

Russell Group submission to the 2013 Spending Review

Summary

- The UK needs to remain competitive internationally, building on areas of strength with our world-class universities and paving the way for future economic growth. We must be able to attract and retain private investment in R&D and the best talent, both of which are increasingly mobile internationally.
- Our global competitors in the US, East Asia and Europe are investing billions in higher education – and money really matters. The UK already spends a lower proportion of GDP on higher education than our rivals and our universities are already doing more with less.
- The science and research resource budget should remain ring-fenced and the envelope for 2015-16 must not be reduced below 2014-15 levels that have already been announced. As the economy returns to growth, the Government should commit to increasing investment in science, research and innovation.
- BIS funding through HEFCE to support the costs in universities of teaching science and engineering subjects which underpin future growth should be increased.
- The Higher Education Innovation Fund (HEIF) is vital in helping universities translate research ideas, knowledge and technology strengths into both economic and social impacts – HEIF must be maintained and targeted to support research-intensive universities where it can have most effect.
- The UK needs to create the right environment for new ideas to develop and grow into commercial success. The Government should continue to support universities' efforts to build strong links with business and public services and to establish their own spin-outs and other commercial activities. The availability of proof of concept funding and financial and tax support for early stage ventures should be enhanced.
- The Technology Strategy Board (TSB) complements research and innovation activity funded through the Research and Funding Councils and elsewhere in Government – building even stronger links with universities would help to bring research ideas closer to market faster. The TSB's budget is currently spread too thinly to have maximum impact and should be increased if finances permit, but it would be counterproductive to do this at the expense of science and research investment.
- Higher education is vital to the UK's economic future, and delivers considerable benefits to society and to individuals, but good higher education needs proper funding to be sustainable. At a time of severely constrained public funding the total number of

undergraduate places should not be maintained or increased at the expense of quality in higher education.

- World-class infrastructure, particularly buildings and equipment, is needed to facilitate the very best environment for research and teaching. Recurrent capital funding should be boosted, providing greater autonomy for universities to make investment decisions.
- The Research Partnerships Investment Fund (RPIF) should be developed into a long-term strategic initiative facilitating further capital investment in the UK's world-class universities.

1. Introduction

- 1.1 The purpose of The Russell Group is to provide strategic direction, policy development and communications for 24 major research-intensive universities in the UK; we aim to ensure that policy development in a wide range of issues relating to higher education is underpinned by a robust evidence base and a commitment to civic responsibility, improving life chances, raising aspirations and contributing to economic prosperity and innovation.
- 1.2 The contribution of universities to generating and disseminating new knowledge and ideas is an incredibly valuable public good, which should never be overlooked. It is important, especially in difficult economic times, to resist the tendency to view universities primarily as instruments to deliver short-term economic development or the skilled labour force of tomorrow. Their role is much more complex, and their contribution much broader than that.
- 1.3 We are well aware of the current economic conditions facing the UK and the need to bring the economy back to a position of long-term sustainable growth while containing levels of debt and Government spending. The UK, along with most western economies, is coming to terms with a new economic reality in the wake of banking crises and an extended period of recession or near recessionary conditions. At the same time, competition from China, Brazil, India and many other nations continues to gain momentum.
- 1.4 Economic growth is not something that can ever be taken for granted even in benign periods, but the current situation requires a more determined approach. We recognise the Government is taking steps to create the right conditions in the UK that should allow growth to occur and that much of the emphasis so far has been on business – for example improving the corporate tax environment, developing new sector-specific industrial strategies and investing in infrastructure. However, in highly developed economies such as the UK, growth increasingly needs to come from investments in research, innovation and human capital– all areas in which the role of universities is critical¹.

¹ For example:

<https://spiral.imperial.ac.uk/bitstream/10044/1/9913/6/Haskel%202012-06.pdf>;
<http://www2.lse.ac.uk/researchAndExpertise/units/growthCommission/documents/pdf/LSEGC-Report.pdf>; http://dl.njit.edu/mnj/MGI_Manufacturing_the_future_Full_report_Nov%202012.pdf;
<http://www.oecd.org/innovation/knowledge-is-growth.htm>

