



## BRIEFING PAPER

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# Support for science

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## Summary

Public funding for research comes from a mix of devolved (e.g. Higher Education Funding Council for England) and UK (e.g. Research Councils) institutions. Bodies like Innovate UK have a specific focus on industrial research. Within these broad frameworks, grants are awarded on a competitive basis.

Successive governments have sought to protect the science budget – both in terms of recurring and capital costs. The latter are increasingly being linked to earmarked projects, a recent one being the Alan Turing Institute based at the British Library. The non-capital science budget, held by the Department for Business, Innovation and Skills, now stands at £4.7 billion per annum; following the outcome of the comprehensive spending review, this will be protected in real terms for the rest of the Parliament. The Conservative Party Manifesto 2015 provides an outline of the current Government's general policy commitments in this area.

Ahead of the spending review, the House of Commons Science and Technology Committee recommended that the Government should produce a long term "roadmap" for increasing the combined public and private investment in research and development to 3% of GDP. The Committee also recommended that sufficient resource funding should be in place to fully "sweat" the capital assets embodied by research infrastructure. The Government, in its response, acknowledged the need to match resource funding with capital, but did not adopt the roadmap recommendation.

A library standard note, [Research and Development in the UK](#), includes, among other things, a regional breakdown of support for science from different sources identified as government, higher education, business and private non-profit organisations (e.g. charities). On 20 March 2015, the Office for National Statistics (ONS) published a statistical bulletin: *UK Gross Domestic Expenditure on Research and Development, 2013*. A further update has since been published.

The ONS provides data on R&D expenditure by UK country and region. In this context, the country and region refers to the location where the R&D is performed, not the location of the funder. In 2013, the South East, East of England and London continued to dominate R&D activity in the UK, accounting for 52% of total UK R&D. The more recent (2014) figure, standing at 53%, represents a proportionate change of about 0.4%.

The Higher Education and Research Bill 2016-17 will bring about structural changes in the way in which research and innovation are supported, though it is not expected that this will affect overall direct funding. A Library research paper, [Higher Education and Research Bill 2016 \[Bill No 004 of 2016-17\]](#), was prepared to inform the second reading debate which took place on Tuesday 19 July 2016. This paper also contains an annex with updated statistical information on research funding. The Bill has now completed its House of Commons stages, having received a Third Reading on 21 November. The House of Commons Library has published a [Committee Stage Report](#) on the Bill, outlining the changes made during the earlier Committee Stage and areas of debate.

The European Union is a major source of funding for research, notably through the Horizon 2020 programme. Membership of the EU also provides opportunities for collaboration. Both of these factors will be to the fore as the scientific community responds to and engages with the recent referendum decision to leave the EU.

# 1. Background

Successive governments have voiced support for science and innovation. Funding grew under the Labour Government's ten-year science and innovation policy. The Coalition Government protected science funding at a time when other sectors were facing substantial cut-backs. Even so, most major economies spend more. Graeme Reid, Professor of Science and Research Policy at University College London, has described the UK's science spending as "mediocre by international standards". He acknowledges, however, that the UK spends what it does well: "But not many countries share the ruthlessly meritocratic process by which the UK research community selects its projects, and only the US outperforms this country in terms of scientific excellence."<sup>1</sup> The October 2010 Spending Review saw resource spending on science maintained in cash terms – meaning that salaries and project funding remained intact. However, capital investment "was to be cut by almost 40% by 2015" leaving "hardly any money for new facilities".<sup>2</sup> Subsequently, the Coalition Government announced new capital investments in facilities and programmes specified by ministers, on scientific advice. Reid summarises it thus:

Direct capital investment from government has made good the 2010 cuts and increased the annual rate of investment to £1.1 billion, some 20% higher in cash terms than in 2010. It has also committed to maintain that level until the end of the next Parliament in 2020-21. RPIF [[Research Partnership Investment Fund](#)] alone has led to more than £1 billion investment in scientific infrastructure, two-thirds of which comes from businesses and charities. This scheme has been extended until at least 2017 so we can expect even more of these investment partnerships.

This adds up to substantial investment in modern scientific facilities with higher levels of ministerial engagement in priority-setting and specifying the locations for facilities around the UK. In effect the science community was offered money – lots of it – at a time of public spending cuts in return for accepting closer ties to political priorities. This is not blunt political direction of science but nor is it the full independence to which the science community had grown accustomed.<sup>3</sup>

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<sup>1</sup> ["State of the Nation: government protection of the science budget has come at a cost"](#), The Conversation, 13 April 2015

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

## 2. Spending

The non-capital science budget, held by the Department for Business, Innovation and Skills (BIS), has stood at £4.6 billion per annum during the last Parliament. Other government departments, notably Health and Defence, also fund research and development – this is not included in the £4.6 billion science budget mentioned above. BIS makes a distinction between the non-capital (i.e. resource) science ring-fence (£4.6 billion) and a slightly larger (£4.7 billion) non-capital science budget that includes some recent additional items such as funding for quantum technologies.<sup>4</sup> Going forward, the £4.7 billion is now seen as the starting point for resource funding for the science base.

A non-capital ring-fenced science budget, allocated annually by BIS, now stands at £4.7 billion.

The capital part of the science budget currently stands at £1.1 billion per annum, a figure that is to be protected in real terms until 2021.<sup>5</sup> These earmarked resource and capital budgets support what might be termed the science base: the research councils, the Higher Education Funding Council for England, the UK Space Agency and national academies like the Royal Society.

A library standard note, [Research and Development in the UK](#), includes, among other things, a regional breakdown of support for R&D from different sources identified as government, higher education, business and private non-profit organisations (e.g. charities). On 20 March 2015, the Office for National Statistics (ONS) published a statistical bulletin: *UK Gross Domestic Expenditure on Research and Development, 2013*. A further update has since been published on 18 March 2016.<sup>6</sup> The earlier study shows that between 1985 and 2013 GERD grew by 52% in real terms, but because it has not grown as fast as the economy as a whole it has fallen as a proportion of GDP from 2.01% to 1.67%.

The main points that emerge from the latest (2014) data are:

- Total R&D expenditure in the UK in 2014 represented 1.67% of Gross Domestic Product (GDP), unchanged from 2013. This was below the European Union (EU-28) provisional estimate of 2.03% of GDP, but the 11th highest of all member countries.
- In 2014, the gross domestic expenditure on research and development (R&D) performed in the UK, in current prices, increased by 5% to £30.6 billion compared with £29.3 billion in 2013.
- In 2014, total gross domestic expenditure on R&D performed in the UK, in constant prices, increased by 3% compared with £29.7 billion in 2013.

<sup>4</sup> House of Commons Science and Technology Committee inquiry into the Science Budget, written evidence submitted by the Department for Business, Innovation and Skills ([TSB0075](#)), September 2015

<sup>5</sup> Ibid.

<sup>6</sup> ONS, [UK Gross domestic expenditure on research and development: 2014](#), 18 March 2016

- In constant prices, R&D expenditure increased by 45% from the 1990 estimate of £21.1 billion. Expenditure reached an all time high of £30.6 billion in 2014.
- The business sector accounted for £19.9 billion of expenditure in 2014, representing 65% of total expenditure on R&D performed in the UK. This is an increase of 6% in current prices from £18.8 billion in 2013.

The ONS provides data on R&D expenditure by UK country and region. In this context, the country and region refers to the location where the R&D is performed, not the location of the funder. In 2013, the South East, East of England and London continued to dominate R&D activity in the UK, accounting for 52% of total UK R&D. The more recent (2014) figure, standing at 53%, represents a proportionate change of about 0.4%.

