About us

Universities UK (UUK) is the representative organisation for the UK’s universities. Founded in 1918, its mission is to be the voice for universities in the UK, providing high quality leadership and support to its members to promote a successful and diverse higher education sector. With 136 members and offices in London, Cardiff (Universities Wales) and Edinburgh (Universities Scotland), it promotes the strength and success of UK universities nationally and internationally.

Summary and recommendations

- The UK is a world leader in research and innovation and continuing to build our research capacity is vital in future economic growth and closing the UK’s productivity gap. Research undertaken at UK universities is of very high quality, and recent evidence demonstrates that our university research has the highest impact per unit of spend among its key competitor countries.

- UUK strongly supports the government’s commitment to increase overall UK spending on R&D to 2.4% GDP by 2027, with a longer-term target of 3%. In order to boost business expenditure to meet these goals, the government should prioritise policies that encourage the creation of new R&D intensive firms, increase inward international investment, and transform existing sectors.

- The government should adopt a balanced approach to allocating additional investment across research and innovation, which addresses the current underfunding of research while encouraging a step change in UK innovation. This should take account of the need to build research capacity in all areas of the UK. UUK recognises that there is more to do to enhance the UK’s performance on innovation, and that this will be achieved by increasing collaborative capacity and ensuring that research is funded sustainably.

- An effective research and innovation funding system is one where a wide ecology of organisations undertaking research can collaborate and co-operate. There is no expectation that all higher education institutions will follow the same path of development: the strength of the sector is in the diverse range of organisational models that exist. Consequently, the balance of public R&D funding should be exactly that: a balance between different schemes and initiatives that incentivise different types of behaviour.

- The UK-wide dual support system that funds research is crucial to the success of the UK’s world-leading research base. This system combines competitive awards based on future potential with quality-related (QR) funding awarded on the basis of past performance. This combination of incentives enables the research base to pursue a balance of fundamental and applied research, short- and long-term priorities, and foster broad-based excellence that can bring together strong academic disciplines to address important economic and societal challenges.

- In recent years, QR funding in England has remained at a flat level. Given the importance of such funding to the UK research base, the UK government should raise levels of investment in QR while considering the impact on devolved nations. UUK is also calling for a more multidisciplinary approach to funding research, such as by the widening of the scope of the Industrial Strategy Challenge Fund (ISCF) to cover the creative industries.
UUK welcomes the commitment in the government’s industrial strategy white paper to increase HEIF to £250 million per year by 2020-21. It is important that the HEIF remains a fund which promotes knowledge exchange in a flexible and permissive way to promote innovative approaches, rather than having prescriptive conditions about how the funding is used by institutions.

While it is vital to ensure continued investment in existing world-leading institutions, it is also crucial that government considers the need to ensure adequate funding is available for researchers in all regions and nations of the UK. In addition to effective research investment based on initiatives like local industrial strategies and science and innovation audits, it is vital that the government ensures that the UK Shared Prosperity Fund (UKSPF) fully replaces structural funds and is effective at building capacity in less economically developed areas of the UK.

The government should also support the development of new and enhanced initiatives for research collaboration with both European and non-European partners, including substantial support for inbound and outbound mobility in the form of travel grants, fellowship and workshops, as well as new bi- and multi-lateral funding arrangements with other national funders. UUK is also calling on the government to introduce a new global graduate talent visa to allow international students to work in the UK for up to two years after graduation which will help support research and innovation across the UK.

### The effectiveness of public spending on R&D

1. Research undertaken in UK universities serves two purposes. The first is to create new knowledge across a range of disciplines. The second is to put that knowledge to use, delivering social, cultural and economic impact. Basic and applied research are both essential for a high-performing research ecosystem.

2. In 2016, £33.1bn was invested in research and development (R&D) activity in the UK. Public expenditure on R&D accounts for roughly one third of the total invested. In 2015-16, UK universities received £7.8 billion in research income, with 64% of the total coming from the government.\(^1\)

3. This investment in UK universities is effectively spent. Although UK government spending on research and development is below the OECD average as a proportion of GDP, the UK continues to perform strongly in comparison to other national systems and is globally recognised as a world leading knowledge economy.

