Department of Business Innovation and Skills: Triennial Review of Research Councils

Response by the Wellcome Trust

February 2013

Key Points

- The Research councils play a hugely important role in funding research and supporting research careers in the UK and should continue to operate with the same objectives.

- To function well, the Research Councils need strong leaders drawn from the academic sector, for each of the major areas of science. The current disciplinary divisions therefore work well.

- Research Councils UK has done much to help provide a single voice for the Research Councils but we believe that there is more progress to be made, particularly to ensure that research at the boundaries is handled effectively.

- While the UK benefits from a world-class research base, it still lags behind in the development and rapid adoption of research advances. The funding system as a whole needs to support translational research more effectively: the Research Councils and the Technology Strategy Board must work together more efficiently.

- We have some concerns whether the current structure of the Science and Technology Facilities Council is the most effective way to ensure both strategic oversight and efficient delivery of large research infrastructures.

- Public sector funding achieves huge leverage from both the charity and industrial sectors. The dual support system, where Research Council funding is provided alongside block grants to institutions, has a crucial role in enabling this diversity of funders to contribute to the strength of the UK research base.

INTRODUCTION

1. The Wellcome Trust is pleased to have the opportunity to contribute to the Triennial Review of the Research Councils. The Research Councils play a hugely important role in funding research and supporting research careers in the UK, and we look forward to their continued success in contributing to a strong research base in the UK.

2. While we have traditionally worked most closely with the Medical Research Council (MRC), we have increasingly partnered with other Research Councils as well. We work with the Councils both on joint funding schemes and on policy initiatives to ensure a facilitating environment for research in the UK. Some examples of our recent partnerships are given in Annex A.
REVIEW QUESTIONS

Purpose

- Do the Royal Charter objectives for the Research Councils need to continue to be delivered?
- How well aligned do you think Research Councils priorities are with these Royal Charter objectives?
- How closely are and should Research Council research objectives be aligned with those of Government?

3. The Research Councils play a hugely important role in funding research and supporting research careers in the UK. The Royal Charter objectives remain as essential today as when they were first established, and the Research Councils do an excellent job of delivering across all of their objectives. The UK’s reputation as a competitive location for world-class research, with world-leading universities and research institutes and high-quality research infrastructure, is well recognised. Much of this strength comes from the existence of well-functioning Research Councils with a clearly defined purpose and ability to carry out high quality, independent peer review.

4. The question of how closely the Research Council research objectives should be aligned with those of Government – and the interpretation of the Haldane principle – is often discussed and debated. We consider that the Haldane principle has served the UK well, enabling high quality, relevant research to be funded.

5. The Government has an important role in deciding strategic areas of importance, identifying high level challenges for research to address, and setting broad priorities for use of any new funding. Government allocation decisions should be informed by expert advice, both from Research Councils and a variety of other sources, including the Council for Science and Technology and the Learned Academies. The Government must make strategic choices about the level of funding to allocate to each of the Research Councils.

6. Once given their funding allocations, Research Council decisions on what to deliver, and how, should take account of both ‘top down’ signals from government and ‘bottom up’ signals from the research community. Research Councils consult effectively with a range of stakeholders. Once priorities are identified, scientific peer review should be used to identify which research projects should be funded. This system works well at present but requires continuing scrutiny.

7. There are also departmental research budgets, which give government departments the ability to directly commission research related to their policy priorities. This therefore does not need to be the role of the Research Councils. However, Research Councils may choose to partner with government departments that have openly communicated their priorities, for example the Department of International Development, the Medical Research Council and the Wellcome Trust have successfully partnered together to support clinical trials for global health.

Effectiveness and efficiency

- How effective are the Research Councils at delivering their objectives?
- Are the current disciplinary divisions appropriate to allow the Research Councils to foster excellence and innovation in the research base?
• To what extent is there duplication between the functions of the Research Councils and other providers in the sector?

• What is your view on whether seven Research Councils is the right number?

