
Summary

- Many of the issues raised in the Academy's Triennial Review submission remain valid, and have subsequently been reemphasised across the sector.
- The recent REF assessment demonstrated the world-class research occurring within the UK, with the Research Councils (RCs) playing a vital role in facilitating this output.
- There continues to be a need for a clear, broad and stable research vision from government, which should build on the 2014 Science and Innovation Strategy.
- Collaboration across RCs, and with industry, remains an area for further improvement, but excellent models for such work have been established and should be capitalised upon.
- The current number and balance of RCs remains appropriate, and they operate synergistically with other public funders such as the National Institute for Health Research.
- Transparent mechanisms are needed to ensure on-going, strategic review of resource allocation, to provide RCs with the flexibility to respond to emerging societal challenges.
- Councils are recognised as agenda-setters within the community, and they should ensure this agenda is informed by dialogue with key stakeholders, including the public.

Introduction

The Academy of Medical Sciences promotes advances in medical science, and campaigns to ensure that these are translated into healthcare benefits for society. Our elected Fellowship includes the UK's foremost experts drawn from a broad and diverse range of research areas.

We welcome the opportunity to respond to the review of the Research Councils, being led by Sir Paul Nurse FRS FMedSci. The Research Councils play a vital role in the UK research funding ecosystem and support the world-leading excellence demonstrated in the recent Research Excellence Framework assessment.¹

Our response to each of the topics builds on our Triennial Review submission, and has been informed by the expertise of our Council members.² Many are, or have been, recipients of Research Council funding, and some have been directly involved in the operation of particular Councils. We would be pleased to provide further evidence if required.

1. Strategic decision-making

Decision-making

As an Academy, we envisage a funding landscape in which consultations with government and other stakeholders are used to provide a consistent, long-term and over-arching strategic vision for RCs. This would empower Councils to deliver an independent research agenda set by researchers, which is shaped by the vision of key stakeholder groups over long timeframes.

¹ [Research Excellence Framework 2014: The Results](#) (2014) HEFCE

² <http://www.acmedsci.ac.uk/policy/policy-projects/triennial-review-of-the-research-councils/>

The UK research base has flourished through combining academic freedom with research priorities derived from the society which it serves. The decision-making processes within RCs should continue to be insulated from near-term political pressures, following a 'Haldane' model of independence. While public research funding must facilitate the delivery of impact, this should be led by peer-reviewed excellence, rather than external attempts to 'pick winners' (e.g. by government).

The substantial economic returns delivered by research occur over a timescale which can span a decade or more.³ Targeted initiatives (e.g. for specific diseases) may provide short-term outputs, but risk distorting the process of growing and supporting the sustainable research community needed to tackle long-term research challenges. Whilst RCs should strive to accelerate the translation of research into health and wealth benefits, economic objectives should not dominate.

The Academy believes that the independence of the research agenda is, and should be, coupled to a responsibility for RCs to consult widely and frequently with stakeholders – including the public who fund the research, beneficiaries of research (e.g. patients and industry, in the case of medical research), and the Government which steers the wider research environment.

Community engagement

The Academy considers that RCs should do more to publicise the value of, and balance within, their funding portfolios, and be more transparent about their strategic decision-making. The MRC, as an example, appoints BIS and lay representation to its Council, providing conduits for input from government and wider society. Examples of good practice should be shared across RCs.

The RCs and government should review the extent of their two-way communication. In Recommendation 1.2 of the 2014 Triennial Review, it was noted that:

'Government Departments, led by BIS, should inject greater clarity into the process whereby the RCs interact with Government to address matters of strategic importance, with the aim of enabling the RCs to take on a stronger and more influential role in both responding to and proactively shaping the research agenda.'⁴

Aligning with this goal, the recent joint statement from ourselves and the other National Academies called for the Government to set out a long-term and flexible framework to clarify its expectations from RCs.⁵ Such a framework would provide the stability for leveraging further investment, for example from industry and charities.

The Academy believes that government should provide leadership over a decades-long timeline which reflects training and impact delivery times, transcending short-term political cycles. This open and transparent environment would empower RCs to forge a progressive and bold investment agenda. The 2014 Science and Innovation Strategy represented progress towards fulfilling such a role, but we would welcome further commitments from the next Government.

Ensuring good practice

Experiences of RC governance within our Fellowship, particularly in relation to MRC, suggest that decision-making processes are extremely transparent, and occur within a well-governed and robust framework which extends from the Governing Council down to individual funding boards.

³ [Medical Research: What's It Worth](#) (2008)

⁴ [Triennial Review of the Research Councils: Final Report](#) (2014) BIS

⁵ [Building a Stronger Future](#) (2015) Joint Academies statement

Whilst the primacy of awarding based on quality should be maintained, this should operate in conjunction with transparent processes encouraging a level of equitable geographical distribution to support regional economies and talent bases. Internal review mechanisms operate regularly within the MRC, and there is a high degree of awareness of the responsibility to support health and wealth gains, with the MRC pioneering the collection of impact data from each award via the 'Researchfish' system, to support reporting to BIS.

