

## Budget 2020 representation

The Government has set a clear ambition to level up opportunity and investment across the regions of the UK and unleash the country's full potential. We share that ambition.

Russell Group universities strive to serve the whole of the UK as educators, leaders in research and innovation, as business incubators and as the gateway to people and ideas from around the world. In turn, our institutions have become anchors for growth and investment in their local, regional and national communities and are helping to transform many of our major cities through the high value jobs, businesses and overseas investment they attract. Our 24 universities generate around £87 billion for the UK economy every year through their research, teaching, exports, local buying power and other activities – but we want to do even more.

Investing in place-based economic growth, in fundamental research, in key strategic science-based missions and in the talent pipeline for future high-level skills will boost our knowledge economy and help realise the levelling-up ambition. It will also mean the UK can make real progress on key priorities such as delivering on the net zero emissions target, improving health and equality outcomes and translating our excellent research ideas into innovation.

As this Budget is the first to be delivered after leaving the EU, we also hope the Government will be bold in its ambitions for Global Britain: continuing to seek a strong future relationship with Europe for research and education while also looking for opportunities to enhance collaborations around the world. At the same time, we are determined to do our part to deliver on the Government's priority to create a stronger and more dynamic economy. We therefore recommend the 2020 Budget should prioritise the following:

### 1. Place-based economic growth

- Set a target to boost productivity across the UK with the aim of strengthening the weakest regions and devolved nations while at the same time continuing to secure substantial growth in its strongest parts. Research intensity, key infrastructure investments and the accumulation of graduate skills are essential to level-up productivity, and recommendations to achieve this ambition are highlighted below.
- Make the welcome commitment to double public R&D investment real and tangible with an ambitious 10-year plan, including clear milestones, that will boost business confidence to invest in the UK for the long-term. The aim should be to make the UK the partner of choice for innovative high value companies to grow and for international research collaborators to locate their new activities here, distributed throughout the UK.
- Speed up and simplify investment decision-making locally and regionally by funding the UK's research-intensive universities to act as hubs for a substantial package of research, development and innovation funding. Rather than specifying exactly how this funding should be spent, universities should be required to set out individual plans based on local/regional needs and expertise. For example, funds could be used to: enhance innovation capacity and skills, address inequalities, develop patient capital funds, act as a one stop shop for FDI, create regional innovation districts, or build on centres of genuinely world class research to create global advantage for the UK in multiple locations spread across the country. This funding should be made available to universities in all of our nations, not just the English regions, to act as a cohesive social and economic force for the UK as a whole while also delivering local transformation.
- Reform VAT rules to encourage businesses and universities to invest in capital projects jointly, to share facilities, to build close links and help enhance the process of taking research into commercial application.

## **2. Fundamental research**

- Shift towards long-term, and low bureaucracy, investments in people and ideas by introducing a significant uplift in quality-related funding for research (the so called 'QR' grant from Research England and its equivalent in the devolved nations). Doubling this grant over the next five years would help Government realise its aims of supporting breakthroughs in blue-skies research while also boosting the research talent pipeline.

## **3. Strategic science-based missions**

- Launch the proposed UK Advanced Research Projects Agency (ARPA) for high-risk, high-reward, research and innovation with an early round of missions tackling issues where the UK can and should take a global lead. Funding for each mission should be substantial: covering the full economic costs of projects and at a scale large enough to make a real difference and rapid progress.
- Commit to transforming public procurement alongside the development of ARPA to create a dynamic 'innovation pull' effect for the UK. Mandate a proportion of all public procurement spend should be on truly innovative solutions and support public sector bodies (such as the NHS) to demonstrate new advances at scale – in turn, helping to build a wider culture of openness to change in technology.

## **4. The talent pipeline for future high-level skills**

- Provide sustainable funding for science and technology degrees, enabling the UK's world-leading universities to train the next generation of British scientists and engineers. Science, technology, engineering and medical qualifications will be critical for the future prosperity of the UK, but universities and colleges are currently teaching these subjects at a loss. In universities where academic excellence means research-led and smaller group teaching, the shortfall is already over £1,500 per undergraduate student per year. We hope the Government will commit additional funds to eliminate this gap and put the emphasis on delivering high quality teaching and student outcomes.
- Make the UK the best place for postgraduate research training, strengthening the country's position as a research superpower and laying the foundations for future R&D-led growth, economic and social transformation. The UK will need a significant new pool of research talent in business, universities, the public and third sectors and the UK should be ambitious, not cut corners. The full economic costs of this training should be met from public funds.