4. Research undertaken at UK universities is also of very high quality. In the last research assessment exercise, 76% of research at higher education institutions was considered ‘world-leading’ or ‘internationally excellent’ for its overall quality. More than half of UK research is produced through international collaborations.\(^2\)

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\(^1\) Universities UK (2018), Higher education research in facts and figures

\(^2\) Universities UK (2018), Higher education research in facts and figures
5. The benefits of this activity are not confined to institutions: in 2015-16, UK higher education institutions received £4.2 billion from knowledge exchange activities, demonstrating the effective mobility of R&D.\(^3\)

6. Basic, or fundamental research, is research undertaken to achieve new understanding, rather than a new application of existing research. Basic research therefore offers the chance to deliver major advances, rather than incremental improvements. The UK has longstanding strengths in basic research which should continue to be capitalised upon. This strength has led to significant breakthroughs, including through the development of graphene, computing, artificial intelligence and lasers.

7. In summary, public spending on R&D in universities must be considered effective, delivering high quality, high impact research at low cost. Future investment in R&D is vital to meeting the objectives of the industrial strategy, supporting economic growth and increasing productivity across the UK.

**The Industrial Strategy and the Industrial Strategy Challenge Fund**

8. The government’s commitment, both to an additional £7 billion in R&D investment by 2021-22 and to a target to increase expenditure on R&D to 2.4% of GDP by 2027 is welcome, and this places high expectations on the research ecosystem.

9. The Industrial Strategy Challenge Fund (ISCF) presents an opportunity to narrow disparities in R&D performance across the UK and recognise local industrial strengths if allocated effectively, such as by taking advantage of the government’s science and innovation audits. UUK has previously called for a more multidisciplinary approach to funding research and the creative industries sector deal, with its focus on the audience of the future and creative industries clusters, is welcome.

**The rationale needed to decide the balance of public R&D funding**

10. An effective research and innovation funding system is one where a wide ecology of organisations undertaking research can collaborate and co-operate. There is no expectation that all higher education institutions will follow the same path of development: the strength of the sector is in the diverse range of organizational models that exist. Consequently, the balance of public R&D funding should be exactly that: a balance between different schemes and initiatives that incentivise different types of behaviour.

11. The government should adopt a balanced approach to allocating extra investment across research and innovation, which addresses the current underfunding of research while encouraging a step change in UK innovation. UUK recognises that there is more to do to enhance the UK’s performance on innovation, and that this will be achieved by increasing collaborative capacity and ensuring that research is funded sustainably.

12. Funding for both basic and applied research is important because both are required in a diverse R&D ecosystem. Basic research should be funded through initiatives that are focussed on excellence. Applied research should be funded in a responsive way, ensuring that funding is directed to underpin new ideas and innovations.

\(^3\) Universities UK (2018). Higher education research in facts and figures
approaches. The optimum balance between basic and applied research is difficult to determine and should be kept under review.

13. As set out earlier in this submission, the UK is widely recognised as a world-leading knowledge economy, with significant strengths, particularly in universities. The latest figures show that UK university research has the highest impact per unit of spend among its key competitor countries. An effective funding strategy will therefore be focused on building on existing strengths and incentivising behaviour that will address weaknesses.

Disciplines, research councils and cross-disciplinary schemes

14. As noted above, UUK has called for a more multidisciplinary approach to funding research. In part, this has been addressed by the widening of the scope of the ISCF to cover creative industries, but more needs to be done to better utilise the widely distributed excellence of social science and humanities research in the UK. This will ensure that the impact of investment is felt widely both across sectors and the country.

15. One of the strengths of a university-based research system is the breadth of research activity concentrated in a single institution. The breadth means that institutions are often better able to deliver cross-disciplinary schemes, which in turn are instrumental to the delivery of challenge-orientated research that draws upon multiple disciplines.

The dual support system

16. The UK-wide dual support system that funds research is crucial to the success of the UK’s world-leading research base. This system combines competitive awards based on future potential with quality-related (QR) funding awarded on the basis of past performance.

17. This combination of incentives enables the research base to pursue a balance of fundamental and applied research, short- and long-term priorities, and foster broad-based excellence that can bring together strong academic disciplines to address important economic and societal challenges.

18. A recent report published by the Wellcome Trust sets out the wider case for QR funding. Most significantly, the report identifies the funding stream as a critical component of institutions’ ability to build a world-leading workforce and strengthen research culture. The dual funding stream is therefore critical if the UK is to realise its ambition of achieving 2.4% GDP investment in R&D. In this context, both elements of the dual support system are required. The incentives of the system are balanced to both drive excellence in research and the capacity building within institutions to compete.

