

International collaboration

Geoffrey Neale



Dr Geoffrey Neale is a trailblazing researcher in the field of composite materials, focusing on making these materials structures stronger and smarter. Dr Neale is a Royal Academy of Engineering research fellow and lecturer at Cranfield University, whose work has pushed the boundaries of manufacturing multifunctional and innovative composite structures. He is passionate about making the world more inclusive, safer, and sustainable, by tying in his research to real-world applications.

Today's global socioeconomic climate is one in which international collaboration is ubiquitous and necessary to achieve efficient, sustainable, and impactful outcomes in the science and technology landscape. The UK is already considered a global leader in research, being at the cutting edge of most fields, but has national ambitions to take this to the next step and become a science superpower. We have been quick to recognise that open collaboration underpins our ability to achieve this superpower status and we aim to leverage our position of strength to expand our global impact. However, we live in a volatile world where many challenges are no longer confined to national borders and historical partnerships cannot always be relied upon. Simply put, addressing the barriers to widening international participation in our technological goals and those of our global community is of key importance.

Emphasising the importance of international collaboration in research is the first step. In the current spending review, UKRI will spend somewhere in the region of £4 billion on international collaborations, according to Professor Christopher Smith, UKRI International Champion and executive chair of AHRC. He noted that UKRI partnerships are highly concentrated in Europe but spread fairly well globally, though with a noticeable underrepresentation of collaborative activities in Africa, which is being addressed through exciting new initiatives.

Many universities are not just internationalising their research agenda, but are physically installing overseas campuses in emerging markets across the globe. Professor Marika Taylor, Pro Vice Chancellor and Head of College of Engineering and Physical Sciences at the University of Birmingham, explains that the benefits are twofold. Not only is it more cost-effective for these students and researchers to study or work in their own countries, but the physical presence of UK institutions facilitates a more direct link to local governments and industry. This fosters a strong international research and innovation ecosystem, driving up research quality and providing two-way access to the full research and innovation pipeline in both countries.

Open research principles like FAIR (Findability, Accessibility, Interoperability, and Reuse) underpin scientific rigour and allow for greater dissemination of research outcomes that allow the global community to adopt and build on our outcomes to the benefit of us all. This maximises the return on research expenditure and creates new

opportunities for researchers in the UK to engage with a wider pool. Alex Hale, technology programme manager at the National Composites Centre explains that our R&D challenges are often tied to global challenges where the faster spread of new and emerging technologies can sometimes be plagued by barriers like knowledge access and freedom to collaborate. Export control regulations, although necessary and well-intentioned, can sometimes prove a hinderance to broadening our partnerships. Sometimes the innovations in these areas are extremely complex and judgements on whether export control regulations should apply is incredibly subtle, making it a challenge for these typically small teams that make these assessments.

There are inherent efficiencies gained from internationalisation of research efforts, where shared expenditure and resources help to reduce duplication of efforts and spending. This is especially poignant in large-scale projects where it may be difficult for one country or institution to dedicate sufficient resources. Crucially this also underpins integrity, reproducibility and public trust.

In a globally competitive market, talent acquisition is a continued challenge. There are large skills gaps in areas vital to our national interests, such as manufacturing, defence, and pharmaceuticals. If we are to attract the right talent to support UK ambitions, we must look outward to bolster our workforce and further develop sovereign capabilities. Then the risks associated with relying on limited reliable supply chains, that may in future become unreliable, can be more effectively mitigated. □

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LINKS

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RECOMMENDATIONS

For Government

Facilitate the freer movement of science and technology professionals, resources and funding in the areas that we can and must share with others for the global good. Encourage R&D solutions that have potential for a wider global impact, rather than more Western-centric positive outcomes. Consider the synergies between what researchers value in the discovery cycle and the social value of economic growth to clarify the purpose of increasing the research wealth of the nation so that the mechanisms better align with a clear motivation.

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