- 1.5 Universities provide short, medium and long-term perspectives which businesses and public sector organisations can draw upon to grow and enhance their operations. Through research and innovation, universities generate both incremental improvements and radical new ideas and intellectual property which can be exploited to develop new products and services. Universities also provide stability in turbulent times, providing businesses with solutions to mitigate risks when the economic environment is uncertain.
 - 1.6 Russell Group universities work in partnership with a whole range of companies, from large multinationals to small, local SMEs and public sector organisations such as the health service. Increasingly businesses and universities are developing new concepts through cooperation and open innovation frameworks. Our universities are world leaders in collaborating with businesses. A recent report from the World Economic Forum ranked the UK amongst the best countries in the world for business-university collaboration².
 - 1.7 Universities play a critical role in providing the talent pipeline for the future. Graduates and postgraduates represent the skilled labour force that will be increasingly important to the UK. They can also be transformative in re-skilling and up-skilling people who are already in work but choose to return to higher education as a mature or part-time student.
 - 1.8 In their own right, universities are also major direct contributors to the economy and jobs. Indeed, higher education is one of this country's most successful export industries, estimated to contribute more than £8.2 billion a year in overseas earnings³ – on a par with earnings from the export of electrical equipment, or computers and electronic components or manufactured food products⁴. Russell Group universities on their own have a total economic output in excess of £30 billion a year – this represents 45% of the total economic output from the whole university sector, but from just a handful of institutions. Our universities are also responsible for supporting over 270,000 jobs UK-wide and are major contributors to local and regional wealth in addition to their national and international impact.
 - 1.9 But the contribution of leading universities is not purely economic. They offer a unique environment in which intellectual inquiry and discovery can flourish and the boundaries of human knowledge and understanding are continuously extended. Their research, innovation and teaching deliver improvements in the nation's health, quality of life, culture and environment. Universities provide intellectual leadership and deliver widespread benefits to millions of individuals and to society.
 - 1.10 Universities have a strong track record in increasing cost-effectiveness and are actively pursuing innovative ways in which to deliver greater efficiency and higher levels of productivity. For example:
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² *The Global Competitiveness Report 2012-13*, World Economic Forum, September 2012
<http://reports.weforum.org/global-competitiveness-report-2012-2013/>

³ BIS research paper 46, *Estimating the Value for the UK of Education Exports*, 2011

⁴ UK Trade in Goods by Classification of Product by Activity, ONS – data for 2010, for comparison with higher education exports estimated by BIS.

- (a) The 'M5' consortium of universities (Birmingham, Nottingham, Warwick, Leicester and Loughborough), has launched a new website which includes a searchable database detailing each piece of equipment that can be shared across all M5 universities. The initiative is designed to boost the potential for research collaboration and ensure expensive equipment can be used efficiently.
- (b) UCL and Imperial College London have developed a joint centre for nanotechnology. Opened in 2006, it provides state of the art facilities and a critical mass of research activity linking across departments in both universities and out to commercial communities.

1.11 Russell Group institutions have also been both proactive and successful in diversifying their sources of income and in attracting investment through philanthropy and from the private sector. But such efforts alone cannot replace public investment.

- In 2010-11, Russell Group universities accounted for 67% of the total income from contract research to UK universities, and 55% of the total income from collaborative research involving both public funding and funding from businesses to UK universities.

1.12 In short, the UK's higher education system is world-class and our research-intensive universities are crucial to growth and prosperity. There remains a strong case for sustained public investment in the country's leading universities. A long-term commitment to science, research and innovation is needed to provide stability for the future and ensure the UK can maximise its potential.

1.13 The UK needs to remain competitive internationally, building on areas of strength with our world-class universities and paving the way for future economic growth. We must be able to attract and retain private investment in R&D and the best talent, both of which are increasingly mobile internationally.

2. Context for this Spending Review

- 2.1 The 2010 Spending Review committed the Department of Business Innovation and Skills (BIS) to a 25% real-terms reduction in its budget by 2014-15. We recognise that BIS has been able to make cuts as the RDAs were closed down, by reducing staff numbers by 20% and through the reforms to HE funding introduced after the Browne Review. Its budget is now around £25 billion a year, of which just under £20 billion is for knowledge and innovation, including £4.6 billion for research, delivered by the Research Councils, HEFCE, the UK Space Agency and the National Academies.
- 2.2 From the Autumn Statement and Budget announcements it is clear that BIS is again under pressure to make significant cuts, which this time could have an even greater impact on the funding available for research, innovation and higher education.
- 2.3 Cuts here would not only be extremely damaging to universities, but entirely counterproductive in terms of the negative impact they would have on local and regional jobs and future prospects for growth and prosperity. Instead of cutting back in this area, we hope the Government will re-emphasise its commitment to long-term sustainable growth and investing in world-class research, innovation and high-level skills for the future.

