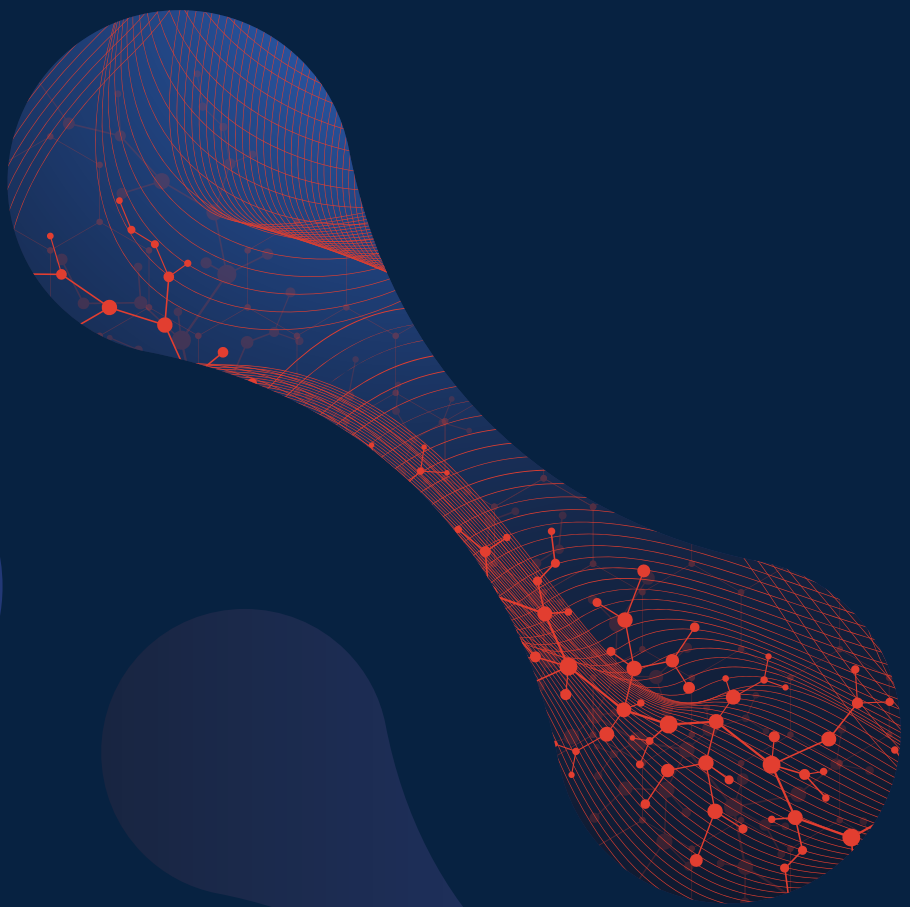
ChemTalent
CHEMICAL INDUSTRIES ASSOCIATION

ChemTalent Annual Survey: Industry Perceptions and Skills



Executive Summary

The ChemTalent Annual Survey 2024 highlights critical challenges facing the chemical industry, including the skills gap, sustainability, and diversity. These issues, identified by younger generations entering and working in the industry – who are typically mobile and active members of the workforce – pose significant threats to the sector's long-term growth and global competitiveness.

Key findings reveal the urgency of addressing workforce shortages and the need to integrate new technologies as experienced professionals retire. Respondents also emphasised the importance of improving public perceptions of the industry, tackling high energy costs, and adapting to regulatory pressures. Sustainability was identified as both a challenge and an opportunity, with a growing demand for green technologies and practices to meet Net Zero goals. Additionally, equality, diversity, and inclusion (EDI) remain a priority, as fostering an inclusive culture is critical for retaining talent and driving innovation.

This report provides actionable recommendations for industry leaders and policymakers to address these challenges. Strategies include investing in technological upskilling, enhancing training programmes, promoting collaboration with educational institutions, and expanding government support through funding and regulatory reforms. By implementing these measures, the chemical industry can secure its position as a leader in sustainability, innovation, and workforce development.

