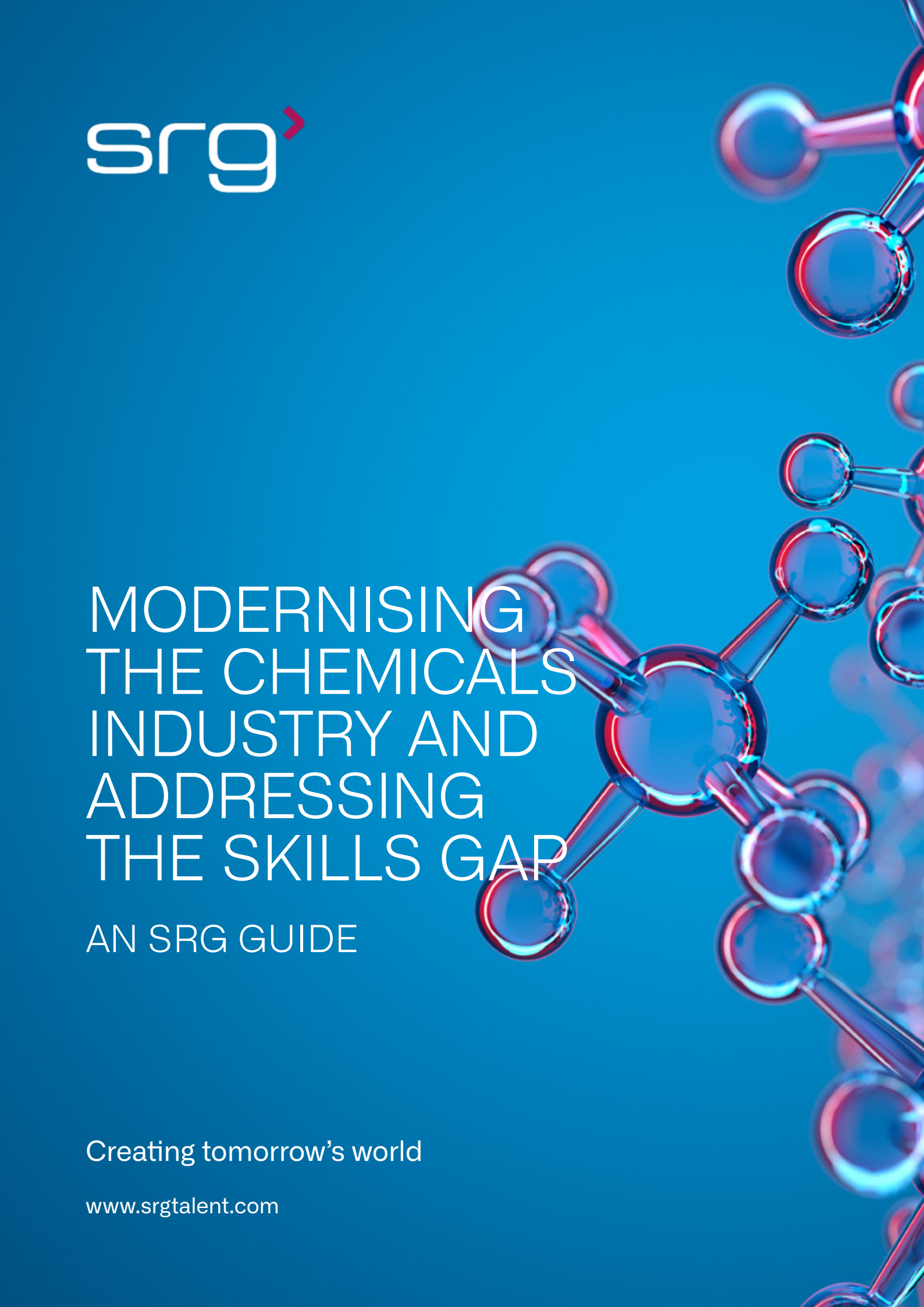

MODERNISING THE CHEMICALS INDUSTRY AND ADDRESSING THE SKILLS GAP

AN SRG GUIDE

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INTRODUCTION

Hiring over 10 million people worldwide and driving the production of 90% of every-day products, the chemicals industry powers our modern world as we know it[1].

The vast matrix of SMEs and global enterprises behind the chemicals industry have rapidly evolved over the last few years, as the pandemic, alongside heightened environmental concerns, have accelerated business transformation.