2.4 The following sections of this note set out our priorities for the Spending Review:

3. Research

- 3.1 World-class universities generate economic and social impacts through a large volume of excellent research. The UK's world-class universities account for a significant proportion of the country's leading research due to their continuing ability to attract the world's top talent and their investment in cutting-edge, frontier research. They are capable of solving global challenges through promoting and facilitating multidisciplinary research and play a significant role in international collaborations. The critical mass of talent and expertise within an institution means world-class universities are able to respond much more quickly to meet the challenging timescales needed by business and government.
- 3.2 Such universities also provide international leadership and access the latest global breakthroughs in research. They are a core part of the UK's absorptive capacity for new ideas and knowledge, which can then spillover into the wider economy.
- 3.3 Other countries increasingly see the advantage of investing in research, innovation and higher education as a route to sustained economic growth, increased productivity and international competitiveness. The UK cannot afford to stand still if we do not want to be overtaken by our competitors:
- (a) At 0.65% GDP, UK public investment in R&D is below both OECD and EU 27 averages, and countries such as USA, Japan, Korea, France, Germany, Canada and Australia.
 - (b) Expenditure on R&D in the higher education sector (OECD 'HERD') is just 0.48% GDP in the UK, compared to 0.60% and rising in Singapore, 0.77% in Switzerland and 0.51% in Germany – the UK is also below the EU27 average.
 - (c) While UK public investment in research has fallen in real terms since 2010, it is growing in many countries, including Australia, China, the Czech Republic, Denmark, Finland, Germany, South Korea, Poland, Russia, South Africa, Turkey and the USA⁵.
- 3.4 There is strong evidence that the UK's research base is amongst the best in the world, but its financial sustainability is far from secure. The Government's science and research resource budget has been frozen in cash terms throughout the current Spending Review period. Increased costs and global competition mean that the UK's comparative performance in research cannot be maintained indefinitely on current levels of investment.
- 3.5 Public funding is essential for curiosity-driven research, which contributes to the UK's knowledge base and often underpins future innovations that transform our lives, reaching areas we may never have thought of. Public benefits from science and research require sustained public investment over years or even decades. The continued ring-fencing of the science budget is essential in demonstrating the

⁵ Science, Technology and Industry Outlook, OECD, 2012

Government's long-term commitment to science and research, and protecting that investment from being diverted to other more short-term policy priorities.

- 3.6 There is substantial evidence to show that investment in basic research does pay off, but patience is required as the typical timeframe for returns on public investment is longer than the parliamentary cycle, for example:
- An analysis of 125 case studies across the Russell Group showed that the timescale from research to first realising a commercial return averages over 17 years⁶.
 - In their report, *Medical Research: What's it worth?*, the MRC, Academy of Medical Sciences and the Wellcome Trust identify a 10-25 year time lag (with a central estimate of 17 years) between research and treatments for cardiovascular disease⁷.
 - Similarly, Royal United Services Institute (RUSI) in London has demonstrated a clear link between military equipment capability and defence spending 10-25 years previously.⁸
- 3.7 Equally important to note is that public funding for research is most effective when distributed on the basis of true international excellence, with a clear recognition of the importance of critical mass.
- 3.8 The UK's dual support system of support for university research plays an essential part in sustaining research of the highest quality. The combination of stable core funding through the funding councils, and competitively awarded grants from the Research Councils ensures the diversity and breadth of research in the UK.
- 3.9 Our global competitors in the US, East Asia and Europe are investing billions in higher education – and money really matters. The UK already spends a lower proportion of GDP on higher education than our rivals and our universities are already doing more with less.**
- 3.10 The science and research resource budget should remain ring-fenced and the envelope for 2015-16 must not be reduced below 2014-15 levels that have already been announced. As the economy returns to growth, the Government should commit to increasing investment in science, research and innovation.**

4. Higher education in subjects underpinning economic growth

- 4.1 The Spending Review will also need to ensure sufficient resources are available to BIS for investment (through HEFCE) in university courses in the science and engineering

⁶ http://russellgroup.ac.uk/uploads/RG_ImpactOfResearch2.pdf

⁷ http://www.wellcome.ac.uk/stellent/groups/corporatesite/@sitetudioobjects/documents/web_docume nt/wtx052110.pdf

⁸ A. Middleton, S. Bowen, K. Hartley and J. Reid, *The effect of defence R&D on military equipment quality*, Defence and Peace Economics, April 2006 p117-139

subjects which underpin economic growth, but which cannot be covered in full by tuition fees.

