician	298	308	397	341	418
L3 Polymer Processing Technician	-	-	-	-	19
L3 Science Industry Maintenance Technician	256	153	170	130	174
L3 Science Manufacturing Technician	273	161	227	291	336
L5 Laboratory Scientist	6	4	-	-	-
L5 Technician Scientist	77	59	52	67	41
L6 Clinical Trials Specialist	19	10	13	18	17
L6 Laboratory Scientist	121	147	202	214	217
L6 Science Industry Process/Plant Engineer	12	16	16	24	22
L7 Bioinformatics Scientist	16	12	10	6	11
L7 Clinical Pharmacology Scientist	-	-	-	-	9
L7 Regulatory Affairs Specialist	23	18	14	20	29
L7 Research Scientist	29	93	103	72	90
<b>Annual Total</b>	<b>1,167</b>	<b>1,102</b>	<b>1,372</b>	<b>1,246</b>	<b>1,444</b>

## Science Manufacturing Technician Spotlight

The Institute for Apprenticeships and Technical Education (IfATE) conducted a comprehensive review of the Engineering and Manufacturing route in 2021 to ensure apprenticeship standards remain relevant and aligned with evolving industry needs. This review covered 58 occupational standards, including the Level 3 Science Manufacturing Technician standard, which has been available since 2014 and has seen nearly 2,000 starts to date.

One of the key outcomes of the review was a recommendation to update certain standards to comply with new IfATE policies and better address employer requirements. In response, the trailblazer group responsible for the Level 3 Science Manufacturing Technician standard decided to split the apprenticeship into more specialised pathways. This approach was designed to address the specific knowledge and skills required for distinct roles within the industry.

After three years of collaboration among employers, training providers, end-point assessment organisations, trade associations, and professional bodies, a new suite of Level 3 standards was developed, including:

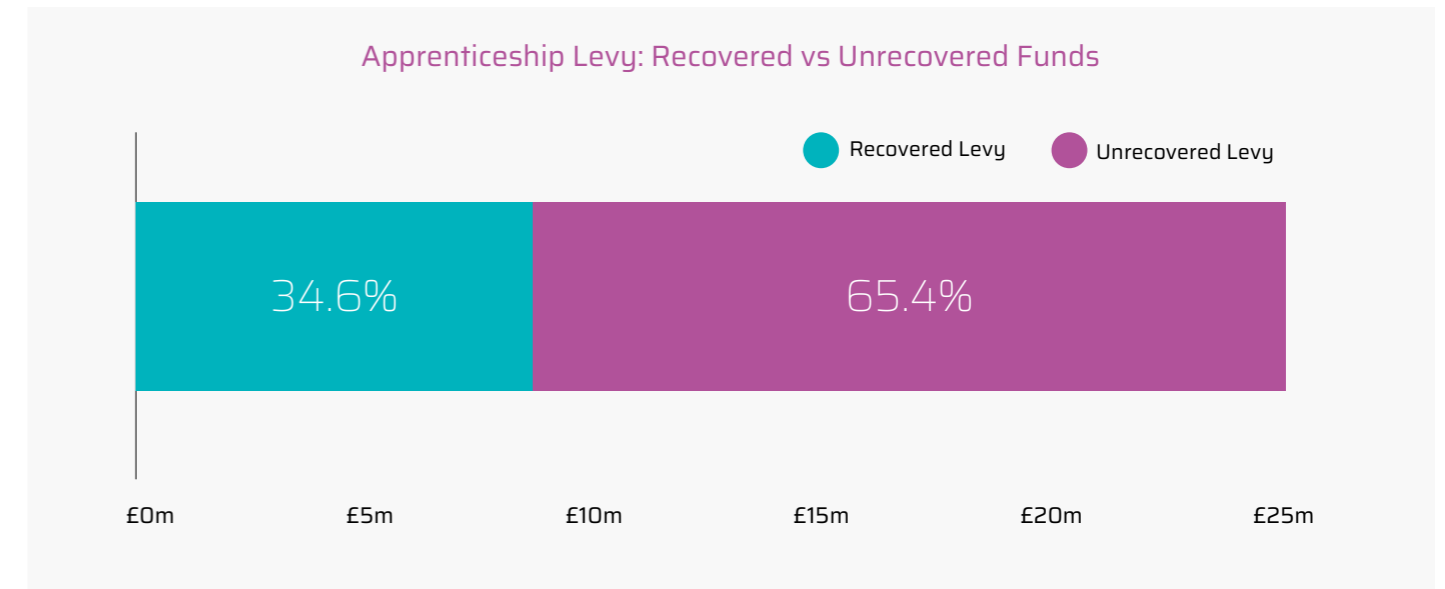
- Level 3 Battery Manufacturing Technician
- Level 3 Bulk Storage Terminal Technician
- Level 3 Polymer Processing Technician
- Level 3 Process Industry Manufacturing Technician
- Level 3 Science Manufacturing Technician (Life Science focus)

In addition, the Level 3 Composite Technician standard was updated to reflect the changing demands of the composites industry.

These developments ensure apprenticeship standards remain fit for purpose, equipping apprentices with the specialised skills needed to excel in their roles and supporting the long-term growth of the industry.