Exponential changes across digitalisation, sustainability, and the working environment have created a new talent landscape where the skills gap has never been so critical.

This whitepaper will delve into the major change accelerators in chemicals today, and provide actionable advice for both leaders, and candidates across the chemicals sector.

Expect to discover:

- What's ahead for the chemicals industry
- Why chemical organisations must have a strategic commitment to digital innovation
- Changes to our ways of working
- Ideas to address the skills gap through new talent and retention
- How chemical industry hiring strategies need to modernise to address the skills gap

WHAT'S AHEAD FOR THE CHEMICALS INDUSTRY?

In this section, we will explore the most critical change accelerators shaping the future of the chemicals industry.

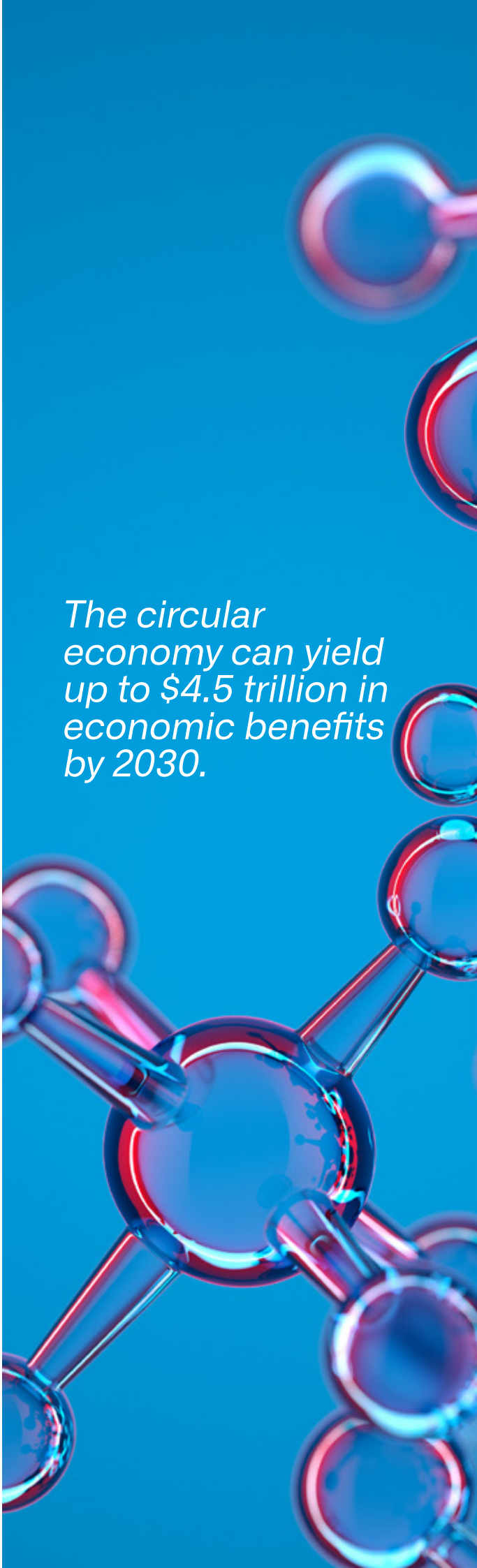
The circular economy

Circular economies provide a systematic approach to enabling sustainability alongside economic expansion. By promoting the continual safe use of every natural resource, circular economies minimise raw material extraction, and aim to maximise the potential of every material.

Circular economies are critical for the future of the chemicals industry, where our current business models are far from sustainable. In 2022, a team of international researchers discovered that humanity has stepped over a planetary boundary for chemical pollutants. Meanwhile, the chemical industry continues to contribute to almost half of all global CO2 emissions through material extraction, and processing alone.

According to research from the World Economic Forum, the circular economy can yield up to $4.5 trillion in economic benefits by 2030. However, only 8.6% of the industrial world is circular to date.

Adoption of chemical industry considerations have been disparate across industries, with some including agriculture (through the International Code of Conduct on Pesticide Management[2]) and health (World Health Organisation Chemicals Road Map[3]), making more progress than others.



WHAT'S AHEAD FOR THE CHEMICALS INDUSTRY?

