

UK R&D Strategy

July 2020

Research and development (R&D) in both academia and industry, across the UK and beyond, has been vital in tackling the Covid-19 pandemic. Effective delivery of the government's strategy for R&D means that it will continue to find solutions to the global challenges we face and enable the UK's societal and economic recovery.

We call on the UK government to:

1. **Deliver increased public investment in R&D using transparent mechanisms**
2. **Protect and stabilise key parts of the UK's R&D system**
3. **Work across departments to deliver the future skilled workforce the UK needs**

1. Deliver increased public investment in R&D using transparent mechanisms

The UK government must bring the UK's R&D investment in line with the best in the OECD, using its R&D Strategy to develop transparent, long-term R&D funding mechanisms

The UK government has set out ambitious long-term plans to increase public investment in R&D, reaching £22 billion per year by 2024/25.¹ The Department for Business, Energy and Industrial Strategy (BEIS) has confirmed its allocations of the R&D budget for 2020/21.² These commitments are a welcome signal, but we need to see more on the mechanisms for delivery, ensuring that they create the right environment for the UK to continue to be a science superpower.

Planning for stability and long-term recovery

The UK government must set out transparently how increased R&D investment will translate into funding streams that support curiosity, collaboration and leadership

The government's recently published R&D strategy is a positive start, but more detail on where investment will go and how the UK will reach R&D investment levels to match the best in the OECD is essential to give confidence to the private sector, including international investors, for long-term R&D investment decisions. Public investment in R&D must result in funding streams that visibly enable the drivers of science – curiosity, collaboration (between sectors and disciplines), and leadership.³

Creating trust through transparency

The UK government should create a 'digital shop window' for R&D investment that guides domestic and international researchers, innovators and investors to the UK's offering.

R&D funding announcements currently don't refer to their source budgets, making it challenging to navigate the system. Increased public investment commitments are welcome, but private investors must be able to understand what the 'UK offer' is. Creating a digital shop window for R&D investment will help attract the international talent and investment that is vital to the UK's R&D landscape.⁴

2. Protect and stabilise key parts of the UK's R&D system

The UK government must take action to protect and stabilise key parts of the R&D system to ensure that the ideas, infrastructure and people needed to deliver the government's R&D goals can do this

Scientists from across the UK and beyond are contributing to fighting Covid-19. In our own community chemists are working on analytical tools to predict the severity of infection in patients and new materials and coatings that can kill the virus. We welcome government recognition of the need to stabilise the research base so that UK science continues to play its part in beating the pandemic and driving long-term economic recovery. Below, we outline the measures that are needed to achieve this.

Support all stages of the innovation pipeline, including discovery research

The government and UKRI need to show that they recognise the importance of all kinds of research from discovery through to applied when translating investment commitments to mechanisms.

By unlocking the fundamental principles behind phenomena, we can find the solutions that help us deliver societal benefits and economic growth. The fundamental science behind cryoelectron microscopy was recognised with a Nobel Prize in Chemistry in 2017. With a reliable technique to image biological molecules, scientists have studied biomolecules in more detail than ever before - quickly creating a detailed 3-D model of the Zika virus following the 2017 outbreak in South America, enabling better detection and treatment of the virus.⁵

*Chemists see **funding for discovery research** as a vital aspect of public sector R&D investment.*⁶

Investing in infrastructure

The UK government must deliver long-term, sustained investment in the different types and scales of infrastructure critical to science, including seizing the chance to establish a global lead in the new kinds of digital infrastructure that science needs now.

Investment should range from world-class UK university labs to world-leading national facilities like Diamond Light Source, regional hubs like the Daresbury Laboratory. Investment in new digital technologies to harness the power of data from physical and life sciences research will mean that researchers can advance science further and faster.

Restore QR funding

Government must reverse the decline in QR (quality related) funding.

Between 2010 and 2017, QR funding saw a real terms decline of 13%.⁸ Institutions are facing a precarious financial future. Now, more than ever, baseline QR funding to enable them to flexibly support research is vital to protect UK R&D capability for the future. Baseline funding for universities to explore bold research ideas means they can be developed to leverage further external funding.⁹

Position the UK as a global leader and partner of choice in R&D

We must strengthen and build more international links, not lose them. The UK must achieve full association to Horizon Europe.

The research that will help us find a vaccine and treatments for Covid-19 involves partners globally. If we want to be a leading science superpower, then we must be a proactive partner - in Europe and beyond. UK association to Horizon Europe is in the interests of both the UK and the EU.⁷ It is the best way to build on and strengthen existing collaborative links and to create new ones. In an increasingly digitised and connected world, there is also an opportunity for the UK to show leadership on data standards and ethical international data sharing in the field of R&D.