## Survey Responses

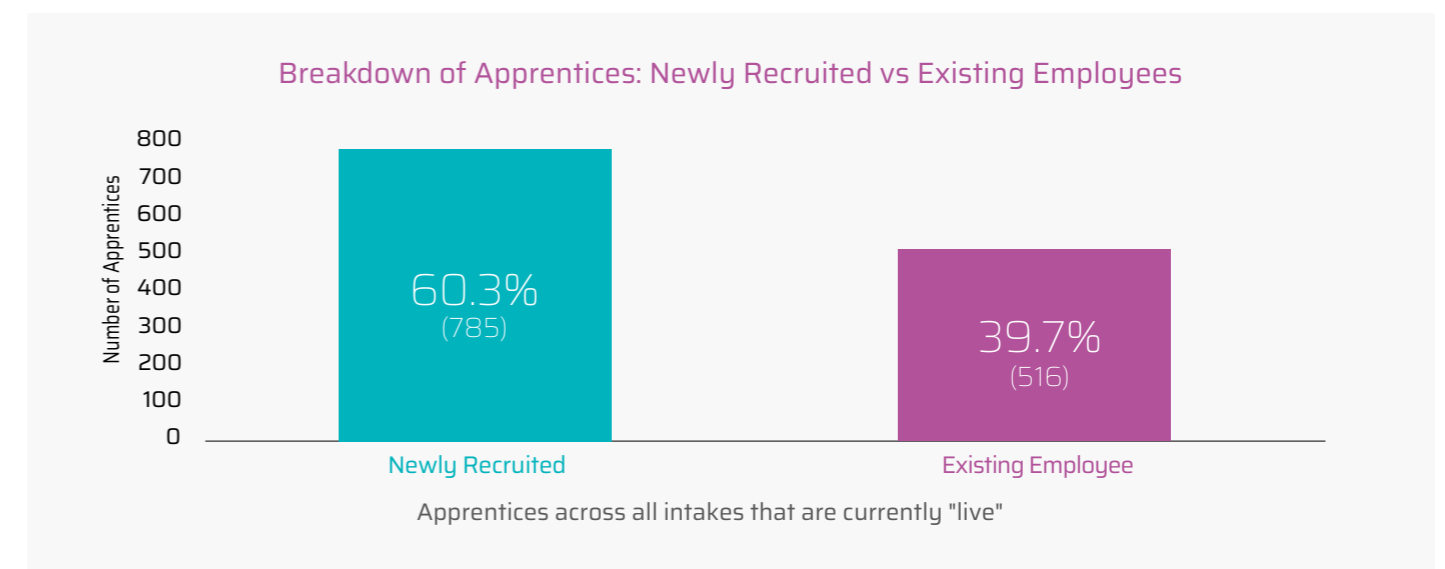
### Levy Recovery



Eighty one per cent of survey respondents reported that they currently pay into the Apprenticeship Levy. Collectively, these organisations contributed a total of £24.4 million to the Levy. Approximately £8.4 million (34.6 per cent) was recovered and used to fund apprenticeship training, while the remaining £16.0 million (65.4 per cent) was unrecovered and went unused for training purposes. Among the respondents who pay the Apprenticeship Levy, 23 per cent indicated that they send a proportion of their contributions to other organisations. This totalled over £1.2 million in Levy transfers reported by the survey participants.

### Apprenticeship Usage

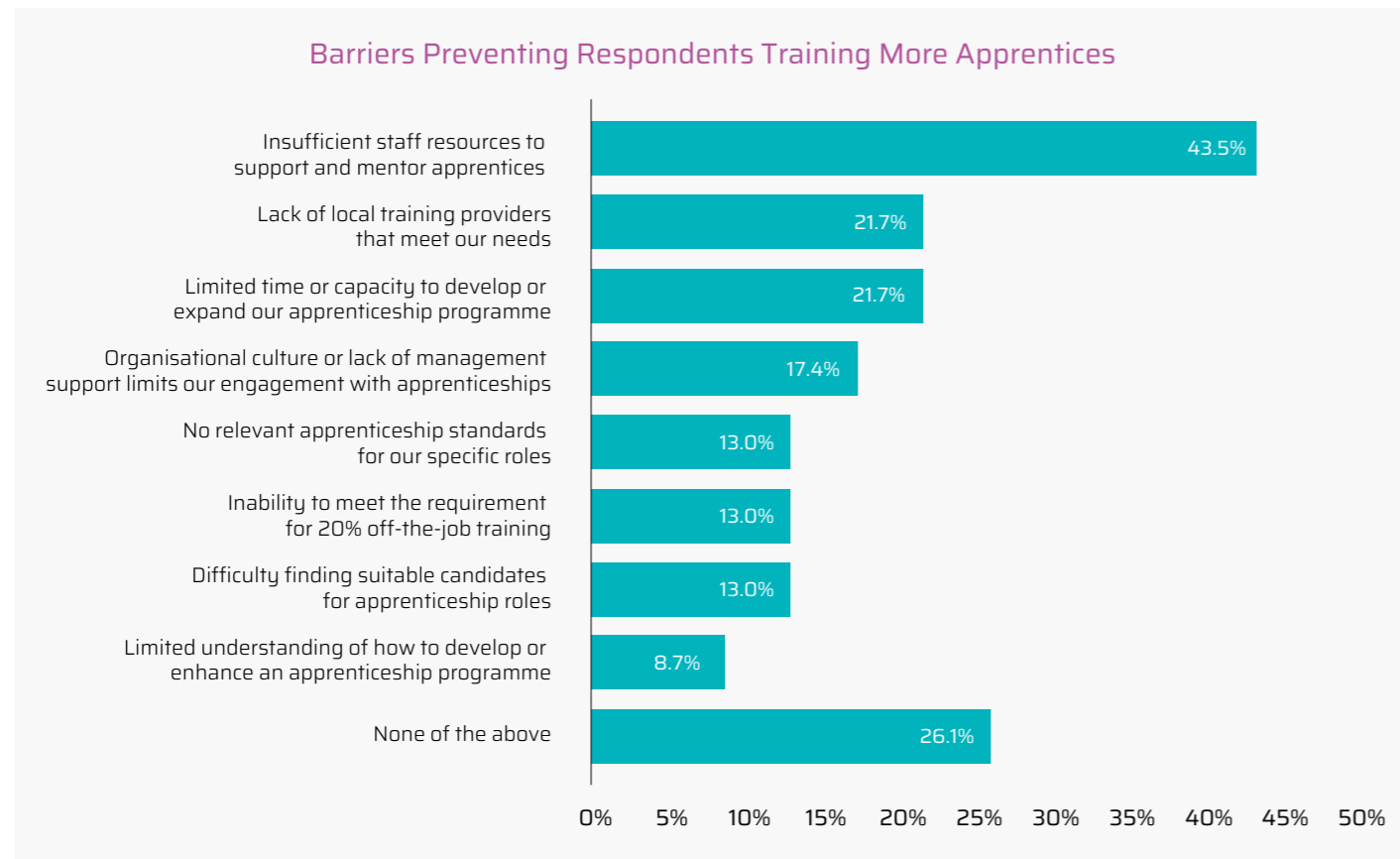
A strong 93 per cent of respondents indicated that they are currently training apprentices. Among these organisations, there was an even split between those that recruit apprentices through a regular annual intake and those that use apprenticeships as required to meet specific needs.



Among the respondents, a total of 1,301 apprentices were reported across all current intakes. Of these, 785 apprentices (60.3 per cent) were newly recruited, while 516 apprentices (39.7 per cent) were existing employees undertaking apprenticeship training. This distribution reflects the balance

between organisations using apprenticeships to bring in new talent and those leveraging them to upskill their existing workforce.