In 2019, the United Nations published Part II of their Global Chemical Outlook[4], revealing that previously set sustainability objectives would not be achieved by 2020. In response, the UN have published a 2030 Agenda[5], providing a new opportunity to integrate chemical considerations into sector policies, and tangible action.

In 2021, the World Economic Forum[6] urged businesses to move from enthusiasm to realism in building circular economies.

They outline three core hurdles companies must navigate to reach a circular business model; these are:

- Considering value: any product, or material's (perceived or actual) worth will affect a company's ability to recapture or resell it. Chemicals companies should understand the value of the material in its used condition to factor into cost analyses.
- Securing access: if a company's output eludes their reach after use, they may struggle to successfully 'close the loop' – this is a particular hurdle where competitive secondary markets exist for the product.
- Establishing processing viability: repurposing reclaimed material is not always efficient, cost-effective, or possible. Where it is viable, repurposing can cut raw material extraction costs and support circularity.

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WHAT'S AHEAD FOR THE CHEMICALS INDUSTRY?

Natural capital

Natural capital refers to the wide breadth of natural resources within a given area, or nation. Often including land, and carbon storage resources such as water and fisheries, natural capital provides the foundation for sustained economic activity.

While many companies across the chemicals sector value and recognise the importance of natural capital, leaders face a growing pressure from investors to deliver on actionable change. In 2022, the directors of Shell faced a lawsuit for failing to devise and action an appropriate strategy in line with the Paris agreement[7], which aims to limit global warming by cutting fossil fuel emissions. Meanwhile, BP has boosted investor relations through their actionable net zero strategy[8], highlighting the business criticality of a realistic environmental policy.

Building a circular economy, and realising the value of natural capital, will rely on establishing expertise in environmental chemistry, and sustainability science.

Chemical leaders should consider how sustainability science roles could integrate within their wider organisation, and what skills and expertise would be required to navigate to a successfully sustainable system. Whether that means expanding more opportunities for sustainability scientists, or outsourcing support and sustaining initiatives with newly hired experts, your sustainability strategy should be actionable, realistic and enable your business continuity.

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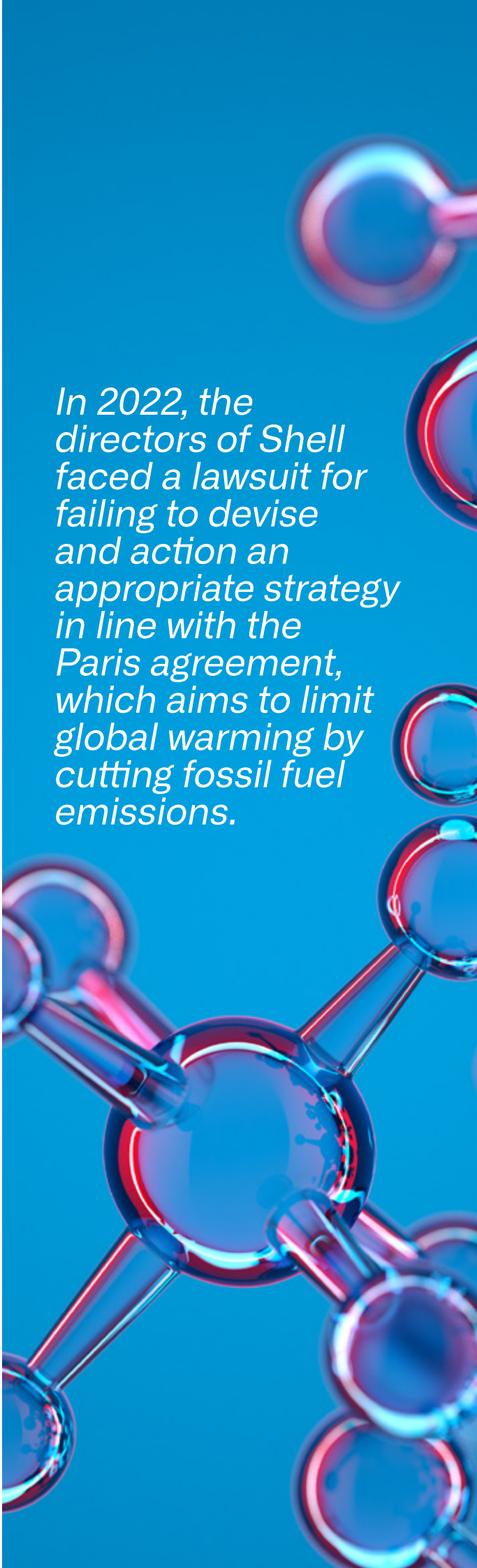

WHAT'S AHEAD FOR THE CHEMICALS INDUSTRY?