## **5. Global collaboration**

- Ensure universities are actively involved as part of negotiations over future trade deals, drawing on our research strengths and attractiveness for international students.
- Make a commitment to ring-fence sufficient funding for the UK to participate in the world's largest programme for multi-country collaborative R&D and research excellence, Horizon Europe, as a fully associated country. Or, if that is not possible: for the UK to participate as a third country along with a commitment to invest at least £1 billion a year to stimulate global research and innovation collaboration and attract the world's best researchers. Ideally, the UK should be even more ambitious and do both: providing the country with a medium-term competitive advantage in economic development and trade.
- Further enhance the UK as a place for innovation and enterprise by ensuring visa and other associated fees for highly skilled migrants are internationally competitive and will allow the UK to continue being able to attract leading talent. Continue to work with universities and other key stakeholders to design and implement other elements of the UK's new visa system (including the proposed points-based system, new post-study work offer and Global Talent visa).

# Five key themes for the 2020 Budget to deliver economic growth and rebalancing with universities at the heart of Britain's future success

*The Russell Group represents 24 leading UK universities. We believe people and ideas are the key to meeting global challenges. Through world-class research and education we are helping to create a dynamic economy, stronger communities and a better future for the UK*

The Budget in March is only the first major fiscal event this year and we recognise that some of the following proposals may also need to be developed further in the 2020 Spending Review. However, early signalling of the Government's intent, following the very welcome pre-Election announcements and manifesto commitments, will help to ensure economic and social progress can be delivered at pace.

To make a real difference, we propose that the Budget should deliver on five key priority areas for the UK that will, in turn, underpin wider social and economic transformation for the country over the coming decades:

- Develop a new approach to deliver place-based economic growth
- Turbocharge investment in fundamental research
- Launch strategic science-based missions for high-risk, high-return
- Strengthen the talent pipeline for high-level skills
- Maximise our opportunities for global collaboration.

## 1. Place-based economic growth

- 1.1 The 24 Russell Group universities are anchor institutions in their local and regional economies – as well as for the nation as a whole. They are not only hubs of employment, investing in local communities and facilities, but have also helped to drive City Deals, regional health partnerships and major business investments – often securing funding (and jobs) for the UK that could just as easily have gone overseas. Indeed, the latest competitiveness report from the World Economic Forum once again ranks the UK as number one in Europe for university-industry collaboration.<sup>1</sup> We recognise that these efforts are going to become increasingly important as, with Government backing, we work to tackle the challenges facing many of our communities.
- 1.2 Last year's General Election showed just how vital it is to level-up investment and opportunities across the country. The UK's regional productivity figures show what needs to change: gross value added per hour worked (GVA/hr) is a third higher in London than the national average, while the Northeast, Midlands, Yorkshire & Humber, Wales and Northern Ireland all have GVA/hr levels ranging between 11% and 17.5% below the national average.<sup>2</sup> Productivity matters because it links directly to long-term economic growth and real wages. If the UK can close the productivity gaps in its weakest regions and nations, while

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<sup>1</sup> World Economic Forum, Europe 2020 competitiveness report <http://reports.weforum.org/the-europe-2020-competitiveness-report/#section=country-profiles-unitedkingdom>

<sup>2</sup><https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/regionalandsuaregionalproductivityintheuk/february2019>

simultaneously continuing to grow its strongest parts, then that would be transformative for the country as a whole.

- 1.3 This Budget is an opportunity to drive productivity and economic growth by investing in key areas of UK strength: talent and research. The Government has already pledged to double the amount of public investment in R&D to £18 billion by 2024/25. This will require a significant gearing up of the UK's R&D activity, and a long-term strategy will be needed to prepare the research base for a doubling in R&D capability. This will need to include plans for training additional researchers and technicians and for attracting overseas expertise in order to meet an increase in skills demand.