### 3. Coalition Government policy

A government policy paper published on 7 May 2015 – the date of the General Election, and updated the next day – provided a synopsis of research and development policy over the period of the outgoing Coalition Government.<sup>7</sup> It includes a list of actions aimed at supporting both researchers and businesses,<sup>8</sup> with a range of initiatives covering funding, procurement and collaboration. Innovate UK, the UK's innovation agency is supporting, among other things, catapult centres<sup>9</sup> – each of these focus on a specific technology allowing businesses to access equipment and expertise and to conduct their own in-house research and development. One of the appendices to the policy paper briefly covers science and research funding; this makes the point that public sector funding is organised via the Dual Support System into two main channels:

- the Research Councils provide grants for specific projects and programmes
- the higher education funding bodies provide block grant funding to universities<sup>10</sup>

The budget for science and research funding is allocated by BIS. In 2010, the Coalition Government published *Funding plans for science and research for 2011/12 to 2014/15*.<sup>11</sup> This set out a detailed breakdown of the annual £4.6 billion science and research resource budget, the great bulk of which was earmarked for the research councils (UK-wide) and higher education funding in England (higher education funding is a devolved matter). National academies, including the Royal Society, were together allocated about £87 million per annum.

The policy paper also refers to the science and innovation strategy, published in December 2014.<sup>12</sup> On the specific question of funding, the strategy comments: “Cutting edge science cannot happen without modern infrastructure. That is why we have committed £5.9 billion to science capital from 2016 to 2021. This is the longest commitment to science capital in decades.” This figure was subsequently increased to £6.9 billion.<sup>13</sup> Decisions on the allocation of these funds are to be informed by broad principles set out in this strategy: “agility; collaboration; the importance of place and of openness.”

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<sup>7</sup> Department for Business, Innovation and Skills Policy Paper, [2010 to 2015 government policy: research and development](#), 7 May 2015

<sup>8</sup> GrowthAccelerator and the UK Innovation Investment Fund are two sources of investment to support businesses.

<sup>9</sup> [Catapult Centres](#), accessed online: 19 June 2015

<sup>10</sup> The Higher Education Funding Council for England and similar organisations in Wales, Scotland and Northern Ireland.

<sup>11</sup> Department for Business, Innovation and Skills, [Science and research funding allocation: 2011 to 2015](#), 20 December 2010

<sup>12</sup> [Our plan for growth: science and innovation](#), Cm 8980, 17 December 2014

<sup>13</sup> Department for Business, Innovation and Skills Press release, [Government to invest record £26.3 billion in UK's world-class science until 2021](#), 4 March 2016

Also relevant are the long-established principles set out by Haldane,<sup>14</sup> which are rehearsed in the December 2014 science and innovation strategy:

...it is important to recall all the principles of the Haldane Report, which argued: 1) that research and evidence was important to the development of government policy; 2) that each government department should provide funds to answer specific policy questions; 3) that there should be a department of government charged with funding general research questions; 4) that the choice of how and by whom that research should be conducted should be left to the decision of experts; 5) that the questions and topics to be tackled should be considered as a result of close collaboration between the administrative and the general departments; and 6) that there should be a department that supports research applied to trade and industry. The fourth of these points is the one that has been designated the "Haldane Principle", but all six are as pertinent now as they were in 1918; these are the six Haldane Principles.

During an appearance before the House of Commons Science and Technology Committee on 15 July 2015, the Minister of State for Universities and Science (Jo Johnson MP) said: "the science and innovation strategy, which came out in late 2014, that is a current document; it remains the strategy of the Department and the Government as a whole, and it informs all our work. That is a current overarching strategy framework within which we are working, and it remains operative."<sup>15</sup>

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<sup>14</sup> The Haldane Report (1918). Report of the Machinery of Government Committee under the chairmanship of Viscount Haldane of Cloan. London: HMSO.

<sup>15</sup> Science and Technology Committee, [Oral evidence: The science budget](#), HC 340, 15 July 2015, Q2

## 4. Universities and industry

### 4.1 The science base

As already noted, public sector funding for UK science and research is organised via the Dual Support System into two main channels:

- the Research Councils provide grants for specific projects and programmes
- the higher education funding bodies provide block grant funding to universities

Responding to the House of Commons Science and Technology Committee's report on the science budget (see below) the Government reiterated its commitment to the dual support system. However, in making a reference to the November 2015 Higher Education Green Paper, there is a clear implication that the administration of the system will differ. The Green Paper commented:

There are a number of possible options for the future design of the research landscape. These range from delivering the dual support funding system through separate bodies as at present (with another body taking on HEFCE's research role) to delivering dual support through an overarching body that brings together Research Council functions with management of institutional research funding for England.<sup>16</sup>

What subsequently emerged under the Higher Education and Research Bill currently before Parliament is closer to the latter of the above options: a new body called UK Research and Innovation (UKRI) will have nine committees mirroring the seven research councils (see below), Innovate UK and a new committee called Research England the latter of which will take on the research funding role currently exercised by HEFCE.

More information on the *current* arrangements – indicating the devolved nature of block grant funding – is given in a government policy paper, *2010 to 2015 government policy: research and development* (8 May 2015):

#### **Research councils**

The 7 research councils are the main public investors in fundamental research in the UK covering a wide range of disciplines:

[Arts and Humanities Research Council \(AHRC\)](#)

[Biotechnology and Biological Sciences Research Council \(BBSRC\)](#)

[Engineering and Physical Sciences Research Council \(EPSRC\)](#)

[Economic and Social Research Council \(ESRC\)](#)

[Medical Research Council \(MRC\)](#)

[Natural Environment Research Council \(NERC\)](#)

[Science and Technology Facilities Council \(STFC\)](#)

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<sup>16</sup> [Fulfilling our potential: teaching excellence, social mobility and student choice](#), Cm 9141, November 2015

As publicly-funded bodies, the research councils are held accountable to Parliament for their investments in research.

### **Research Councils UK**

Launched on 1 May 2002, [Research Councils UK \(RCUK\)](#) is a strategic partnership of the 7 UK Research Councils. RCUK work scientifically, strategically and operationally alongside BIS to champion research, training and innovation in the UK.

### **UK higher education funding bodies**

The 4 higher education funding bodies in the UK provide block grant funding to support the research infrastructure and enable institutions to undertake ground-breaking research of their choosing:

[Higher Education Funding Council for England \(HEFCE\)](#)

[Higher Education Funding Council for Wales \(HEFCW\)](#)

[Scottish Funding Council \(SFC\)](#)

[Department for Employment and Learning, Northern Ireland \(DELNI\)](#)

The Research Councils provide funding which is UK-wide, sometimes involving direct support for industry. An example is the industrial CASE (formerly known as Collaborative Awards in Science and Engineering) Studentships that are funded under the auspices of the Research Councils. For example, the Science and Technology Facilities Council Industrial CASE studentships competition provides support for PhD students working on projects that involve joint supervision of the student by a member of staff at an academic Research Organisation or related institution and an employee of a non-academic organisation, such as a UK industrial firm, public sector organisation or charity (the non-academic partner). Among the facilities operated by the Science and Technology Facilities Council are the UK Astronomy Technology Centre (UK ATC) based at the Royal Observatory in Edinburgh and the Rutherford Appleton Laboratory in Harwell, Oxfordshire.

More generally, Research Councils UK (RCUK) is responsible for investing public money in research in the UK “to advance knowledge and generate new ideas which lead to a productive economy, healthy society and contribute to a sustainable world.”<sup>17</sup>

Each Research Council funds research and training activities in a different area of research ranging across the arts and humanities, social sciences, engineering and physical sciences and the medical and life sciences. RCUK supports over 50,000 researchers including 19,000 doctoral students, around 14,000 research staff, and 2,000 research fellows in UK universities and in their own Research Institutes.<sup>18</sup>

## **4.2 Innovate UK**

Another (UK) source of funding is Innovate UK – formerly the Technology Strategy Board; this public body operates at arm’s length from the UK Government, reporting to the Department for Business,

<sup>17</sup> [About the individual Research Councils](#), accessed online: 19 June 2015

<sup>18</sup> Ibid.