The Natural Capital Project[9] works with decision makers across the globe to create and activate environmentally solutions. Using tools, such as InVEST, which is a suite of open-source software models, leaders can assess quantified trade-offs in management choices. This enables decision makers to identify where natural capital can support environmental and economic goals together.

Case Study – Unilever[10]

As a consumer goods company reliant on chemicals across development and manufacture, Unilever faced a complex assessment route to accurately predicting the benefits of alternative chemicals and materials against the relative ecosystem.

Unilever partnered with the Natural Capital Project to develop a new assessment procedure for life cycles, called 'Land Use Change Improved Life Cycle Assessment'. This assessment improves analyses on spatial variation between ecosystems, supporting better procurement decisions for supply chains. Working in tandem with Unilever's sustainability experts, the assessment has helped minimise the environmental impact of Unilever's supply chain management across the manufacturing process.

WHY CHEMICAL COMPANIES MUST HAVE A STRATEGIC COMMITMENT TO DIGITAL INNOVATION

The fourth industrial revolution is making waves in the chemical industry. By 2025, digitisation stands to unlock over £400 trillion of value for the industry as a whole[11].

Research from Accenture reveals that while most major chemical companies are investing in digital innovation, less than a quarter are succeeding[12].

However, the companies that did achieve success not only scaled more than half of their proof of concepts, they earned higher than average return on digital investment.

Meanwhile, more than 75% of other companies earned lower than the industry average, regardless of how much they scaled by.

The research suggests that to truly unlock the potential of large-scale digitalisation, chemical organisations must have a strategic commitment to facilitating innovation.

To prepare and succeed in Industry 4.0, chemicals organisations need to find, and hire skilled professionals, align and upskill their workforce, and support their people to manage and utilise the technology to its full advantage.

While large-scale implementation may deliver benefits on paper, without the right workforce the technology won't enable business success.

According to Deloitte, talent enablement remains a key hurdle to digital success[13].

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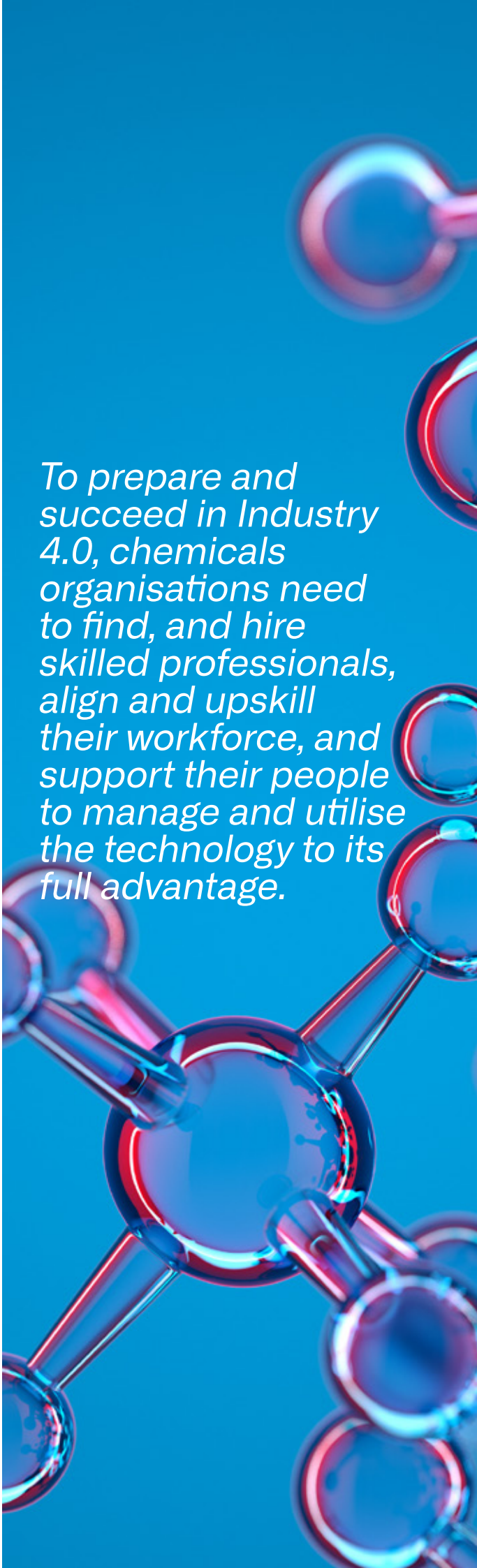

