

## Boosting growth through science, skills and innovation: a submission to the Chancellor's medium-term fiscal plan

*This Government has made clear that its top priority for the country is economic growth. Russell Group universities inject nearly £87 billion into the UK economy every year, support over 260,000 jobs in every region and nation of the country and drive the cutting-edge innovations that create high value jobs, attract investment and help British businesses compete on a global scale.*

*In short, our universities are the engines that will help deliver the growth the Government wants.*

*Investment in world-leading R&D offers a proven route to economic growth. Plans to grow public spending on science and innovation to £20 billion by 2024/25 will leverage in billions of pounds of private funding so must be maintained, providing certainty for investors and talent.*

*There are real opportunities to boost this by making it easier for businesses to invest in research and innovation facilities with universities and by aligning the new investment zones with university-focused innovation clusters. The visa system must also remain competitive to ensure the UK can continue to attract top quality international students and researchers.*

*A key plank of the UK's strength in science is international collaboration which is why we continue to call for association to Horizon Europe. Should it be needed, we stand ready to work with Government to develop an ambitious alternative, backed by the full funding set aside for Horizon.*

### Maintaining R&D investment plans will boost growth

**Delivering on the Government's commitment to invest £20bn in R&D by 2024/25 will leverage billions of pounds of private investment into UK R&D, stimulating growth in the wider economy.** The resulting benefits will be wide-ranging, including:

- Enabling universities, businesses and others to create high-skilled jobs, develop new technologies and stimulate other spill-over effects, boosting economic growth in the short, medium and long term.
- Building the capacity of the UK's world-class research base and better equipping us to address global challenges such as climate change and public health.
- A proven return on investment: for every £1 of public research funding, Russell Group universities deliver an average return of £9 to the UK economy.

Experimental statistics from the ONS suggest business expenditure on R&D may be higher than previously thought.<sup>i</sup> This indicates public investment in R&D is stimulating even higher levels of private R&D than previously estimated. On this basis, every £1 of public R&D investment could leverage around £2.50 in private spending, so public investment of £20bn in R&D by 2024/25 could crowd in up to £50bn of business spending.<sup>ii</sup> This further underlines the **value of public R&D investment as one of the most effective forms of 'seed funding' for economic growth.**

University of Birmingham • University of Bristol • University of Cambridge • Cardiff University • Durham University  
University of Edinburgh • University of Exeter • University of Glasgow • Imperial College London • King's College London  
University of Leeds • University of Liverpool • London School of Economics and Political Science  
University of Manchester • Newcastle University • University of Nottingham • University of Oxford  
Queen Mary University of London • Queen's University Belfast • University of Sheffield • University of Southampton  
University College London • University of Warwick • University of York

On average across the OECD, investment in R&D as a proportion of GDP has risen from 2.4% in 2018 to 2.7% in 2020 and is likely to have increased further. The United States, Germany, South Korea, Israel and Japan, are all investing over 3% of their GDP in R&D already.<sup>iii</sup> The UK should be ambitious in continuing to boost investment in R&D to remain globally competitive and to realise the benefits for growth and productivity across the country.

Certainty is key for investment decision-makers, and also for individuals who may be attracted to work in UK research and innovation. The 3-year spending commitment was incredibly helpful in this respect. To ensure the UK can continue punching above its weight internationally, the Government should retain plans to invest at least £20bn per year in R&D by 2024/25. This public funding would send a clear message that the UK is open for business and ready to embrace the opportunities of a changing world. As well as further revitalising our economy, delivering crucial productivity gains and driving prosperity, it will also be key to maintaining our strategic advantage in science and technology.

## Backing ground-breaking discovery research

**As part of the £20bn commitment, prioritising quality-related (QR) research funding will power long-term, economic growth as well as enabling universities to address short-term challenges.** QR and its equivalents in the Devolved Nations, provides a low-bureaucracy, low overhead cost route to finance agile and innovative approaches that have lasting impact.

QR funding was key to the rapid development of the Oxford AstraZeneca vaccine. By tapping into existing research funded by QR, and using QR funding to rapidly redeploy researchers to pandemic-related work even before government schemes were put in place, universities were able to play a key role in enabling the country to exit lockdown earlier than many of our competitors.

The strength and depth of our research sector means the UK excels in a range of fields including social science and humanities as well as science, technology, engineering and maths (STEM) disciplines. Innovations in these fields will drive Britain's success in growth areas including the creative and service industries. By bringing together and applying discovery research in science, technology, design and social science thinking, universities can tackle grand challenges from all angles including addressing climate change, preparing for public health crises, and improving the UK's energy security.

From improving the efficiency of [heat pumps](#) at the **University of Glasgow** and increasing electricity generation through advanced [solar panels](#) at the **University of York**, our universities are investing in discovery research leading to more efficient energy systems. This will bring down household bills as well as generating valuable UK exports.

