



5 March 2013

Society for General Microbiology Consultation Response

Department for Business, Innovation and Skills Triennial review of the Research Councils: call for evidence

Introduction

The Society for General Microbiology (SGM) is a membership organisation for scientists who work in all areas of microbiology. It is the largest learned microbiological society in Europe with a worldwide membership based in universities, industry, hospitals, research institutes and schools. The SGM publishes key academic journals in microbiology and virology, organises international scientific conferences and provides an international forum for communication among microbiologists and supports their professional development. The Society promotes the understanding of microbiology to a diverse range of stakeholders, including policy-makers, students, teachers, journalists and the wider public, through a comprehensive framework of communication activities and resources. Further information about SGM is provided in Appendix 1.

Responses to consultation questions

Do the Royal Charter objectives for the Research Councils need to continue to be delivered?

We believe that the Royal Charter objectives of the Research Councils need to continue to be delivered, as they are used to meet major global and societal research challenges.

How well aligned do you think Research Council priorities are with these Royal Charter objectives?

The Research Councils have aligned their priorities well.

How closely are and should Research Council research objectives be aligned with those of government?

We believe that the current relationship between Government and the Research Councils seeks to strike a balance between independence of decision-making about research funding (the so called 'Haldane Principle'), whilst ensuring public accountability and guidance on broad priority areas for research.

The Haldane Principle does operate to a large degree in the detail of implementation of research funding. However, given the requirement to justify Research Council expenditure through the Spending Review process to Parliament and the taxpayer, there is some influence of policy on research. As long as that policy is based on scientific evidence and principles, this is manageable.

Indeed, the process has benefitted the science budget compared with other forms of public expenditure.

However, the downside of the process is that the Research Councils wish to maximise spend in the areas for which funding has been agreed. This results in novel and potentially disruptive ideas which fall outside the main areas of funding having increased difficulty in obtaining funding. While the Committees and Colleges which award grants can compensate for this to a certain extent, it remains an issue. It is particularly acute in interdisciplinary work, which may lie at the edge of the remits of two or more Research Councils.

In addition to strategic programmes, research funders should be in a position to underpin future 'seed-corn' through a recognition that science for its own fundamental interest is sufficient and that researchers, as trusted experts in their respective fields, can pursue observations that intrigue them even if such work does not fit a strategic agenda and lacks an immediately visible, exploitable outcome. Such funding, based on scientific excellence, attracts top quality scientists from abroad, as well as offering career development, and training, for the brightest UK-based scientific workers.

Innovation processes leading to economic or other gain are rarely, if ever, linear and predictable. There are many examples of serendipitous discoveries from blue-skies research leading to major applications (e.g. genetic modification technologies arising from fundamental studies of bacterial restriction systems in the 1970s). Goals change through time, as much as scientific knowledge changes. Our funding formulae must capture these in-built uncertainties, as much as they also capture more immediate, predictable gains through goal-directed funding. Obviously an effective science and innovation policy lies with balancing funding allocations between blue-skies and goal-directed research. It is of the utmost importance to pay careful attention to this balance.

How effective are the Research Councils at delivering their objectives?

The Research Councils have taken forward a number of important cross-cutting initiatives that seek to create an effective, sustainable and engaged research base. These include:

- support for research careers and the next generation of researchers through skills development, doctoral training and on-going researcher development;
- promoting a culture of public engagement within the research community;
- initiatives to promote efficiency and effectiveness and maximise usage and value of research infrastructure and assets.

Are the current disciplinary divisions appropriate to allow the Research Councils to foster excellence and innovation in the research base?

We believe that the current disciplinary divisions are appropriate and an important reason for the success of the UK research base. The expertise and promotion of research and training within each Council remit is coupled with close working in a number of multidisciplinary areas.

There may be an increasing overlap among the work of MRC, BBSRC and NERC around the fields of human and animal disease and the environmental basis for disease transmission. More coherent

work on human, livestock and wildlife disease is required. Attention needs to be paid to potential gaps in the remits. This has become noticeable between BBSRC and NERC. Responsibility for disease in non-livestock animals or non-crop plants is not readily addressed by either BBSRC or NERC. Both TB in badgers and Ash Dieback are only addressed because of their economic importance.

BBSRC-MRC and BBSRC-ESRC interactions have usually been very good and few gaps have arisen; indeed, there has been some duplication (e.g. in molecular biology and in ethical studies), but this is preferable to any gaps. EPSRC and BBSRC seem to work effectively together in the areas of synthetic biology and industrial biotechnology. Both research councils have developed individual but complementary remits within these two areas.