WHY CHEMICAL COMPANIES MUST HAVE A STRATEGIC COMMITMENT TO DIGITAL INNOVATION

Industry-leading chemical organisations overcome this by not only investing in new technologies, but skills programs and training opportunities that create seamless and holistic development opportunities across the business.

This in turn, boosts brand image and helps establish the organisation at the forefront of the chemicals field, attracting more specialists and experts with the interest and capability to make the most of digitalisation.

Candidates can prepare themselves for this by considering their career development in the wider context of digitalisation. Understanding how digitalisation is influencing the industry and developing the right skills to capitalise on new technology will enable career progression across the future of chemicals.

THE IMPACT OF COVID-19

COVID-19 heavily impacted supply chains across the chemicals sector, driving shifts in organisational agility and workplace flexibility that have transformed the industry.

Supply chain disruption

In 2020, while financial results of the world's major chemicals companies showed improvement, supply chain discrepancies and inflation left a lasting mark on overall performance[14]. Recent research suggests that supply chain issues are still damaging industry performance.

In a survey published in 2022 by the American Chemistry Council[15], 98% of chemicals companies reported altering operations due to supply chain or transportation issues over 2021.

An overwhelming 94% of companies reported shipping delays and shortages of raw materials delaying and disrupting production.

These issues, came at a high price for chemicals companies. 93% of businesses reported several millions in additional costs, with over a third of respondents facing additional costs of over $20 million.

Changes to work environments

Less than 1% of oil, gas and chemicals companies offered flexible work arrangements before the pandemic. Today, many organisations are still maintaining a hybrid model of work, enabling more remote roles, and opportunities for improved international reach[16].

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THE IMPACT OF COVID-19

In the UK's Future of Work study[17], researchers discovered the pandemic incited improved workplace agility in STEM businesses. Improved diversification of teams, with more international, remote and outsourced external serviced providers alongside core employees enabled businesses to create and disband divisions rapidly in response to changing business priorities over the course of the pandemic.

This agile business model is still present in many businesses across the sector. Meanwhile, new organisational paradigms are starting to emerge. Rather than taking the traditional route of internal investment and development, some chemicals organisations are evolving into 'network orchestrators' – where the skills and resources they can connect to through collaboration, outsourcing and partnerships become more significant than the resources owned.

IDEAS TO ADDRESS THE SKILLS GAP THROUGH NEW TALENT AND RETENTION

The global chemicals workforce faces an imminent challenge, with nearly 50% of employees set to retire within the next 5-7 years[18].

Chemicals leaders must consider new ways of leveraging the existing knowledge base of retiring employees and hiring new recruits, all while establishing clear and reliable talent pathways that reinforce a sense of belonging.

Graduate recruitment

Graduate employment is one avenue to bridging the generation gap, and moulding new talent pathways to suit long-term business strategy.

Newly graduated scientists represent a low-cost, high-value solution to succession-planning, skills shortages and an increasingly changeable working environment. Graduates from Generation Y in particular tend to be more mobile, with contemporary perspectives and ideas, but also receptive and mouldable – making them ideal recipients for knowledge and skills transfer from impending retirees.

Reshaping talent pathways

Deloitte's recent research reveals that limited career mobility, and opportunities for growth in the sector are widening talent gaps, and putting the wider workforce at a disadvantage. Deloitte suggest that leaders can combat this by rebuilding a more agile talent lifecycle[19].

IDEAS TO ADDRESS THE SKILLS GAP THROUGH NEW TALENT AND RETENTION

Here are some ideas to help you get started:

- Talent Attraction - Rethink your roles, develop new hybrid positions to suit your organisational strategy, and highlight new tech-driven or green projects within your company as part of your EVP.
- Hiring – Build flexible work options alongside a network/system architecture to enable remote work. Define off-site remote process controls and procedures. Hire, and develop new cross-hierarchical teams to fuel innovation and improve knowledge sharing.
- Develop – Expand the breadth of roles, creating more opportunities to collaborate across teams. Craft career pathways and set cross-skilling programmes. Identify and leverage new intersectional leadership opportunities.
- Engage – Open up new cross-functional opportunities, increase workplace pairings across generations, invest in your company culture and build a sense of organisational pride.