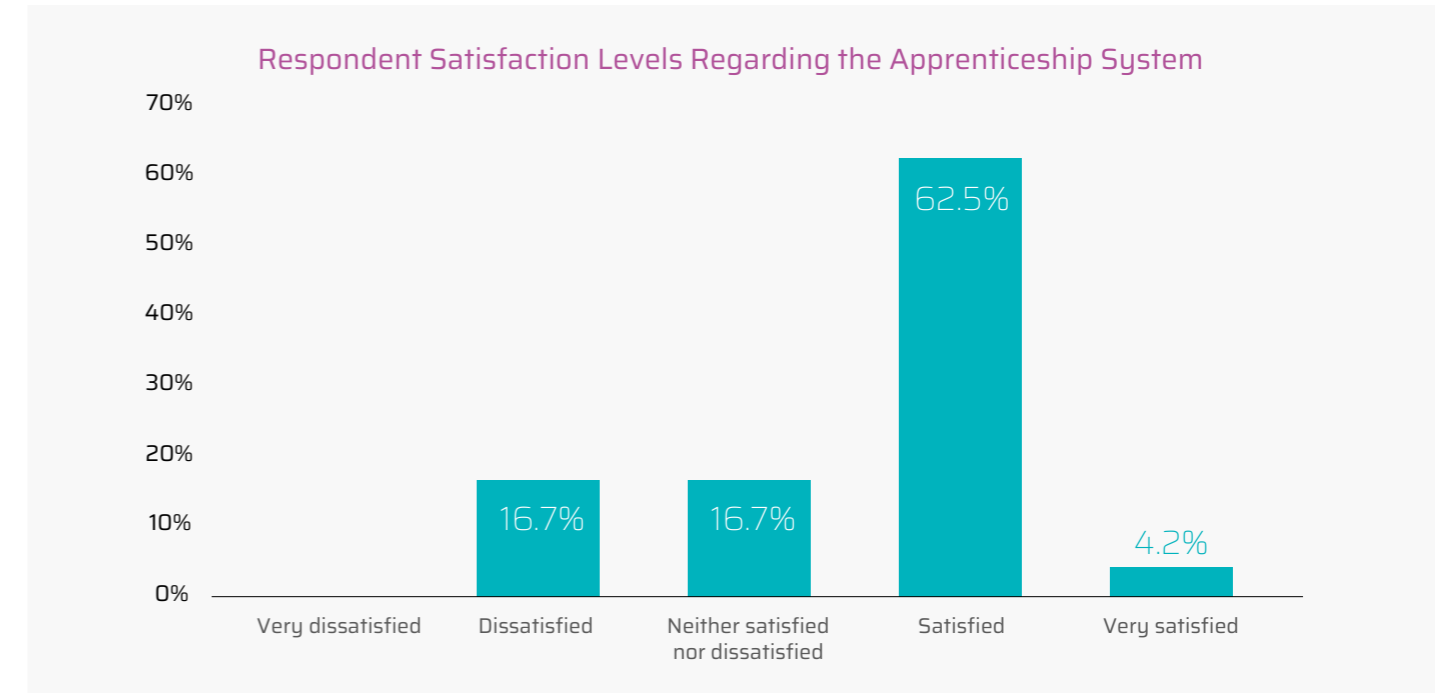
Barriers



The survey asked respondents to identify barriers that have either prevented their organisation from training apprentices or limited their ability to expand their apprenticeship programmes. The most cited issue was insufficient staff resources to support and mentor apprentices, with 43.5 per cent of respondents selecting this as a barrier. This resource challenge is further emphasised by the 21.7 per cent of respondents who identified limited time or capacity to develop or expand apprenticeship programmes as a barrier, alongside an equal proportion citing a lack of local training providers that meet their needs.

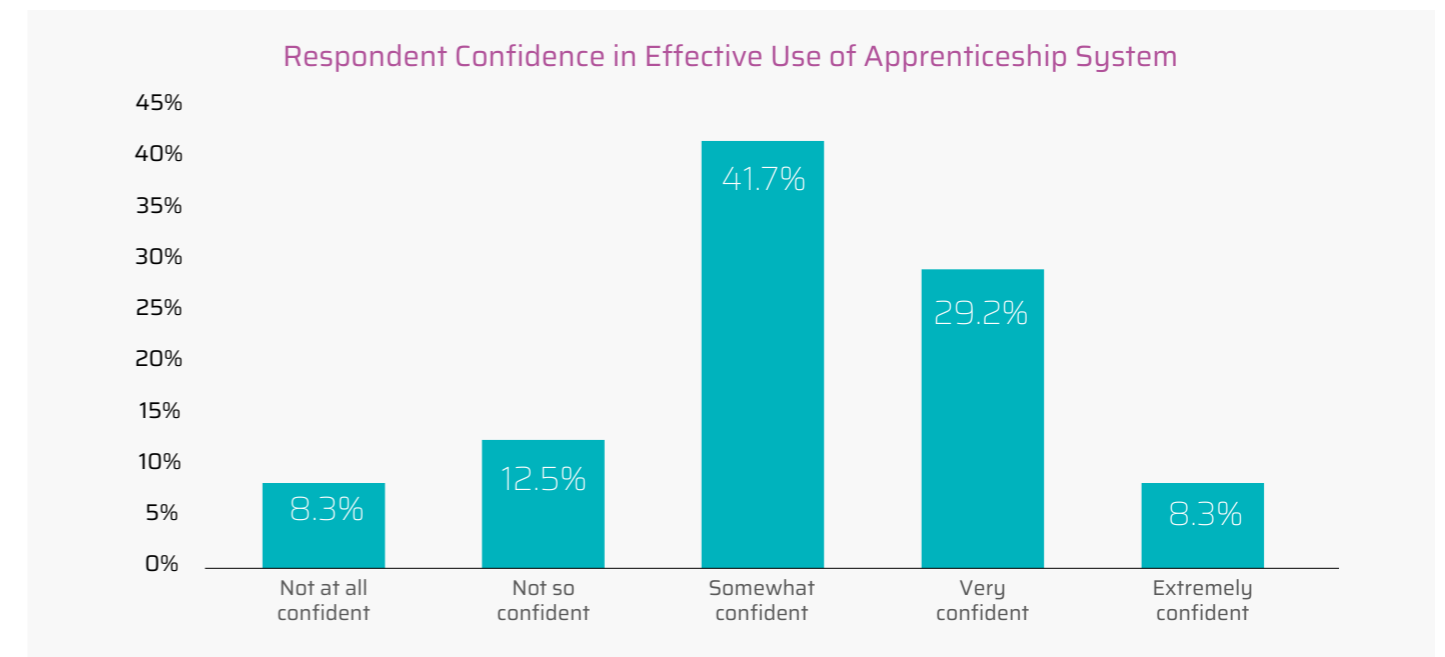
Other notable barriers included organisational culture or a lack of management support, mentioned by 17.4 per cent of respondents, as well as difficulty finding suitable candidates for apprenticeship roles, inability to meet the requirement for 20 per cent off-the-job training, and the absence of relevant apprenticeship standards for specific roles, each identified by 13 per cent of respondents. Interestingly, 26.1 per cent of respondents reported experiencing none of the listed barriers, suggesting that while many organisations face significant challenges, others have been able to navigate these obstacles effectively.