- 4.2 Degree courses in subjects such as medicine, engineering, chemistry and physics are extremely important to the future success of the UK's economy and cannot be sustained on tuition fee income alone. Their teaching costs are significantly higher than other subjects because of the requirement for expensive laboratories and equipment. There are also particular cost pressures associated with maintaining such provision in a world-class research-intensive university.
- 4.3 In July 2012 the House of Lords Science and Technology Committee called for immediate action to ensure enough young people study Science, Technology, Engineering and Maths (STEM) subjects at both undergraduate and postgraduate level⁹. The Committee concluded that without this the Government risks failing to meet its objectives to drive economic growth through education and hi-tech industries as identified in its Plan for Growth. Other recent studies have identified that the demand from the economy for graduates in STEM subjects far exceeds current supply¹⁰. One report suggested an annual shortfall in domestic supply of around 40,000 such graduates¹¹. Maintaining and increasing the supply of graduates and postgraduates in these subjects will be essential to the future economic recovery of the UK.
- 4.4 There is evidence that universities are facing growing cost pressures in maintaining high quality teaching in some of these laboratory-based science subjects which are so critical to the economic growth.¹² It is essential, therefore that BIS funding through HEFCE to support the costs of teaching these strategically important but high-cost subjects does not fall below current levels, and if possible is enhanced.
- 4.5 **BIS funding through HEFCE to support the costs in universities of teaching science and engineering subjects which underpin future growth should be increased.**

5. Innovation

- 5.1 World-class universities are a crucial part of a nation's knowledge base and innovative capacity, creating the knowledge and scientific breakthroughs essential to innovation, which underpin long-term economic growth and economic well-being.
- 5.2 Evidence suggests they are highly effective in facilitating the exploitation of research for economic or social gain in part due to the presence of a critical mass of expertise, infrastructure and resources. Larger, research-intensive universities are able to

⁹ <http://www.publications.parliament.uk/pa/ld201213/ldselect/ldsctech/37/37.pdf>

¹⁰ For example: *Jobs and Growth, the importance of engineering skills to the UK economy*, Royal Academy of Engineering, September 2012, http://www.raeng.org.uk/news/publications/list/reports/Jobs_and_Growth.pdf
In the balance: the STEM human capital crunch, The Social Market Foundation, March 2013, http://www.smf.co.uk/files/8713/6344/7820/In_the_Balance.pdf

¹¹ *In the balance*, ibid.

¹² The Russell Group has been concerned about the rate of funding for Band B subjects for several years, and the change in funding arrangements for 2012 entry did not fully address this issue. Current levels of HEFCE funding for Band B are not adequate to achieve the policy intent of protecting provision of STEM subjects in research-intensive universities.

undertake more excellent research, educate more doctoral students, and also have more effective systems and support for knowledge transfer. These well-developed knowledge transfer operations may be in-house or delivered in partnership with commercial providers who help universities to commercialise their research.

5.3 In 2010/11:

- Russell Group universities accounted for 71% of the IP income generated by UK universities.
- The estimated turnover from companies spun out from Russell Group universities was 49% of the total sector.
- Active spin-outs from Russell Group universities accounted for 63% of those which survived for three years.
- Three quarters of the higher education institutions with over £5 million in contract research with commercial businesses were Russell Group universities.

Higher Education Innovation Fund (HEIF)

5.4 The Higher Education Innovation Fund (HEIF) is now long-established, having evolved through various precursors, and we have welcomed that successive Science Ministers have confirmed it will remain as a permanent ‘third stream’ of funding. HEIF is currently worth £160 million per year, with the bulk of this money (75%) coming from within the Science and Research Resource budget.

5.5 The ability to access a dedicated fund over an extended period of time has allowed universities to develop professional expertise to support knowledge exchange and the creation of economic and social benefit¹³. Many universities in England use HEIF to support Proof of Concept funding, and such small scale funding is critical, before seed and further capital becomes available.