INSIGHTS AND IDEAS INTO WORKFORCE RETENTION

In SRG's 2022 Global Science Employment Report[20], we asked our respondents what would attract them to a potential employer.

For all regions, including Europe, the US and the UK, a good work-life balance was cited as the most important by the highest number of people. However, it was also ranked as the least important factor by the most respondents in the UK and Europe, who said they would also find employers appealing if they offered an attractive salary and benefits, alongside stimulating and challenging work.

Ensuring a strong work-life balance and breadth of opportunities and challenges also provides a starting point for leaders seeking to retain their staff. However, to empower workforces to be at their best, chemicals leaders should consider communicating with their people, to understand the specific needs of their teams, and wider organisation.

Meanwhile, conducting regular salary reviews, particularly after new graduate hires are settled is crucial. It's at this point that your competitors may reach out with lucrative offers and benefits packages, and retention can be jeopardised. Leaders can prepare for this in advance by staying up to date with both internal and industry salary reviews, and compensate experienced talent accordingly.

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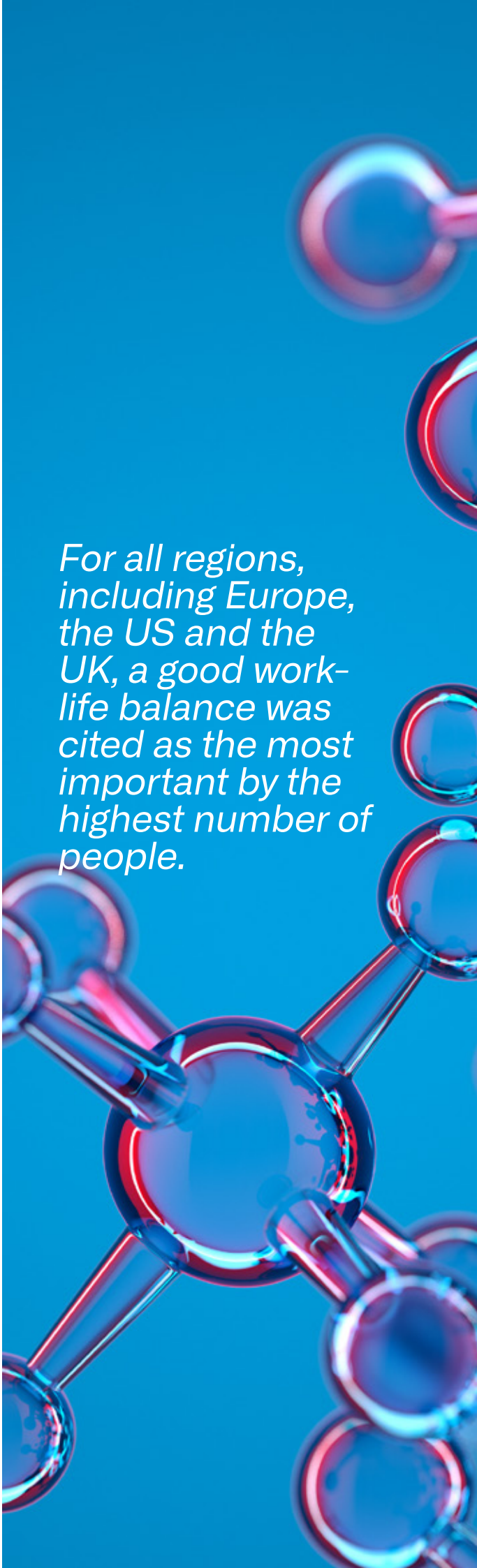


HOW CHEMICAL INDUSTRY HIRING STRATEGIES NEED TO MODERNISE TO ADDRESS THE SKILLS GAP

The skills gap in chemicals is jeopardising the successful activation of wide-scale transformation, but the industry isn't reacting fast enough.

Research reveals that over the past 5 years, the hiring strategies of major chemicals companies haven't changed.