Introduction

The chemical industry plays a vital role in driving economic growth, technological innovation, and environmental sustainability. However, it faces complex challenges in adapting to a rapidly evolving landscape shaped by workforce dynamics, technological advancements, and climate imperatives. Recognising the critical need to address these issues, ChemTalent conducted its first Annual Survey to gather insights from early-career professionals across the sector.

ChemTalent is a network of people working in chemical and pharmaceutical businesses in the UK who are either at the start of their careers or keen to broaden their skills and voice their opinions on behalf of the UK chemical industry. The network aims to give industry professionals with less than 10 years of experience the opportunity to connect with others, develop their skills and inspire the next generation of chemical industry leaders.

The importance of ChemTalent's mission became particularly evident following the CIA's latest business survey, which identified attracting and retaining talent as a significant challenge. Responding to this, ChemTalent reached out within its network, seeking insights directly from those starting their careers in the industry. The goal was to understand their views, uncover the obstacles they encounter and use this feedback to shape ChemTalent's initiatives moving forward.

Jonathan Vincent, ChemTalent leader said: "ChemTalent is not just about connecting professionals; it's about inspiring and empowering the next generation of leaders in the chemical industry. By listening to the voices of our early-career professionals, we can steer both them and the industry towards a brighter, more innovative future.

This report will explore the findings from ChemTalent's recent survey and discuss how these insights are influencing the network's strategies to support professional growth and improve retention within the UK chemical industry. It highlights the critical importance of involving young professionals in discussions about tackling the industry's challenges with retention and attraction, ensuring that their voices help shape effective strategies. Through these efforts, ChemTalent is committed to building a strong, dynamic workforce that will lead the industry forward, aligned with the overarching goals of the Chemical Industries Association.

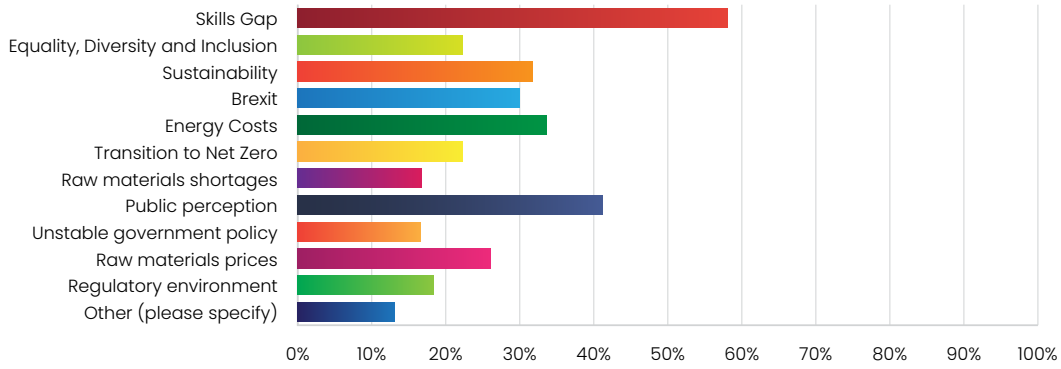
In addition to exploring the survey results, this report offers practical recommendations for both industry stakeholders and policymakers. These recommendations aim to strengthen education and training pathways, enhance sustainability efforts, and promote diversity and inclusion within the sector. The ChemTalent Annual Survey establishes a benchmark for future assessments, enabling ongoing evaluation of progress toward a thriving and sustainable chemical industry.

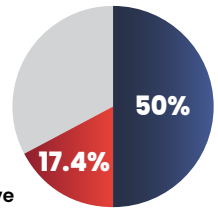
Perception of the chemical industry

Key findings and implications for the chemical industry

The chemicals industry continues to navigate an array of challenges that influence its growth, sustainability, and global competitiveness.