8. International comparisons suggest that the UK system is very efficient. Our scientific productivity is the highest in the G8, as is our efficiency according to citations per unit spend on Gross Expenditure on Research & Development.1 The Research Councils therefore seem to be doing a good job of funding research effectively and efficiently.

9. To do their job properly, the Research Councils must have strong leaders drawn from the academic sector, for each of the major areas of science. These leaders must be able to represent their subject areas and communities effectively; have a good understanding of cutting-edge developments in their area; work well with government, researchers, public and private users of research; and take into account external stakeholder views in setting policy, strategy and priorities. The separate discipline-specific Research Councils work well in enabling this, and for the most part the disciplinary divisions are appropriate.

10. We recognise that real-world problems do not necessarily sit within neat disciplinary silos. It is therefore becoming ever-more important that the Research Councils must be able to work effectively together to fund multi-disciplinary and interdisciplinary research in order to tackle the challenges facing our society today. The cross-Council global challenges are one way of achieving this, but more still needs to be done. There are inevitable difficulties when assessing and funding interdisciplinary research, and the Research Councils must continue to work together to develop appropriate mechanisms to ensure that research at the boundaries is handled effectively.

Ensuring effective translation of research

11. There were concerns in the past that the Research Councils, with their main focus on advancing knowledge and understanding, had not given enough attention to the translation of research findings. The establishment of the Technology Strategy Board (TSB) was designed in some respects to address this gap.

12. The Research Councils and the TSB must work closely together to ensure continuity between support for basic research and the development of innovative products and devices. As Lord Porter famously commented, “pure research is merely that research which has not yet been applied”. The funding system must recognise and reflect this continuum.

13. We are pleased to see signs that this beginning to happen. For example, the TSB and the MRC have recently partnered together to establish the Biomedical Catalyst Fund, a three-year £180 million programme to provide support from initial research in universities through to commercial development in small and medium-sized enterprises. This is a good first step, but more needs to be done to enable more integrated funding. Careful examination is needed to identify and address any constraints that prevent either the Research Councils or TSB from funding translational research most effectively.

14. The translation of research findings into the clinic is now much better coordinated within the medical research sector. Under the auspices of the Office of Strategic Coordination of Health Research (OSCHR), the MRC and the National Institutes of Health Research collaborate effectively together. The second UK Health Research Report, published by

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1 International comparative performance of the UK research base (2011), prepared for BIS by Elsevier
the UK Clinical Research Collaboration, in 2012, shows the complementarity of the two funding streams. While the majority of the MRC’s spend is on ‘underpinning’ research and ‘aetiology’, the Department of Health’s research spend is focused mainly in ‘treatment evaluation’, ‘health services’, ‘detection and diagnosis’ and ‘disease management’.

**Science and Technology Facilities Council**

15. While we therefore support the current Research Council structure, we do have concerns about the Science and Technology Facilities Council (STFC). From the Trust’s perspective as a funder of the Diamond Synchrotron, we consider it is essential to ensure an appropriate framework to support the delivery of world-class large facilities in the UK.

16. STFC has two different remits in relation to large facilities: providing a strategic overview and ‘commissioning role’ for large facilities, and delivering operational management of some specific facilities. Some facilities are owned and operated directly by STFC, such as ISIS and the Central Laser Facility; while some, such as Diamond, are operated in partnership, and others are provided through international subscriptions (ESRF and ILL). We are concerned that these different remits are not appropriately reflected in the governance arrangements for STFC, leading to potential conflicts of interest and lack of transparency.

17. For example, the Research Councils are now working very effectively together, through the Large Facilities Steering Group, to forecast researcher requirements and demand for large facilities each year. The facilities then bid against these requirements, and STFC as ‘managing agent’ produces an options appraisal based on these bids. However, it is the Executive Board for STFC which approves the options appraisal. This Board includes direct representation for some, but not all, of the facilities – leading to a clear conflict of interest.

18. The work of the Large Facilities Steering Group has also highlighted the lack of transparency in the budgets of those facilities that are directly operated by STFC, leading to questions as to whether the current structure gives the best value for money.

