

Science budget and Industrial Strategy

Campaign for Science and Engineering submission

Summary

CaSE calls on the Government to:

- Create a roadmap for R&D investment to reach the Government's long term goal of reaching 3% of GDP in partnership with the private sector
- Meet the Government's commitment of reaching 2.4% of GDP spent on R&D, set an interim milestone to increase public investment in R&D to 0.7% of GDP by 2022.
- Ensure that the UK remains an attractive place for business to invest, as R&D funding is dominated by the private sector.

About CaSE

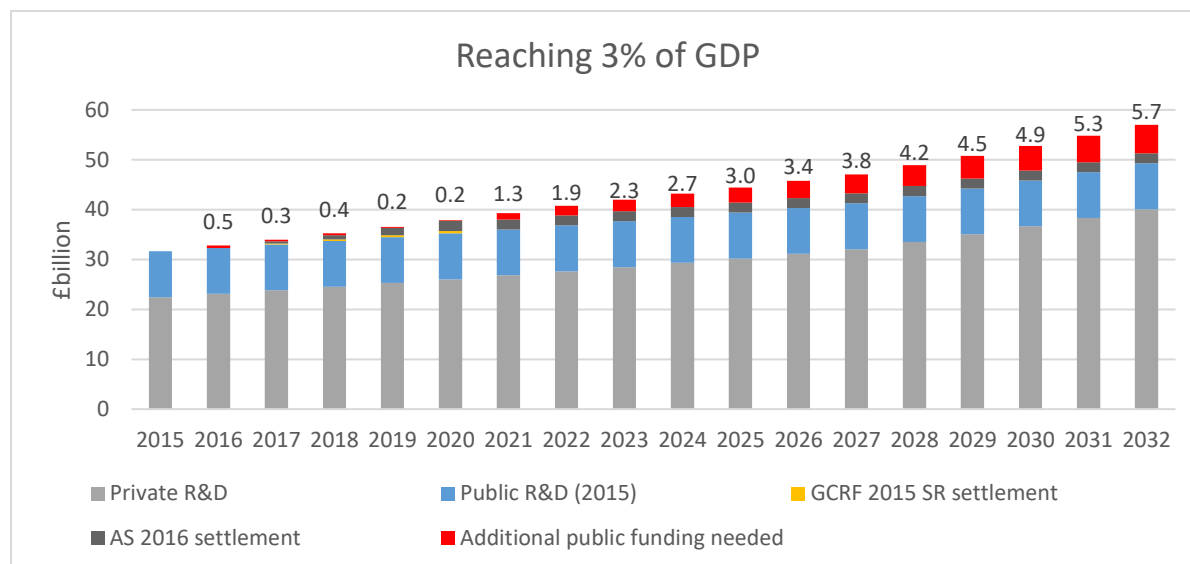
The Campaign for Science and Engineering (CaSE) is the leading independent advocate for science and engineering in the UK. CaSE believes the UK Government should support a healthy and flourishing science base.

CaSE works to ensure that the UK has the policies, funding and skills to enable science and engineering to thrive. It is funded by individuals and around 100 organisations including businesses, universities, learned and professional organisations, and research charities. Collectively our members employ 360,000 people in the UK, and our industry and charity members invest around £34.9bn a year in R&D globally¹.

Meeting Government's commitment to invest 3% of GDP on research and development
In their election manifesto, the Conservative party committed to a long-term target of investing 3% of GDP on R&D, with an initial target of 2.4% by 2027. CaSE welcomes this pledge, building on the platform of the £4.7bn boost in investment in R&D announced in the 2016 Autumn statement. Investment in R&D has long proven to be an investment that brings returns to the economy, to productivity and to society. Sectors that are the most R&D intensive tend to have considerably higher Gross Value Added (GVA) per worker compared with the average across the UK. For example, the R&D-intensive pharmaceutical industry has one of the highest GVA per employee, at £155k in 2014. Therefore, as recognised by Government, addressing out globally low investment in R&D will form part of the answer to addressing the UK's low productivity.

¹ Figure calculated in October 2016 from latest available data

Total R&D spend is dominated by private investment, making up just over 70% of the total spend on R&D. Assuming the balance of public/private investment remains steady, CaSE is able to roughly² show what an investment of 2.4% of GDP by 2027 and later 3% of GDP on R&D would look like.



Our estimations take the 2015 GERD figures as a starting point, build in public R&D investment announced since then (from the 2015 Spending Review and the 2016 Autumn Statement) and estimate an increase in private investment to maintain the public-private ratio. The figure above each bar in the below graph relates to the bar in red which shows the additional public investment then needed to reach 2.4% of GDP by 2027. The grey bar includes the additional needed from private sources. In total, to reach 2.4% of GDP in R&D and come in line with the international average, an uplift in annual public investment of a further £3.8bn is needed by 2027. Set an interim milestone to increase public investment in R&D to 0.7% of GDP.