To what extent is there duplication between the functions of the Research Councils (from promoting and supporting research through to advancing and disseminating knowledge, generating awareness and providing advice) and other providers in the sector?

The Research Councils play a critical role within academic research in the UK. There are good and strong relationships with other funders, including charities, Government departments and the Higher Education funding bodies. Mechanisms are in place to minimise duplication and promote dialogue. Organisations such as the Wellcome Trust, and the Bill and Melinda Gates Foundation, fund specific areas of microbiological research concerned with infectious disease. The particular strength of the Research Councils is their support for microbiology beyond its medical aspects, and their broad, cross-cutting focus which allows work across subjects and disciplines. There are also learned societies, such as the Society for General Microbiology, who are in the closest contact with the needs of researchers, and play crucial but often overlooked roles in funding research ('pump-priming' funds and training grants), supporting knowledge dissemination, generating awareness and providing advice. The individual strengths and expertise of all the organisations involved in UK science need to be harnessed in pursuit of high-quality research.

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

The individual remits of the Research Councils have served the UK research base well, and there is little need for change in the overall structure. Discipline-specific management of the research budget contributes significantly to the UK's leading international position in scientific research. The Shared Service Centre, which had a rocky start, provides the operational focus/back-office function for all the Councils and thus provides economy of scale while allowing the Councils to focus on their individual remits. Providing good dialogue is maintained through RCUK and measures are in place to promote multidisciplinary working, there is no requirement for change from a system that is established and understood by the research communities it serves.

How effective do you consider RCUK to be and why?

We believe that RCUK provides appropriate strategic coordination and support for cross Council initiatives. Individual Chief Executives take the lead on the different RCUK roles, and the effectiveness of RCUK depends heavily on the individual concerned.

The Research Councils have been very effective in Europe – both in influencing Commission funding of research and in engaging with other national funders (ERANets, Joint Programming Initiatives, etc.). The UK has been a strong partner in many of these joint research activities and has benefitted from the Research Councils' involvement. There is some uncertainty in how the new organisation, Science Europe, replacing EuroHORCs and the European Science Foundation, will work in future, but we are confident that the Research Councils and the UK will continue to engage in the EU research agenda.

It is also notable that the Research Councils have been active in working with the US, China and India through the RCUK Offices in those countries, but it seems that there has been as much activity in Brazil as in the countries with RCUK offices. This leads us to question the on-going value of the offices to the UK research community.

Are there any functions currently performed by RCUK that you think should be performed at Research Council level or vice versa?

The distribution of functions between RCUK and the individual Research Councils seems appropriate.

Where do the Research Councils need to work in partnership and how good are the Research Councils at doing this?

There needs to be better coordination with the Technology Strategy Board (TSB) and with Government Departments in providing joint initiatives. It is notable that microbiological research challenges rarely involve the Research Councils, Defra and the Food Standards Agency working jointly, for example. Successful application of research requires all agencies to participate in a strong research agenda.

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

Research Councils have been effective in challenging the status quo in a wide range of areas. The emphasis on Big Data has been led by the Research Councils, as have the recent development of Systems Biology and the current developments of Synthetic Biology. BBSRC, EPSRC and others have recently picked-up the need to develop Industrial Biotechnology from the Knowledge Transfer Networks and are challenging the academic community to address this area.

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

The Research Councils are gradually beginning to move towards sharing their modes of operation but there are still significant differences. More openness about the reasons for differences in practice between Research Councils (e.g. status of principal investigators, studentships on grants, first grant systems, etc.) would be welcomed by the research community.

How do Research Councils ensure that use of research is maximised, including by those in other Councils, the private, public and third sector?

There has been a specific push to open access (OA) for research publications, which has been poorly thought through by the Research Councils. The intention to use OA publication to maximise research impact is good, but the execution is poor and may well damage the role of learned societies in fostering disciplines and supporting research students and new entrants to a discipline. The distribution of funding for OA publication away from academics to university libraries risks elements of academic freedom, one of the most important tenets of the UK university system.

The impact agenda is confused. Businesses and academic researchers have different views of 'impact' and the definitions provided by the Research Councils are different to those used in the Research Excellence Framework. Absolute clarity is required if the current generation of researchers are to provide the blue-sky opportunities for future exploitation, as well as current impacts.

The relationship between the Research Councils and the TSB has taken time to develop. There still needs to be clearer guidance and better exposition of the principles of parallel research and innovation ("co-production"), rather than the bolt-on activity of Follow-on Funding or TSB funding for innovation. The process of innovation would benefit from better interactions between the Research Councils (primarily funding universities and research institutes) and TSB (primarily funding businesses) in developing the outcomes of fundamental research. TSB engagement in the Research Council-Industry clubs should be beneficial in this regard. Unlike Knowledge Transfer Networks, these work well for academic researchers.