#### *Productivity targets*

- 1.4 The Office for National Statistics estimates that around a fifth of the rise in productivity between 1994 and 2019 can be attributed to improvements in the quality of the workforce, especially those with higher education qualifications.<sup>3</sup> This means more graduates in the labour market has led to an increase in productivity (or at the very least has helped to maintain levels of productivity while the UK has faced other significant pressures). A separate study by the National Institute for Economic and Social Research (NIESR)<sup>4</sup> found that an accumulation of graduate skills is likely to be even more strongly correlated with productivity growth in future as a result of rapidly-developing technology in the workplace. To strengthen the UK's underperforming regions, the Government may need to consider ways to make it attractive for graduates to stay longer in their regions after graduation.
- 1.5 In terms of technology itself, every £1 of public money spent on R&D raises private sector output by 20p each year in perpetuity by raising the level of the UK knowledge base.<sup>5</sup> Based on research conducted for us by London Economics, we can show that for every £1 of public research funding they secure, UK universities deliver an average return of £8.35 to the UK economy. This includes the direct impact of university research and the impact of productivity spill-overs associated with their R&D.<sup>6</sup>
- 1.6 To help tackle the productivity gap head on, we propose that the Government should **set a target to boost productivity across the UK with the aim of strengthening the weakest regions and nations while at the same time continuing to secure substantial growth in its strongest parts**. Given that this will take time to achieve, the levelling-up target should be pragmatic, looking ahead ten years or more, underpinned by commitments to invest in high-level skills, research intensity and core infrastructure right across the country.

#### *An ambitious ten-year plan for R&D investment reaching all regions and nations*

- 1.7 UK research already has a positive impact on every aspect of our daily lives, with around 25% of the world's top 100 prescription medicines discovered and developed in the UK.<sup>7</sup> People and ideas will be the key to meeting global challenges such as climate change and an ageing society and investment in R&D puts the UK in a prime position: not just to respond positively to key societal and technological changes, but to take the lead globally.

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<sup>3</sup> Written answer to a Parliamentary Question to Lord Duncan of Springbank, 7 January 2020

<sup>4</sup> Graduates boost productivity, NIESR <https://www.niesr.ac.uk/blog/graduates-boost-productivity>

<sup>5</sup> Haskel J, Hughes A, Bascavusoglu-Moreau E (2014) *The Economic Significance of the UK Science Base*. A report for the Campaign for Science and Engineering

<sup>6</sup> References to the economic impact of Russell Group universities draw on analysis produced for us by London Economics in November 2017: <http://www.russellgroup.ac.uk/news/economic-impact-of-russell-group-universities/>

<sup>7</sup> BMI Research (2016) *United Kingdom Pharmaceuticals & Healthcare Report Q1 2016*

- 1.8 Our universities already attract over £2.5 billion in income from external partners each year, into communities, cities and regions throughout the UK – and it is clear that public investment in R&D helps to leverage significant private sector investment. Government analysis indicates an additional £1 of public spending in R&D gives rise to an increase in private R&D funding of £1.36 over a ten-year period.<sup>8</sup>
- 1.9 **A new ten-year plan for public R&D investment growth would give businesses and others the confidence to invest in the UK for the long-term.** This approach needs to have clear milestones in place in order to track progress against the Government’s target to reach an investment level of 2.4% of GDP in R&D by 2027. The aim should be to make the UK the partner of choice for innovative high value companies to grow and for international research collaborators to locate their new activities here.
- 1.10 A ‘gearing’ approach to uplifts in investment should be taken in order to ensure increases in capacity are sustainable. This could utilise modelling by the Campaign for Science and Engineering (CaSE) which has shown how Government can achieve its commitment to reaching 2.4% through a combination of public and private sector investment (indicative figures only):

Year	Amount of additional public investment	In turn, we expect this would leverage private sector investment in these years of: <sup>9</sup>
2020/21	£0.5bn	£1.2bn
2021/22	£1.7bn	£2.2bn
2022/23	£4.0bn	£3.6bn

- 1.11 In terms of future sustainability, it should be noted that the Research Councils currently fund research at only 72% of full economic costs (FEC) and that this has resulted in a £4.3 billion shortfall for universities on their research activity – a gap that has to be filled through additional income from international students and from enhanced efforts to secure philanthropic donations. A doubling of public funding for research without addressing low levels of FEC would make research an unsustainable activity. We therefore look for the Research Councils to deliver on their long-standing pledge to fund research at 80% FEC as a core part of the ten-year strategy.

