

Autumn Budget 2018

Campaign for Science and Engineering submission | 28th September 2018

Summary of recommendations

Set out the long-term budget for the public portion of investment up to 2027 in line with the ambition for R&D investment to reach 2.4% of GDP.

Create a vision for what reaching the 2.4% target will achieve and a roadmap for delivery with Cabinet level buy-in and accountability across Government.

Implement the recommendations from the [Connell Review](#) of SBRI commissioned by Government.

Create a digital 'shop window' for UK innovation support.

Allocate sufficient resource within government to ensure the volume of applications for schemes such as the R&D tax credit and EIS can be processed with appropriate support to companies to remove functional disincentives.

Following a positive pilot, and subject to evaluation, increase the scale of the Innovate UK investment accelerator and increase the number of funds involved.

Following a positive pilot, and subject to evaluation, introduce Innovate UK loans to fill the gap in innovation support alongside continuing grant funding.

About CaSE

The Campaign for Science and Engineering (CaSE) is the UK's leading independent advocate for science and engineering. Our mission is to ensure that the UK has the skills, funding and policies to enable science and engineering thrive. We represent over 110 scientific organisations including businesses, universities, professional bodies, and research charities as well as individual scientists and engineers. Collectively our members employ 376,000 people in the UK, and our industry and charity members invest around £29bn a year globally in R&D¹.

Becoming the world's most innovative economy by 2030 requires action

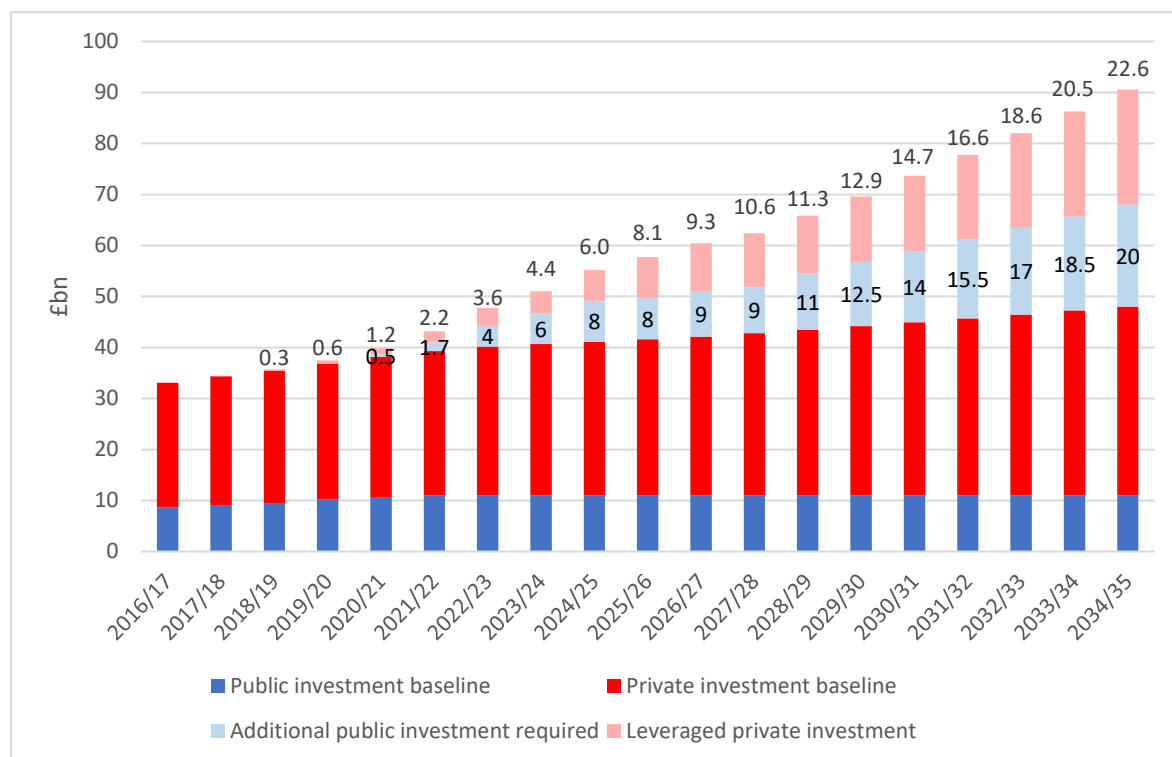
The Government's commitment to growing the UK's research intensity to 2.4% of GDP by 2027 and 3% in the long term underpins the ambition of becoming the world's most innovative economy by 2030. This level of investment would be transformational for the UK. Action is needed in the upcoming Budget and Spending Review to ensure this ambition doesn't become just another unmet target. Particularly as the UK leaves the EU, actions speak louder than words and taking bold action will be essential to drive private sector confidence and investment.