Experiences of the System



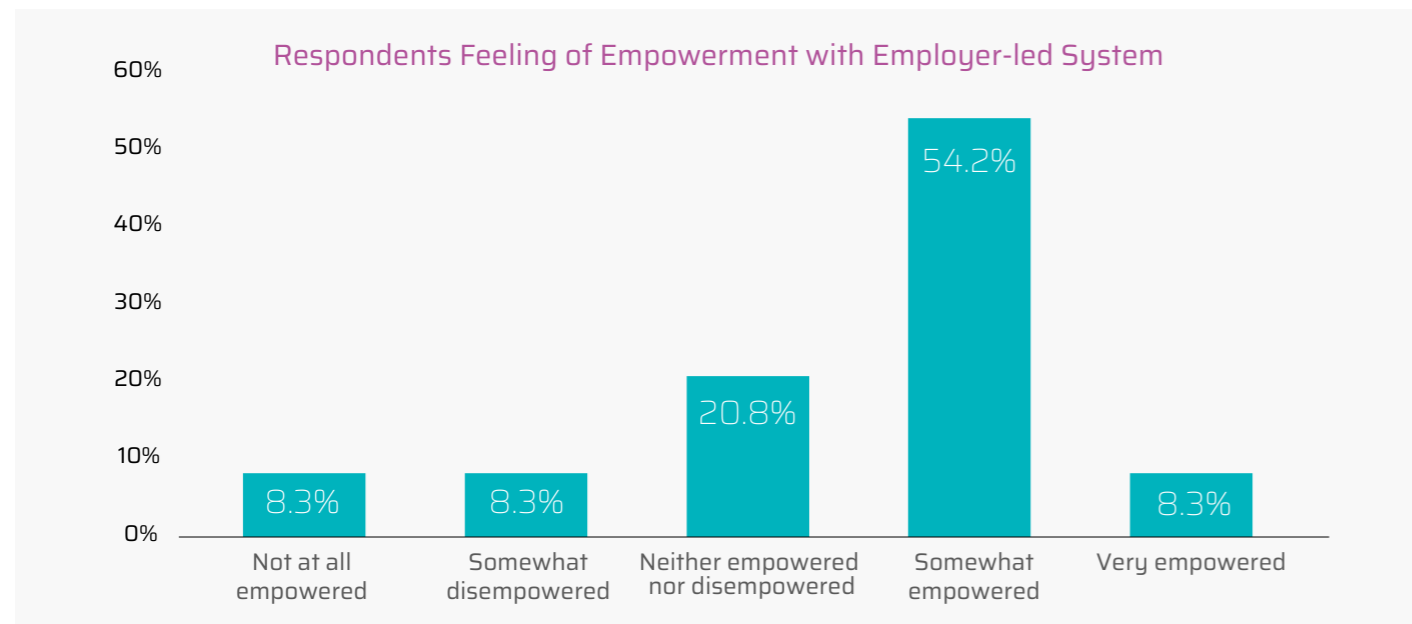
Satisfaction levels with the current apprenticeship system in England were broadly positive among respondents. Two-thirds of participants indicated they were either “satisfied” (62.5 per cent) or “very satisfied” (4.2 per cent) with how the system works for their business. That said, one-third of respondents expressed less favourable views, with 16.7

per cent reporting dissatisfaction and an equal proportion stating they felt neutral, indicating neither satisfaction nor dissatisfaction. This highlights a generally positive perception of the system while also reflecting areas where improvements may be needed.



When asked about their confidence in getting the most out of the current apprenticeship system, respondents presented mixed views. While 37.5 per cent of participants indicated they were either “very confident” or “extremely confident,” the responses suggest that many organisations still face challenges in fully realising the system’s benefits. A further 41.7 per cent described themselves as “somewhat

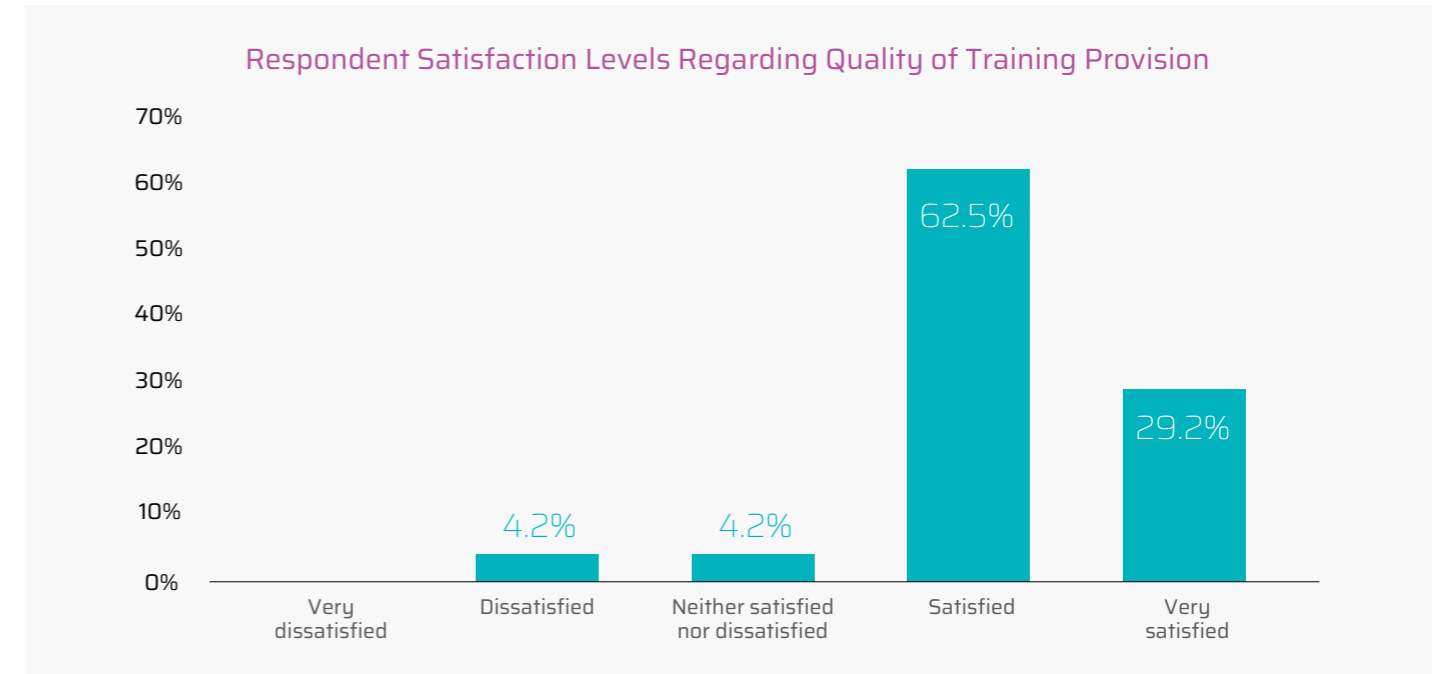
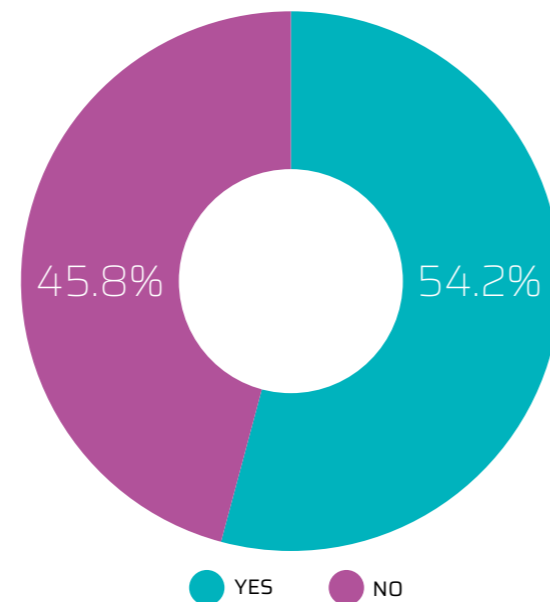
confident,” while 20.8 per cent reported lower levels of confidence, with 12.5 per cent “not so confident” and 8.3 per cent “not at all confident.” These findings highlight that, while some organisations feel they are effectively leveraging the system, there remains significant room for improvement to better support others in maximising its potential.