5.6 HEIF allocations are rightly performance based, with institutions only eligible to receive an allocation if they exceed a £250,000 allocation threshold related to their external income earnings and performance of the sector overall. However there is also a cap of £2.85 million on the amount of money individual institutions can receive – restricting the ability of research-intensive universities to receive funding in proportion to the full scale or excellence of their knowledge exchange activities. This cap should be raised significantly.

5.7 The Higher Education Innovation Fund (HEIF) is vital in helping universities translate research ideas, knowledge and technology strengths into both economic and social impacts – HEIF must be maintained and targeted to support research-intensive universities where it can have most effect.

¹³ A study by PACEC for HEFCE indicates that every £1 invested in HEIF results in £6.10 of gross additional income:

<http://www.hefce.ac.uk/media/hefce/content/whatwedo/knowledgeexchangeandskills/heif/pacec-report.pdf>

Proof of concept and early stage funding

- 5.8 The UK has a problem in accessing ‘proof of concept’ funds and venture capital (particularly compared to the US). Given the potential returns on investment, there is an argument for putting much more emphasis on proof of concept in the Government’s wider support for innovation rather than a range of other initiatives and activities. Proof of concept work helps to demonstrate that commercial returns are possible and thus reduces the risk to private sector investors.
- 5.9 Proof of concept and proof of market funding is available via the TSB’s re-launched SMART scheme (previously grant for R&D), but only SMEs are eligible to apply, which means universities cannot access this directly. The eligibility rules should be changed, allowing universities access to these funds to enable more good ideas to be developed for commercialisation or spin-out. The TSB also supports larger-scale demonstrators to test concepts (for example in low carbon vehicles, digital technologies and sustainable construction), which universities can access. Availability of this type of funding should be increased to ensure the UK can develop and test ideas at the scales needed to compete globally.
- 5.10 We were therefore pleased that the UK Strategy for Life Sciences announced the MRC/TSB Biomedical Catalyst Fund. This is worth £180 million over three years and is designed to support both academically and commercially-led R&D through to commercialisation. In essence, it is a discipline-focused proof of concept fund that could be replicated in other fields.
- 5.11 We also welcome that the Research Councils continue to run a variety of proof of concept schemes, including:
- MRC: £8m in 2012-13 for its Confidence in Concept scheme, with awards of £0.3 to £1 million.
 - BBSRC, NERC, EPSRC, STFC: follow-on fund – a standard fund offering awards up to £0.25 million and a ‘super’ follow-on fund for awards of £0.25 to £1 million.
- 5.12 But other countries are also scaling up their efforts either at a national, institute or discipline level. For example: in Australia, an organisation called ‘Commercialisation Australia’ has around £184 million over five years to 2014 and then £54 million a year thereafter for its proof of concept fund, which is open to researchers and business. In Singapore, an economy one tenth the size of the UK, approximately £191 million has been made available over five years through its National Framework for Innovation and Enterprise to provide proof of concept grants, technology incubation, and other innovation funds for universities and small businesses. Perhaps the most significant proof of concept type initiative in the US is the Defense Advanced Research Projects Agency (Darpa), which works closely with business and academia to support the development of technologies– and then helps to take these advances into use through procurement.
- 5.13 In our evidence to the House of Commons Science and Technology Committee inquiry on *‘Bridging the Valley of Death: improving the commercialisation of research’*, we emphasised Government initiatives should aim to address issues along the whole funding pipeline. However, funds should not be diverted from basic research as this would be counter-productive. Instead, in addition to increasing access to proof of concept funds, key areas the Government should consider include:

- (a) Further reforms to the tax regime, which would encourage more investment in early stage high-tech companies, for example allowing them to roll-over losses from one year to the next. Changes in tax should make a clear distinction between technology-based businesses, distinct from other small or early stage ventures.
- (b) Building on the past strengths and lessons learned from the University Challenge Fund. This scheme was instrumental in promoting collaboration across institutions, attracting private sector investment in university companies, and developing seed funds in universities. For example, the scheme assisted the development of Imperial Innovations.

5.14 The UK needs to create the right environment for new ideas to develop and grow into commercial success. The Government should continue to support universities' efforts to build strong links with business and public services and to establish their own spin-outs and other commercial activities. The availability of proof of concept funding and financial and tax support for early stage ventures should be enhanced.

