UK Research and Innovation

**2.4% target - how to drive business investment**

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 29 November 2018, Professor Sir Mark Walport chaired a workshop in Cardiff, which gathered expert stakeholders to explore a series of questions about how to enhance the UK business environment for R&D. Annex A contains a full delegate list. The discussion was wide-ranging, covering topics as diverse as the general business R&D landscape, regional investment, regulation, and the UK's absorptive capacity.

Background

To meet the 2.4% target will require increases in both public and private spend. Even accounting for industrial structure, UK business investment in R&D is low by international standards, with underinvestment relative to the OECD average across all sectors. As former Science Minister, Sam Gyimah, stated in July 2018, 'the increase we are aiming for would represent the equivalent of 4 new Rolls-Royces, 4 new GSKs and 4 new Oxford Universities, together with making Manchester and Birmingham as R&D-intensive as the East of England. And a new Tech City for good measure'. Maximising business investment will be a key contributor to achieving this, with it likely that both demand-side and supply-side measures will be required.

Summary of discussion

**Business R&D landscape**

Delegates noted the considerable variation in the extent of formal support structures across sectors, which can impact on the level of investment into R&D. Aerospace was highlighted as a well-organised sector with a number of mechanisms to support collaboration and investment within its supply chain. For example, the National Aerospace Technology Exploitation Programme (NATEP) is designed to encourage higher tier companies to adopt cutting edge and innovative technology developed within small and medium sized enterprises (SMEs). NATEP received £8m public investment from the Aerospace Technology Institute (ATI) and delegates proposed that this model could be replicated to stimulate investment in both emerging and less R&D-intense sectors.

It was noted that research funding is often won by a small number of businesses without reaching further down the supply chain. It was felt that this could prevent potentially high growth and innovative firms engaging in R&D. It was also noted that SMEs, particularly microbusinesses, may be unaware of the range of potential R&D support they could be eligible for and how this could facilitate pathways of innovation. Delegates proposed that this could be addressed through provision of business mentorship for SMEs, alongside wider measures such as developing consortia of small businesses to support and communicate opportunities. Both approaches could improve uptake of R&D.

Delegates discussed that an important factor in R&D collaboration is co-location; ecosystems where firms are located next to universities, research institutes or other business create opportunities for knowledge exchange and the potential for competitive advantages. The Catapult network, established in 2011, was highlighted by attendees as a mechanism fostering co-location and co-

creation, including the creation of satellite organisations which are improving the regional representation of sectors. Delegates also noted that the Catapult network sends a strong message of government commitment to R&D, which attracts further private investment. Indeed, government, business and university involvement were cited as the three ingredients of a successful cluster.

Across the spectrum of industries represented in the discussion, there was clear agreement on the need for sector champions to engage with both the public and private sectors to galvanise support for R&D investment and develop a clear vision for each sector.

**Regional investment**

Whilst for the UK as a whole investment in R&D measured 1.67% of GDP in 2016, delegates noted that there is significant variance across individual regions. For example, it was highlighted that Wales has an R&D intensity of 1.2% of GDP, with the bulk of this investment being performed in universities. Delegates suggested that analysis on regional differences and how to leverage business investment on a region-by-region basis could be helpful in increasing R&D investment across the whole of the UK.

University Enterprise Zones were highlighted as a mechanism to generate business led investment in R&D. Delegates also emphasised that encouraging collaboration, including across national boundaries within the UK, will be essential to increase R&D investment.

**Regulation**

Delegates recognised the UK as a regulatory leader, noting that to maintain this an agile system that acts to support innovation and drive business investment was required, especially in light of the fourth industrial revolution and emerging technologies. It was proposed that policy leaders should couple the processes of innovation and regulation; providing mechanisms, capacity and infrastructure to allow experimentation and demonstration within emerging technologies such as 5G, artificial intelligence and autonomous vehicles. It was also noted that tight regulation is not always an inhibitory factor, sometimes this can encourage innovation. For example, food labelling and content regulations were felt to have stimulated innovations within the food manufacturing sector. Delegates suggest that the UK should consider when and where, on a sector basis, a highly regulated approach was required.

**Absorptive capacity**

Academia and business representatives both recognised the need to collaborate and better utilise the breadth of research expertise and infrastructure that exists across the UK. For example, universities could share expertise in grant writing to facilitate further business access to financial support for R&D, and businesses could provide expertise on commercialisation and management. Delegates also noted the need to significantly increase investment into the STEAM pipeline and underpinning research infrastructure to enhance the UK's research capability in preparation for an economy with increased R&D intensity. It was highlighted that industry leaders will be essential in championing and communicating the need and benefits of this on a sectoral basis. This role should also include the public engagement required ahead of investment decisions.

**What is required to drive business investment in R&D to achieve the 2.4% target?**

The UK already has a supportive business environment, ranked seventh in global league tables for ease of starting, locating and growing a business. In addition, business expenditure on R&D represents around 70% of the total UK investment in R&D. But, if we are to reach the 2.4% target, R&D intensity will need to increase across both the public and private sectors. Delegates proposed a number of ideas which could help to facilitate this:

- develop further support structures, with a particular focus on sectors with low R&D intensity, to encourage further collaboration and business investment into R&D;
- maintain the Catapult network in order to leverage further business investment through the creation of R&D clusters;
- consider whether UKRI could commission analysis on regional differences in R&D investment;
- continue to implement University Enterprise Zones to encourage business investment into R&D;
- encourage partnership and collaboration between regions;
- actively consider how to maintain the UK's regulatory leadership, including the development of an agile regulatory framework that couples both innovation and regulation;
- explore how to best encourage increased knowledge exchange between businesses and academic institutions;
- continue investment into research infrastructure across the UK; and
- understand and develop the skills pipeline required to achieve the 2.4% R&D target.

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) | UK Research and Innovation |
| Dr Alyson Thomas | HEFCW |
| Ben Woods | University of Bath |
| David Warrender | Innovation Point |
| Professor Diana Huffaker | Cardiff University |
| Debbie Laubach | MediWales |
| Helen Cross | UK Research and Innovation |
| Huw Morris | Welsh Government |
| Ian Kenyon | UK Research and Innovation |
| John Whalley | Aerospace Wales |
| Jon Wood | UK Research and Innovation, Innovate UK |
| Professor Kim Graham | Cardiff University |
| Mike Charlton | Learned Society of Wales |
| Dr Neil Bradshaw | University of Bristol |
| Olivia Jones | Universities Wales |
| Professor Peter Halligan | Welsh Government |
| Phillip Allen | Welsh Government |
| Philip Wallace | TWI Ltd |
| Simon Bond | SETsquared |
| Stephen Almond | Better Regulation Executive |
| Tracey John | University of the West of England |
| Dr Rob Orford | Welsh Government |
| Robert Hoyle | Welsh Government |