Innovation and Skills (BIS). Its aim is to accelerate economic growth by stimulating and supporting business-led innovation.<sup>19</sup> Innovate UK's plans for 2014 to 2015 included:

launching more than 80 competitions for up to £536 million government funding, including our Smart and Launchpad competitions, in:

- specific sectors such as energy, digital, health and care, and transport
- new areas such as urban living and emerging technologies

developing our Knowledge Transfer Network and Knowledge Transfer Partnerships programme

helping UK business make the most of the innovation funding and opportunities in Europe such as Horizon 2020

improving our customer services and application processes

Innovate UK has been developing a network of Catapult centres,<sup>20</sup> each specialising in a specific technology. "They will allow businesses to access equipment and expertise that would otherwise be out of reach, as well as conduct their own in-house research and development. Catapults will also help businesses access new funding and will make them aware of new technology and its potential."<sup>21</sup> One of the catapult centres (Offshore Renewable Energy) is located in Glasgow, for example.<sup>22</sup>

The Government's plans for Innovate UK were rehearsed in a response (19 January 2016) to the House of Commons Science and Technology Committee's report on the science budget:

In the recent Spending Review, the Government made clear its commitment, over the course of this Parliament, to protect the Catapult network and total funding for business led innovation through Innovate UK. The Government also wants to broaden the type of financial support available for innovation so it will look to evolve Innovate UK's existing funding models to deliver up to £165m of support through new finance products by the end of the Parliament. The Government will also look to integrate Innovate UK into Research UK—the proposed new body incorporating the seven Research Councils. Innovate UK would retain its clear business focus and separate funding stream while also helping to foster a more strategic partnership with the wider research base.<sup>23</sup>

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<sup>19</sup> <https://www.gov.uk/government/organisations/innovate-uk>

<sup>20</sup> <https://www.catapult.org.uk/catapult-centres>

<sup>21</sup> Department for Business, Innovation and Skills, [2010 to 2015 government policy: research and development](#), updated 8 May 2015

<sup>22</sup> <https://www.catapult.org.uk/contact-us/>

<sup>23</sup> House of Commons Science and Technology Committee, [The science budget: Government Response to the Committee's First Report of Session 2015–16](#), HC 729, 19 January 2016

## 5. Reviews of Research Councils

### 5.1 Triennial reviews

After the 2010 General Election the Coalition Government introduced the *Public Bodies Act* that was the main legislative vehicle for implementing the Government's review of public bodies. The Act largely enables and allows Ministers, by order, to abolish or make certain changes to the public bodies listed in the various schedules to the legislation. In April 2011, Cabinet Office announced that all non-departmental public bodies (NDPBs) still in existence following the reforms brought about by the *Public Bodies Act* would have to undergo a substantive review at least once every three years, starting in 2011 to 2012.

These triennial reviews would have 2 purposes:

- to provide a strong challenge of the continuing need for individual NDPBs, both their function and their form, employing a so-called "three tests"<sup>24</sup> discipline
- where it is agreed that a particular body should remain as an NDPB, to review the control and governance arrangements in place to ensure that the public body is complying with recognised principles of good corporate governance

The Cabinet Office, in June 2011, produced guidance<sup>25</sup> for Departments on how to carry out a review and updated that guidance<sup>26</sup> in 2014. The guidance indicates that all reviews should be:

- Challenging, taking a first principles approach to whether the function of a body is still needed and the best form for delivery of that function
- Proportionate, avoiding being overly bureaucratic and appropriate for the size and nature of the NDPB being reviewed.
- In context, ensuring that the review was integrated with other departmental policy initiatives, efficiency reviews and also to look across departmental boundaries.
- Conducted quickly to minimise the disruption to the NDPBs business and reduce uncertainty about its future
- Inclusive, allowing all stakeholders to comment
- Transparent, announced formally to Parliament and the public.

The triennial review of the Research Councils began on 6 February 2013 and asked for evidence to be submitted by 28 February 2013. The consultation included 20 questions, including a general one on the Royal Charter objectives for the Research Councils. Views were received

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<sup>24</sup> The "three tests" are: is this a technical function (which needs external expertise to deliver); is this a function which needs to be, and be seen to be, delivered with absolute political impartiality (such as certain regulatory or funding functions); or is this a function which needs to be delivered independently of Ministers to establish facts and/or figures with integrity.

<sup>25</sup> Cabinet Office, *Guidance on reviews of non-departmental public bodies*, June 2011 (superseded by [subsequent guidance](#))

<sup>26</sup> Cabinet Office, [Triennial Reviews: Guidance on Reviews of Non-Departmental Public Bodies](#), accessed online: 19 June 2015

from over a hundred stakeholders from a variety of organisations. The decision at the first stage of the review was to retain the status quo:

Based on the evidence gathered during the Review, the team concluded that the current balance of costs against benefits did not support a change to the current number of seven Research Councils. The team recommended that the Research Councils should be retained as NDPBs [Non-Departmental Public Bodies]. However, the team believed that these conclusions should be revisited at the next Triennial Review to determine whether the position had changed.

The second stage of the review was to assess in more detail the relationship of the research councils with the Government. This involved a wide range of engagement with the councils and other stakeholders. The final report<sup>27</sup> was produced in April 2014:

The team concluded that, individually the Research Councils are operating from a position of strength ... However, the review team believe that ... there are some aspects that require substantial attention but overall compliance was good.

### 5.2 Nurse review

Subsequently, the Coalition Government asked Sir Paul Nurse (then President of the Royal Society) to lead an independent advisory group to review, with research councils, how they can evolve to support research in the most effective ways. This consultation was launched on 9 March 2015 and ran until 17 April 2015.

At the time the review was announced, Sir Paul Nurse said: "The aim of the Research Councils review is to look at overall questions relating to UK research funding, and build on the findings of the recent more focussed Triennial Review. Through this review we will seek to ensure that the UK continues to support world-leading science, and invests public money in the best possible way."<sup>28</sup> Among the questions asked by the Nurse review were the following:

- How should the Research Councils take account of wider national interests including regional balance and the local and national economic impact of applied research?
- Is the balance between investigator-led and strategically-focused funding appropriate, and do the right mechanisms exist for making strategic choices?
- Within each Research Council is the balance of funding well-judged between support of individual investigators, support of teams and support of equipment and infrastructure?

Other questions related to the research councils' roles in fostering collaborations and links with other academic, industrial, European and global R&D activities.

What role should regional and strategic factors play in research council decision-making?

<sup>27</sup> Department for Business, Innovation and Skills, [Triennial Review of the Research Councils: Final Report](#), April 2014

<sup>28</sup> Department for Business, Innovation and Skills, [Nurse Review of Research Councils: Call for evidence](#), March 2015

Sir Paul Nurse's independent review of the UK research councils was published on 19 November 2015.<sup>29</sup> Among other things, it recommended the establishment of Research UK; this would represent "an evolution of Research Councils UK into a formal organisation with a single Accounting Officer, which can support the whole system to collectively become more than the sum of its parts".