QR funding has helped the **University of Exeter** become a world leader in diabetes research. Their research has supported the development of improved UK clinical guidelines and boosted treatments, delivering significant cost savings for the NHS as well as improved health outcomes. An [economic impact analysis](#) of the NHS Diabetes Prevention Programme created based on Exeter's research has estimated net economic benefits of £1.2bn over 5 years.

## Creating high value opportunities through innovation

Russell Group universities are located in every region and nation of the UK. **As hubs for innovation that deliver highly skilled graduates and turn ideas into real world impacts, they are magnets for investment.** This creates high-value jobs, new homes and vital infrastructure in towns and communities across the country.

- Our universities are dynamos for the generation of jobs and investment in all regions of the UK: in 2020/21, businesses “spun out” of our 24 universities alone created 33,000 jobs and brought in £4.9bn of investment to towns and cities across the country.

- Spreading innovation into the economy is also crucial for productivity growth. Russell Group universities help businesses of all sizes to innovate, supporting effective routes for knowledge transfer, providing expert advice, access to state-of-the-art facilities and equipment, and undertaking commissioned research projects for UK companies operating in a wide range of sectors.

Drawing on their research excellence and commercialisation expertise, research-intensive universities are at the heart of emerging and developed technology-themed innovation clusters across the UK. For example:

The **University of Manchester's** new £1.5bn innovation district, 'ID Manchester', will help to commercialise cutting-edge research in the North West, supporting up to 10,000 new high-quality jobs and adding £800m GVA to the regional economy annually.

The **University of Bristol's** Temple Enterprise Quarter is one of the UK's largest regeneration projects. It will bring together private and public investment to deliver 22,000 jobs and 10,000 homes for the South West. The Quarter will renew 130 hectares of brownfield land over the next 25 years, and the development is forecast to add £1.6bn to the city's economy annually.

**We recognise the Government will be looking for relatively low cost and low risk approaches most likely to boost growth. Immediate impact could be achieved through the scale up and nurturing of new and emerging clusters of innovation centred around research-intensive universities.** To boost growth and revitalise regional economies, the Government should prioritise:

- **Building on established schemes to boost innovation which have a track-record of proven returns:** the increase in funding for the Higher Education Innovation Fund (HEIF) from this year is very welcome as this will boost opportunities to commercialise promising tech as well as delivering an excellent return on investment: large research-intensive universities deliver £12.46 of impact per £1 of HEIF funding. In addition, the UK Research Partnership Investment Fund (UKRPIF) funds state-of-the-art research centres focused on challenges such as accelerating progress towards net zero. Introducing a new round of funding would leverage in further private investment (universities must secure at least double matched funding from non-public sources for every £1 of UKRPIF funding awarded) and help strengthen local research and innovation ecosystems.
- **Reforming VAT rules** to encourage increased collaboration between business and universities that will leverage further private R&D. Universities pay full VAT on buildings where usage exceeds 5% for commercial activities within 10 years of construction. These rules, derived from EU regulations, deter business from collaborative R&D investment with the science base. Buildings built or acquired by universities for charitable purposes should thus be zero-rated initially, with universities reporting and paying VAT only on the annual proportion of commercial use up to the 10-year limit.<sup>iv</sup>
- **Aligning new 'investment zones' with regional innovation clusters** centred around research-intensive universities as key anchor institutions. This could help to realise the potential of these clusters to make a substantial contribution to the UK's economic growth, stimulating jobs and development.

## Maintaining UK leadership in global R&D collaboration

Horizon Europe is the world's largest collaborative research programme. It provides participants with unparalleled routes to international partnerships within and beyond the EU and an established infrastructure of funding and training. In Horizon 2020, for example, the 24 Russell Group universities alone won 1,400 European Research Council grants worth €1.8bn – more than the whole of France. In the same round nearly 2,000 UK businesses received €1.4bn, with SMEs

receiving more than €840m of that to boost jobs and opportunity across the country. The UK also benefitted from around €1.1bn from Horizon 2020 to train the next generation of scientists.<sup>v</sup>

**All parties agree that having the UK as an associate member of Horizon Europe will be mutually beneficial: creating capability resilience and huge opportunities for us, while also strengthening the programme in the face of competition from China and elsewhere.**

Failure to secure association to Horizon, Euratom and Copernicus will significantly limit the UK's attractiveness as a destination for talent and investment. We will be locked out of our leadership position in key disciplines such as health and life sciences and nuclear fusion – putting us in competition with countries that should be our key global partners. It will also make it harder for Britain to get a seat at the table to influence the agenda and direction of international science. Global collaborations of the kind that laid the foundation for vital breakthroughs like the Covid vaccines which unlocked the UK economy will become much more challenging without an established ecosystem to plug into.