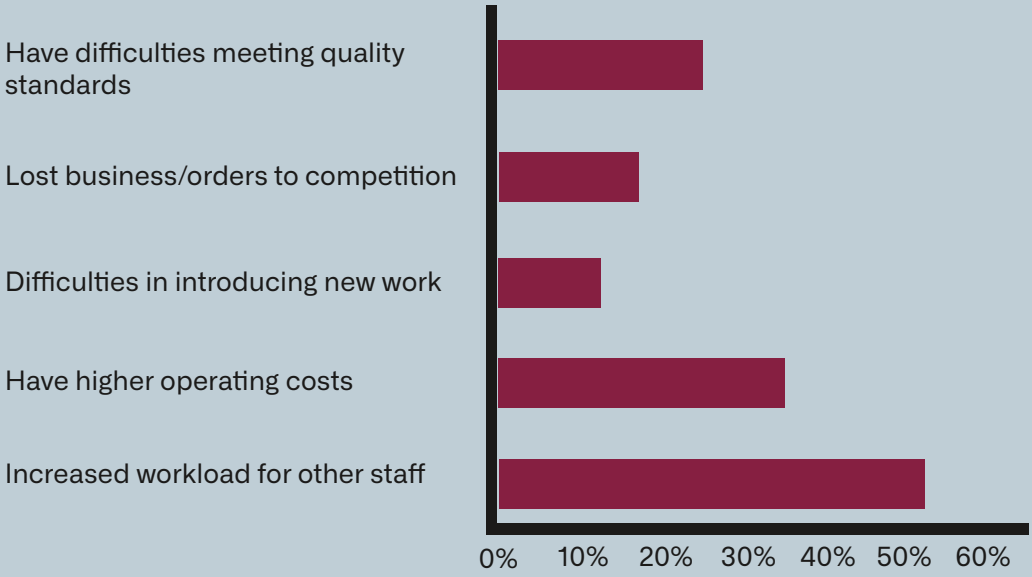
Job postings are similar across different locations, and even skill sets. What's more, despite the business criticality of improved digitalisation, less than 15% of job postings across the sector cited mathematics, or data analytics as a primary skill[21].

Historical trends in the chemicals sector in shaping hiring cycles around industry oil prices have built up a declining labour pool over the last few decades.

Analyses from IBM[22] reveal that downturns in 1986, 1998, 2008 and 2014 saw huge cuts to graduate recruitment and apprenticeships, curbing the talent pipeline. Today, as we recover from the COVID-19 crisis, refuelling the workforce will mean considering the workforce as a whole to bridge skills gaps, and strengthen enterprise vitality.

THE CHALLENGES CAUSED BY THE SKILLS GAP

Impact of skills gap on UK chemicals and manufacturing businesses



Source for graph: Employer Skills Survey, 2019[23]

Research from the UK government[24] on the reported effects of the skills gaps on business operations reveals that talent shortages are limiting innovation potential, competitivity, and quality standards, all while increasing costs.

Meanwhile, an industry-wide STEM report from the government shows that there is no overall undersupply in the labour market of individuals with high levels of STEM skills.

THE CHALLENGES CAUSED BY THE SKILLS GAP

Rather, analyses showed concentrated pockets of shortages outside of London and the South-East of England, particularly in the North-West. Improving talent strategies to suit the future of work will mean reconsidering talent location and activating more avenues for apprenticeships outside of conventional locations such as London.

Further research from the UK Commission of Employment and Skills showed that STEM workers are twice as likely to miss job opportunities due to a lack of industry-specific skills[25].

Lesley Giles, Deputy Director of the UK Commission for Employment and Skills describes the importance of training in STEM today:

"STEM skills underpin many of the industries at the forefront of our economy, from world leading engineering to cutting edge information technology, yet our findings also show some evidence that those working in high level STEM roles are less likely than most to receive training.

There is a vital need for employers to act now to secure a steady flow of talent with the right skills in years to come: building more structured training and development schemes and developing clear career pathways are just two ways in which early action can avert future crises."

THE CHALLENGES CAUSED BY THE SKILLS GAP

Digital Skills Gap Case Study [26]

At BP, leaders are combatting skills gaps in digital technology with an experiential program, dubbed 'Reverse Mentoring'. This program sees younger employees paired as mentors with older executives to bridge generational knowledge gaps in technology. The program harnesses the innovation potential of the multi-generational workforce as a whole, by establishing clear avenues for two-way communication and collaboration.

