



ROYAL SOCIETY
OF CHEMISTRY

The Contribution of Chemistry:

A foundation for
UK growth, skills
and opportunity

The Contribution of Chemistry: a foundation for UK growth, skills and opportunity

Chemistry underpins local, devolved and UK economies. It contributes to innovation, high skilled jobs, productivity, and enables many of the products, technologies and services that people use every day. Yet this contribution is not always fully recognised or embedded in policy and economic decision-making.

This summary sets out how chemistry supports economic growth, underpins the skills pipeline, and creates jobs and opportunities across the UK. It draws on *The Contribution of Chemistry report*, carried out by Metro Dynamics on behalf of the Royal Society of Chemistry. The full report, including detailed evidence and analysis, is available at rsc.li/the-contribution-of-chemistry.

We call on local, devolved and UK governments, funders, universities, employers, local leaders and the chemistry community to use and act on the evidence that chemistry is a strategic capability for growth, resilience, skills and innovation across the UK.

Specifically:

- **Local, devolved and UK governments should recognise and embed chemistry as a core enabling capability** in strategies and narratives on economy, science and technology, industry, innovation and skills.
- **Local, devolved and UK governments should improve visibility and coordination across interconnected sectors that rely on chemistry.** They should recognise that disruption to chemistry inputs, skills or research can have cascading impacts across value chains, productivity and economic resilience.
- **UK Government, funders and regulators should ensure that higher education and research funding reform recognises the strategic and economic value of chemistry.** This includes the need for infrastructure, people, equipment and consumables to deliver high quality chemistry teaching and research, for example through the Strategic Priorities Grant reform and research funding reform.
- **University leaders should recognise the significant contribution chemistry makes to their institution, local economy, international reputation, as well as national economic opportunities.** They must continue to support chemists and accredited chemistry programmes, growing local and national scientific capability and resilience.

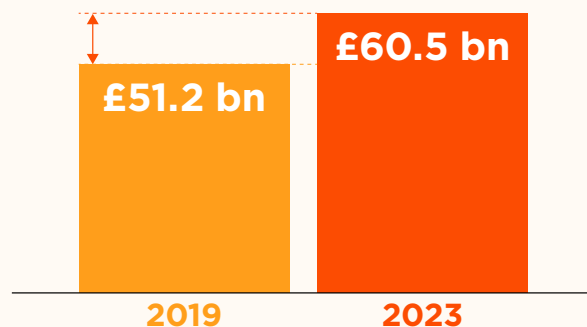
- **Devolved and UK governments, funders and universities must strengthen and better coordinate the pathways for chemistry innovation, from research through piloting, scale-up and commercial application.** This includes improving how innovators access and progress through specialist infrastructure, such as laboratories and pilot plant facilities, ensuring that provision is aligned to and keeps pace with evolving need maximising local and national value capture from UK-developed innovations.
- **Chemistry-using businesses and industry leaders should clearly communicate their skills, infrastructure and market needs,** helping align chemistry capability with industrial challenges, market opportunities and growth priorities.
- **Employers should help shape the future chemistry workforce** by engaging with education and training providers, articulating skills and infrastructure needs, contributing to local and national workforce planning, and supporting students' access to industry-relevant experience and resources.
- **The chemistry community should use this evidence to highlight chemistry as a strategic local and national asset,** supporting engagement with policymakers, funders, university leaders, businesses and local stakeholders.



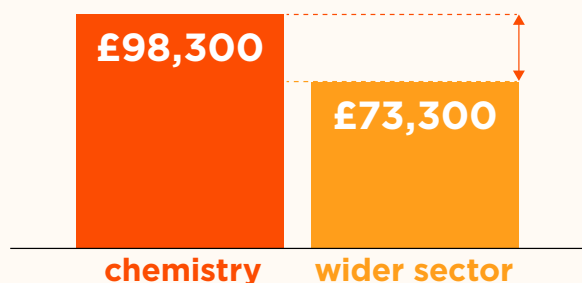
Chemistry contributed
a total of
£60.5 bn
in Gross Value
Added to the
UK economy
in 2023



Between 2019 and 2023,
chemistry's contribution to
the UK economy
increased by 18%



The GVA per worker
for chemistry is
34% higher
than the UK average
across all sectors



