UK Research and Innovation

2.4% target – international dimensions

Introduction

Central to the UK Government's Industrial Strategy White Paper, published in 2017, is the target to increase the UK's spend on research and development (R&D) to 2.4% of GDP by 2027. UK Research and Innovation (UKRI) has organised a series of workshops with our stakeholders, to explore the biggest questions for UKRI and the UK research and innovation landscape more broadly over the coming years. Workshop outputs are being used to develop our evidence base and inform our policy and analysis work.

On 15 November 2018, Professor Sir Mark Walport chaired a workshop which gathered expert stakeholders to explore a series of questions about the international dimensions of the 2.4% R&D target. Annex A contains a full delegate list. The discussion was wide-ranging, covering topics as diverse as the UK visa system, the mobility of the international R&D workforce, global partnerships, and investment in R&D.

Background

We know that world class research and innovation require individuals and institutions to work internationally, with ideas, teams and capabilities shared across national boundaries. Work resulting from international collaborations is correlated with higher quality outcomes: the more UK-based researchers engage internationally, the stronger our research and innovation becomes, increasing the UK's attractiveness to international partners. In a changing global science and research landscape, as we aim to drive investment towards the 2.4% target, we must ensure the UK remains a destination of choice for global research talent, maintains and develops international partnerships and collaborations, and targets investment in R&D in the UK.

Summary of discussion

People – immigration systems

The UK research base is internationally attractive, especially for early career researchers, due to its career structure, culture and facilities. However, delegates agreed that the current visa regime risked damaging this attractiveness, with the system being viewed as expensive and unwieldly. Anecdotal evidence was given of individuals holding fellowships having to take out loans to cover costs, and visa delays causing issues with the implementation of the tightly-timetabled Rutherford Fund, despite the strengths of the programme and pre-existing relationships between institutions. The importance of the ability of a researcher's family to work and be educated in the UK was also emphasised.

Delegates separated out the implementation of the visa regime from the policy itself, exploring how many of the issues were due to poor systems and the unwelcoming tone of its application. It was agreed that more evidence was required to understand how the UK's visa regime intrinsically differed from other leading research nations; if it could be proven that the burden was in the implementation of the policy then new routes for addressing visa issues could be pursued. Whilst individuals attracted to the UK tolerate the visa system, delegates felt that there was a risk in continuing to attract talent to the country under the current regime and system as other countries increase their desirability as leading research and innovation nations.

Attraction and retention of the international R&D workforce

With non-UK nationals comprising 28% of the UK's academic workforce, delegates noted that retention of R&D expertise within the UK was a key issue, especially with limited opportunities to obtain permanent academic posts. It was suggested that there were opportunities through

supporting and connecting this talent with industry and ensuring individuals are equipped for the R&D of the future (e.g. with digital skills). It was agreed that knowledge exchange and the movement of international researchers between countries facilitates a higher absorptive capacity for R&D, with Singapore and Switzerland identified as countries with particular strengths in this approach. To achieve the 2.4% target will require significant increases in researchers and innovators based in the UK. Delegates noted that these would increasingly be from the Global South, women and disadvantaged groups, highlighting the opportunities of increasing R&D networks benefitting multiple countries across the globe.

Partnerships

Research is inherently an international endeavour, and delegates discussed the geographies of future opportunities. Africa was identified as a continent with a number of opportunities, a strong research base in some geographical areas and disciplines, and an appetite for engagement with science, technology and education. However, it was noted that despite English being the common language across many African countries, France and Germany were currently leading the way in engagement with Africa. Parts of Latin America were also identified as potentially promising for future research and innovation partnerships.

Delegates discussed the concept of mutuality; that combining different expertise from multiple countries can bring significant benefits to all partners. This was accepted in terms of supporting excellent research, but it was agreed that it was challenging to transfer the wealth of knowledge generated into economic or social benefit for the UK. It was noted that whilst relationships with emerging geographies would initially be largely through ODA research, this would develop ecosystems that in future could address synergistic innovation priorities of economic benefit to both countries. Determining these opportunities is challenging, but funders, researchers and the business base could develop the skills to identify and exploit joint priorities.