19. We raised similar issues of governance when a Large Facilities Council was first proposed in 2006; we do not feel that the resulting structure of STFC addresses the concerns. We would encourage the Government to explore other models for delivery of large facilities as part of this Review. This should take into account the cross-disciplinary nature of the large facilities, and the differing responsibilities that STFC has for different facilities. It should also build on the success of Research Councils UK in developing the Strategic Framework for Capital Investment

**Interaction and coordination**

- How effective do you consider RCUK to be and why?
- Are there any functions currently performed by RCUK that you think should be performed at Research Council level or vice versa?
- Where do the Research Councils need to work in partnership and how good are the RCs at doing this?

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How good are the Research Councils at challenging the status quo – both in the sectors they support and in government?

Do the Research Councils have effective ways to share best practice?

20. Research Councils UK (RCUK) has done much to provide a single voice for the Research Councils, particularly in relation to policy coordination. Successful examples include work relating to data sharing and open access; career development; research integrity; tackling bioterrorism; and public engagement. RCUK has a fine line to tread: on the one hand they must recognise that different Research Councils will have different views and requirements and a one-size-fits-all approach may not be appropriate; on the other hand it is helpful to the external community for the Research Councils to present a common, consistent and coherent position. For the most part, we would suggest that RCUK and their cross-Council working groups are becoming better at achieving this balance. However, there are occasions when it could be clearer as to whether a position is that of RCUK, an individual Research Council, or all Research Councils. It is also important that no Council should be inhibited from pursuing innovative approaches to support new discoveries as a result of an unwieldy process.

21. The Research Councils, either individually or through RCUK, often work effectively in partnership with other funders and learned societies on policy issues such as the use of animals in research. They provide extremely valuable expertise in such discussions. We suggest they could usefully build on this role within a European context. European legislation increasingly has a direct impact on UK researchers, but the remit of the Research Councils in responding to such discussions, both through the UK Government and with other stakeholders in Europe, has not always been clear.

22. In relation to infrastructure and large facilities, the establishment of the Large Facilities Steering Group has enabled the Research Councils to work much better together, effectively considering competing priorities across all disciplines. The development of the Strategic Framework for Capital Investment led by RCUK is an excellent example of this approach.

23. The Research Councils are also better joined up in discussions about development sciences, working together through the UK Collaborative on Development Sciences (UKCDS). UKCDS has enabled the Research Councils to partner successfully on a number of specific issues, such as addressing climate change, responding to disasters and tackling food security, while also raising greater awareness of the underlying need to support science for development. We agree with the conclusions of the House of Commons Science and Technology Committee, in its report ‘Building scientific capacity for development’, which concluded that UKCDS is “effective in providing a forum in which funders of development sciences can communicate and coordinate their efforts”.

**Dissemination and communication**

- How do Research Councils ensure that use of research is maximised, including by those in other Councils, the private, public and third sector?
- How well do you think the funding mechanisms are understood by applicants (existing and new)?
- How well do you think Research Councils communicate with the general public?

24. The outputs of publicly-funded research – including research data and publications – must be preserved and made widely available for re-use in a way that maximises their long-term value for research and its application. We welcome the Research Councils clear support for open access and are encouraged to see them continue to drive this
transition to new models of publishing, despite opposition. We also welcome their commitment to develop the infrastructure needed to preserve and share research data, for example through ELIXIR.

25. RCUK has positively championed public engagement within the higher education sector, for example partnering with the Wellcome Trust and the UK Funding Councils on the Beacons for Public Engagement initiative (including continuing support for the National Coordinating Centre for Public Engagement); convening UK research funders to produce the Concordat for Engaging the Public with Research, a single joint statement of our expectations of HEIs to ensure public engagement is better valued, recognised and supported; and providing support to HEIs to build on this good practice through the Public Engagement with Research Catalysts scheme. RCUK’s efforts to embed public engagement with research are well regarded internationally.3

26. The Research Councils are committed to public engagement with research, alongside communications activities, and their activities in promoting public dialogue have been shown to play a key role in supporting more open research governance and decision making.4 Individual Councils and the RCUK Public Engagement with Research programme are successfully bringing contemporary research to the classroom to inspire young people to pursue research careers.