19. UUK understands that UKRI is scoping a review of the dual support system. It will be important to understand the impact of different scenarios through robust engagement with the sector. UUK’s perspective is that – in a context where

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5 Wellcome Trust (2018), *Empowering UK universities: how strategic institutional support helps research thrive*
research council grants have grown 3% on average since 2009-10 in real terms, while QR funding in England has remained flat over the same period – QR funding should be raised.

20. Institutions have invested QR funding in innovative ways. For example, the University of Sheffield has invested £1.3 million of QR income to recruit and support talented early-career researchers. After two and a half years, the cohort have secured £17.5 million in external funding, with two-thirds of this income derived from external funders. City, University of London has used QR funding to support senior staff appointments. In a major recruitment drive between 2012 to 2016, 170 senior researchers were attracted to the institution in subjects including mathematical biology, nursing and health, and finance. This funding has contributed to the proportion of its academics producing world-leading or internationally excellent work more than doubling to 48% since 2010.

21. Public funding for research is devolved under the higher education budget. As such, the amount of QR (or Research Excellence Grant in Scotland) received by universities in devolved nations is allocated by their higher education funding councils, within the budget allocated to them by the devolved administrations. On the other side of the dual funding support, UKRI funding is determined by UK government and available to all UK nations.

22. Any changes by the UK government to public research funding allocated by Research England results in a change to the Barnett consequentials received by the devolved nations. This change does not necessarily translate into a change in higher education budgets. Consequently, any decisions around changes to the dual support system should bear in mind the devolved element of the research funding landscape and fully consider any knock-on consequences, intended or unintended, of policy decisions for all nations of the UK.

23. It has not always been clear whether research and innovation funding is directed towards England or is UK-wide. In future, announcements of new programmes or funding should clearly state whether the funding is UK-wide or England only.

The ‘golden triangle’ of London, Oxford and Cambridge, and the rest of the UK

24. The golden triangle is generally used to refer to just six higher education institutions in a geographic area that is home to many more institutions, including small and specialist institutions. Consequently, a nuanced approach that takes into account local industrial strengths is required. In the context of the ‘golden triangle’ this means effective utilisation of small and specialist research institutes and other mission-focused or challenge based-institutions.

25. While recognising the need to continue investment in excellent research-intensive institutions in the ‘golden triangle’, it is important that the government also considers the need to ensure adequate funding is available for researchers in all regions and nations of the UK. Future regional growth and the rebalancing of the economy will rely on knowledge-based industries that are dependent on the research, innovation and higher-level skills that universities provide.

26. In addition to effective research investment based on initiatives like local industrial strategies and science and innovation audits, it is vital that the government ensures that the UK Shared Prosperity Fund (UKSPF) fully replaces structural funds and is effective at building capacity in less economically developed areas of the UK, with a smooth transition between the two schemes.
Working with devolved administrations, the UKSPF should be sufficiently flexible to cover a broad range of local activity beyond large infrastructure projects, including university-business collaboration, and have funding targeted appropriately for local needs.

Global challenges, strategic and national priorities and international collaboration

27. International collaboration is increasingly synonymous with excellent research. Working internationally enables individual academics to increase their impact and nations to pool talent and resources to address global challenges that no country can tackle alone. Research shows that international research collaboration is also vital for individual institutions that aim to produce outstanding research, and that the increase in such collaboration has been very rapid indeed.

28. International collaboration increases citation performance because combined talents produce more innovative and useful outcomes. The global research of the UK’s universities is therefore a source of strength that increases the quality and efficiency of the UK’s national research base. Policy and funding for research collaboration should support flexible, effective collaborations with impact.

29. The Global Challenges Research Fund (GCRF) and Newton Fund are part of the UK’s Official Development Assistance (ODA) commitments. The GCRF supports cutting-edge research that tackles challenges faced by developing countries, while the Newton Fund supports collaboration with partner countries to promote economic development and social welfare of partner countries. This is match funded by partner countries, leveraging significant additional resource. The Newton Fund and the GCRF represent long-term investments, the benefits of which will not be realised in the short-term. It is therefore important that such schemes are maintained. An additional benefit of the schemes is that they strengthen bilateral relationships with partner countries.

30. The government should support the development of new and enhanced initiatives for research collaboration with both European and non-European partners, with a focus on delivering excellent research and taking advantage of the influential role of institutions in both fostering and facilitating international partnerships. This should include substantial support for inbound and outbound mobility in the form of travel grants, fellowship and workshops, as well as new bi- and multi-lateral funding arrangements with other national funders.