The Academy believes that the culture and systems embedded within RCs, such as the MRC, demonstrate a commitment to genuine good practice and its continued evolution. It remains imperative that resource allocation occurs via transparent mechanisms, guided by clear and publicised strategic objectives. The involvement of the MRC and BBSRC in the Academy's on-going project examining Research Reproducibility provides further evidence of commitment to this culture of open improvement, and initiatives such as unconscious bias training for peer reviewers may help to continue this trajectory.⁶

2. Collaborations and partnerships

Interaction across Councils

The 2014 Triennial Review of the Research Councils noted that 'individually they are operating from a position of strength'. However, RCs must strive to collaborate effectively in order to broach grand societal challenges which increasingly demand interdisciplinary solutions. Mechanisms must exist to identify such issues, and distribute resources accordingly.

Cross-RC coordination has been progressing rapidly in recent years, including projects such as the 'Life Study' co-supported by MRC and ESRC, which aims to create a research database of the growth, development, health and well-being of over 80,000 babies and their parents.⁷

The scope of such longitudinal projects is best served by joint ventures, to ensure that the data captured can create impacts across the broadest possible spectrum. Current challenges around topics such as diet and exercise are key examples where this approach would be highly valuable.

The Academy believes such projects should be publically showcased, to carry the message of cooperation to both the research community and government. The BBSRC website includes a section on Cross-Research Council Projects and is an excellent model to replicate across all RCs.⁸

Interaction with external organisations

In the Academy's submission to the Triennial Review, we noted that the MRC acts as a node for the diverse community of funders – drawing on important contributions from other RCs, the National Institute for Health Research (NIHR), NHS, industry and charities.

Fellows have noted the emergence of a new culture of close cooperation between RCs and commercial partners. This encompasses projects such as an MRC collaboration with major pharmaceutical firms to open up a library of deprioritised compounds for academic research.⁹

⁶ <http://www.acmedsci.ac.uk/policy/policy-projects/reproducibility-and-reliability-of-biomedical-research/>

⁷ <http://www.lifestudy.ac.uk/homepage>

⁸ <http://www.bbsrc.com/research/cross-council.aspx>

⁹ <http://www.mrc.ac.uk/news-events/news/seven-pharma-companies-offer-up-compounds-to-uk-researchers/>

Improvements could be sought by broadening the scope of existing interactions, particularly for smaller external partners who traditionally collaborate with a 'first-point-of-contact' RC, but may benefit from collaboration with further councils. We continue to support the forging of a strong relationship between RCs and Innovate UK, to ensure the coordinated distribution of resources in the most effective and strategic manner.

The Academy believes that RCs should act to complement, but not replace, research spending across government departments. These budgets have been in a long-term decline, but provide vital evidence to inform public policy. The internal review of these departmental research budgets, proposed in the Government's 2014 Science and Innovation Strategy, may wish to include analysis of potential synergies with RC budgets to ensure maximum value for money.¹⁰

Future challenges

The RCs should seek to engage with new structures and administrations, both within an increasingly devolved national landscape, and globally. Although the UK performs strongly on international collaboration, the Fellowship would welcome greater financial and administrative support for those seeking grants for international projects, especially considering the global dimension of many societal challenges.¹¹

The on-going Dowling Review is examining academia-industry relations within the UK. As funders, RCs have a role to play in resolving several issues highlighted in the Academy's submission, including addressing the cultural gap which exists between academia, industry and the NHS, and leading on initiatives promoting education, incentives and freedom of movement across sectors.

Interdisciplinary research

Multi-disciplinary teams working at disciplinary interfaces will be central to solving the challenges of the future. A recent Medical Schools Council report highlighted the benefits derived from this collaborative capacity, and a 2014 report by Professor Patrick Maxwell FMedSci showcased the contribution of engineering and the physical sciences to the health and life sciences sector.^{12 13}

The Academy is exploring some of the challenges of interdisciplinary work in our on-going Team Science project.¹⁴ A project update published in February 2015 summarised views expressed in the written evidence received by the Working Group. Responses to a question about what more could be done, and by whom, included the following suggestions specifically for funders:¹⁵

- Evolving policies and practices for grant application appraisal to capture and value individuals' team science contributions.
- Reviewing peer review processes to ensure they obtain adequately broad and experienced input for 'team science' grant applications.
- Reviewing the configuration of team science funding, such as the length of funding and the ability to designate multiple equivalent investigators.