Technology Strategy Board

- 5.15 The Technology Strategy Board (TSB) has become a key part of the UK's innovation landscape. The TSB's budget for 2012-13 is approximately £390 million, which is up from approximately £320 million last year and around £300 million previously. Despite these increases, there has been concern for some time from industry that the TSB is being asked to do too much and that it is in danger of failing to create a critical mass of activity in key areas¹⁴.
- 5.16 Catapult centres (previously Technology and Innovation Centres) are becoming a major focus of activity for the TSB and we note that the Government has committed £200 million to fund them from 2011-2015. When they were first proposed, the Russell Group stressed that the benefits of such centres would be maximised only if they were closely linked to existing centres of excellence in research-intensive universities, and built on existing innovation networks associated with such universities.
- 5.17 The potential impact of the Catapults is in danger of being diluted if the link with excellent research in universities is not strong. There are already good examples of world-class universities involved at the heart of some Catapults (for example Sheffield, Birmingham, Warwick, Bristol and Nottingham are all involved in the Advanced Manufacturing Catapult) but this must be replicated in the new Catapults that are set to launch this year and beyond.
- 5.18 Whilst the TSB has a valuable role to play, it should not be seen as the only mechanism through which public funding supports innovation. As discussed above, a very wide range of activities leading to innovation and economic impact develop from universities' research and knowledge transfer activities. Similarly, businesses

¹⁴ For example, CBI input to the Government's research and innovation strategy in 2011: <http://www.cbi.org.uk/media/1178686/research-and-innovation-strategy-2011-cbi-input.pdf>

themselves continue to invest in innovation of their products, processes and services. The TSB should be seen as complementary to these other actors in the innovation system.

5.19 The Technology Strategy Board (TSB) complements research and innovation activity funded through the Research and Funding Councils and elsewhere in Government – building even stronger links with universities would help to bring research ideas closer to market faster. The TSB’s budget is currently spread too thinly to have maximum impact and should be increased if finances permit, but it would be counterproductive to do this at the expense of science and research investments which also contribute directly to innovation.

6. Higher education student numbers

- 6.1 Higher education is an important contributor to economic growth, and it is essential that the country’s universities continue to provide the graduates and postgraduates who will become the skilled labour force needed for the future development of the UK’s economy. However, good higher education needs proper funding to be sustainable.
- 6.2 Given the benefits most graduates gain from their degrees it is fair for them, as well as the taxpayer to contribute towards the costs, when they can afford to do so. Public investment in student loans, and grants for students from poorer families ensures that the benefits of higher education are available to those with the greatest potential to benefit from it, regardless of their background.
- 6.3 It is inevitable that the high costs of such a generous student support package will continue to require Governments in England and the Devolved Administrations to control the number of higher education student places. At a time of severely constrained public funding, the quality of higher education in the UK should be prioritised over expanding the total number of undergraduate student places.
- 6.4 Higher education is vital to the UK’s economic future, and delivers considerable benefits to society and to individuals, but good higher education needs proper funding to be sustainable. At a time of severely constrained public funding the total number of undergraduate places should not be maintained or increased at the expense of quality in higher education.**

7. Capital

- 7.1 To stay at the forefront of their field, researchers need access to cutting-edge facilities and equipment. While very large, specialist infrastructure such as synchrotrons, neutron sources and telescopes are operated primarily on an international or European basis, the majority of research undertaken in the UK relies upon access to small and medium-scale research infrastructure, much of which is located within leading research-intensive universities. The quality of this research infrastructure is an important determinant in the choices made by leading researchers to work in the UK.
- 7.2 R&D intensive businesses also place high importance on the ability to access state-of-the-art research equipment in deciding to undertake collaborative research with a university, use university facilities for contract research, or co-locate business operations. Much of the cutting- edge research infrastructure in leading UK universities

is co-funded by government departments, charities, business and international partners. In making their investment decisions these organisations are looking to secure best value, access academic talent and ultimately generate excellent research.

