Enhancing UK prosperity by increasing R&D investment

February 2020

The UK government must plan for and deliver on its commitment to increase UK R&D investment from 1.7 to 2.4% of GDP by 2027 in order to drive national prosperity, regain the UK’s position as an innovation leader and catch up with its economic competitors’ investment levels.

We call on the UK government to:

1. Plan for and deliver increased public sector investment in R&D to bring the UK’s investment in line with the best in the OECD with a transparent, long-term investment plan to 2027 and beyond.

2. Safeguard the UK’s diverse R&D funding landscape by investing in the entire innovation pipeline from core capacity to commercialisation, and creating an attractive environment for private sector investment.

3. Work across departments to deliver the skilled workforce the UK needs to support future economic growth and attract R&D investment to the UK.

1. Plan for and deliver increased public sector investment in R&D

The UK government must bring the UK’s R&D investment in line with the best in the OECD with a transparent, long-term public sector investment plan to 2027 and beyond.

When it comes to economic growth, the UK is lagging behind its biggest economic competitors. Since the mid-80s the UK’s investment in R&D has fallen behind and we risk losing our competitive advantage. The European Innovation Scoreboard 2019 shows the UK already losing its status as an innovation leader.

Public sector investment will be crucial to boost private sector investment and reach the 2.4% target. There is a complementary relationship between public and private investment in R&D: public investment crowds in private investment, attracts overseas investment and raises productivity. In addition, the UK’s public sector spending needs to foster an environment that attracts private sector investment. The top three factors known to achieve this are the quality of researchers, the availability of researchers and access to specialised R&D knowledge.

Planning for stability and prosperity

The UK government should set out a long-term, cross-sectoral roadmap for public sector investment to provide the stability needed to attract talent and R&D investment to the UK.

Ambition will not be enough to reach the UK government’s 2.4% target. Real commitment and a transparent, long-term roadmap to 2027 and beyond will be essential to give confidence to the private sector, including international investors, for long-term R&D investment decisions.

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. 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.
2. Safeguard the UK’s diverse R&D funding landscape

The UK government must reverse the long-term erosion of core research budgets to protect our national research capacity and capability.

Core research budgets are at the heart of the UK’s national research capacity, supporting postgraduate training, infrastructure, early-stage research and core research activities. Quality related (QR) funding has seen a real-terms fall in its value of 13% over the last 7 years and whilst the uplift in QR funding announced in the summer is welcome, the longer-term erosion of core budgets risks damaging our national research capacity.

**Investing in university teaching**
The UK government must balance any reduction in undergraduate tuition fees recommended by the Augar Review with increased public sector investment in university teaching. Failing to do so will leave universities’ core budgets stretched even further. This could be particularly damaging for strategically important subjects like chemistry that are more expensive to teach.

**Investing in infrastructure**
The UK government must deliver long-term, sustained investment in the different types and scales of infrastructure critical to advancing scientific endeavour. Investment should range from world-class UK university labs to world-leading national facilities like Diamond Light Source, regional hubs like the Daresbury Laboratory, and e-infrastructure that enables advancements in digital technologies.

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

Funding to support regional growth is vital. Funding to support R&D from the ESI Funds, such as the European Regional Development Fund (ERDF), which has a track record of supporting businesses to grow, invest and create jobs in regions across the UK. Domestic replacements, such as the UKSPF must flexibly support R&D to secure sustainable regional growth.

**Supporting all stages of the innovation pipeline, including discovery research**
The UK government and UKRI must ensure the balance of investment recognises the importance of curiosity-driven, discovery research as a vital element of a diverse R&D funding landscape.

Discovery research underpins current and future research and innovation activities, leading to ground-breaking discoveries, new technologies or completely new avenues of research. Public sector investment must support all stages of research or we risk drying out the innovation pipeline, but there is a perceived domestic provision gap for discovery research, with much of the UK’s funding coming via EU framework programmes like European Research Council (ERC) grants.

**Setting the UK’s research and innovation on the global stage**
The UK government must secure association to Horizon Europe, as well as seeking collaboration in excellent science with the rest of the world.

When it comes to maintaining the UK’s status as a global R&D leader, we must embrace links with the whole world, including securing full association to EU framework programmes. The collaborations these programmes enable are vital in tackling global challenges and advancing discovery research, where we can only achieve progress by bringing together the best people, equipment and facilities in the world.

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

Chemists see funding for discovery research as a vital aspect of public sector R&D investment.
The UK has received €1.84bn in ERC funds from Horizon 2020 so far.

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

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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 future economic growth and attract R&D investment to the UK.

Delivering the skilled workforce the UK needs will require investment in STEM education, improving the retention and progression of women and an immigration system that attracts, not deters, scientists and innovators.

Access to a skilled and talented workforce, particularly the availability and quality of researchers, is among the top three factors in attractiveness for private investment. It is also a key determinant for UK-based companies to decide whether to invest in the UK or elsewhere and a key barrier to growth for UK scale-up businesses.

Investing in skills for the future workforce

The UK government must improve recruitment and retention of chemistry teachers, and provide more high-quality apprenticeships, more support for technical skills, and sustainable long-term funding for further education.

For chemistry, strengthening the foundations of excellent STEM education in the UK requires increasing the number of high-quality chemistry teachers by improving retention and progression and improving the quality of and access to technical and further education routes, for example by investing in more high-quality apprenticeships and providing sustained, long-term funding for further education.

Creating an inclusive workforce

The UK government must improve the retention and progression of women in chemistry and science.

Increasing retention and progression of women in STEM will increase workforce participation as well as innovation and productivity. Female chemists in academia experience considerable barriers for progression and are often lost from the STEM workforce.

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.

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 Kathy Page or 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.
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