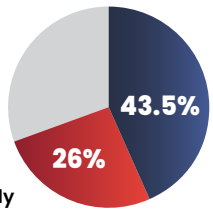
- The graph below summarises the responses, showcasing the top issues as perceived by professionals in the field:





More positive perception after joining the chemical industry

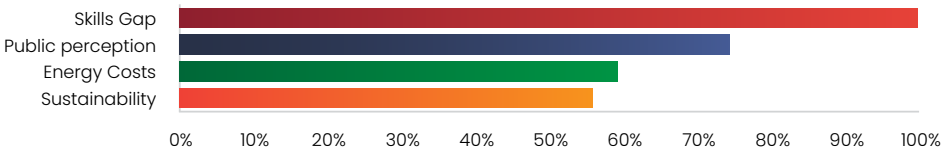
Much more positive perception after joining the chemical industry



Likely to recommend working in the chemical industry

Somewhat likely to recommend working in the chemical industry

- Many young professionals enter the industry with neutral or uncertain perceptions, but these tend to improve after they experience the industry first hand.
- According to respondents, the four biggest issues facing the chemical industry are:

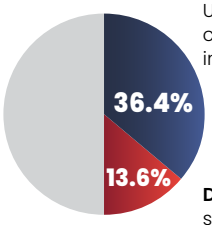


- For those that have considered leaving the chemical industry, the most common reasons include:

Lack of development
Uncompetitive pay/benefits compared with other fields
Issues around culture and diversity
Lack of career progression opportunities

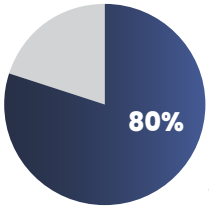
Key findings and implications (cont)

UK Education System



Strongly disagree that the UK educational system is well connected to the chemical industry

Disagree that the UK educational system is well connected to the chemical industry



Concern about the **technical and transferable skills gap** between the experienced workforce and those at the beginning of their career

- Many young professionals recognise a lack of practical aspects in the curriculum. A need for more apprenticeship and industrial placement opportunities across all levels of education has been identified.

Reasons for leaving the industry

- Lack of career progression and development opportunities were amongst the most popular comments, along with uncompetitive pay. Issues around culture and ED&I were also mentioned.

Increasing the number of industry placement opportunities

Through the ChemTalent survey, we sought to understand changes in perceptions among early-career professionals with questions like, 'How has your perception of the industry changed since joining?' and 'How likely are you to recommend the chemical industry to others?'

Entry into the chemical industry varies widely – some start with industrial placements, others through apprenticeships or graduate schemes, each offering a unique first impression. Typically, those without prior experience begin with a neutral view, which tends to evolve based on their initial experiences. Our survey shows that 50% of respondents developed a more positive view after joining, 17% felt slightly more positive, while 6% saw the industry in a less positive light after their initial exposure.

This change in perception often relates to larger industry challenges, such as job stability, which might lead some to contemplate careers in seemingly more stable fields. During the survey, the most pressing issues identified included the skills gap, public perception, high energy costs, and sustainability challenges. Despite these hurdles, many respondents remain enthusiastic about recommending the chemical industry to others, reflecting a nuanced but overall hopeful outlook among the new generation of chemical professionals.

58%
of respondents

Skills Gap and Workforce Challenges

The most significant issue identified by **58% of respondents** is the **skills gap**. This concern goes beyond technical skills and focuses on the **shortage of skilled workers** entering the industry, compounded by the **retirement of experienced professionals**. The challenge is ensuring that there are enough skilled people to meet the growing demands of the chemical sector, while also integrating new technologies to compensate for the evolving nature of the workforce.:

Reasons

- **Retirement of Skilled Workers:** As experienced professionals retire, there is a concern that the **incoming workforce** will not be large enough or trained sufficiently to replace them. This is particularly pressing as many of the **next-generation technologies** (e.g., digitalisation, automation) require different skill sets. 80% of survey respondents are concerned about the technical and transferable skills gap between the experienced workforce and those at the beginning of their career.
- **Changing Industry Demand:** With increasing demand for a more sustainable chemical industry and the rapid pace of technological advancement, the demand for a larger workforce with **both traditional and digital skills** is increasing. This includes roles in **advanced manufacturing, process design, and R&D**.
- **Need for Technological Upskilling:** Emerging technologies like **automation, data analytics,** and **process optimisation** are reshaping how the chemical industry operates. The incoming workforce needs both **traditional process skills** and the ability to work with cutting-edge digital tools.