The survey responses indicate 54 per cent of participants felt “somewhat empowered” under the employer-led apprenticeship system, with a further 8 per cent reporting they felt “very empowered.” This suggests that while a majority of respondents perceive some level of positive empowerment, it is generally moderate rather than strong. However, this sense of empowerment appears to diminish when considering organisations’ ability to influence key aspects of the system, such as standard development. Only 54 per cent of respondents felt they were able to communicate their position effectively on these issues, leaving 46 per cent who felt unable to do so.

This contrast highlights a disconnect between feeling empowered to operate within the system and having a meaningful voice in shaping its direction. While many employers seem to navigate the system with a degree of confidence, nearly half report difficulties in ensuring their perspectives are heard on critical matters. This points to an opportunity to strengthen mechanisms for employer input, ensuring the system works for businesses and evolves to meet their needs and priorities.

Ability to Communicate Organisation’s Position on Key Elements of the System



When asked about their satisfaction with the quality of training provided by apprenticeship training providers, respondents expressed overwhelmingly positive views. A combined 91.7 per cent of participants indicated they were either “satisfied” (62.5 per cent) or “very satisfied” (29.2 per cent) with the training their providers delivered. Only 4.2 per cent of respondents expressed dissatisfaction, while an equal proportion felt neutral, with no participants reporting being “very dissatisfied.”

These results suggest that apprenticeship training providers are largely meeting employers’ expectations and delivering a high standard of service that supports businesses in

achieving their training goals. This overall positivity reflects well on the quality and reliability of training provision within the sector. However, as noted on page X, 22 per cent of respondents identified “a lack of local training providers that meet our needs” as a key barrier to training more apprentices. This underscores the importance of ensuring that high-quality provision is also geographically accessible, enabling all organisations to fully engage with the apprenticeship system and meet their workforce development needs effectively.

## The Growth and Skills Levy

Employers have long advocated for greater flexibility in how the apprenticeship levy can be used. Under the current system, many large employers are required to make significant financial contributions, but restrictions on how funds can be spent often limit their ability to invest in programmes that meet their specific needs.

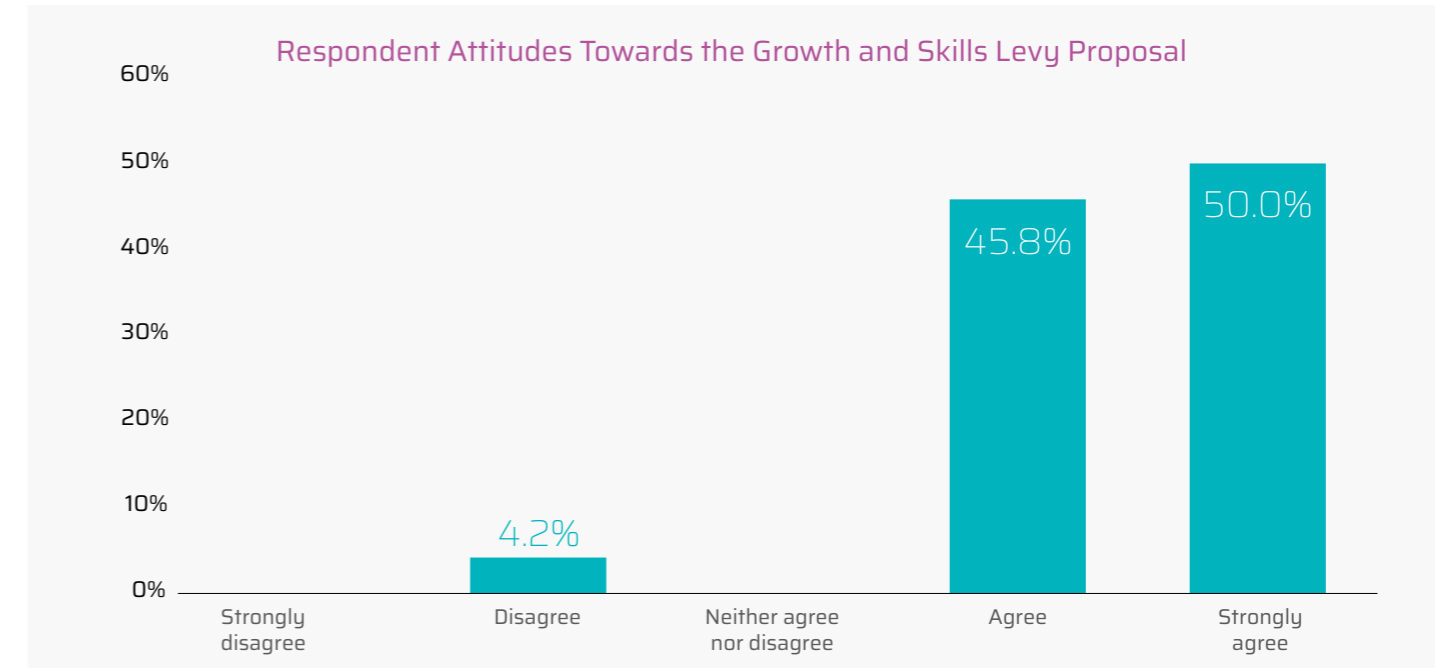
The Government recently confirmed its intention to transform the apprenticeship levy into a 'Growth and Skills Levy', allowing companies to use funds for a broader range of training. While the exact details of the policy have yet to be fully outlined, Labour has previously suggested that up to 50 per cent of levy contributions could be allocated to non-apprenticeship training, with the remaining 50 per cent reserved for apprenticeships.