27. There is however a risk that good practice in public engagement will be lost if individual Research Councils do not ring fence budget for public engagement or provide adequate staffing. The move to building in public engagement with research grants through Pathways to Impact is welcomed but implementation of this policy will continue to require continued effort internally and with the research community to ensure good quality public engagement is supported.

**Funding mechanism**

- *Is the funding mechanism appropriately open to a range of institutions / researchers, including new entrants as well as incumbents?*
- *Does Research Council funding work well alongside block grants to institutions?*

28. A unique feature of UK university funding is the dual support system, where Research Council funding is provided alongside block grants to institutions. This system allows institutions to take strategic decisions about their research activities and provides flexibility to undertake blue skies research and respond to new opportunities. Crucially, it also allows a diversity of funders – including charities, industry, the European Union and overseas funders – to invest in university research, which has significantly contributed to the strength of the UK science base. We therefore encourage the Government to continue its endorsement of the dual support system. We consider the present balance between the two legs of dual support to be about right.

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3 See for example, the European Science Foundation report published in July 2012, Science in Society: a challenging frontier for science policy [http://www.esf.org/publications.html](http://www.esf.org/publications.html)

4 A recent external review of public dialogues, consultations, and other public engagement exercises commissioned by the Research Councils since 2003 found that these activities have had a positive impact on Research Council strategy and decision making (reference: Involve 2012 Doing dialogue [http://www.involve.org.uk/wp-content/uploads/2012/01/120727-RCUK-Review-FINAL.pdf](http://www.involve.org.uk/wp-content/uploads/2012/01/120727-RCUK-Review-FINAL.pdf)).
Economic impact

- How good is the UK at attracting private investment and human talent into research in comparison with other countries? What factors influence this?
- How effective is the funding mechanism at delivering value for public money and deciding the best targets for new research?
- How easy is it for UK business, individuals and policy makers to access the research base?

29. Public sector funding for research in the UK achieves huge leverage from both the charity and industrial sectors. In 2010 alone, business, charities and other funders spent an additional £3 billion with the research base. This diversity of funding, made possible by the dual support system, underpins the strength of the UK’s research base. Some examples of Wellcome Trust partnerships with Research Councils are given in Annex A.

30. A key contributor to the UK’s existing competitiveness in the life sciences has been our ability to attract the best and brightest from across the world. Restrictions on non-EU immigration must be implemented in a way that ensures scientists and researchers retain a clear route to work and settlement in the UK. A flexible and responsive immigration system is an important enabler of international scientific collaborations, which often require a two-way exchange of research staff.

31. Another key factor is the regulatory environment. The UK bioscience sector has become increasingly concerned over the past decade that regulatory burdens are unnecessarily delaying research and damaging the UK’s reputation as a world leader in biomedical research and innovation.

32. The regulatory environment must actively facilitate innovation-led growth while remaining proportionate and appropriate. Not only is this necessary to ensure the UK maintains its economic competitiveness by limiting costly regulatory burdens, it is also important to help maintain public trust. Significant steps have been taken recently to streamline the regulation and governance of health research, and we look forward to seeing the continued development of the Health Research Authority.

33. Science and innovation are vital for long-term economic growth. Investment in research delivers benefits to the economy, to society and to health. A long-term strategic approach is crucial, for example to ensure sustainable funding for research resources and infrastructure. The study ‘Medical Research: what is it worth?’ commissioned by the Academy of Medical Sciences, the MRC and Wellcome Trust under the auspices of the UK Evaluation Forum, estimated that the time lag between research expenditure and eventual health benefits is around 17 years. Recognising that the timescale of research often falls outside the spending review cycle, the Research Councils must be in a position to make long-term commitments to maximise their impact.

The Wellcome Trust is a global charitable foundation dedicated to achieving extraordinary improvements in human and animal health. We support the brightest minds in biomedical research and the medical humanities. Our breadth of support includes public engagement, education and the application of research to improve health. We are independent of both political and commercial interests.