Industry Response

- **Technological Integration:** The chemical industry must invest in **automation and digital technologies** to increase productivity and compensate for potential workforce shortages. Embracing technologies such as **AI for predictive maintenance, smart manufacturing systems,** and **robotics** will not only reduce dependency on human labour but also attract tech-savvy talent.
- **Training and Upskilling Programmes:** Companies should continue to offer robust **apprenticeship programmes** and **continuous training** for both early-career professionals and mid-career employees. These initiatives will ensure that workers are equipped with the necessary skills to operate in a more automated and data-driven environment. Industry collaboration with educational institutions to offer **short courses** or **certification programmes** in digital skills will help accelerate this transition.
- **Knowledge Transfer:** Establishing programmes where **retiring professionals** can mentor or transfer their knowledge to younger colleagues is crucial. This would help bridge the gap between **traditional process knowledge** and the skills needed for **new technologies**.
- **Collaborative Approach to STEM and Outreach:** Companies need to have a more **unified approach** to outreach initiatives, spanning across the chemical sector rather than focusing on the individual company. Challenging perceptions about the industry should be a key aim, with 42% of survey respondents identifying **Public Perception** as a major issue facing the chemical industry. A crucial part of bridging the skills gap is making the next generation aware of the variety of career opportunities available in the chemical sector.

32%
of respondents

Sustainability and Transition to Net Zero

Sustainability continues to be a critical concern, with **32% of respondents** listing it among the top three issues the chemical industry is faced with. The chemical industry is highly resource-intensive, and the transition to **Net Zero** represents both a challenge and an opportunity. Companies must address the need to reduce carbon footprints, use renewable energy sources, and explore **green chemistry** solutions.

Reasons

- **Regulatory Pressure:** Increasing government regulations related to **emissions reduction, circular economy principles,** and **waste management** are placing pressure on companies to adopt greener technologies.
- **Consumer Expectations:** Customers and investors are increasingly demanding **sustainable products** and **transparent environmental** practices from chemical companies.
- **Technological Gaps:** While innovation is progressing in fields like **carbon capture** and **alternative feedstocks**, many chemical processes remain heavily reliant on traditional petrochemicals and energy-intensive operations.

Industry Response

- Chemical companies should **invest in research and development (R&D)** for new sustainable technologies and implement more rigorous **sustainability frameworks**.
- Collaborating with government initiatives, such as grants for sustainable innovation, could accelerate the adoption of **green processes** and reduce costs associated with the transition.

23%
of respondents

Equality, Diversity, and Inclusion (EDI)

While **equality, diversity, and inclusion** were not ranked as high as the skills gap or sustainability, 23% of respondents highlighted it as a priority. For those who have considered leaving the chemical industry, issues around Culture and Diversity were identified as a contributing factor, and **Culture** was ranked by respondents as 3rd highest in importance when looking for employment (after Pay/Benefit and Progression Opportunities). The chemical industry, traditionally dominated by certain demographics, has been slow to embrace diversity fully. Expanding inclusivity is crucial for attracting and retaining talent, especially from under-represented groups.

Reasons

- **Historical Demographics:** The industry has often struggled with gender imbalance and under-representation of minorities in leadership positions, which affects company culture and innovation potential.
- **Retention Challenges:** A more inclusive environment is critical for retaining diverse talent, as professionals who do not feel represented or supported are more likely to leave the sector.

Industry Response

- **Developing stronger EDI programmes**, including mentoring for under-represented groups, flexible working policies and ensuring diverse candidates are included in hiring processes, will improve both workplace culture and talent retention.
- Companies should also **publicly commit** to measurable diversity goals, enhancing transparency and accountability in their efforts to foster a more inclusive environment.
- By factoring EDI considerations into **decision-making**, such as incorporating inclusive facilities into plans for building projects, companies can take steps to support retention and reduce the 'leaky pipeline' of diverse talent.