#### *Universities as regional growth and investment hubs*

- 1.12 A real challenge faced in delivering growth and investment at pace is the speed in decision-making, often compounded by the need to involve multiple funding partners and other bodies (including infrastructure and planning authorities) over an extended period of time. In turn this can create unhelpful stage gates that restrict development opportunities as they are held up waiting for the next round of follow-on funding or for sites to become available where scale up and commercialisation activities can be undertaken.
- 1.13 Parts of Germany and small city states such as Singapore are often held up as being models of how to speed up and simplify investment decision-making locally and regionally: bringing all of the main funders, industry, universities and planning and infrastructure stakeholders together to deliver major investment projects. The UK could emulate this by **empowering its world-leading research-intensive universities to act as hubs for a substantial new**

<sup>8</sup> *What is the relationship between private and public investment in science, research and innovation?* BIS, 2015

<sup>9</sup> These figures are based on modelling conducted by CaSE, available here: <http://www.sciencecampaign.org.uk/resource/2019-2-4--projection.html>

**package of research, development and innovation funding aimed at transforming growth opportunities in the regions and devolved nations.**

- 1.14 Our universities already have the expertise to manage this having invested significantly in their local communities<sup>10</sup> over many years and having provided local leadership and coordination to bring together key stakeholders at city, regional, national and international level to champion regeneration and growth. For example,
- The University of Edinburgh’s Science and Innovation Audit focusing on data-driven innovation is at the heart of their City Region Deal. The University is working to establish the region as the data capital of Europe, attracting investment, fuelling entrepreneurship and delivering inclusive growth.
  - The University of Bristol is the lead player in regeneration around Bristol Temple Meads station, with ambition to create a huge new enterprise and innovation campus for the city.
  - The University of Sheffield has transformed the old Orgreave site with its Advanced Manufacturing Research Centre, creating high value jobs and catalysing long-term investment from blue chip companies including McLaren, Boeing and Rolls-Royce.
  - The University of Cambridge is working in partnership with local councils and the Local Enterprise Partnership having secured £1bn in funding to accelerate the building of thousands of new homes, underpin further growth in high-value jobs and create a fit-for-the-future transport network.
- 1.15 Rather than specifying exactly how this funding should be spent centrally, universities should be required to set out individual plans based on local/regional needs and expertise. They would then become the budget holders and convenors to bring relevant partners together and deliver against these plans over a number of years. For example, funds could be used to: enhance innovation capacity and skills, address inequalities, develop patient capital funds, act as a one stop shop for FDI, create regional innovation districts, or build on centres of genuinely world class research to create global advantage for the UK in multiple locations spread across the country.
- 1.16 Whilst respecting the devolution settlements, we believe that it is important for the UK government to ensure that the union is protected by making these place-based investments available not only to the English regions, but also to the devolved nations. We strongly believe that by making the levelling-up agenda UK wide, by using universities as hubs for innovation and economic development, this would act as a cohesive economic force and would increase the visibility of UK policy across all devolved nations.

*Reform VAT rules*

- 1.17 Leaving the EU means that the UK can now take back control of key parts of the economy and finances; in particular, **we have the opportunity to reform VAT rules to remove barriers to collaboration between business and universities.** While new university research infrastructure currently qualifies for VAT relief, if more than 5% of a building is dedicated to business, full VAT must be paid. The introduction of a targeted VAT exemption for new business-university capital investments would remove this barrier to private R&D investment. Again, as the UK has an extensive network of universities across the country, this change would have a real local and regional impact: attracting high-value capital investment to key sites in all of our cities and regions.