Critical skills

In a survey led by IBM[27], chemicals senior leaders revealed the following skills as most essential:

1. Willingness to be flexible, agile, and adaptable to change
2. Time management skills, and ability to prioritise
3. Ability to work effectively in business
4. Technical core capabilities for science, technology, engineering and mathematics
5. Capacity for innovation and creativity
6. Computer, software and application skills
7. Analytics skills and business acumen
8. Ethics and integrity
9. Fundamental core capabilities around reading, writing and arithmetic.

PREPARING FOR THE FUTURE OF CHEMICALS TODAY

Achieving success in the chemicals industry relies on activating realistic, and sustainable measures to build business resilience. Reconsidering supply chains, environmentalism, and how your workforce can not only be retained, but engaged is critical.

Building out skills programs, forging clear talent pathways, and ensuring a steady flow of new hires and knowledge transfer opportunities, can help chemicals leaders navigate generation gaps and skills shortages.

SRG are here to help

At SRG, we help chemicals companies across the globe to strengthen and expand their workforces. Our specialist recruitment team understand the impact of rapid growth across the chemicals sector and can deliver talent at speed to match the requirements of your organisation.

Using our industry-leading talent network and global presence, we help all chemicals organisations, from start-ups to multi-national enterprises – regardless of location.

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If you would like to discuss your hiring requirements with one of our specialist consultants, please email **solutions@srgtalent.com** with your telephone number and a time that would be convenient to call you back. We look forward to hearing from you soon.

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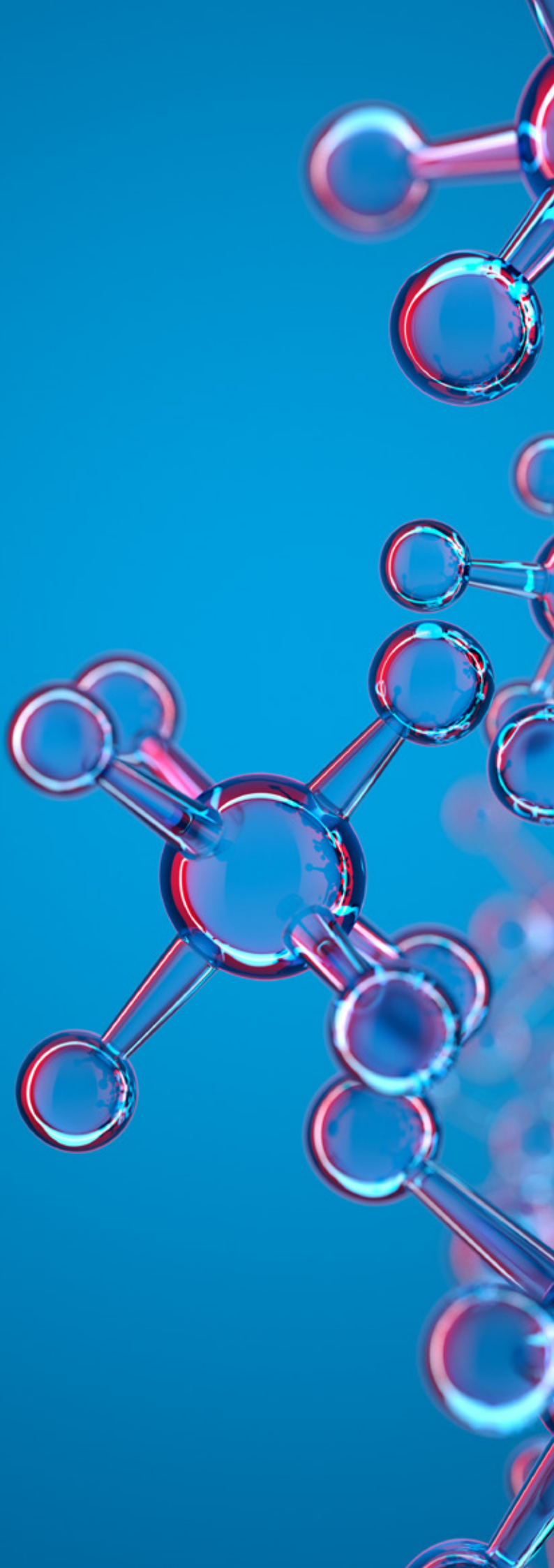

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