At the spending review, the Government announced it would accept these recommendations:

The government is taking forward the recommendations of Paul Nurse's independent review and, subject to legislation, will introduce a new body – Research UK – which will work across the seven Research Councils. This will take the lead in shaping and driving a strategic approach to science funding, ensuring a focus on the big challenges and opportunities for UK research. The government will also look to integrate Innovate UK into Research UK in order to strengthen collaboration between the research base and the commercialisation of discoveries in the business community. Innovate UK will retain its clear business focus and separate funding stream.<sup>30</sup>

### 5.3 Higher Education and Research Bill

The recommendations of the Nurse Review are being taken forward in Part 3 of the *Higher Education and Research Bill*, [Bill 4 of 2016-17](#); the Bill completed its Committee stage on 18 November 2016 (as HC Bill 78). A Commons Library briefing paper<sup>31</sup> was prepared to inform the second reading of the Bill, which took place on Tuesday 19 July 2016. Parts 1 and 2 of the Bill relate to the regulation and funding of teaching in the higher education sector. The new machinery of government changes following the appointment of Theresa May MP as Prime Minister will result in higher education coming within the remit of the Department for Education. Hitherto, it fell to the Department for Business, Innovation and Skills.

#### UK Research and Innovation

Part 3 of the Bill is directly relevant to the system for supporting scientific research. Clauses 83-84<sup>32</sup> provide for the establishment of United Kingdom Research and Innovation which will bring to together functions currently exercised by the seven research councils, Innovate UK and a new body, Research England. The latter will take on the research funding functions of the Higher Education Funding Council for England. HEFCE itself will cease to exist, by dint of clause 73.<sup>33</sup> While the Nurse Review recommended an amalgamation of the seven research councils under a "Research UK" banner, the Review also recommended that there "also needs to be connections with and representation from Government Departments, HEFCE, and Innovate UK, better linking the various strands of government funded research."

<sup>29</sup> [Ensuring a successful UK research endeavour](#), 19 November 2015

<sup>30</sup> [Spending Review and Autumn Statement 2015](#), Cm 9162, November 2015

<sup>31</sup> [Higher Education and Research Bill 2016 \[Bill No 004 of 2016-17\]](#), Commons Briefing Paper 7608, 8 June 2016

<sup>32</sup> Clauses 84-85 of HC Bill 78

<sup>33</sup> Clause 74 of HC Bill 78

Research UK, as envisaged by Nurse, would have built on the existing arrangements that the research councils have in place for encouraging cooperation – as embodied by Research Councils UK which styles itself as a “strategic partnership” on the councils.<sup>34</sup> The Higher Education White Paper which presaged the present Bill signalled a wider remit:

The recommendations in Sir Paul’s report underpin the structural reforms that would be taken forward through future legislation. In developing our reforms we have also been guided by responses to the HE Green Paper consultation and responses to the stakeholder survey on Innovate UK.

[...]

UK Research and Innovation, will bring together the 7 Research Councils and integrate Innovate UK while retaining its distinctive business focus and separate funding stream. Having considered the responses to the HE Green Paper consultation, we will also integrate the research functions currently performed by HEFCE within this new body while maintaining hypothecated funding streams and strengthening the existing protections for the dual support system in England.<sup>35</sup>

Clauses 85-90<sup>36</sup> of the Bill detail the functions of UK Research and Innovation (UKRI) and its constituent bodies, the research councils, Innovate UK and Research England. Clause 88<sup>37</sup> explicitly provides for Innovate UK to have regard to the desirability of benefiting “persons carrying on business”. While this addresses concerns that Innovate UK should continue to have a strong business focus, it has not fully allayed them. On 30 June 2016, the Chair of the House of Lords Science and Technology Committee, the Earl of Selborne, wrote to Jo Johnson MP:

As you know, the House of Lords Science and Technology Select Committee of which I am Chairman has recently conducted a short investigation into the future of Innovate UK.

[...]

We have serious concerns about the integration of Innovate UK into UK Research and Innovation. With the exception of the Government itself, none of our witnesses gave an unqualified welcome to the proposals. We do not believe that the Government has consulted effectively with Innovate UK’s stakeholders to achieve buy in for this proposal. The Government’s case for integration appears to be based on a flawed linear model of innovation where Innovate UK functions as the commercialisation arm of the Research Councils.<sup>38</sup>

The letter goes on to recommend that, should the Government determine to continue with the integration of Innovate UK into UK Research and Innovation, “additional measures must be introduced to protect Innovate UK’s autonomy, funding and its business-facing focus.”

Could Innovate UK’s focus switch to commercialising university research at the expense of businesses?

<sup>34</sup> <http://www.rcuk.ac.uk/>, accessed online: 14 July 2016

<sup>35</sup> Department for Business, Innovation and Skills, *Success as a knowledge economy: teaching excellence, social mobility and student choice*, Cm 9258, May 2016

<sup>36</sup> Clauses 86-91 of HC Bill 78

<sup>37</sup> Clause 89 of HC Bill 78

<sup>38</sup> House of Lords Science and Technology Committee, *Proposal to merge Innovate UK should be reconsidered*, 1 July 2016

## Teaching and research

In June 2016, BIS published a *Case for the creation of UK Research and Innovation*. Among other things, this acknowledged the utility of ensuring coordination with a new body, the Office for Students, which will fund and regulate teaching in higher education:

UKRI will work closely with the OfS to ensure a coordinated and strategic approach to the funding of teaching and research in England. Subject to Parliament, the Higher Education and Research Bill (the HE and Research Bill) will ensure that OfS and UKRI can and do share relevant information and data, and work together on areas of shared interest.<sup>39</sup>

On 8 June 2016, the House of Commons Science and Technology Committee held a seminar at the Royal Society on the Nurse Review, the Higher Education White Paper and Bill that followed. Among those present was the Science Minister, Jo Johnson MP. Following the seminar, the Committee's then Chair, Nicola Blackwood MP, wrote to the Minister outlining some high-level issues, one of which was:

whether the establishment of the Office for Students and a Teaching Excellence Framework enhances or undermines the beneficial link between teaching and research in universities (there appear to be conflicting perspectives on this). Crucially, we will need to know who will have responsibility for ensuring the health of the *whole* system, from individual disciplines through to our world-leading institutions.<sup>40</sup>

How closely are teaching and research connected, for example through cross-subsidy?

Subsequently (30 June), Jo Johnson gave a speech at the Wellcome Trust, London. Entitled "[Leading the world in the new age of global science](#)". The speech covered in some detail the Government's proposals in the Higher Education and Research Bill – in the context of the outcome of the referendum on UK membership of the EU (see the section of this paper on Brexit, below). On the links between teaching and research, the speech included the following remarks:

...we are taking other steps to bring teaching and research closer together. Our proposals include provisions for joint working, cooperation and information sharing between the OfS and UKRI. An emphasis on working together will run through the leadership and management of both bodies, supported by a legal framework that will be sufficiently flexible to deal effectively with areas of shared interest.

I also want the REF [Research Excellence Framework] and the TEF [Teaching Excellence Framework] to be mutually reinforcing. We will ask institutions to consider how they promote research-led teaching in their TEF submissions; and I have asked Lord Stern, as part of his review of the REF, to consider the impact of excellent research on teaching.