We've developed a model for public and private investment that gets the UK R&D intensity up to 2.4% by 2027 and 3% in the long term (for which we've used 2034/35). The key assumptions we've used in our model are set out below. The assumptions can be tweaked, however, investment broadly of the

¹ Figure calculated in July 2018 from latest available data

quantum set out below will be needed from the public and private sectors if the UK is to reap the benefits of realising the Government's ambition for R&D investment to reach 2.4% of GDP and 3% in the long term.

Modelling R&D investment reaching 2.4% of GDP by 2027 and 3% in the long-term



Model assumptions:

- Our model begins at 2016/17, using the latest year of available data on the Gross Expenditure on R&D (GERD) in the UK,² split into public and private spending using GERD categories. The £2.3bn announced in Autumn Budget 2017 also becomes part of the new baseline level.
- The baseline for public expenditure remains flat in cash terms and private expenditure increases in line with GDP growth, as per trends in the past decade, using OBR forecasts for GDP growth in the short³ and medium term⁴.
- The additional investment has been calculated using a leverage ratio of 1.36 over ten years for public funding leveraging private investment⁵.

²

<https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/ukgrossdomesticexpenditureonresearchanddevelopment/2016>

³ <https://www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-march-2018-spring-statement>

⁴ <http://cdn.ubr.uk/FSR-July-2018-1.pdf>

⁵ [Relationship between public and private investment in R&D](#), Economic Insights report for BIS, 2015

Key points:

- Public investment must reach £20bn in 2027, and additional £9bn a year.
- Private must reach £42.4bn in 2027, an additional £9.3bn a year above the private investment baseline. Including the assumed rises in line with inflation that are reflected in the private baseline that is a total private increase of £16.7bn a year.
- This model results in a balance of public:private spending of 1:2 in 2027/28.
- Additional pledges of public investment are required from 2021/22, in addition to that already pledged in AS16⁶ and AB17⁷. Alternatively, there would need to be larger budget increases in later years to achieve sufficient leverage of private investment to reach 2.4% by 2027.
- UKRI and BEIS cannot deliver the public investment by itself, cross-Governmental and Devolved Administration R&D spend and levers will be crucial to reach the target.

Recommendations

On the scale of public funding needed to reach 2.4%

Set out the long-term budget for the public portion of investment up to 2027 in line with the ambition for R&D investment to reach 2.4% of GDP.

The scale of public funding increases needs to be similar to that set out in our model (reaching £20bn by 2027) to keep the 2.4% target in sight. Such an announcement would fuel business confidence in the UK as an ambitious research and innovation nation at a time of major uncertainty.

Our members tell us that to attract the further R&D investment from companies already in the UK or to anchor new global investment that will be needed to reach its ambitious R&D target, the UK needs to make a big statement. Even more so due to the uncertainties in the business environment resulting from Brexit. For companies that have previously chosen to invest in R&D elsewhere, a bold, long-term, concrete investment plan, could catch their attention and make the UK a candidate destination for new investment. UK targets for raising national R&D intensity have failed in the past in part due to lack of ambition and long-term commitment of public investment.