**To mitigate these risks, the sector is ready to work with the Government to develop an ambitious alternative programme, should it be needed, backed by the full funding set aside for Horizon and other science programmes.** A UK alternative to Horizon must prioritise:

- Large, long-term grants and fellowships for discovery research at all career stages and across all disciplines to attract and retain talented researchers from around the world
- Flexible and low-bureaucracy opportunities for bilateral and multilateral global collaboration, as well as uncapped third-country access to Horizon Europe
- A long-term end-to-end innovation programme to give SMEs and other businesses opportunities and support innovation in areas of industrial strength and emerging fields.

## Delivering the high-level skills the country needs

Russell Group universities offer excellent technical, vocational and academic education to address local skills needs and ensure graduates are well-equipped to contribute to our economy and society:

- More than 700,000 students are studying at our universities, which teach 4 out of 5 doctors and dentists, a third of all engineers, as well as 15,000 nurses and over 5,500 teachers.
- In 2019/20, 82% of Russell Group graduates in work were in highly skilled employment after 15 months of completing their studies, and the majority of our students (over 50%) remain local to their university after graduation.
- A total of 16 Russell Group universities deliver higher and degree apprenticeships, five are involved with the creation of the UK's Institutes of Technology, and many are innovating with high-quality lifelong learning and flexible short courses.

We want to build on the strength of this asset for the UK, by improving access to high-value degrees and maintaining their quality, to create the pipeline of skilled workers needed by employers. However, independent analysis shows research activities and education of home undergraduates are funded at a loss and deficits have been growing – with these trends expected to continue. **By 2024/25, per student funding (home tuition fees plus government teaching grants) is projected to be lower in real-terms than in 2011/12, before higher fees were introduced. Indeed, it will be at its lowest point this millennium.**

This is a result of a real-terms cut in public funding, rising cost pressures and the increased level of support universities offer to students, accompanied by growing shortfalls in the funding received to deliver research activity. Universities can maintain their world-class offer in the short term, but without action the high-quality experience students deserve will suffer, as will the UK's globally recognised science and technology activity. Worsening deficits could result in increasing class

sizes, reduced investment in practical teaching, infrastructure and support services, and fewer places to study the high-cost STEM subjects needed to fill skills gaps.

**Action is needed to ensure long-term financial resilience, including a new funding package for 2024/25 and beyond that is fair to students, supports universities to deliver on Government ambitions and protects the UK's hard-won international competitiveness. Given the changes likely to be needed, we would like to start work with the Government on this now.**

In the interim, we would welcome the opportunity to work closely with Government to reduce bureaucracy and burden on universities with a strong track record of regulatory compliance. To ensure resources are not diverted away from teaching and research to fulfil unnecessary regulatory requirements, a genuinely proportionate approach is needed. However, instead of this, low-risk providers are facing increasing burden with more granular and time-consuming regulatory exercises and overlapping regulatory requirements (for example around degree apprenticeships).

Cutting red-tape with a genuine move to proportionate regulation would free up time and resources for universities to invest in more productive work that could boost skills, innovation and growth.

## How international students support skills and research for the UK

International students play a crucial role in supporting the viability and scale of the UK's higher education and research sectors which, in turn, are engines for economic and productivity growth. The international students studying at UK universities are equivalent in export earnings to the whole of the UK automotive sector.<sup>vi</sup> Importantly, this income stream is reinvested in universities: in their teaching, research, innovation and civic missions. Roughly £1 in every £4 of research undertaken in universities is a direct subsidy from international students. And many courses – in particular at postgraduate level – would not be viable without international students.

More than that, international students bring huge talent and soft power advantages to the UK. The students we recruit will be the business and political leaders of the future when they return to their home countries – and that means we can create a teaching and learning environment for home students that lays the ground for future business, scientific and other engagements for the UK around the world.

Recent reforms including the new post study work visa have reinforced the UK's reputation as one of the best places to study, with over 600,000 international students now choosing the UK. **To maintain this success and reap the benefits for growth, the Government should continue building on its recent visa reforms to attract more international students to the UK from a diverse range of countries.**

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<sup>i</sup> Further details can be found on the ONS website here: <https://blog.ons.gov.uk/2022/09/29/the-power-of-innovation-first-new-rd-stats-are-here/>

<sup>ii</sup> Estimated long-run impact based on work by Oxford Economics and BEIS [here](#) as well as the revised ONS figures on business expenditure

<sup>iii</sup> Data taken from OECD Main Science and Technology Indicators, 2020

<sup>iv</sup> Further details on this proposal can be found here: <https://russellgroup.ac.uk/media/6008/rg-briefing-on-vat.pdf>

<sup>v</sup> Further details on the benefits of association to Horizon Europe are available here: <https://russellgroup.ac.uk/media/6090/horizon-briefing-6-oct-2022.pdf>

<sup>vi</sup> International students benefited the UK economy by around £29bn in 2018/19, and total export earnings from UK automotive were £30bn in 2020. Sources: *The costs and benefits of international higher education students to the UK economy*, Higher Education Policy Institute; *UK Automotive Trade Report 2021*