- 7.3 International collaborations rely on UK institutions having complementary standing to other leading research-intensive institutions in the world, and access to first-rate infrastructure.
- 7.4 In the later part of the current Spending Review period, the Government has re-injected capital funding into research through targeted schemes, e.g. graphene and synthetic biology, or leveraging non-Government investment such as through RPIF and TSB funding. In total, there has been a welcome reinjection of over £1.1 billion since capital cuts for the research base were announced in the 2010 Spending Review. However, the new 2014-15 capital funding total (£1.008 billion) is still only £47 million more than what might have been expected by increasing the pre-Spending Review capital figure for 2010-11 (£853.6 million) by 3% a year to account for inflation – it also comes with fewer freedoms.
- 7.5 With reductions in formula-based recurrent capital funding, the university sector has had to find new ways to invest in and maintain research and teaching infrastructure. HEFCE reported on the financial health of the sector in November 2012 and noted that there has been a major change over time in how universities expect to fund capital investment.¹⁵ In 2009-10 capital grants (primarily from Government) provided 49% of funding, while internal cash (from operating surpluses and reserves) funded 11%. By 2014-15 the sector is forecasting just 12% of capital funding from grants and 74% from internal cash reserves. This will eat seriously into reserves and is unsustainable in the long-term as the ability to generate operating surpluses is increasingly in doubt.
- 7.6 Over the five year period from 2012-13 to 2016-17 Russell Group universities plan to invest around £9 billion in capital and infrastructure projects¹⁶. These investments are necessary to ensure that the UK's leading universities continue to provide world-class facilities for teaching and research. They include refurbishment of existing estate and investments in new sites and buildings. Some of the largest projects underway are¹⁷:
- (a) The University of Cambridge will be investing over £280m in the early phases of the development of North West Cambridge, a mixed residential/ commercial/ academic development which is designed to address a number of strategic issues for the university, including the supply of high quality residential accommodation for postdoctoral researchers. Supply of accommodation for this key group of staff is a major factor in recruitment, and the university has judged that this development is on the critical path for remaining a world-class research institution.
 - (b) Imperial West Technology Campus is a major new postgraduate campus, which will deliver high quality education, research, translation, commercialisation and collaborative activities. At the heart of the vision for Imperial West is a new approach to creating a university campus: potential

¹⁵ http://www.hefce.ac.uk/media/hefce/content/pubs/2012/201230/financial_health_112012.pdf

¹⁶ Based on initial reports from Russell Group universities' capital projects planned or already being implemented.

¹⁷ Additional case studies of projects planned by Russell Group universities are available on request.

partners from business, industry the NHS and other global universities are being invited to co-locate on the campus and collaborate directly with the College's world-leading experts in science, technology, engineering, medicine and business. Construction is scheduled to be completed in 2015.

- (c) At a cost of £200m, the University of Manchester's new Engineering Campus will be the single largest construction project ever delivered at the university. The new campus will contribute hugely to enhancing the student experience in the Faculty of Engineering and Physical Sciences. It is expected to open for business in 2018.
- (d) The University of Oxford is investing £62m of its own resources into a new building for its Mathematical Institute. The Institute will move from three separate locations into a single dedicated facility. This will facilitate collaboration and large-scale research projects and provide a world-class environment for teaching and research. It will provide workspace for a diverse community of more than 500 mathematical researchers and support staff, including faculty, research fellows and postgraduate students. It will also be the centre for the academic life of 900 undergraduate students.
- (e) The University of Birmingham is building a new Sports Centre. The total cost of the project is £52million. It is the most ambitious sports capital projects of its kind in higher education, and will significantly enhance the sporting, fitness and health facilities for use by its students, staff and the local community. Facilities will include the city's first 50m swimming pool, a large sports hall capable of holding leading national events, and a specialist well-being and sports performance centre.
- (f) The University of Liverpool continues to invest in its estate to improve the student experience with the Crown Place Residences development. At a cost of £65m the new 1,259 bed building will provide modern and efficient student accommodation including a new University Security Hub. A potential for retail space will also be located within the scheme. Work commenced on site in summer 2012 and is due to complete summer 2014, to allow student occupation from September 2014.

7.7 Such capital investments by universities are essential to maintain the UK's global standing for research and higher education. They also represent a significant injection of investment into the building industry at a time of slow economic growth. As illustrated above, major projects are being taken forward by Russell Group universities in cities across the UK, supporting construction jobs and contributing to local economic development. But as mentioned previously, with the recent reductions in capital funding and grants, universities must increasingly resource such investments from their cash reserves.

7.8 Over the five years 2010-11 to 2014-15 there is a £3.8 billion gap between the amount universities expect to generate above operating requirements and the amount of capital to be financed from internal cash. Additional capital funding announced in the Autumn Statement and the RPIF money (including the double matched element from other investors) will help to fill some of this gap, in particular in the final year of the current spending round. However, the five-year capital funding gap 2010-11 to 2014-15 would still be at least £2.3 billion even if all of the £600 million in new capital funding announced in the Autumn Statement were to benefit universities directly – which we already know will not be the case.

