

Future Frameworks for international collaboration on research and innovation: Sir Adrian Smith Review

A response from the Royal Society of Chemistry to the Department for Business, Energy & Industrial Strategy.

Summary & recommendations

New funding mechanisms need to be developed to both secure UK participation in Horizon Europe and support the UK research and innovation community to step up wider international collaboration, building on the UK's reputation as an important global research partner. There is not a binary choice between collaborating with the EU and collaborating with the rest of the world. When it comes to maintaining the UK's status as a global research leader, it must embrace links with the whole world.

The UK must secure association to Horizon Europe - access to EU research and innovation funding is more than just the value of the funding itself. Participation in EU framework programmes brings access to global networks, facilities and collaborations that are proven to bring benefits not just to UK science, but to the UK's economy and society more widely. Access to Horizon Europe means that the UK will continue to be seen as a hub for global collaboration, making it m

Easy

Figure 2 Academia and industry views of impact of UK involvement in EU framework programmes on UK science and innovation.

Support for discovery or curiosity-driven research must be sustained. Sustained UK funding for discovery research is needed as well as access to Horizon Europe, not solely as a substitute. Discovery research is vital as whilst its impacts are often long-term, the history of science demonstrates that curiosity-driven research delivers the ground-breaking discoveries that open completely new avenues for research and for innovation, enabling the delivery of solutions to the grand challenges outlined in the government's industrial strategy.¹¹

The UK already has a history of delivering breakthroughs

- reflect the ambitions of small and large businesses
- foster new systems of international peer review and funding

Support for small businesses to be part of international research and innovation community enables them to create jobs and facilitate growth. Support for small and medium enterprises (SMEs) needs to be multifaceted;

- **funding to share the risks of early stage innovation means that SMEs can develop their offering with confidence**
- **access to international networks is vital to support their ability to access knowledge and talented workers, but also so they can navigate international markets to boost UK trade and exports**
- **support and mentorship is key to encouraging their growth – this is particularly the case for researchers running spin-out companies who may have little or no prior business experience**
- **easy access to the right talent to grow a research and development-intensive science business, often from a small, international group of people with very specific knowledge.**

Funding to share the risks of early stage innovation in small companies is vital for their growth. Within our community, we have been made aware of examples of both UK and EU funding that has helped small businesses to develop their business plans or set up pilot facilities that have ultimately led to further investments. A key requirement for SMEs is upfront grant funding. Larger companies might be able to arrange cash-flow to accommodate grants paid in arrears but many SMEs cannot do this. One respondent from our February 2019 survey commented:

“EU funding pays in advance whereas the British Government normally pays in arrears, which is most unsatisfactory for innovative SMEs.”

Funding to support SMEs to either access or to invest in equipment is important. Equipment costs can be prohibitively expensive for SMEs, particularly if they are still at an early pre-profitable stage. Access to equipment enables scale up production or piloting of new processes. Another respondent to our survey told us:

“As a business access to equipment/knowledge can always be paid for up to a point. However as an SME this extra spend would have to be factored into any new projects potentially stifling innovation and

Efficiency and effectiveness in international research collaborations can sometimes be hampered by administrative burdens that come about from the complexity of several partners being involved in collaborative research. Avoiding these is vital to ensure that researchers can focus on their research. For large multilateral international projects, funding for expert project management must form part of the grant allocation. In addition to this, common frameworks for bilateral or multilateral international collaborations can ensure that administrative and reporting requirements for research are aligned across