*Chemists see **access to international collaborative networks, knowledge and expertise** as some of the most important factors of public sector R&D funding.*²⁰

Supporting regional growth

The Shared Prosperity Fund (UKSPF) must support the growth of regional R&D across the UK at a scale at least equivalent to that of the European Structural Investment (ESI) Funds.

A replacement for ESI funds, the SPF has been announced by government.¹⁰ However, there has still been no consultation on, or proposal for the size or scope of the fund; urgent clarity on this is needed. We know from our community that ESI funding targeted at R&D has supported university-SME collaborations enabling knowledge exchange and equipment sharing, supporting small business growth in different regions. Coupling regional investment with localised R&D needs and strengths can help to support local economic growth.¹¹

The UK has been allocated €17.2bn in ESI Funds for 2014-2020, of which €5.8bn is via the ERDF.¹²

3. Work across departments to deliver the skilled workforce the UK needs

The UK government should develop a cross-departmental strategy to deliver the skilled workforce the UK needs to support economic recovery and attract future private R&D investment to the UK.

People are the cornerstone of delivering the UK's R&D ambitions. The top three factors that inform location of R&D by industry are the quality of researchers, the availability of researchers and access to specialised R&D knowledge.¹³ It is also a determinant for UK-based companies to decide whether to invest in the UK or elsewhere, and a barrier to growth for UK scale-up businesses.¹⁴ A key near-term action to address will be prioritising support for the different parts of the system that train and educate the researchers of tomorrow.

Creating a diverse and inclusive workforce

The UK Government and funders need to drive equality of opportunity in science and research

They should work with organisations in the research landscape, including employers (universities, institutions and companies), funders, learned societies, academies and publishers, as all need to act to improve diversity in research environments and give recognition to the diverse contributions researchers make to advance science and society.¹⁵

Monitor and target investment to stabilise the teaching of courses that UK R&D needs

Monitoring is needed to understand the impact of Covid-19 on higher education (HE) at a subject level to support the delivery of targeted investment, ensuring a sustainable supply of researchers in the UK

Uncertainty in student numbers will influence HE finances. Physical sciences, like chemistry, may be affected differently by changes to the numbers of international students, given their higher running costs compared to other courses. Monitoring student numbers and stabilising provision of courses in the UK, if needed, will be vital to secure a key part of the people pipeline for the UK to continue to be an R&D leader.

Enabling an internationally mobile workforce

The UK government must deliver an immigration system that ensures easy movement of scientists and their families

For investments in international R&D collaboration to deliver their potential, the UK immigration system needs to do more to attract scientists and innovators to the UK – this means both welcoming messaging and streamlined rules. Moreover, high visa costs risk undermining the UK's ambitions to attract the best scientific talent. UK visa costs must be competitive with other leading science nations. Employers and employees, especially those in innovative SMEs, often do not have the resources to deal with high visa costs.¹⁶

Contact

The Royal Society of Chemistry would be happy to discuss any of the issues raised in our statement in more detail. Any questions should be directed to Mindy Dulai at policy@rsc.org.

About us

With about 50,000 members in 120 countries and a knowledge business that spans the globe, the Royal Society of Chemistry is the UK's professional body for chemical scientists, supporting and representing our members and bringing together chemical scientists from all over the world. Our members include those working in large multinational companies and small to medium enterprises, researchers and students in universities, teachers and regulators.

¹ [Budget 2020](#), HMT, March 2020

² [BEIS research and development budget allocations 2020 to 2021](#), BEIS, May 2020

³ [Science Horizons](#), Royal Society of Chemistry, September 2019

⁴ [Intramural R&D expenditure \(GERD\) by source of funds](#), Eurostat, March 2019

⁵ [Science Horizons](#), Royal Society of Chemistry, September 2019

⁶ Survey of chemical sciences community on their views of European framework programmes, mobility, chemicals regulation and Brexit, Royal Society of Chemistry, February 2019

⁷ [Horizon Europe position statement](#), Royal Society of Chemistry, February 2020

⁸ [Why we need QR funding](#), Russell Group, June 2019

⁹ [Empowering UK universities: how strategic institutional support helps research thrive](#), Wellcome Trust, 2018

¹⁰ [The UK Shared Prosperity Fund](#), House of Commons Library, May 2020

¹¹ [Open for Business Case Studies: 'Finding SME Partners' & 'Engaging SMEs'](#), November 2016

¹² [UK funding from the EU](#), House of Commons Library, November 2018

¹³ [The 2019 EU Survey on Industrial R&D Investment Trends](#), EU Joint Research Centre, May 2020

¹⁴ [Annual Scaleup Review 2018](#), Scaleup Institute, November 2018

¹⁵ [Research culture -improving diversity in the chemical sciences](#), Royal Society of Chemistry, February 2020

¹⁶ [Mobility in the chemical sciences](#), Royal Society of Chemistry, April 2020