<sup>39</sup> Department for Business, Innovation and Skills, [Case for the creation of UK Research and Innovation](#), June 2016

<sup>40</sup> House of Commons Science and Technology Committee, [Correspondence to Jo Johnson MP, Minister of State for Universities and Science relating to the Higher Education and Research Bill](#), 14 June 2016

## Strategy and dual support

Clauses 91-92<sup>41</sup> of the Bill relate to strategies and strategic delivery plans. Under these provisions, UKRI prepare a research and innovation strategy at the Secretary of State's request and submit it to him for approval. UKRI in turn must arrange for its constituent Councils (including Innovate UK and Research England) to prepare strategic delivery plans. This focus on strategy chimes with Sir Paul Nurse's concluding remarks in his review: "While maintaining the integrity of the Research Councils, the establishment of RUK will deliver cross-cutting activities and better strategic thinking..." In the context of the research councils engaging with the commercial sector, Sir Paul Nurse referred to an earlier review of business-university research collaborations<sup>42</sup> by Dame Ann Dowling (President of the Royal Academy of Engineering):

This resonates with Dame Anne Dowling's view that "closer communication and collaboration between the Research Councils and Innovate UK could further strengthen the offering for collaborative R&D and innovation support". I support these views, and would encourage the continued development of strategic relationships between Innovate UK and the Research Councils, to facilitate a smoother transition of knowledge generated by Research Council funding towards useful commercial application.<sup>43</sup>

Clauses 93-95<sup>44</sup> cover the funding allocations and directions by the Secretary of State. Clause 95<sup>45</sup> is particularly significant as it requires the Secretary of State to have regard to the "balanced funding principle" which seeks to embody and protect the dual support system.

Other than their numbering, the clauses of the Bill described in this paper saw little amendment during Committee Stage. Exceptions were additions to clauses 93 and 94 (now clauses 94 and 95 of HC Bill 78) to constrain the Secretary of State's powers to give directions about the allocation of grants to UKRI in respect of the functions exercisable by Research England. The Bill completed Report Stage (with some amendments, mostly related to teaching) and had a Third Reading on 21 November.

Can the dual support funding system be further protected without adding complexity to the Bill?

<sup>41</sup> Clauses 92-93 of HC Bill 78

<sup>42</sup> Department for Business, Innovation and Skills, [The Dowling Review of Business-University Research Collaborations](#), July 2015

<sup>43</sup> [Ensuring a successful UK research endeavour](#), 19 November 2015

<sup>44</sup> Clauses 94-96 of HC Bill 78

<sup>45</sup> Clause 96 of HC Bill 78

## 6. Local Enterprise Partnerships

Local enterprise partnerships (LEPs) are partnerships between local authorities and businesses. They decide what the priorities should be for investment in roads, buildings and facilities in the area. Local enterprise partnerships were given the chance to apply to have an enterprise zone and 24 were established in the last Parliament.<sup>46</sup> These zones can take advantage of tax incentives and simplified local planning regulations.

So far 39 local enterprise partnerships have been created. LEPs were set up from 2011 on a volunteer basis without any public funding, and were a consequence of and response to the abolition of the regional development agencies.<sup>47</sup>

Some LEPs will have an opportunity to work with recently-established University Enterprise Zones (UEZs). These are a £15 million pilot scheme (from 2014 to 2017), introduced by the Coalition Government, which aims to allow universities “to push through local growth plans and support entrepreneurship and innovation”<sup>48</sup> (to quote the Coalition). The intention is that for every £1 of government funding, the relevant universities will raise £2 of match funding.

A document prepared under the Coalition Government goes on: “University enterprise zones will provide funding to locations across England. The zones will allow business spaces to be built that can host a range of new high-tech companies in the early stages of their development. These innovative small businesses will then be able to share the expert knowledge at the university, helping them to grow and prosper. A competition is being held to select 3 to 4 pilot zones.”<sup>49</sup>

Subsequently, the [Chancellor announced](#) four successful bids for pilot UEZs. These sites are:

- Bradford (Leeds City Region)
- Bristol
- Liverpool
- Nottingham

The zones aim to:

- encourage universities to strengthen their roles as strategic partners in local growth to engage with LEPs, building on existing capabilities and partnerships
- stimulate development of incubator or ‘grow-on’ space for small businesses in locations that encourage businesses to interact with universities and to innovate

A Coalition policy document on research and development adds: “UEZs will have access to business support packages and the specialist facilities and expert knowledge offered by universities. They will also work with

<sup>46</sup> Department for Communities and Local Government Press Release, [The New Enterprise Zones](#), 25 November 2015, updated 1 December 2015

<sup>47</sup> HM Government, [2010 to 2015 government policy: Local Enterprise Partnerships \(LEPs\) and enterprise zones](#), updated 8 May 2015

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

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UK Trade and Investment (UKTI) to promote inward investment.”<sup>50</sup> By way of example, Bradford’s programme has attracted funding of £3.8m from the Department for Business, Innovation and Skills to help build a Digital Health Enterprise Zone under the University Enterprise Zones pilot scheme.<sup>51</sup>

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<sup>50</sup> Department for Business, Innovation and Skills, [2010 to 2015 government policy: research and development](#), updated 8 May 2015

<sup>51</sup> <http://www.dhez.org/about/who-we-are/>

## 7. Conservative Government

The current Government continues to provide regular updates on policy development in research and development.<sup>52</sup>

In the context of the 2015-16 financial year, a short item in *Research Fortnight* (10 June 2015) indicated that the science budget would continue to be protected: “The science budget is to be protected from chancellor George Osborne’s cuts to the Department for Business, Innovation and Skills’ budget. On 4 June, Osborne announced that BIS would have to make savings of £450 million in the 2015-16 financial year.<sup>53</sup> A spokeswoman confirmed that the savings would come from the department’s non-science resource budget, leaving the further and higher education budgets under threat.”

A general indication of the Government’s position can be gleaned from the [Conservative Party Manifesto 2015](#). In this document, science features in a number of contexts, but also has a dedicated section that begins with a commitment:

*We will continue to invest in science, back our industrial strategies and make Britain the technology centre of Europe*

Great science is worthwhile in its own right and yields enormous practical benefits too – curing diseases, driving technological innovation, promoting business investment and informing public policy for the better. We ring-fenced the science budget by making difficult choices to reduce spending in other areas. Now we will invest new capital on a record scale – £6.9 billion in the UK’s research infrastructure up to 2021 – which will mean new equipment, new laboratories and new research institutes. This long-term commitment includes £2.9 billion for a Grand Challenges Fund, which will allow us to invest in major research facilities of national significance, such as the new Alan Turing Institute [mathematics and computing], and projects such as the Polar Research Ship [marine science] and Square Kilometre Array [radio astronomy]. We have boosted research and development tax credits and we will continue to support our network of University Enterprise Zones, ensuring that Britain’s world-beating universities are able to make money from the technology they develop. We will support our modern industrial strategies, such as our successful Life Sciences strategy, to help people compete and win in the intense global race for high value, high knowledge jobs. We will work with the Automotive Council in support of our resurgent car industry and direct further resources towards the Eight Great Technologies – among them robotics and nanotechnology – where Britain is set to be a global leader. We have delivered a network of catapult centres – R&D hubs in the technologies of the future – and we will create more to ensure that we have a bold and comprehensive offer in place for Britain’s researchers and innovators.

Other references to science in the manifesto appear in the context of regional economic development. In the context of the “Northern Powerhouse” agenda, the manifesto states:

<sup>52</sup> [Research and development](#), Gov.uk, accessed online: 19 June 2015

<sup>53</sup> HM Treasury, [“Chancellor announces £4½ billion of measures to bring down debt”](#), 4 June 2015

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We will back scientific and technical strengths by creating new institutions such as Health North; the Royce Institute for Advanced Materials in Manchester, Leeds, Liverpool and Sheffield; the National Centre for Ageing Science and Innovation in Newcastle; the Cognitive Computing centre at Daresbury; and by making investments in energy research in Blackpool, Cumbria and Thornton.

And, in the Midlands:

We will back the Midlands' strength in advanced manufacturing, engineering and science with major projects such as the Energy Research Accelerator and support for innovation in the motor industry.