In the Autumn Budget, the Government should announce an interim milestone to increase public investment in R&D to 0.7% of GDP by 2022. The creation of a roadmap, populated with interim milestones to reach the Government's target of spending 2.4% of GDP on R&D by 2027, would show the intent of the Government to reach this target, but would also breed business confidence in the commitment to support R&D. This interim milestone equates to an ambitious increase in public investment and necessarily frontloads the public investment portion of the Government's overall target of 2.4% by 2027, to then boost private investment.

Public investment is a reliable driver of private investment in R&D. Research commissioned by CaSE found that public investment 'crowds in' private investment, attracts overseas investment, and every £1 of public investment in R&D raises private sector output by 20p each year in perpetuity³. Based upon the

² It is a rough look as our figures do not account for changes to GDP over time (which will be impacted by external factors as well as by the level of R&D investment itself) or inflation.

³ The Economic Significance of the UK Science Base, Haskel et al for CaSE, 2014

evidence presented in the report, a virtuous circle can be proposed in which additional public investment in research leads to increased private sector research, which leads to an increase in absorptive capacity of the private sector to make use of public sector research, hence amplifying economic benefit.

For UK and foreign businesses considering their global R&D investment decisions, the UK must do more in the next five years than it has in the past to actively attract investment to counteract major risk factors and uncertainties in the external environment arising from the Brexit process. Increasing public investment further is certainly not the only lever the government has to increase private investment, but it is an essential part of the package, without which the Government's 2027 target will not be met. CaSE members regularly tell us that the UK must remain a competitive environment for business as part of a strong economy, to continue to attract private investment. They also tell us that all aspects of government policy, such as immigration, regulation, and collaboration, form an important part of securing a strong economy and make the UK an attractive place to do research and to do business.

Prioritise R&D investment to boost business confidence

With Brexit negotiations now underway, the Government should seek to provide clarity on the future of trade and regulations for businesses. While pledges have been made to increase the UK's expenditure on R&D to reach 3% of GDP in the long-term, private and charitable investment will be expected to make up roughly 70% of total investment⁴, based on current UK and international norms. To have any chance of reaching the Government's 2.4% target, private and charitable investment must increase by 50%, from around £22bn in 2015 to £32bn in 2027.

This is clearly not in the gift of Government to deliver. The Government may look to maximise Foreign Direct Investment as a way of boosting total UK investment in R&D, as over half UK R&D businesses are headquartered abroad⁵. But businesses do not have a responsibility to invest in the UK for the benefit of the UK economy and for the good of society. Many have global interests and will make strategic decisions about their R&D investment, and indeed where they invest to create new jobs, in a global setting. The UK must therefore work to be an attractive environment that can compete for global investment in R&D – that includes the quality of our skills and research base, ease of movement of talent, data, goods and services, a competitive tax system, robust infrastructure, predictable regulatory frameworks, and political and economic stability. The industrial strategy must be an effective, long-term offer to partner with industry to create such an environment.

Although this is not all within the remit of the Autumn budget, a strong and pragmatic budget announcement can fuel business confidence. Investment in R&D should therefore be a priority of the Autumn budget as R&D is a key driver of productivity and economic growth⁶.

⁴<https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/datasets/ukgrossdomesticexpenditureonresearchanddevelopment>

⁵<https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/businessenterpriseanddevelopment/2015#rd-expenditure>

⁶ "On the Robustness of R&D", Kul, Khan and Theodoridis, Journal of Productivity Analysis, vol. 42 (2014), 137-155

Good stewardship of public funding

The creation of UK Research and Innovation (UKRI) provides an opportunity for clear strategic direction, part of which must include embedding transparent and trusted processes for setting research and innovation priorities to inform high-level funding decisions.

The future of Quality-Related (QR) funding remains a concern of much of the scientific community, providing platform funding that supports excellence, scientific careers, leverage of business and charitable funding and creative exploratory research in new and emerging fields. As UKRI gets up and running, it must increase QR funding in proportion with total UKRI funding levels to maintain the dual support system and uphold the balanced funding principle written into law through the Higher Education and Research Act just this year.

Funding that previously went into EU structural funds, such as the European Regional Development Fund (ERDF), should be replaced with domestic funds that support R&D capacity building. Different regions of the UK have varying dependencies on these structural funds. Amongst those most dependant are the more deprived areas in the UK. The Conservative party have pledged to replace EU structural funds with the Shared Prosperity Fund, in part aiming to deliver sustainable growth for the modern Industrial Strategy. To achieve this the Government must carefully analyse the regional impact of any changes to R&D funding and ensure the measures announced in the industrial strategy and through a replacement for structural funds strategically addresses any concerns raised.