In the wider context, RCs should work alongside other funders to consider how to best incentivise and recognise interdisciplinary work, and how to train and support researchers to appreciate the opportunities beyond their own discipline and forge collaborations across these boundaries. Our report, including recommendations for funders, will be published in late 2015 or early 2016.

¹⁰ [Science and Innovation Strategy](#) (2014) HM Government

¹¹ [Performance of the UK research base](#) (2013) BIS

¹² [Health of the Nation](#) (2015) Medical Schools Council

¹³ [The importance of engineering and physical sciences research to health and life sciences](#) (2014) EPSRC

¹⁴ <http://www.acmedsci.ac.uk/policy/policy-projects/team-science/>

¹⁵ [Team Science Working Group](#) – Project Update (2015) Academy of Medical Sciences

3. Balance of funding portfolios

Funding ecosystem

The ring-fencing of the science budget in 2010 protected research budgets from immediate cuts, but has led to a sustained real-terms decline in public funding for the UK research base.

The Academy has jointly called, with the other National Academies, for an overall increase in public investment in research, to align the UK with its international competitors.¹⁶ The RC structure offers an existing and proven mechanism to disburse such additional funding, and provides a strong foundation of knowledge and expertise upon which other funders, such as charities, can build.¹⁷

Each RC plays a significant role in delivering balanced research investments which are able to cover all disciplines. Whilst this system continues to power world-leading performance across the research base, it remains vital that the balance of resources between, and within, RCs remains aligned with overall strategic priorities.

The distinct but complementary nature of the spectrum of RCs acts as a catalyst for collaboration, striking a balance between diversity and centralisation. Developments such as the Francis Crick Institute will further emphasise the importance of balanced support across disciplines, to create the capacity needed for interdisciplinary projects.

Within medical research, the Academy has long supported the complementary functions of NIHR and MRC. Since 2006, the excellent work of the NIHR has established a world-class clinical research infrastructure (physical and human) for the NHS, in which the RCs including the MRC, as well as industry and charities, can fund specific research projects. The internationally-recognised MRC applies its funding largely through a system of response-mode project grants and personal awards, where a focus on excellence can take primacy over immediate service delivery concerns.

This support from NIHR and MRC, coordinated by the Office for Strategic Coordination of Health Research (OSCHR), delivers world-class medical science and embeds the vision of collaboration and research within both DH and BIS which respectively support each funder. This has subsequently been reinforced by the establishment of a joint Office for Life Sciences, and appointment of Life Sciences Minister, by Government.

The Academy firmly believes that the conclusions of the Cooksey report, which led to the establishment of OSCHR, remain valid in the current funding landscape.¹⁸ We believe that major restructuring of this relationship risks widespread damage to a fast-paced and productive field.

Responsiveness

The RCs have consistently demonstrated responsiveness to government priorities, exemplified by increased funding for anti-microbial resistance research. While existing internal governance procedures very effectively introduce balance at all levels, it is vital that mechanisms exist to support on-going strategic review of spending allocation.

¹⁶ [Building a Stronger Future](#) (2015) Joint Academies statement

¹⁷ [Challenges for Government](#) (2015) Association of Medical Research Charities

¹⁸ [A Review of UK Health Research Funding](#) (2006) Sir David Cooksey

This flexibility is necessary to accommodate external priorities and tackle current and future societal challenges, and operates most effectively when provided with a broad, stable and long-term vision from external contributors.

4. Effective ways of working

Leadership and efficacy

The strategic role of the RCs in the wider research ecosystem cannot be overestimated, with Councils acting as leaders and agenda-setters for the community. Feedback from the community is able to steer the research agenda, for example via annual site visits by the MRC Strategy team to top-funded HEIs to discuss strategic developments. RCs should review opportunities to expand this remit, to act as on-going facilitators of awardees and support maximum value for money.

Further inter-RC collaboration would bolster this vision of Councils as empowered agenda-setting organisations, a vision which should be effectively communicated through public dialogue to ensure a broad base of support. RCs should seek and fund novel strategies for the dissemination of results, and support researchers to publicise results from funded projects.

Peer review

The peer review process sits at the heart of RC decision-making processes, and powers the principle of funding excellence. This system remains robust and fair given the human element involved, and includes an increasing awareness of the need to eliminate bias wherever possible.

Initiatives to broaden the pool of potential reviewers should be considered (e.g. remuneration). A breadth of reviewing talent is essential to effectively assess interdisciplinary project proposals and operate harmoniously with the broader drive towards supporting cross-disciplinary efforts.

Summary

In summary, we regard the existing spectrum of Research Councils as a largely appropriate and robust mechanism of proven value, operating as part of a comprehensive ecosystem.

Key issues warranting further attention include: the strategic distribution of resources between Councils; the use of transparent mechanisms to support the inter-disciplinary projects needed to tackle major societal challenges; and the need for mechanisms able to redefine strategic prioritisation on an on-going basis.

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