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<sup>10</sup> For example, Imperial College London is investing £2 billion in its new 23-acre campus at the heart of White City, working with the local community to create new opportunities, develop talent and make tangible improvements in education, employment, enterprise and health.

1.18 While research collaborations are also eligible for tax relief, clearer definitions of what constitutes research partnerships for VAT purposes are also needed and could be updated at the same time.

## 2. Fundamental research

2.1 Major advances can often be traced back to fundamental research where the applications could not have been foreseen at the start. Lasers, DNA and genetics, magnetic resonance imaging and two-dimensional materials such as graphene are a few examples which we now take for granted and where there are a wide (and growing) range of applications in everyday use. The challenge is that fundamental research will often take years to advance and then take even longer to permeate into commercial or other applications. The science risk is high as many good ideas will either fail or their importance may not be realised at the time. The funding risk is therefore also high. However, the UK punches massively above its weight in research internationally – and has realised the benefits as a result – because of its dual funding system that actively encourages this sort of high-risk, high-reward science.

2.2 The key element here is the so-called ‘QR’ or quality-related funding stream (and its equivalent in the devolved nations) that sits alongside more directed funding through UKRI, the National Institutes for Health Research and others. QR is one of the very few sources of funding that allow universities to make strategic long-term investments in research and the people who undertake this work. More than just a mark of excellence in research, it creates real competitive advantage for the UK as a central and critical part of the UK research ecosystem.

- For example, while quantum science was for many years the archetypal curiosity-driven research topic, investment through QR has positioned the UK at the forefront of a new era of quantum technology. This opportunity is now being exploited through the UK Quantum Technology Programme, which funds four quantum technology hubs led by the Universities of Birmingham, Glasgow, Oxford and York. The Government Office for Science’s ‘Blackett Review’ noted that “quantum technology could become comparable to the consumer electronics manufacturing sector, which is today worth £240 billion a year worldwide”.

2.3 UKRI estimates around 20% of QR funding is used by universities to support their research talent directly.<sup>11</sup> Allowing universities to put certain and substantial investment behind research teams frees researchers to focus on long-term objectives, rather than requiring them to re-apply for grant funding every 3-5 years.

2.4 QR funding is also used to co-invest in R&D with other partners, unlocking significant funds from industry and charities, such as the Wellcome Trust and the Bill and Melinda Gates Foundation. However, in many cases QR is the only source of funding for research that is deemed too ‘blue skies’ or risky for any other funder to support.

2.5 With UKRI grant approval rates at around one in four<sup>12</sup> (although this can vary significantly by Research Council and by programme), QR funding also provides a low bureaucracy mechanism to get public funds into the hands of researchers and to do this quickly. Empowering universities to make decisions on how and which projects and people to support ensures the funding is used efficiently and effectively, backed up by the established cycle of REF assessment exercises as an external validation mechanism of university research activity overall.

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<sup>11</sup> UKRI (2019) UKRI Annual Report and Accounts 2018-19

<sup>12</sup> Current average across UKRI is 27% - Ibid

- 2.6 Unfortunately, QR funding has been under continued pressure over the last decade, declining in value by 13% since 2010. If this continues then the UK will rapidly lose its long-term competitive advantage.
- 2.7 The Government has made clear its research ambitions, which we support. Now is the time to **shift towards long-term, and low bureaucracy, investments in people and ideas by introducing a significant uplift in quality-related funding for research. Doubling the QR grant (and its equivalents) over the next five years** would help Government realise its aims of supporting breakthroughs in blue-skies research while also boosting the research talent pipeline.
- 2.8 As devolution settlements differ across the UK, it is important that increases in QR funding delivered by Research England should also be cascaded by the devolved administrations. We recognise that other mechanisms may be needed to ensure this happens in practice, which UKRI could explore. However, a substantial boost now for fundamental research across the whole of the UK will strengthen cohesion and ensure the UK can continue to hold its own alongside other research-intensive nations.

