

Rt Hon Chloe Smith MP  
Secretary of State for Science, Innovation and Technology  
Department for Science, Innovation and Technology (DSIT)  
1 Victoria Street  
London  
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17 May 2023

Dear Secretary of State,

**The need for a long-term investment framework for UK science, innovation and technology**

Thank you for the invitation to provide written input on the independent review of research, development and innovation (RDI) organisational landscape chaired by Sir Paul Nurse.

The Royal Society strongly endorses the call for sustained investment in science, innovation and technology and the “long-lasting, consistent, systematic approach to policy” set out in the review. Creating a stable environment for RDI in the UK is essential not just for long-term growth and productivity but for tackling climate change, the health and security of people and the planet, and our ability to manage future shocks and crises.

To get the most from the RDI landscape, the UK needs a coherent investment framework which allows us to stay at the forefront of critical scientific fields. This should take a long view of RDI priorities and opportunities across industry, higher education, and the public and non-profit research sector, building on DSIT’s work to develop the Science and Technology Framework but backed by a substantial 10-20 year investment commitment commanding cross-party support.

Setting a UK target to lead the G7 on R&D intensity would show that we are serious in our ambitions to be a global force in science, innovation and technology, and crucially, in it for the long haul.

We commented in our submission to the landscape review that Sir David Grant’s review of UKRI and Professor Adam Tickell’s research bureaucracy review are closely linked to the organisational analysis and should feed into a single overarching strategy for optimising the system. Anything less risks perpetuating the short-termism in science policy identified by Sir Paul and the cycle of rinse and repeat when it comes to government-commissioned reviews and strategies.

As a matter of urgency, DSIT should consolidate the work across various departments on innovation, research infrastructure, skills and immigration and ensure join up with the devolved administrations and local and regional government. Our assessment of priorities is in the annex to this letter.

If you wish to discuss the matters here in more depth, I would be delighted to arrange a meeting.

Yours sincerely,



Sir Adrian Smith PRS  
President, Royal Society

## Annex: Top three priorities for long-term investment

Acknowledging that the landscape review recommendations are intended as a complete package, the Royal Society has identified the following priorities for DSIT in consultation with Fellows.

### 1. People

The UK's ability to attract and retain RDI talent is a major concern among senior scientists. Current challenges include the persistence of STEM teacher shortages<sup>1,2</sup>, underfunding of PhDs<sup>3</sup>, skills gaps in the technical workforce<sup>4</sup>, excessive immigration costs<sup>5</sup>, underrepresentation among certain groups<sup>6</sup>, and the continued lack of mobility and porosity between industry and academia. The fact that many researchers spend their most productive years switching from one short-term contract or grant to the next is increasingly unsustainable. In recent months, the Royal Society has heard numerous reports of postdoctoral positions going unfilled. Cost of living pressures are making matters worse.

**Action for DSIT:** Implement the landscape review recommendation on long-term educational planning to ensure policy decisions across government are joined-up and supportive of RDI. Work with UKRI and other funders to improve the quality and competitiveness of PhD support. Remove barriers to international researcher mobility including visa costs.

### 2. Collaboration

The UK needs a coherent offer for collaborating with established and emerging science nations on areas of shared research strength, technological capability, innovation and global challenges, and to be clear about what we 'own, collaborate on, and access' when it comes to big science infrastructure and other strategic investments. The UK alone cannot compete on the scale of the USA committing an extra \$200 billion for scientific R&D and commercialisation through the CHIPS Act<sup>7</sup>, or with China surpassing the EU on share of global R&D spending<sup>8</sup>. It can however punch above its weight through intelligent industrial policy that plays to UK strengths and maximises the value of public investment. Businesses are crying out for an industrial strategy of this nature.

**Action for DSIT:** Secure UK association to Horizon Europe as the baseline for global scientific collaboration. Develop a wider plan with a clear logic model for collaborating bilaterally and multilaterally which convenes resources across government, academia and industry and strengthens the UK's role in international science, including through hosting new intergovernmental institutes and infrastructures. Ensure that policy separation of science from energy, business and trade does not result in thinner industry engagement and collaboration across multiple departments and weaker links to the science base.

### 3. Sustainability

The landscape review is right to conclude that the business model of RDI in the UK needs fixing. Universities are increasingly reliant on international student fees not just to cover shortfalls in research income but those incurred from educating UK undergraduates. While UKRI and its councils fund at 80% full economic costs, the percentage recovery for other public and non-profit funding sources is often lower<sup>9</sup>. Quality-related funding, though important to institutions, only partially plugs the gap. The review also shines light on the diminished role of public sector research establishments and institutes in the UK, which have access to fewer income streams. Covering end-to-end research costs and cutting bureaucracy will make a significant difference in this context (for universities as well), but the UK must be strict in its approach to establishing and closing institutes with specific goals and limited tenures. It should also do more to pool resources in the form of shared national infrastructure with open access to advanced instruments and equipment. Examples of the latter can be seen in the USA – e.g. Lawrence Berkeley National Laboratory<sup>10</sup> – and other parts of Europe – e.g. Max Planck. For some in the science community,

funding a lower volume of research in the UK but funding it better is preferable to the status quo. Such trade-offs need to be rigorously examined.

**Action for DSIT:** Proceed with the recommendation to pilot a programme of end-to-end funding but ensure this is subject to external peer review rather than institutions self-nominating. Work with UKRI and other funders to minimise research bureaucracy and offer more long-term support for frontier research and innovation.

For queries, please contact [public.affairs@royalsociety.org](mailto:public.affairs@royalsociety.org).

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## References

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