**Chemistry-using
workers are**

17 x
more likely to be
employed in the
Life Sciences sector



6 x
more likely to be
employed in the
Defence sector



46%
of the
**chemistry-using
workforce**



49%
of
**chemistry
graduates**



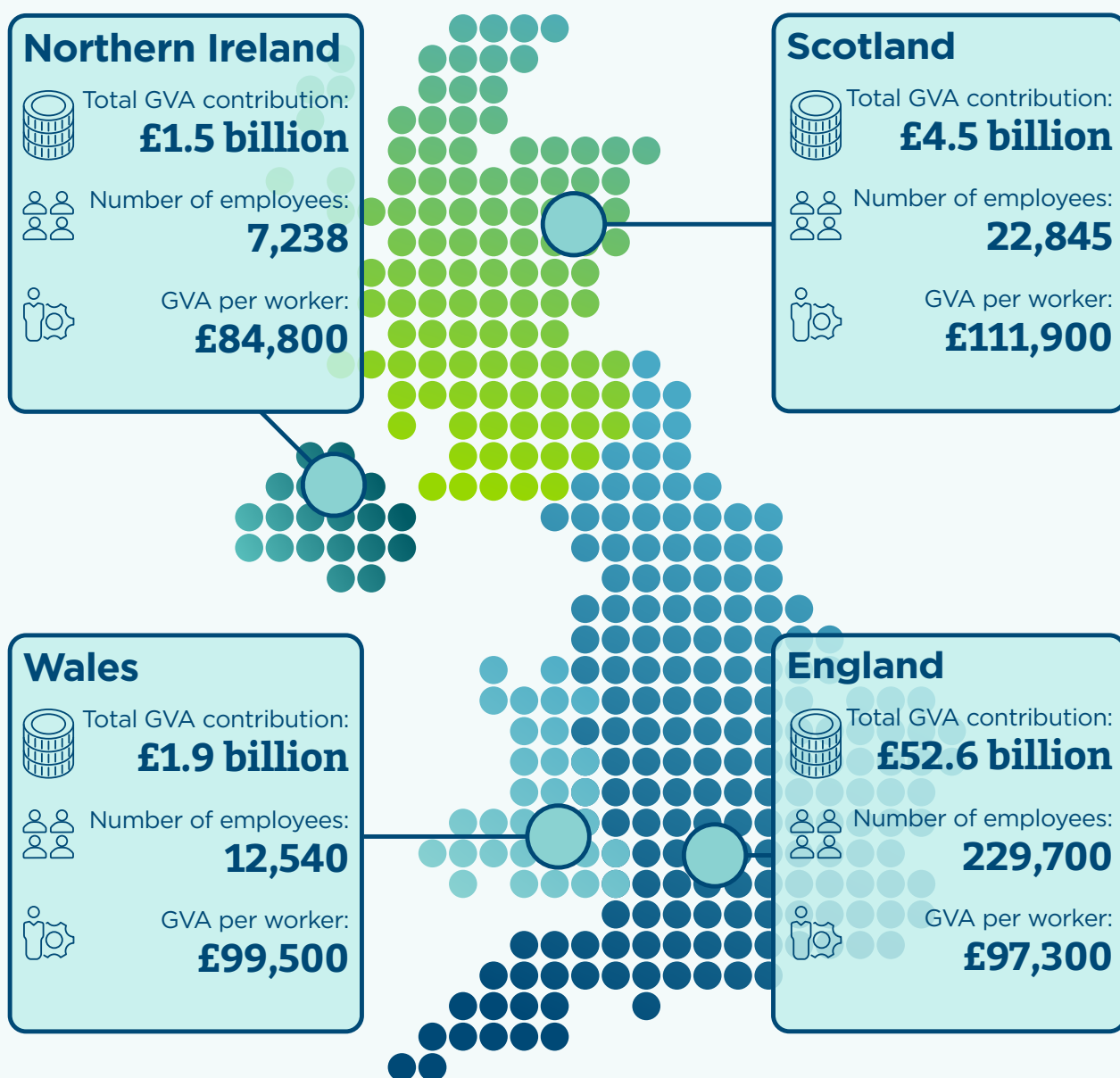
26%
of the
**wider UK
workforce**



work in UK government priority sectors



The total **Gross Value Added**
contribution of chemistry to the UK
economy in 2023 was
£60.5 billion



Notes on figures: Total GVA contribution: As no national multipliers for England are published, a high-level approach has been taken forward to estimate how the indirect and induced UK figures are split across each of the devolved nations. These figures are indicative and should be treated as illustrative only. Number of employees and GVA per worker figures: Due to methodological differences, these calculations exclude secondary and higher education staff.

Chemistry makes a difference to growth and productivity across the UK

Chemistry contributed **£60.5 billion in Gross Value Added (GVA)** to the UK in 2023, reflecting both direct activity and wider supply chain impacts.

Chemistry makes a major contribution to the UK economy

Chemistry's contribution to the economy has also grown in recent years. **Between 2019 and 2023, its economic contribution grew by 18%**, despite a period of significant economic headwinds. This shows that chemistry is already helping to drive growth and can continue to do so with the right policy and investment.

Productivity in chemistry-related roles is also high. **GVA per worker is 34% higher than the UK average¹**, demonstrating the sector's strong economic value across the UK.