### 3. Strategic science-based missions

- 3.1 We strongly support the Government's ambition to **create an Advanced Research Projects Agency (ARPA) for the UK**. We see ARPA as a clear complement to the UK's flagship funding stream for high-risk, high-reward research (QR) by introducing a funding and support mechanism dedicated to high-risk, high-reward innovation. Accompanied with measures to transform public sector procurement, the creation of ARPA has the potential to inject innovation throughout the economy by tackling some of the major challenges of our time.
- 3.2 This opportunity should be seized quickly and we hope the Government will use the Budget to launch the development process for ARPA so that it can get up and running this year.
- 3.3 ARPA's overall mission, objectives and how it fits into the wider R&D and innovation funding landscape will need to be clarified early in order to ensure its long-term success. We note the intention to provide £800 million of funding over five years, but even at that scale, ARPA will need to focus on a small number of missions at a time rather than spread itself too thinly.
- 3.4 Policy Exchange has recently published a series of essays on ARPA<sup>13</sup> that provide a number of helpful insights into how the new mechanism could work. A number of key aspects that we would prioritise are:
- Focus on missions where the UK can establish a lead and competitive advantage that also tap into wider Government priorities, such as improving healthcare and delivering on the net zero target to tackle climate change.
  - Embrace failure as a positive to ensure ARPA pushes the envelope on genuine high-risk, high-return activity.
  - Seek to minimise bureaucracy and find highly talented individuals (globally if necessary) to run the missions.
  - Fully fund the projects ARPA supports – essential given the anticipated risk profile of ARPA activities – and ensure that funding for each mission is substantial enough, and over a long enough period of time, to make a real difference.

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<sup>13</sup> <https://policyexchange.org.uk/wp-content/uploads/Visions-of-Arpa.pdf>



- 3.5 For ARPA to be a success it will need customers for its innovations and testbeds that will enable it to demonstrate technological change at scale so that they can be de-risked ahead of wider application. Here **the Government should act as an ‘intelligent customer’ and use its substantial public procurement power<sup>14</sup> to create a dynamic ‘innovation pull’ effect for the UK.** This is likely to require changes in public procurement rules to ensure innovation is included as a factor in procurement across the public sector.
- 3.6 To support the engagement of the NHS, central and local government, and other key purchasing bodies, it could be mandated that a small percentage of their procurement investments need to be in innovative solutions – the development of which would then be backed, and driven by, ARPA.
- 3.7 With new technologies being developed and demonstrated, and public sector end-users involved right from the start of ARPA missions alongside top research and innovation teams, ARPA could be transformative: helping to build a wider culture of openness to change in technology and ensuring that the advantages of technological change can be maximised for the UK.

#### 4. The talent pipeline for future high-level skills

- 4.1 Russell Group universities train around 80% of doctors educated in the UK, 39% of engineers and over half the maths and science graduates so vital to the UK economy and society. Our skilled workforce is one of the big reasons why well-established global manufacturing giants to brand-new tech unicorns have chosen to invest in the UK. But the way we work is changing and the UK needs workers with the skills and flexibility to respond to these changes. Businesses are increasingly looking for communication, data handling, team working and entrepreneurship skills alongside academic achievement and this is reflected in new approaches to teaching at our universities.<sup>15</sup>
- 4.2 The Budget is an opportunity to ensure we have a sustainable post-18 education system that will give people the ability to embrace new technologies and benefit from changes in the economy. As well as addressing gaps in the skills pipeline at Levels 4 and 5, business demand for highly skilled graduates and postgraduates continues to grow.<sup>16</sup> Growing the number of graduates in STEM subjects will be particularly important to address acute skills shortages in sectors such as manufacturing, engineering, science and hi-tech firms.
- 4.3 The return on investment in high quality higher education is well documented with benefits for the Exchequer, our economy, graduates themselves and local communities across the UK, for example:
- Increased Exchequer revenues from Russell Group graduates – analysis completed for the Russell Group by London Economics shows that HMT receives a tax surplus of £89,000 per graduate, after deducting the costs of studying. For those completing a full-time doctorate, the benefits to the public purse rise by an extra £135,000 (on top of the benefits associated with completing an undergraduate degree). The 166,000 UK-domiciled students who were at our universities in 2015/16 are estimated to contribute

<sup>14</sup> The Institute for Government estimates public procurement spend is around £300 billion per year.