The growth of Asia in terms of the challenges and opportunities it would present for the UK R&D landscape was discussed. Whilst there could be direct competition for the same R&D investments, there may also be opportunities through embedding UK businesses in global supply chains to capture value as markets grow. Delegates noted that countries such as Singapore could act as a hub to access SE Asian markets. With similar challenges to the UK (e.g. an ageing population), partnerships could allow R&D to be tailored to address the needs of regional populations.

Investment

A small number of businesses are responsible for a large proportion of global business R&D investment. Delegates noted that whilst foreign direct investment (FDI) in R&D can contribute significantly to a country's total R&D, it is also fragile - businesses will move investment if a different location becomes more attractive. A number of features of the UK systems were identified by delegates as attractive for FDI, including its good infrastructure and ecosystems, strong research base, relatively competitive cost of research and favourable IP regime. However, proximity to key markets is also a factor, and a key risk for the UK following EU exit.

The high cost of commercialisation was highlighted, with delegates questioning whether there could be a way to incentivise late-stage R&D in the UK as a key contributor to increasing the UK's R&D-intensity. The lower appetite for risk in the UK relative to the US was noted as a potential barrier to increasing investment. Delegates identified the UK's research strengths in complex, cross-disciplinary synthesis work as something which should be exploited; this type of work is less easily moved than investments which are straightforward to duplicate.

What is required from international dimensions to reach the 2.4% target?

To reach the 2.4% target will require a focus across the research and innovation landscape; from people to partnerships, and investments in R&D. Delegates proposed several ideas around the international dimensions of the target that could help us to do this:

- explore the possibility of a simple, fully electronic visa application system, to facilitate access to visas for R&D professionals and students with offers to come to the UK;
- build our evidence base and increase understanding of how the UK's visa system compares to those of other leading R&D nations;
- understand whether issues with the current visa system can be attributed to poor implementation and systems;
- experiment with ways to increase recruitment and retention of early career researchers within the UK, such as through facilitating links with industry;
- increase our understanding of how international partnerships contribute to economic impact in the UK;
- identify key strategic partners for the future and understand areas of synergy to pursue innovation partnerships of economic benefit to both countries;
- investigate how to capture the benefits of R&D within the UK, such as through considering incentives (for example in the tax system) to encourage late-stage business R&D and commercialisation activities within the UK;
- address skills shortages and ensure that researchers are equipped with the skills required for R&D of the future;
- emphasise openness and ensure the UK research environment is attractive to all researchers and innovators, including those from the Global South, women, and disadvantaged groups; and
- explore how to tackle the low risk appetite for UK investments in R&D.

In summary, Professor Sir Mark Walport emphasised that the workshop conversation was just a starting point. UKRI has a responsibility to rise to the opportunity, and challenge, of the target to increase the UK's investment in R&D to 2.4% of GDP by 2027, and 3% in the longer term, improving productivity and economic growth across the UK.

Annex A – Delegate list

Name	Organisation
Professor Sir Mark Walport (Chair)	UKRI
Dr Benjamin Reid	Nesta
Christine Boyle	Senergy
Daniel Shah	UKRI India
Foo Chi Hsia	High Commission of the Republic of Singapore
Jamie Arrowsmith	Universities UK International
Professor Jo Beall	British Council
Dr Jonathan Hague	Unilever
Dr Kieron Flanagon	University of Manchester
Professor Richard Catlow	Royal Society
Roger De Montfort	University College London Consultants
Dr Tim Bradshaw	Russell Group
Angelica Datta	BEIS
Tom Child	BEIS
Jonas Nystrom	HMT
Johann De Silva	Department for International Trade
Professor Andrew Thompson	UKRI
Professor Tim Wheeler	UKRI