This proposed change is part of wider reforms, including the creation of Skills England, which will replace the Institute for Apprenticeships and Technical Education (IfATE). Skills England will take on an expanded remit, including managing a list of levy-eligible training programmes to ensure value for money. It will focus on aligning approved courses with industrial strategy priorities and addressing the skills needs of high-growth sectors such as life sciences.

The Growth and Skills Levy presents an important opportunity for many companies to unlock previously inaccessible funding and direct it towards targeted upskilling and reskilling initiatives. However, to ensure the success of this policy, employers must remain central to decision-making, particularly in shaping the list of approved courses. By collaborating with Skills England, companies can ensure that training programmes meet the specific demands of their industries while supporting the Government's broader growth agenda.

This alignment is especially critical for sectors like life sciences, where research and development (R&D) and advanced skills are crucial for driving innovation and economic growth. Removing Level 7 funding, for example, could undermine these objectives, as training at this level is essential to building a workforce capable of meeting the demands of this strategically important sector. Ensuring Skills England prioritises training aligned with industrial strategy areas will be key to the success of the Growth and Skills Levy and the development of a globally competitive, highly skilled workforce.

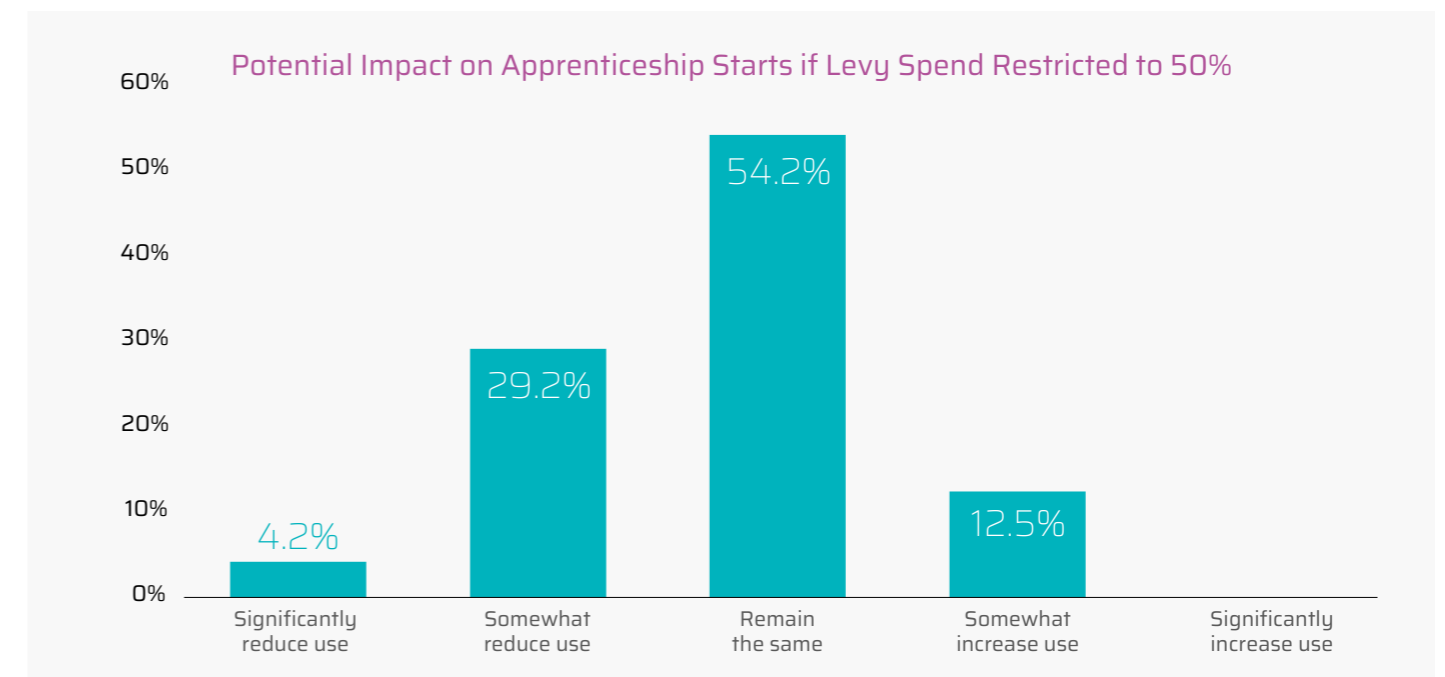
## Future Focus



The survey sought respondents' views on the possibility of amending the Apprenticeship Levy to allocate a proportion of funds to non-apprenticeship training, such as continuing professional development (CPD) or short courses. This question, posed in the run-up to the 2024 election, explored a widely discussed policy proposal without referencing any specific party's plans, ensuring a neutral framing.

The results demonstrated overwhelming support for this potential flexibility, with 95.8 per cent of respondents either "agreeing" (45.8 per cent) or "strongly agreeing" (50 per cent). Only 4.2 per cent "disagreed," and no respondents expressed neutrality or strong disagreement.

These findings reveal a clear appetite among employers for greater autonomy in utilising Apprenticeship Levy funds, particularly to address workforce development needs beyond apprenticeships. The near-unanimous support highlights the potential for such a policy to resonate widely within the sector, providing a pathway to tackle skills gaps and invest in targeted upskilling initiatives. It also reflects a recognition among respondents that broader training options, including CPD and short courses, are critical to equipping their workforce with the specialised skills required to remain competitive in a rapidly evolving landscape.