Science also appears in the context of other manifesto commitments too (extracted below):

- We will support a science-led approach on GM crops and pesticides and implement our 25-year strategy to eradicate bovine TB.
- We aim to make Britain the best place in the world to study maths, science and engineering, measured by improved performance in the PISA<sup>54</sup> league tables.
- We will maintain our universities' reputation for world-class research and academic excellence. Through the Nurse Review of research councils, we will seek to ensure that the UK continues to support world-leading science, and invests public money in the best possible way.
- With a future Conservative Government, you will have a truly 7-day NHS, at the frontier of science, offering you new drugs and treatments, safeguarded for years to come.
- We will speed up your access to new medicines by implementing the findings of our Innovative Medicines and Medical Technology Review. We will increase the use of cost-effective new medicines and technologies, and encourage large-scale trials of innovative technologies and health services. Antibiotic resistance is a major health risk so we will continue to lead the global fight against it, taking forward the recommendations of the independent review launched by the Prime Minister, David Cameron. And we will support our long-term economic plan by fostering research, innovation and jobs in the life science industry.
- We will continue to support research to improve the diagnosis and treatment of rare diseases and cancers, including through decoding 100,000 whole genomes. This will help scientists and doctors understand diseases better, and design more effective, personalised treatments.

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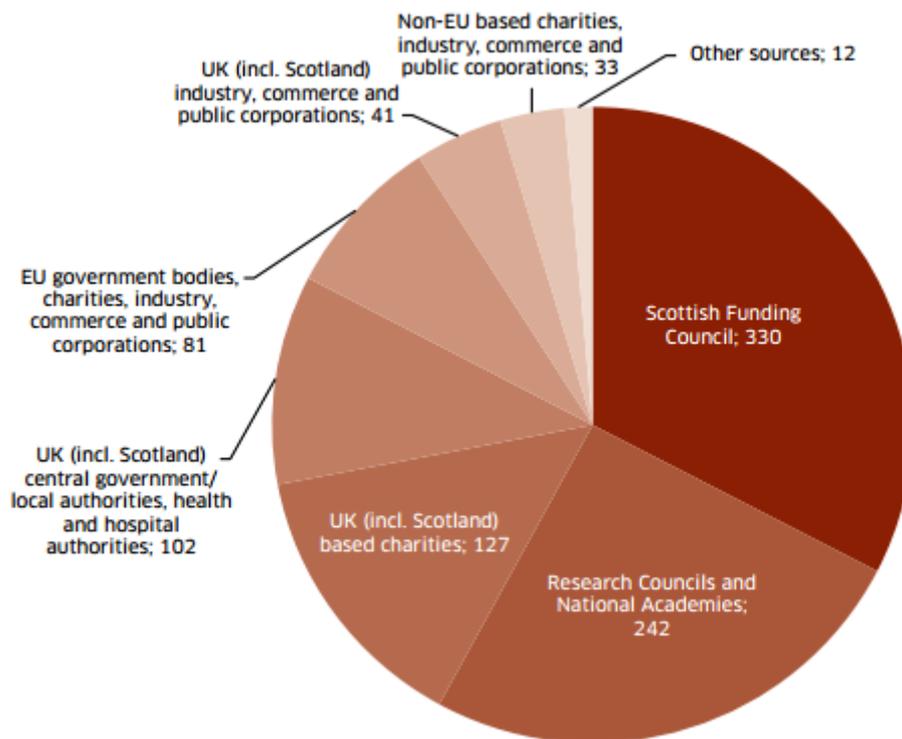
<sup>54</sup> Programme for International Student Assessment of the OECD

## 8. Scotland

Broadly speaking, Scotland receives about 10% of the available research council funds. More detailed data on this is available on the Research Councils UK website.<sup>55</sup> (Wales and Northern Ireland get roughly 2% and 1% respectively.) The relative importance of the different funding mechanisms for university research came up in a report produced by the Scottish Government in advance of the 2014 independence referendum:

The Scottish Government is the largest single source of university research funding in Scotland with funding allocated through the Scottish Funding Council accounting for one third of university research income in 2012/13. A further quarter of research income is secured from the Research Councils. This dual funding system comprising funding from the Scottish Funding Council and competitively awarded grants from national Research Councils (funded through the tax base) works well.

As can be seen from the chart below, charities and public sector bodies are also substantial sources of funding:<sup>56</sup>



### Scottish universities research income 2012/13 (£969 million)<sup>57</sup>

<sup>55</sup> Research Councils UK, [Research Funding across UK regions and devolved administrations](#), accessed online: 13 July 2016

<sup>56</sup> Scottish Government, [Scotland's Future: Higher Education Research in an Independent Scotland](#), April 2014

<sup>57</sup> Ibid.

## 9. The future science budget

### 9.1 Select committee inquiry

In July 2015, the House of Commons Science and Technology Committee decided to undertake an inquiry into the Science Budget, ahead of the Spending Review. The Committee took oral evidence on 15 July from Jo Johnson MP, the Minister for Universities and Science, as well as national academies, and has since had further sessions, including a second appearance by the Minister.

The Committee invited written submissions on the following issues:

The extent to which the current ring-fence arrangements, and the separate arrangements for determining 'resource' and 'capital' allocations, have produced coherent UK science and research investment;

The extent to which science and research expenditure in Government departments (outside the Science Budget) complements or competes with the Science Budget;

The need for and rationale for any adjustment to the trajectory of future Government expenditure on science and research, and what would be gained from an increase (or lost from a reduction) compared with current expenditure levels;

Whether the current distributions of the budget between particular types of expenditure and between different organisations is appropriate for future requirements, and achieves an appropriate balance between pure and applied research;

What level of Government expenditure on science and research is needed:

- to significantly drive the overall level of such expenditure in the economy, through synergies between government and private sector investment (including overseas investment); and

- to optimally balance its benefits against the opportunity cost of government expenditure foregone on other public services.

Whether the Government's expenditures on aspects of science and research are consistent with other government policies, including the Industrial Strategies and the Eight Great Technologies and fiscal incentive policies for research investment;

The extent to which any increase or reduction in Government expenditure on science and research will have an impact on the UK's relative position among competitor states.

The term "Science Budget" is generally taken to mean funding for the science base, comprising research councils, the Higher Education Funding Council for England (the other parts of the UK have their own higher education funding bodies) together with academies like the Royal Society. However, it was clear from the terms of reference of the Committee's inquiry that funding and fiscal incentives for the wider research and development ecosystem were being considered: in other words, funding for research, development and innovation by government departments (including BIS's programmes outside the Science Budget) and tax incentives for businesses to conduct their own research and development.

The [Committee's website](#) includes transcripts of oral evidence sessions and the text of nearly 80 written submissions. On 9 November, the Committee published its report, *The science budget*,<sup>58</sup> a key recommendation of which was that the Government should produce a long term "roadmap" for increasing public and private R&D investment in the UK to 3% of GDP. The Committee also recommended that "A significant element of research funding should continue to be channelled through both the research councils and the higher education funding authorities." The report was clearly designed to influence government decisions on the science resource budget due in the Comprehensive Spending Review later that month. A commitment to capital spending had already been announced (see below).

As noted above, the Science and Technology Committee's inquiry into the Science Budget provides a useful source of material. For example, written evidence submitted by the Department for Business, Innovation and Skills (BIS) gives a detailed breakdown of 2015/16 resource and capital budget allocations for science and research that were announced in May 2014. This totals £4.7 billion for the resource departmental expenditure limit (RDEL) and £1.1 billion for the capital departmental expenditure limit (CDEL). BIS made a distinction between the (resource) science budget of £4.7 billion and the science ring-fence of £4.6 billion – the difference being due to some more recent allocations (e.g. to quantum technologies) made outside the ring-fence agreed with HM Treasury.