<sup>15</sup> Russell Group universities are working closely with employers, external professional bodies and regulators to ensure all their graduates are equipped with the skills they need to succeed in the workforce, now and in the future. For example, Mechanical Engineering students at the University of Liverpool undertake “Capstone” projects working in groups to integrate research into the design, build and test of new products and solutions to problems. This provides the opportunity for students to apply their scientific learning and design skills to a live industrial problem at companies such as Jaguar Land Rover.

<sup>16</sup> The CBI/Pearson Education and Skills Survey report 2019 found graduate openings have continued to grow with nearly nine in ten (85%) businesses either maintaining or increasing their graduate recruitment.

more than £20 billion over the course of their working lives – including a total of £11bn in tax and NI contributions.

- Improvements in GDP - Between 1994 and 2005 the accumulation of graduate skills contributed between 14 - 20% of GDP growth in the UK<sup>17</sup> – and our analysis estimates each 1% growth in GDP increases total annual Exchequer revenue by around £15 billion.
- Distributing skills across the regions – Graduate outcomes data published last year showed that almost half of all graduates remain in the region in which they studied five years after graduation and a further 31% return to their home region after studying.<sup>18</sup> This means that highly skilled university graduates are contributing to the prosperity of regions across the UK over the long-term.
- Graduate employability - OECD employability data shows that the employment rate for UK graduates aged 25-34 is 90%, significantly higher than the OECD average and the average of European OECD members (both 84%).<sup>19</sup> At Russell Group universities, 95% of graduates were in work or had gone on to further study six months after they graduated and, of those in work, 81% were in professional employment.<sup>20</sup>

4.4 In an advanced economy such as ours, capitalising on the research-led, interdisciplinary education offered by our world-leading universities will be crucial in meeting the UK's skills demands and addressing the productivity challenge. The combination of academic and research excellence our universities bring to the UK at scale is unrivalled for a country our size. It is a dynamic asset the UK can be proud of and one that can play an even more central role in strengthening our economy and society for the long-term.

4.5 For this Budget, we propose that the Government should prioritise two essential elements of the high-level skills pipeline for further investment:

- (a) **Ensuring sustainable funding for science and technology higher education** – Frozen income for undergraduate education means deficits are rapidly increasing in more expensive-to-deliver yet vital STEM subjects. Our analysis of the Office for Students' data on costs shows that lab-based subjects at research-intensive institutions face average shortfalls of around £1,550 per year, per student.<sup>21</sup> Properly funding these subjects would free universities from having to restrict the number of places they are able to offer and open STEM study to a new generation of scientists and engineers. At the very least, the existing level of high-cost subject funding per student should be maintained. However, we hope the Government will be much more ambitious (and will also prepare for the projected growth in student numbers resulting from the demographic surge in 18-year-olds in the coming years) by closing the current funding shortfall and increasing the budget for critical STEM subjects.
- (b) **Fund PhD places at full economic cost** – Postgraduate research and training supported through UKRI grants is currently funded at only 46.7% of full economic costs. This results in a shortfall of £1.4 billion for universities at the UK level. It affects the nature of the training that can be undertaken and has knock-on consequences for the wider research environment and culture in our universities. For the UK to continue building its position as a global superpower in research we need to offer the very best

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<sup>17</sup> BIS 2013 the relationship between graduates and economic growth across countries

<sup>18</sup> 'Graduate Outcomes: Regional Outcomes, 2016 to 2017' DfE, July 2019

<sup>19</sup> Data on employment and inactivity rates of tertiary-educated 25-34 year-olds (2018), published in 'Education at a glance 2019: OECD indicators'

<sup>20</sup> Data from the Destinations of Leavers from Higher Education (DLHE) 2016/17

<sup>21</sup> This is based on an estimate for Peer Group A universities using TRAC data uprated for inflation to 2019/20. A further cut to teaching grant to be applied for 2020/21 would bring the deficit to at least £1,600 per student per year.

environment for research training – and showcase this to the world. In order to ensure universities are able to support Government ambitions to grow the UK R&D workforce, UKRI should be given an increase in core funding specifically so it can fund the full economic cost of these places in future.