A long-term budget will crucially enable the development of a detailed strategy and delivery plan so that the funding can be spent strategically and efficiently in line with Government objectives, deriving maximum leverage and benefit across the UK. The alternative of year on year funding announcements, particularly at the level required to meet the Government's 2.4% target by 2027, would miss out on the attracting power of bold signaling and operationally result in reduced benefit and leverage.

This long-term commitment is politically attractive as it is a move for which there is cross-party support, as increasing the R&D intensity of the UK to a similar level is also a stated policy of Labour and the Liberal Democrats. Further, this would be a commitment that would impact on budgets and outcomes right across Government and Devolved Administrations.

⁶https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/571559/autumn_statement_2016_web.pdf

⁷https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/661480/autumn_budget_2017_web.pdf

Create a vision for what reaching the 2.4% target will achieve and a roadmap for delivery with Cabinet level buy-in and accountability across Government .

The success of the Industrial Strategy and of the Government's 2.4% target and associated aim of the UK being the most innovative economy in the world by 2030 depends on sustained buy-in from across disparate sectors and geographies, and indeed from across government departments and agencies. However, a year on from the publication of the Industrial Strategy, and the setting out of the 2.4% target, coordination and buy-in across Government Departments is weak. Indeed, the independent Connell Review of SBRI⁸ expressed it in this way: "Spending departments and agencies regard it as BEIS's job to support business R&D, not theirs. And pressure on departmental budgets means that any spending on innovation is often focused on achieving short term imperatives. Stimulating the development of UK SME's is not a priority, even if there are potential long-term cost savings. In terms of SBRI therefore, the congruence between spending department objectives and those of the Industrial Strategy is only partial."

To date, Government has not set out a clear and compelling vision for what achieving the 2.4% target will achieve for the UK at a level that helps Departments outside BEIS, and indeed the public, to see what's in it for them. With the latest increases in budget, UKRI is responsible for around 70% of public R&D funding. At present 30% of public R&D spend and a disproportionate amount of benefit from research and innovation fall outside UKRI and outside BEIS. From transport and environment to health, security, education and justice, delivering the 2.4% could be transformational. And each department has a role to play in getting there. BEIS and UKRI cannot deliver the 2.4% target alone; cross-Governmental R&D spend and levers will be crucial in reaching the target and maximizing benefit across the UK. Having a clear vision for the 2.4% target is needed to provide a sense of direction and broad ownership for the collective effort required if we're to see the target met and deliver the associated transformation of the UK economy and benefits to society.

The vision must then fuel and inform the creation of a roadmap for delivery that recognizes the 2.4% target is itself an input rather than outcome measure. The Government acknowledged that the Industrial Strategy, as published, broadly lacked specific outcome measures and milestones for delivery, stating that they "will create an independent Industrial Strategy Council that will develop measures to assess and evaluate our Industrial Strategy and make recommendations to the government. The Council will have access to relevant government data and will be funded to commission specific evaluation projects as appropriate." One year on this Council has not been created and despite significant funds already having been spent, specific outcome measures and milestones are yet to be created and it is unclear where accountability for delivery sits across Government.

We understand a roadmap is under development in BEIS. This must not simply be a BEIS roadmap but must be created with buy-in and input across departments with targets, measurements, clear accountability, monitoring of progress, and robust evaluation built in from the start. The targets and measures of success should be ambitious and long-term with ownership by the relevant departments at Cabinet level. This will help build, support and drive coordinated effort towards defined aims. Monitoring progress against milestones will enable learning to be fed back to sharpen ongoing policies

⁸ Leveraging public procurement to grow the innovation economy: an independent review of the Small Business Research Initiative (SBRI), 2017

and programmes. This will help government to track progress and take early steps to change course, scale up support, and to demonstrate progress in light of rigorous evaluation, sharpening the roadmap and ensuring public funds are being responsibly and effectively used.