A key point is that, throughout the last Parliament, the resource science budget has had the protection of a "flat cash" ring-fence standing at £4.6 billion per annum. By contrast, the capital budget has fluctuated: an initial fall has since been "righted" and the Conservative Government has now announced that a real terms ring-fence of £1.1 billion will apply to capital until 2020/21. Whether the resource budget would continue to enjoy a ring-fence – either in flat cash or in real terms – was a moot point during the Committee's inquiry. The outcome of the Spending Review (see below) suggests a continuation of a ring-fence, albeit one sufficiently permeable to accommodate aspects of Official Development Assistance.

The Campaign for Science and Engineering (CaSE) have pointed to declining science budgets in real terms over the last Parliament – both in their submission to the select committee inquiry and in their submission to the comprehensive spending review. In the latter, CaSE argues:

The Conservative Manifesto speaks proudly of the relative protection for investment in science in the last Parliament. And rightly so. However, in the current climate, anything short of a real terms increase to investment in R&D by the end of this Parliament would be short-sighted and damaging; scientifically, politically and economically.

To compete as a scientific, technological, and economic world-leader, and reap the benefits of global investment, the Government must set an ambitious upward trajectory

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<sup>58</sup> Science and Technology Committee, [The science budget](#), HC 340 2015-16

for investment in R&D over the long term, at a rate that exceeds predicted growth by the end of the Parliament.<sup>59</sup>

## 9.2 Combining capital and resource spending

One issue that has emerged is that, in future, government spending on research and development will be treated entirely as capital spending. Graeme Reid, Professor of Science and Research Policy at University College London, told a Westminster Higher Education Forum on 30 June 2015: "In all likelihood the Government will adopt a new, or newish European Standard of Accounting, which will lead to science and research spending being treated as capital investment in future. I think my interpretation is that no-one quite knows what that means, but it will not mean that floodgates suddenly open and we are all swimming in money, so we can save ourselves from that concern."<sup>60</sup>

Professor Reid subsequently gave evidence to the Select Committee's inquiry, providing the following elaboration: "My understanding of this is that it is a done deal, and it comes from a new accounting protocol from Brussels, the European Standard of Accounting 10, or ESA10, under which Government investment in R and D will be classified as capital across the EU. My understanding is also that the UK is going to introduce that protocol at some point after the spending review, so we are going to do the spending review under current protocol, and at some point it will transfer to this capital-only regime."<sup>61</sup> In evidence to the Committee, the Minister for Universities and Science (Jo Johnson MP) confirmed that this would be the case

Q264 Matt Warman: Minister, you touched on this: is the current spending review going to continue to treat research capital and resource funding separately?

Joseph Johnson: For the spending review in November, my understanding is that they will observe the existing conventions of treating science resource and science capital as distinct pots of money. Thereafter, ESA10 will start to apply, as it does in the ONS national accounts, and there will be a new definition of resource spending as capital.

Q265 Matt Warman: This might be for both of you. Does that incoming change have any effect on negotiations that you are having, or is it just an administrative thing essentially?

Joseph Johnson: For the purposes of this spending review, we are maintaining the existing convention.

Q266 Chair: What we are trying to understand as a Committee is whether the accounting convention will be merely a convention, or will it materially change the way in which spending allocations happen, meaning that institutions and others get one bulk allocation of funding, which they then have to divide up according to capital and resource? Will that be beneficial, because it will mean they have flexibility as to how they use the spending, or will it

<sup>59</sup> [CaSE's submission to the 2015 Spending Review](#), 15 September 2015

<sup>60</sup> Westminster Higher Education Forum, *Priorities for science and innovation policy: opportunities, structures and investment*, 30 June 2015

<sup>61</sup> HC 340 [Oral evidence - The science budget - 15 September 2015](#), Q 158

cause some risks for institutions that are not as effective in making sure they manage their forward spending?

Joseph Johnson: I understand. When everything is in a future world of being just capital, whether or not there will continue to be a line between intangible and tangible capital remains to be seen, and those sorts of decisions will be taken in the spending review.<sup>62</sup>

Giving evidence to the House of Commons Science and Technology Committee on 19 January 2016, the Secretary of State explained that the accounting changes were not expected to affect the underlying settlement:

Q5 Chair: My final question is about the spending review setting a separate resource and capital budget for science, but with the new ESA-10 accounting changes. We have had a response from you that this would have very few policy implications for your Department and the research councils. We want to understand whether the newly combined budget will be fully ring-fenced in the same way as the current resource element.

Sajid Javid: No. The ESA-10 standard is already reflected in the ONS's national accounts. I believe it is already reflected in OBR projected numbers in a recent fiscal statement. It now needs to be pushed down, as it were, from the Treasury into respective Departments for their own budgeting. I am not sure when it will happen—that is a Treasury decision—but I do not expect it to change any of the picture in terms of what we see today as resource spending and what we are calling today capital spending. If I have correctly understood your question to be whether that somehow expands or changes the ring-fenced amount in real terms, it does not.<sup>63</sup>

### 9.3 Spending Review 2015

HM Treasury's *Spending Review and Autumn Statement* was published on 25 November.<sup>64</sup> This states that the government "will continue to prioritise investment in science to ensure the UK remains a world class centre of research." It goes on:

The Spending Review and Autumn Statement reasserts the Government's firm commitment to the UK remaining at the forefront of world science by:

- protecting today's £4.7 billion science resource funding in real terms for the rest of the Parliament. This includes a new £1.5 billion Global Challenges fund to ensure UK science takes the lead in addressing the problems faced by developing countries whilst developing our ability to deliver cutting-edge research
- delivering on the long term science capital commitment of £6.9 billion between 2015-2021 to support the UK's world-class research base. This includes up to £150 million (total capital and resource) to launch a competition for a Dementia Institute, to build on the UK's strengths in medical research

<sup>62</sup> HC 340 [Oral evidence - The science budget - 13 October 2015](#), Qq 264-6

<sup>63</sup> HC 761 [Oral evidence: The science budget and the Spending Review](#), 19 January 2016

<sup>64</sup> HM Treasury, [Spending Review and Autumn Statement](#), Cm 9162, November 2015

Of the “inclusions” referred to above, the most significant is the new Global Challenges Fund which, elsewhere in the document, is referred to in the following terms:

1.87 The government will spend 0.7% of GNI [Gross National Income] on ODA [Official Development Assistance] every year, rising to £16.3 billion per year by 2020. This will include:

[...]

a new Global Challenges research fund of £1.5 billion over the next 5 years to ensure UK science takes a leading role in addressing the problems faced by developing countries

A new Global Challenges Fund is being included in the science resource budget

The Government also undertook to take forward the recommendations of Paul Nurse’s independent review and, “subject to legislation, will introduce a new body – Research UK – which will work across the seven Research Councils.” The Government also said it “will also look to integrate Innovate UK into Research UK in order to strengthen collaboration between the research base and the commercialisation of discoveries in the business community. Innovate UK will retain its clear business focus and separate funding stream.”

The *Spending Review and Autumn Statement* also included the following commitment which will have a bearing on work conducted by the funding councils,<sup>65</sup> including the Higher Education Funding Council for England:

The government will also take forward a review of the Research Excellence Framework in order to examine how to simplify and strengthen funding on the basis of excellence, and will set out further details shortly.