31. UUK welcomes the government’s commitment to seek full association with Horizon Europe following the UK’s withdrawal for the UK, provided it retains its focus on excellence. This scheme is important to international research collaboration, with the current framework programme providing a ready-made platform for collaborating with key European partners, including six of the UK’s top 10 research partners. The government should be proactive in negotiations with the EU to seek to influence the shape of the scheme and pursue full association with Horizon Europe on the basis of a ‘fair and going financial contribution’.

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6 Digital Science Consultancy (2017), International research collaboration after the UK leaves the European Union (commissioned by Universities UK)
UKRI and government levers for encouraging innovation

32. UUK has previously called for a long-term public investment framework to reach the 2.4% and 3% GDP goals, focusing on measures to stimulate private investment in R&D, which makes up the bulk of UK R&D expenditure. The increase in the rate of R&D tax credits to 12% and the £2.5bn Patient Capital investment fund are positive steps in the right direction, but what is needed now is a coherent framework that sets out a strategy on stimulation of private investment in R&D.

Higher Education Innovation Fund (HEIF)

33. The Higher Education Innovation Fund is a key lever for encouraging collaboration and helps research organisations leverage significant private-funding. UUK welcomes the commitment in the government’s industrial strategy white paper to increase HEIF to £250 million per year by 2020-21.

34. HEIF funding enables universities to dynamically and flexibly address capacity constraints and unlock faster growth in the quality and value of knowledge exchange activity. However, the scope of the HEIF fund has been widened to support the delivery of the industrial strategy, which undermines the purpose of the fund. We recommend that the HEIF remains a fund which promotes knowledge exchange in a flexible and permissive way to promote innovative approaches, rather than having prescriptive conditions about how the funding is used by institutions.

Increase in R&D spending

35. There is a balance to be struck in the phasing of the increase in R&D spending by UKRI over the next few years. UUK’s view is that additional investment should be allocated in a balanced way across research and innovation, which addresses the current underfunding of research while encouraging a step change in UK innovation. The need to continue the UK’s dual support system should be an overarching principle framing the extra investment. Getting the right balance is more important than the immediate availability of funding, and UUK welcomes the consultative approach that UKRI has taken to date.

36. The full cost of research in UK higher education is not currently being met, with a recent HEPI publication identifying a research funding deficit of £3.3 billion in UK universities. This deficit is bridged by other forms of income. This approach is unlikely to be sustainable in the long-term, and funding should be directed to maintain and preferably build research capacity.

37. A challenge faced by HEIs, and particularly small and specialist institutions, is the speed at which action has had to be taken in recent calls. UUK understands that research funders are under considerable pressure to disburse funds. However, providing more time to establish consortia will be important to progress large collaborative bids.

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7 HEPI (2017) How much is too much? Cross-subsidies from teaching to research in British universities.
Public and private mix in delivery of GDP

38. Private investment in R&D activity makes up the bulk (around 70%) of UK R&D expenditure. Business will continue to be the largest performer of R&D in any future research ecosystem. Business expenditure on R&D in the UK is relatively low compared to other OECD countries, but improves once the structure of the economy is considered.\(^8\) It is therefore unlikely that there will be a sudden and spontaneous increase in business expenditure on R&D from those already investing in it.

39. In order to boost business expenditure on R&D, the government should prioritise policies that encourage the creation of new R&D intensive firms, increase inward international investment, and the transformation of existing sectors. To achieve this, the UK needs to clearly signal that the inward flow of capital and talent is welcome, and ensure that there are no unnecessary barriers obstructing this flow. The first priority for the UK is to ensure that it does not harm attempts by universities and other bodies performing research to attract capital and talent.

40. UUK has recently called for a new visa to allow international students to gain work experience in the UK for up to two years after graduation. The introduction of this post-study work period would allow a wider range of employers, including new R&D intensive firms, to benefit from access to talented graduates from around the world. This will particularly benefit firms which are central to the government’s industrial strategy but face challenges in meeting skills needs, such as in shortage occupations like medical scientists, mechanical engineers, programmes and software developers.\(^9\)

September 2018

\(^8\) Department for Business, Innovation and Skills (2014), *Insights from international benchmarking of the UK science and innovation system*

\(^9\) Universities UK (2018), *New visa for international students would benefit UK*