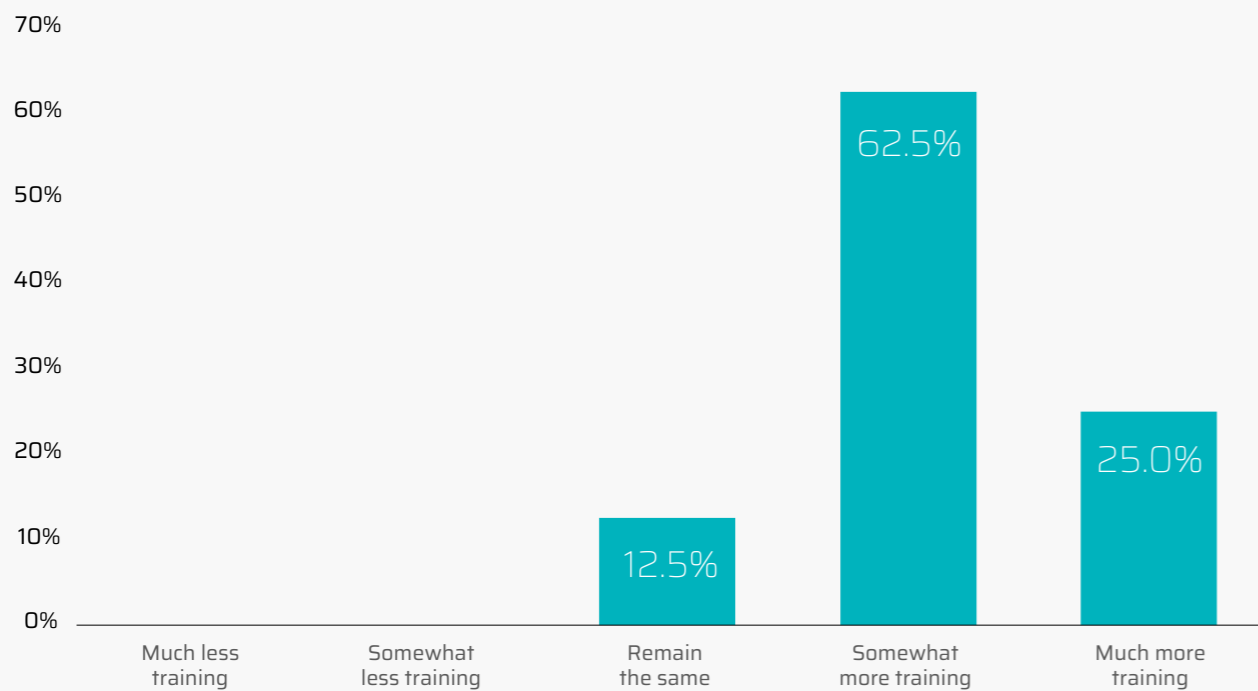


The survey also explored the potential impact of introducing flexibility into the Apprenticeship Levy, considering a hypothetical scenario where 50 per cent of the Levy could be allocated to CPD or short courses. Respondents were asked how this change might affect both their use of apprenticeships and the overall amount of workplace training offered to their workforce.

In response to the first question, which asked about the likely impact on apprenticeship use, a majority of respondents

(54.2 per cent) indicated that their organisation's use of apprenticeships would "remain the same." However, 29.2 per cent reported that this change would "somewhat reduce use," with a further 4.2 per cent suggesting it would "significantly reduce use." Meanwhile, 12.5 per cent of respondents believed they would "somewhat increase use." These results suggest that while apprenticeship activity may decline slightly under this scenario, most employers would maintain their current level of engagement with apprenticeships.

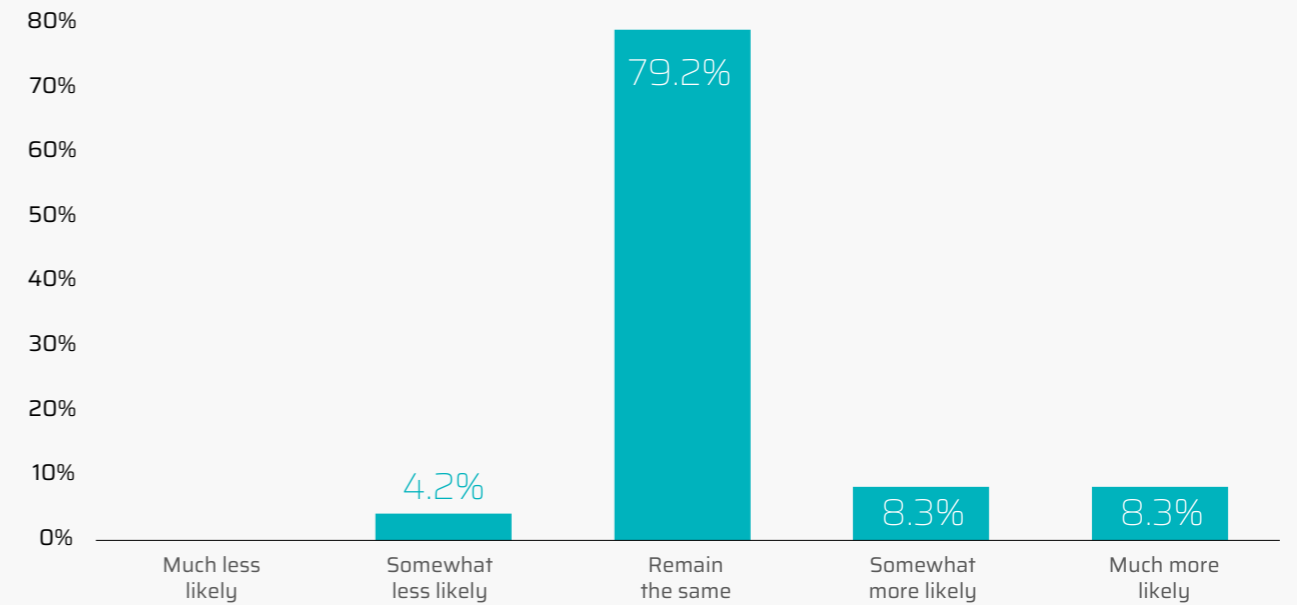
Impact on Overall Workplace Training if 50% of Funds Available for CPD/ Short Courses



The second question focused on how this flexibility might influence the overall amount of workplace training provided. Responses were overwhelmingly positive, with 62.5 per cent of respondents indicating they would offer "somewhat more training" and 25 per cent stating they would provide "much more training." Only 12.5 per cent reported that their training levels would "remain the same," and no respondents anticipated offering less training. Taken together, these

findings suggest that while some reduction in apprenticeship activity might occur under this proposed change, the overall level of workplace training is likely to increase. This indicates that the proposed flexibility could encourage organisations to expand their workforce development efforts.