Government Policy Recommendations for Supporting Industry Growth

For the chemical industry to thrive, **government intervention** and support are essential, particularly in addressing the key challenges of **skills development, sustainability,** and **inclusivity**. Below are several policy recommendations that could further support the industry's growth:

Strengthening Education and Training Pathways

- **Increase Funding for Apprenticeships and Industrial Placements:** A **48% drop in apprenticeships** since 2015 has been observed, as highlighted by Cogent Skills, and over 60% of survey respondents feel there is not enough support for young people looking to enter the chemical industry. As part of the steps towards reforming the Apprenticeship Levy into a more flexible Growth and Skills Levy, the government should increase funding and promotion of apprenticeships, while also supporting the provision of **shorter industrial placements** (12 months or less) for Further Education and Higher Education students. Industrial placements can be a more appealing alternative to longer apprenticeships for some companies, and were well received among survey respondents; however, it is recognised that spaces are limited and many students do not currently get the opportunity for this beneficial hands-on experience.
- **Collaborative Education Initiatives:** The UK government could facilitate stronger partnerships between **universities and industry** through grants and tax incentives for collaborative **R&D** projects. This would help align university research with real-world industry needs, improving the job-readiness of graduates.
- **Skills Transition Programmes:** In light of the skills gap, the government could expand **re-skilling programmes** for mid-career professionals to transition into new roles within the chemical sector, particularly focusing on **digitalisation** and **green technology**.
- **Reforms to School Science Curriculum:** Over 50% of respondents disagree or strongly disagree that the UK educational system is well connected to the chemical industry. In particular, a lack of practical aspects in the curriculum was highlighted as a key barrier. Government should **consult with industry** on ways to upgrade the science curriculum to better prepare and equip students for working in the science sector, with a focus on **skills development** and application of theory to the real world.

Supporting the Transition to Net Zero

- **Incentivise Green Technology:** The government should expand tax breaks, **subsidies**, and **grants** for companies that invest in sustainable technologies such as **carbon capture, green chemistry,** and **waste-to-energy** projects. This would reduce the financial burden on companies transitioning to more environmentally friendly processes.
- **Regulatory Frameworks:** Establish clearer **regulatory guidelines** and timelines for the chemical sector's transition to Net Zero, helping companies navigate compliance and adopt best practices early. Government-led initiatives could also include carbon markets that reward businesses for reducing emissions. Consistent government policy is needed to give positive signals for investment in Net Zero technologies.

- **Public-Private R&D Partnerships:** Encourage **joint ventures** between chemical companies and government research bodies focused on **innovative environmental solutions**. These partnerships could accelerate the development of sustainable alternatives to petrochemicals and help smaller companies access new technologies.

Fostering Inclusivity and Talent Diversity

- **EDI Funding and Resources:** Introduce government-funded **inclusivity programmes** that offer financial incentives to companies that meet diversity targets. Additionally, resources could be allocated to developing **community outreach initiatives** aimed at encouraging students from under-represented backgrounds to pursue STEM careers.
- **Transparent Reporting Requirements:** The government could implement **mandatory reporting** on diversity metrics for chemical companies, similar to current gender pay gap reporting, to increase transparency and encourage progress.
- **Support Networks for Under-represented Groups:** By funding and promoting **support networks** such as **mentoring schemes** and **diversity councils**, the government can help professionals from under-represented groups in the industry advance their careers, ultimately improving retention and innovation.

Conclusion

The ChemTalent survey highlights several areas where the chemical industry is thriving, particularly in attracting early-career professionals and fostering positive perceptions of the sector. However, the **skills gap, sustainability challenges**, and **diversity issues** are significant hurdles that need to be addressed. Both industry and government have crucial roles to play in overcoming these challenges. By **collaborating on education, sustainability efforts**, and **inclusivity initiatives**, the chemical sector can position itself for long-term growth and success. As the first ChemTalent annual survey, the results with be used as a baseline for comparison in future years.

Appendix: Demographics and Roles of Respondents

1. **Regional Distribution:**

   North West (53%), Yorkshire & the Humber (23%), North East (11%), East Midlands (3%), West Midlands (3%), London (2%), South East (2%), South West (2%), Wales (2%).

2. **Industry Subsector:**

   Specialty Chemicals (38%), Pharmaceuticals (18%), Technology/R&D (16%), Fast Moving Consumer Goods (4%), Agrochemicals (2%), Petrochemicals (2%), Other (20%).

3. **Roles in the Industry:**

   Manufacturing site-based (34%), Laboratory-based R&D (21%), Laboratory-based QC (9%), Office-based – Other (25%) Office-based – Chemistry (12%), Pilot Plant-based (2%).

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