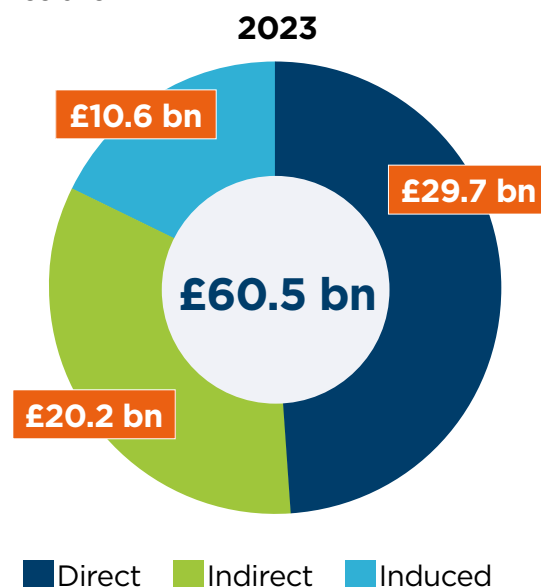
Chemistry is essential in delivering the UK's priority growth sectors

Chemistry is especially important to the UK's priority growth sectors. **46% of chemistry-using professionals work in the UK Government's Industrial Strategy priority sectors**, compared with 26% of the workforce as a whole¹.

These roles are particularly concentrated in areas such as **life sciences** and **defence**, where chemistry skills are in high demand.

Chemistry capability across research, higher education and industry underpins economic resilience and long-term competitiveness

As these sectors continue to grow, **demand for chemistry skills, research and innovation is likely to remain strong**. Recognising and embedding chemistry as a core enabling capability could unlock further gains in growth, innovation and delivery of national missions.



Total Gross Value Added (GVA) by chemistry to the UK economy in 2023 ▲

What is GVA?

GVA measures how much value an area, industry or sector adds to the economy through the goods and services it produces.

What GVA does not capture

While GVA shows where economic value is produced, it does not fully capture chemistry's vital research contribution, because the value generated through upstream research and early stage innovation is often realised later through manufacturing, commercialisation or supply chain activity elsewhere.

Chemistry underpins a strong but vulnerable skills pipeline

Chemistry education and training open up high-skilled careers across the UK economy, but the pipeline is under increasing pressure

Chemistry graduates

Chemistry higher education provides a strong pipeline of skills into the wider economy. Nearly half of chemistry graduates go on to work in the Government's priority growth sectors, helping to supply the skills needed across areas such as life sciences, defence and advanced manufacturing.

While many chemistry graduates go into core chemistry roles, others move into a broad range of jobs, applying analytical, technical and problem-solving skills across sectors including manufacturing, education and professional services.

This breadth demonstrates the versatility and value of chemistry skills. **83% of chemistry graduates enter high-skilled roles**, compared with 76% of graduates across all subjects.

Chemistry workforce

Around **327,500 people are employed in chemistry-related roles across the UK**, including those working directly in chemistry occupations and those applying chemistry skills in areas such as industry, research and education.

These skills are especially important in the sectors the UK Government sees as central to future growth. **46% of chemistry-using professionals work in the Government's priority growth sectors¹**, showing how chemistry helps support innovation, resilience and long-term economic strength.

327,500
employed in
the chemistry
workforce in
2023

Maintaining this pipeline from education to employment will be important if the UK is to make the most of chemistry's contribution to growth, innovation and productivity. This depends on **sustaining strong chemistry education and training pathways, so that future skills supply can keep pace with economic need.**

Universities play a vital role in sustaining the skills pipeline, but they are facing a number of financial challenges. While these pressures are not unique to chemistry, many universities have paused or closed chemistry courses, and in some cases, chemistry departments have closed, leading to chemistry provision "cold spots" across the UK. If these pressures continue, the **UK risks long-term shortages of high skilled talent, undermining its ability to deliver Industrial Strategy priorities, strengthen supply chains and achieve national missions.**

Chemistry supports growth and opportunity across the UK's nations and regions

Chemistry employment and chemistry's contribution to the economy vary across different parts of the UK's nations and regions, reflecting **local industrial and university strengths, research activity and workforce patterns**.

Some areas are characterised by high value production and industrial activity, while others have strengths in research, education, or specialist services, and in many places, these strengths overlap.

Understanding these differences matters for decisions about investment, skills and

Chemistry contributes to local and national economies in different ways across the UK

economic development. Stronger links between education, research, industry and local growth could help more places benefit from chemistry's contribution over the long term.

The UK must capture more value from its chemistry strengths

The UK has a strong international position in chemistry research and discovery, supported by world-class universities, research institutions and scientific talent. However, chemistry research and innovations often face barriers to commercialisation and scale-up, meaning the UK can lose out on potential local and national value. These barriers can include access to appropriate laboratory and scale-up facilities.

The UK is strong in chemistry research and discovery but faces challenges in scaling up innovations and retaining value locally and nationally

Strengthening links between **research, innovation, skills and industry** could enable more discoveries to translate into:

- new products and technologies
- new and scaling companies
- high value jobs across the UK

Improving these pathways would help the UK **capture more of the value generated by its chemistry strengths**, reinforcing both national competitiveness and local economic resilience.

The Royal Society of Chemistry will...

- provide a clear, accessible evidence base on chemistry's economic contribution at local, devolved and UK levels
- provide practical resources and clear messaging to help members and the wider chemistry community to advocate effectively using this evidence
- hold stakeholders to account for how chemistry is recognised and supported across policy, funding and strategy, highlighting both opportunities and risks for economic growth, skills pipelines and innovation capability
- continue to engage constructively with universities on the critical role chemistry plays and provide support to our members in universities and other sectors



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