Impact of Single Minimum Wage on Likelihood of Recruiting Apprentices



The survey also asked respondents about the potential impact of replacing the lower age-specific minimum wage rates with a single standardised minimum wage, including for apprentices. Nearly 80 per cent (79.2 per cent) of respondents indicated that this change would have no impact on their likelihood of recruiting apprentices, stating that their recruitment activity would "remain the same." Only a small proportion, 4.2 per cent, said they would be "somewhat less likely" to recruit apprentices under this scenario, with no respondents indicating they would be "much less likely."

Interestingly, 16.6 per cent of respondents suggested that such a change would positively impact their recruitment activity, with 8.3 per cent stating they would be "somewhat more likely" and another 8.3 per cent "much more likely" to hire apprentices in the future. This suggests that, for most organisations, a standardised minimum wage would not deter apprenticeship recruitment, and for a minority, it could even encourage greater use of apprenticeships.

Employers reported annual levy contributions totalling £24.4m

# Recommendations

Collaboration across the sector remains essential to establish a strong and influential voice capable of articulating the industry's perspective and the potential consequences of reforms. Employers need stability within the skills system

to maximise its effectiveness and build the confidence to invest in long-term workforce growth and development. It is, therefore, critical to protect and enhance the aspects of the system that are valued and functioning effectively.

Promote apprenticeships by addressing adoption barriers, expanding geographic coverage, and maintaining parity of esteem between academic and vocational pathways.

Protect and maintain funding for a comprehensive, flexible range of apprenticeship standards - including at degree and masters level - to help learners enter the sector and progress their careers.

Collaborate with Skills England to ensure that training programmes eligible for Growth and Skills Levy funding align closely with the sector's skills needs and priorities.

Enhance support and introduce targeted incentives for SMEs to increase their participation in apprenticeship programmes.

Maximise the impact of the Growth and Skills Levy by using it strategically to drive sector-wide upskilling and reskilling initiatives.

Ensure sufficient, high-quality training provision is available to meet the demand for apprenticeship programmes across the sector.

1,500 degree-level apprenticeships in the past three years



## Background and Methodology

The Science Industry Partnership (SIP) is a collaborative alliance of employers dedicated to addressing the skills needs of the science sector. By working together, SIP aims to build a world-class scientific workforce that drives competitiveness, innovation, and growth across the industry.

In 2018, SIP launched the bi-annual Apprenticeship Survey to track apprenticeship usage within the sector and assess the impact of policy reforms. Insights from previous editions have highlighted key issues for science employers and informed discussions with the Government. Over time, the survey has expanded to include employer sentiment on various aspects of the apprenticeship system, identifying shared concerns and priorities for the future.

As a unique source of information on apprenticeships in the science sector, this survey provides valuable data unavailable elsewhere. We encourage broad engagement with this reporting to ensure its continued relevance. A copy of the survey questions is available at [www.scienceindustrypartnership.com](http://www.scienceindustrypartnership.com).

### Survey Responses

Data for the latest survey were collected online between July and September 2024, with responses from 27 companies across the science sector.

Respondents represented organisations of varying sizes, with 37 per cent classified as small to medium-sized enterprises (SMEs) (0-249 employees) and 63 per cent as large organisations (250+ employees). While 27 responses constitute a relatively small sample, they include many of the sector's largest employers, collectively responsible for a workforce in the tens of thousands and the training of thousands of apprentices.

Nonetheless, these responses should be considered representative of SIP employers rather than a definitive reflection of the national picture across all science companies.

The top three subsectors represented in the survey were:

- **Pharmaceuticals**
- **Chemicals**
- **Polymers/plastics**

In addition to primary survey data, this report incorporates insights from national statistics and information obtained through freedom of information requests, providing a comprehensive overview of apprenticeship usage by science companies in England.

### National Statistics

The Department for Education (DfE) produces statistics on apprenticeship usage in England, including employer characteristics such as industry classification and size. These datasets allow for the analysis of learner details, including aim titles, qualification levels, and demographic data. This is achieved by matching data from the Individualised Learner Record (ILR) with the Office for National Statistics Inter-Departmental Business Register (IDBR). However, recent delays in this reporting process mean that the most current data only cover the academic year 2021/22.

Employers are categorised using Standard Industrial Classification (SIC) codes, which identify their primary industry. Apprentices working in the sector via apprenticeship training agencies are not included in this analysis, as their starts are attributed to the SIC code of the training agency rather than the sector where the apprentices work.

The DfE also regularly releases statistics detailing starts by apprenticeship standard, alongside demographic and provider information. At the time of writing, these data extend to the end of the 2023/24 academic year. While these data offer valuable insights into the demand for apprenticeship standards popular within the science sector, they cannot be directly attributed to specific industries, meaning it cannot be confirmed that all recorded starts fall within the science industry.

Subsector	Standard Industrial Classification (SIC) code
Downstream Oil	19: Manufacture of coke and refined petroleum product
Chemicals	20: Manufacture of chemicals and chemical products
Polymers	22: Manufacture of rubber and plastic products
Pharmaceuticals	21: Manufacture of basic pharmaceutical products and pharmaceutical preparations
Medical Technology	26.60 Manufacture of irradiation, electromedical and electrotherapeutic equipment 32.50 Manufacture of medical and dental instruments and supplies
Scientific R&D	72.11 Research and experimental development on biotechnology 72.19 Other research and experimental development on natural sciences and engineering





### About Cogent Skills

Cogent Skills is the skills leader for the UK's science and technology sectors. We are an employer-led skills charity, offering a diverse range of market-leading skills services to help businesses ensure they have a workforce fit for the future. From process safety and competency solutions in high-hazard industries to end to end apprenticeship services for some of the world's leading science companies, the surplus revenue from our commercial activity funds our charitable activity.

Our expertise in employer-led facilitation enables us to support a number of skills groups for employers in industries including life sciences, hydrogen and nuclear. We use the latest evidence and research to identify crucial skills gaps and barriers to the uptake of skills. We reinvest surplus from our individual businesses to deliver a positive impact in our communities and the sectors we serve.

For more information, visit: [www.cogentskills.com](http://www.cogentskills.com) or email [info@cogentskills.com](mailto:info@cogentskills.com)