- 7.9 Having recognised the value of capital investment at the end of the current spending round and having made commitments to increase funding towards more sustainable levels, the Government should maintain the same trajectory of investment into 2015-16 and beyond. The UK needs a long-term plan for investment in research, innovation and teaching infrastructure and a stable funding environment will ensure the UK can continue to compete internationally.
- 7.10 As well as dealing with a major funding shortfall and making significant efficiency savings through equipment sharing and similar initiatives, universities have also had to cope with increased targeting of funding by Government. The move from formula-based recurrent to targeted capital funding raises a number of challenges for universities that impact on their operations. Government investment in research capital and funders' policies need to accommodate these challenges to achieve successful and sustainable research outcomes:
- (a) The on-going running costs associated with any new capital infrastructure must be met long after the initial funding has run out. In addition to maintenance and running costs, technological advances mean that scientific equipment can become obsolete in a relatively short timescale and require upgrading to maintain a facility's capabilities and competitiveness.
 - (b) These general running costs are compounded by the requirement to meet energy-related targets both to reach external commitments, such as funding council carbon targets, and to control increasing institutional energy costs. As a result, the most efficient and sustainable means of spending capital funds may be through refurbishment¹⁸ – bringing old and out of date buildings up to modern energy and educational standards – rather than in new builds which might have greater immediate appeal.
 - (c) Universities must take a long-term approach to capital planning, reaching beyond timetables set by Government. Furthermore, universities are obligated to demonstrate their financial sustainability to funding councils and thus significant spend, such as on large capital projects, needs to be undertaken in a managed way.
- 7.11 Our universities will not flourish if they are over-regulated or are too restricted in how they can spend resource and capital funds. International research shows university autonomy leads to better outcomes and this is key to our future success. Our world-class universities need to have the freedom to invest in infrastructure that will ensure they remain internationally competitive.
- 7.12 UK research success relies not only on investment in universities, but also in maintaining and developing critical, underpinning national research facilities and e-infrastructure. As we move towards greater 'openness' in science and research, universities' reliance on infrastructure provided through Jisc and JANET will only increase, and these will need to be supported too.

7.13 World-class infrastructure, particularly buildings and equipment, is needed to facilitate the very best environment for research and teaching. Recurrent capital

¹⁸ The latest round of HEFCE's revolving green fund for improving energy efficiency is £20 million, which, based on the last round, may fund around 50 projects – a small but important contribution and institutions do not have to make a matched contribution to access this money.

funding should be boosted, providing greater autonomy for universities to make investment decisions.

Research Partnership Investment Fund (RPIF)

- 7.14 The success of the RPIF has demonstrated that our universities are ready to do business with public and private partners and that those partners also see great benefit in such collaborations¹⁹.
- 7.15 RPIF has undoubtedly been very useful in securing outside investments, but a more strategic approach to RPIF could be achieved with a longer-term and more flexible initiative having either an open-ended time period for putting forward proposals, or at least a clear set of proposal closing dates known well in advance:
- (a) If business is to be encouraged to engage more extensively in any future round of RPIF, then a lower proportion of matching may be required and/or sufficient flexibility allowed to include more in-kind and other non-financial contributions.
 - (b) The speed with which RPIF bids had to be made means that they were likely to be more ‘tactical’ – typically projects that were already under consideration and/or involving partners with a strong existing relationship with the universities involved.
- 7.16 A longer-term perspective would also fit with business planning cycles. Businesses typically look five or more years ahead in making major capital investments so the longer lead-time universities have to talk to business about potential investments, the better quality of bids that can be put forward, the wider universities will be able to look for partners, and the more likely that they will be of strategic importance.
- 7.17 Business investment in research and innovation is globally mobile and UK needs to do whatever it can to attract investment here against very strong international competition. If we can attract the really important strategic investments through future rounds of RPIF then other activities will follow.
- 7.18 The Research Partnerships Investment Fund (RPIF) should be developed into a long-term strategic initiative facilitating further capital investment in the UK’s world-class universities.**

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¹⁹ <http://www.hefce.ac.uk/whatwedo/rsrch/howfundr/ukresearchpartnershipinvestmentfund20122015/>