## 5. Global collaboration

- 5.1 Whether we are talking about international students choosing a university, service innovators working with big data and AI, researchers conducting clinical trials or high-tech manufacturing firms looking for new R&D collaborations, the UK is operating in an international marketplace and increasingly facing tough competition. However, the UK is in a good position to make the most of future opportunities by drawing on the networks and connections our universities have made internationally.
- 5.2 Higher education and research are already truly global enterprises where knowledge and people flow across borders to create a dynamic environment that is much greater than can be achieved by individual institutions, and indeed nations, on their own. Our students also create substantial soft power advantage for the UK as they enter the global employment market and then create potential trade and investment links for the future.
- 5.3 Just in terms of international student fee income, our 24 universities alone contribute nearly £5 billion to the UK economy each year, which counts as one of the UK's most important service sector exports. But we also have extensive links with international businesses that could be the source of even more valuable foreign direct investment in the future. We would therefore like to **ensure universities are actively involved as part of negotiations over future trade deals** with the EU and globally.
- 5.4 In terms of international research collaboration, access to research infrastructures and networks, and our ability to attract world-class talent to the UK, the European Framework Programmes for Research and Technological Development have proved invaluable. The UK is the second largest beneficiary in competitive research funding from Horizon 2020, the latest of these Framework Programmes.
  - Within Horizon 2020, over 70% of European Research Council (ERC) grants have led to major scientific advances or breakthroughs, whilst also stimulating over 800 patent applications and over 75 new business ventures. And the UK has been the most successful nation at winning these ERC grants.
- 5.5 As we look ahead, the UK will need to make tough choices about its future relationship with the EU, but one of the most important choices it should make is to negotiate an association agreement for full access to the new Horizon Europe programme starting in 2021. Horizon Europe will be the world's largest ever programme for multi-country collaborative R&D. It will bring together not just European researchers, but increasingly those from countries such as Australia, Canada and Japan.
- 5.6 At this Budget, **the UK could make its future intentions clear with a commitment to ring-fence sufficient funding to participate in Horizon Europe and then make full association a priority by working to secure an agreement so we are able to participate right from the start.**
- 5.7 However, if wider EU negotiations or rules for our full participation in Horizon Europe aren't acceptable then the Government should have a back-up plan that can be developed and delivered at pace. The UK should still be able to participate as a 'third country' in Horizon Europe on a pay as you go basis and this should be supported even though we may no longer be able to access the ERC and some other elements of the programme. Alongside

this, the Government should seek to stimulate as much global research and innovation collaboration with the UK as possible – drawing on proposals put forward in the recent report by Professor Sir Adrian Smith and Professor Graeme Reid<sup>22</sup>. We estimate that to do this effectively the UK would need to commit at least an additional £1 billion a year to these efforts.

- 5.8 Ideally, the UK should be ambitious for both: securing full access to Horizon Europe and supporting new fellowship and research programmes at scale to strengthen our global research and innovation reach. At least in the medium-term this would give the UK a huge competitive advantage, and not just in research: supporting wider economic development aims and acting as a basis for new trade and investment deals that will be so important for the success of Global Britain.
- 5.9 It will also be important for the UK to encourage the exchange of ideas and people with Europe and globally on the education side after the EU transition period and we look forward to helping the Government to develop options.
- 5.10 **The other key aspect to enhancing the UK’s position globally as a location for research, innovation and enterprise is our visa and immigration regime.** The Government has previously made a very welcome commitment to increase the post study work offer for international students (to two years, ensuring we remain competitive internationally) and recently we also welcomed the new Global Talent Visa which will help as we seek to bring top academic and research talent to the UK.
- 5.11 We now look forward to working with the Government as it develops, and tests, the proposed points-based immigration system that will become operational by the end of the year. We need to ensure that this system is internationally competitive allowing the UK to attract the best and most exciting talent from around the world, and at all career stages. As such, we hope the Government shares our ambition for this system to provide a warm welcome to potential international students, to researchers, technicians, entrepreneurs and investors that can work with us to help strengthen and transform our economy for the future.

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<sup>22</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/844488/Changes\\_and\\_Choices.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/844488/Changes_and_Choices.pdf)