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5 Innovation and Research Strategy for Growth, BIS (2011)
6 http://www.wellcome.ac.uk/About-us/Publications/Reports/Biomedical-science/WTX052113.htm
ANNEX A: PARTNERSHIPS

The Wellcome Trust has had many partnerships with the Research Councils both in the past and currently, others for the future are already under discussion. Some examples include:

| MRC | [B] The Francis Crick Institute: a £650 million partnership between MRC, the Wellcome Trust, Cancer Research UK, University College London, King’s College and Imperial College, to develop a world-leading centre for biomedical research in the UK. |
| MRC | UK Biobank: an initial commitment of £62 million, with further enhancement awards agreed, to develop a unique cohort resource of 500,000 people, aged 40-69. |
| MRC | ALSPAC: In July 2010, the Wellcome Trust and MRC renewed core funding of £6 million over three years, for a long-running cohort study. |
| MRC | The Wellcome Trust-Medical Research Council Cambridge Stem Cell Institute: an £8 million investment in a new world-leading centre for stem cell biology and medicine. |
| MRC | The Human Induced Pluripotent Stem Cell Initiative: a £12.75 million initiative to create a catalogue of high-quality adult stem cells, so-called ‘induced pluripotent stem cells’ (iPS cells). |
| MRC | Neurodegenerative Diseases Initiative: a £30 million initiative to support high-quality collaborative research to advance knowledge of neurodegenerative diseases through interdisciplinary approaches. |
| MRC | Global health trials scheme: a £36 million initiative, with funding from the Department for International Development, the MRC and the Wellcome Trust, to fund late-stage trials of interventions that will help improve health in low- and middle-income countries by addressing the major causes of mortality and morbidity. |

| MRC, ESRC | UKCRC Public Health Research Centres of Excellence: a commitment of over £20 million by a consortium of eight funding partners to create five Centres of Excellence to strengthen public health research in the UK. |
| MRC, ESRC | E-health Informatics Research Centres: £15 million funding partnership between Government and charities to support research using patient records to improve healthcare. This partnership builds on a previous £10 million partnership between the Wellcome Trust and MRC, EPSRC and ESRC to demonstrate the potential of such research. |
| MRC, ESRC | Expert Advisory Group on Data Access: a new Committee to provides strategic advice on the emerging scientific, legal and ethical issues associated with data access for human genetics research and cohort studies. |

| MRC, BBSRC | UKCRC Translational Infection Research Initiative: a commitment |
of £16.5 million from a consortium of seven funders to fund a number of consortium grants.

- **Europe PubMed**: a free-to-access repository of publications for biomedical and health researchers, supported by 19 funders of biomedical research in the UK and Europe.

**MRC, BBSRC, NERC**

- **Elixir (European Life Sciences Infrastructure for Biological Information)**: BBSRC is coordinating the UK partners for this initiative which is seeking to build a sustainable model for life sciences data infrastructure.

**BBSRC, NERC**

- **Insect Pollinators**: a £10 million partnership with BBSRC, NERC and Defra to support research aimed at understanding the interactions between the biological, social and environmental factors affecting the viability of insect pollinators.

**EPSRC**

- **Innovative Engineering for Health**: A £30 million partnership, announced in 2013, to fund biomedical engineering research and development to address major challenges in health.

- **Medical engineering**: a £41 million partnership launched in 2009 to stimulate the formation and support of four world-class centres of excellence in medical engineering within the UK.

**STFC**

- **Diamond synchrotron**: a partnership between the UK Government (through the Science and Technology Facilities Council, STFC [86%]) and the Wellcome Trust [14%], to build and operate a world-class synchrotron light source that serves researchers across all scientific disciplines, from both academia and industry.

**RCUK**

- **National Coordinating Centre for Public Engagement** and the six beacons: a total of up to £9.2 million was made available by the UK Higher Education Funding Councils, Research Councils UK and the Wellcome Trust to fund a pilot initiative over four years.