Some background to the significance of the Research Excellence Framework – itself subject to a recent review<sup>66</sup> – was given in written evidence submitted to the House of Commons Science and Technology Committee by the Higher Education Funding Council for England:

Funding council support through Quality-Related research funding (QR), which is distributed on the basis of excellence gives universities the stability and flexibility to undertake essential blue skies research, to invest in emerging areas of research informed by their research strategy, the needs of their business partners and the government’s strategic priorities. QR is allocated competitively on the basis of evidence of exceptional performance in the Research Excellence framework (REF) which rewards both underpinning research excellence and impact.<sup>67</sup>

<sup>65</sup> <http://www.ref.ac.uk/>

<sup>66</sup> <https://www.gov.uk/government/consultations/research-excellence-framework-review-call-for-evidence>, accessed online: 13 July 2016

<sup>67</sup> [Written evidence submitted by the Higher Education Funding Council for England \(HEFCE\) \(TSB0065\)](#), August 2015

## 10. Brexit

### Before the referendum

In the run up to the referendum on UK membership of the EU, the Science and Technology Committees of both Houses of Parliament concluded germane inquiries:

- House of Lords Science and Technology Committee, *EU membership and UK science*, 20 April 2016, HL 127 2015–16
- House of Commons Science and Technology Committee, *EU regulation of the life sciences*, 11 June 2016, HC 158 2017-17

Both reports stopped short of recommending which way to vote in the referendum, though the evidence they received pointed to the importance of the EU as a facilitator of collaboration and as a source of funding for research. This was summarised in the third paragraph of the report by the Commons Committee:

The House of Lords Science and Technology Committee noted in April 2016 that, during the period 2007–2013, “the UK was a net contributor to the EU overall, but a net receiver of EU funding for research.” Taking the latter into account, the Lords Committee observed that science is a “significant dimension of the UK’s membership of the EU”. BIS has similarly noted that:

Significant amounts of funding to support research and innovation is delivered at the EU level, principally through the EU’s Research Framework Programme, ‘Horizon 2020’. European research funding is, in many ways, an example of how the EU can get it right. Because of the excellence of our research base, it is no surprise that the UK is one of the most successful players in EU research programmes.

Horizon 2020 provides a significant proportion of the EU-level public funding for collaborative and single company innovation projects ... To date, the UK has secured 15.4% of Horizon 2020 funding.

In addition to Horizon 2020 funding, €1.6bn of the UK’s allocation of EU Structural and Investment Funds for 2014–2020 will be spent on research and innovation projects. This makes the UK one of the largest beneficiaries of EU research funding.

A report published by the technology company Digital Science noted that, as a result of the UK’s current relationship with the EU, “jobs are created, money flows into the country in research contracts and [intellectual property] is monetized globally.” It added that the “prospect of Brexit represents a number of very real threats to the UK’s prosperity”. BIS told us that “UK involvement in the EU allows UK-based organisations to participate in more collaborative programmes, increasing the benefit for UK contributors.”

Access to science funding could be compromised by any restrictions that might be placed on freedom of movement, and the Lords Committee highlighted the case of Switzerland’s access to Horizon 2020 funding in this context. This was among the factors that prompted the Commons Committee to make the following recommendation:

Therefore, given the cautionary example of the Swiss freedom of movement referendum, we urge the Government to conduct a risk analysis of the science and innovation funding and collaboration scenarios in the event of Brexit and put in place immediate contingency plans to protect our science and innovation sector from any adverse consequences and to consolidate any benefits.<sup>68</sup>

## Following the referendum

On 28 June, the Commons Science and Technology Committee announced its decision to examine the implications and opportunities of leaving the EU for science and research. The then Chair of the Committee (Nicola Blackwood) also wrote to the Chancellor of the Exchequer “to highlight Brexit issues for science and research in the UK that should be addressed during negotiations with the EU.”<sup>69</sup> The Committee invited written submissions on the following issues:

1. What the effect of the various models available for the UK’s future relationship with the EU will be on UK science and research, in terms of:
  - Collaboration;
  - Free movement of researchers and students;
  - Access to funding;
  - Access to EU-funded research facilities, both in the UK and abroad
  - Intellectual property and commercialisation of research
2. What the science and research priorities for the UK Government should be in negotiating a new relationship with the EU.
3. What science and technology-related legislation, regulations and projects will need to be reviewed in the run up to the UK leaving the EU.
4. The status of researchers, scientists and students working and studying in the UK when the UK leaves the EU, and what protections should be put in place for them.
5. The opportunities that the UK’s exit presents for research collaboration and market access with non-EU countries, and how these might compare with existing EU arrangements.
6. What other measures the Government should undertake to keep UK science and research on a sound footing, with sufficient funding, after an EU exit.

The Committee subsequently held two oral evidence sessions in July 2016, before announcing further terms of reference (on 14 July) with the aim of elucidating “the risks and opportunities of leaving the EU, to allow the Committee to draw together a ‘Risk Assessment’ and a list of risks/opportunities which should feature in the Government’s work to set a new EU/UK negotiating strategy.”

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<sup>68</sup> House of Commons Science and Technology Committee, EU regulation of the life sciences, 11 June 2016, HC 158 2017-17, para 4

<sup>69</sup> House of Commons Science and Technology Committee, [Leaving the EU: implications and opportunities for science and research](#), 28 June 2016

The oral evidence transcripts and the written submissions are available on the [Committee's website](#). In evidence to the Committee, the Science Minister, Jo Johnson MP, acknowledged reports that the Brexit vote might already be having adverse consequences:

We have been very clear that there should be no discrimination against UK institutions, soft or hard, and we have made representations to the European Commissioner for science and innovation, Carlos Moedas, and sought his reassurances, which he has provided in his own statements to that effect. At our request he put out a statement—at his own initiative, as well—reassuring UK researchers that their validity for Horizon 2020 applications remains unchanged. You mentioned some anecdotal examples of institutions who say other European institutions are unwilling to partner with them. We are extremely concerned at these anecdotal reports and have asked institutions to provide us with concrete evidence where this is happening, and we have set up in the Department a unit that is ready to receive such evidence. We have an email address to which any examples of that sort can be sent—[research@bis.gsi.gov.uk](mailto:research@bis.gsi.gov.uk). We welcome any hard evidence so that we can take appropriate steps. I will be speaking to Commissioner Moedas again tomorrow to update him on the mood in the UK science community and how it feels things are going. We understand the concern, but my message is that we must realise that, as we stand today, our rights and obligations as full members of the European Union remain unchanged. We are fully able to bid, and to lead bids, for Horizon 2020 programmes, and we must feel confident in doing so.<sup>70</sup>

Having given this evidence on 13 July 2016, the Minister returned with his colleague Robin Walker MP, Parliamentary Under-Secretary of State, Department for Exiting the European Union, to provide further evidence on 26 October. The Committee subsequently published its report on 18 November 2016.<sup>71</sup> As before, the Committee called on the Government to increase spending on research and development, while extending a measured welcome to the Government's "helpful reassurance" by promising to underwrite the payment of EU grants extending beyond the point at which the UK leaves the European Union.<sup>72</sup> The Prime Minister subsequently announced real terms increases in government investment worth £2 billion per year by 2020 for research and development.<sup>73</sup>

Reflecting a prevalent mood among the scientific community, the Committee emphasised a need to guarantee the position of EU researchers working in the UK. The Committee considered that measures were needed "to attract skilled researchers and students" and that these should include "an immediate commitment" to exempt EU researchers already working in the UK from any wider potential immigration controls.

<sup>70</sup> House of Commons Science and Technology Committee, *Leaving the EU: Implications and opportunities for science and research*, [oral evidence](#), 13 Jul 2016, Q120

<sup>71</sup> House of Commons Science and Technology Committee, *Leaving the EU: implications and opportunities for science and research*, HC 502 2016-17

<sup>72</sup> HM Treasury press release, "[Chancellor Philip Hammond guarantees EU funding beyond date UK leaves the EU](#)", 13 August 2016

<sup>73</sup> Prime Minister's Office press release, [PM announces major research boost to make Britain the go-to place for innovators and investors](#), 21 November 2016

## 31 Support for science

On 26 July 2016, the House of Lords Science and Technology Committee launched “a short investigation” to follow up its EU membership and UK science report “to reassess the implications for science in light of the referendum result.” The Committee’s findings have yet to be published.

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