Any measures or targets should be made carefully to mitigate against driving unhelpful behaviour by measuring an imperfect proxy or by having competing priorities across and within Departments. On this basis, existing targets and performance measures contained in other government strategies such as infrastructure, international development, defence, transport, pensions, digital and energy, should be reviewed across government to ensure they support activity in line with growing the research intensity of the UK economy. Key to success will be having clear ownership and accountability for delivery. History suggests this should be at Cabinet level so that there is support and drive for delivery from the top down and potential competing priorities within departments can be resolved. Some initial suggestions for specific measures drawn from our consultation with members are set out below:

Measure	Accountability
A target for inward investment in R&D	Secretary of State for International Trade
A target for productivity growth within each sector with a sector deal	Secretary of State for Business, Energy and Industrial Strategy
A target for the percentage of public procurement from SMEs and start-ups	Each Department (see recommendation below on implementing Connell Review of SBRI)
A target for the number of apprenticeships that will be at level 4 and above, perhaps with a focus on science, technology and engineering	Secretary of State for Education
A target for increasing international student numbers, for instance to maintain a certain percentage of market share	Secretary of State for Education and Home Secretary

On levers to increase private investment to reach 2.4%

Implement the recommendations from the [Connell Review](#) of SBRI commissioned by Government.

Procurement is a significant lever government holds at national, and local levels, to contribute to delivering the 2.4% target that brings benefits to public service delivery, public budgets and private sector innovation environment. As set out in the Connell Review, changes need to be introduced to deliver on SBRI's full potential to boost the UK's innovative capability, support the development and commercialisation of more new technology-based products and services, and give more innovators their "first break" and a route to market.

Create a digital 'shop window' for UK innovation support.

An overarching theme of two roundtables CaSE conducted with small fast-growing companies⁹, large prime companies¹⁰ and other investors of funders or innovation was that there is a lot of good innovation support, infrastructure and incentives in the UK, but the UK does not effectively showcase or communicate the UK offer domestically or internationally. There are a plethora of government websites and portals on different types of support but there was the distinct view that the whole was less than the sum of its parts. The combination of the Government's ambitions to make the UK the world's most innovative economy and the best place to start and grow a business alongside growing the research intensity of the UK will require significant coordination.

We propose that Government create a digital 'shop window' that showcases in one place the many different incentives, funding, and initiatives for UK research and innovation support, providing sufficient resource for it to be maintained. This one link could then be easily shared to direct people to the array of support available. This is not just a communications challenge, but also should spur functional improvement and join up across different parts of national and local government systems, messages, portals and opportunities. This could be an opportunity to use SBRI to procure an innovative solution to the challenge.

This would be part of a wider programme of work to clarify and effectively communicate the UK offer at a top level, using differentiated and targeted communications to reach key audiences, and would be a crucial first step towards the ideal of a 'one stop shop' 'no wrong door' offer for entrepreneurs, investors, businesses looking to start or grow R&D activity in the UK.

Based on discussions with our members there was also wide support for the following actions:

Allocate sufficient resource within government to ensure the volume of applications for schemes such as the R&D tax credit and EIS can be processed with appropriate support to companies to remove functional disincentives.

Uptake of R&D tax credits has increased over the last decade with successful claims rising from £970m in 2009/10 to £2.6bn in 2015/16. The £2.6bn in 2015/16 was claimed against £22.9bn of R&D in the UK and the growth in claims has been predominantly driven by large increases in uptake by SMEs¹¹ in line with Government aims. Administration of this and other schemes such as EIS and SEIS must be allocated sufficient funding.

Following a positive pilot, and subject to evaluation, increase the scale of the Innovate UK investment accelerator and increase the number of funds involved.

Following a positive pilot, and subject to evaluation, introduce Innovate UK loans to fill the gap in innovation support alongside continuing grant funding.

⁹ <http://www.sciencecampaign.org.uk/news-media/case-comment/case-roundtable-with-beis-r-d-investment.html>

¹⁰ <http://www.sciencecampaign.org.uk/news-media/case-comment/case-member-hm-treasury-roundtable-r-d-investment.html>

¹¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/644599/2017_RD_publication_commentary_final.pdf