How well do you think the funding mechanisms are understood by applicants (existing and new)?

The funding mechanisms are generally well understood, but increasing strictures on how funds may be applied for, and used in, specific initiatives can be confusing.

Changes to funding streams and different behaviours between Research Councils are confusing. For example, BBSRC never allowed studentships to be funded on grants; EPSRC allowed this as a common mechanism, but this was then withdrawn, causing uncertainty and protests in the relevant research communities.

How well do you think Research Councils communicate with the general public?

The Research Councils have excellent public engagement programmes through which researchers (including Research Council staff working in research institutes) can communicate with the public about research. The Research Councils could do more in association with learned societies and others who have distinct public-engagement agendas. The Research Councils could do more on open governance.

Is the funding mechanism appropriately open to a range of institutions/researchers, including new entrants as well as incumbents?

The range of funding is appropriate. Special schemes have been made available for first-time applicants and early-career researchers, and new schemes are available to support world-leading

groups in the UK (e.g. the BBSRC sLoLa scheme). An analysis of the effects of current funding formulae on mid-career scientists would be useful.

Does Research Council funding work well alongside block grants to institutions?

If the Research Councils were able to fund 100% of the costs of research and research infrastructure, the heavy institutional commitment to the Research Excellence Framework, which determines the funding Councils' contribution to research (QR) could be considerably reduced. The 'dual support' mechanism works particularly well for universities which have significant non-Research Council research funding. However, most universities manage their dual support effectively and well.

How good is the UK at attracting private investment and human talent into research in comparison with other countries? What factors influence this?

The UK is good at attracting human talent, but there are reports that the actions of the UK Border Agency (UKBA) have jeopardised recruitment of students from the developing economies. The academic community has expressed concerns about the undergraduate fees having a detrimental effect on attracting the best students to continue to a higher degree. Commissioning research at UK universities is expensive compared with some of our competitor nations, who do not charge full economic costs, and this acts as a deterrent for direct funding of research by industry.

How effective is the funding mechanism at delivering value for public money and deciding the best targets for new research?

The Research Councils have traditionally maintained a strong value-for-money ethos at the level of individual grant funding, and typically seek full justification for funding, while ensuring that a research programme is properly budgeted. Targets for new research are decided in two ways: through agreed consensus of boards and committees fed through the Research Councils to Government for large-scale initiatives, and through the disruptive ideas of innovative researchers for single grant applications. Both mechanisms are extremely effective, and the latter mechanism may well give rise to major future initiatives.

The recent changes to capital funding probably do not provide the best value. Rather than having a capital budget that can meet the needs of the research, the limitations on capital funds coupled with sudden additional capital funding can mean that opportunistic capital projects get funded with little strategic oversight.

How easy is it for UK businesses, individuals and policy-makers to access the research base?

UK businesses and policy-makers are represented on Research Council committees and boards, and there are specific schemes to bring research outputs to businesses. As the Research Councils may routinely devolve IP to the research institution, access to the research base often occurs at institutional level.

Industrial biotechnology is a major interest for members of the Society for General Microbiology. One key barrier everyone identifies is communication and knowledge exchange between academia

and industry. In this context, the Networks in Industrial Biotechnology and Bioenergy (NIBB), which may then lead to funding opportunities, seem to be a good idea.

Society for General Microbiology – President & Chair of the Policy Committee:

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Society for General Microbiology – Policy Committee:

- Professor David Blackbourn, University of Birmingham
- Professor Martin Cranage, St George's, University of London
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Appendix 1

Vision

A world in which the science of microbiology provides maximum benefit to society.

Mission

To promote high-quality microbiological science, both nationally and internationally, to a diverse range of stakeholders.

Rationale

The potential socio-economic benefits arising from microbiology are substantial. They include:

- A healthier future (for humans, animals and plants) and a better quality of life, within the context of a sustainable natural environment.
- The development of biotechnology products (such as food, drinks, biopesticides, biofuels and medicines), which generate wealth and employment, and so support growth and innovation.
- The advancement of scientific knowledge, as a benefit in its own right, and to allow us to plan for the future and contribute to international solutions for global challenges, such as climate change, the burden of disease and food security.

Strategic priorities

To achieve its Vision and Mission, the Society will work towards the strategic priorities below.

- Publishing: to contribute to the science of microbiology through high-quality publications.
- Scientific conferences: to hold international scientific conferences to disseminate research knowledge and provide a forum for communication between microbiologists and to grow and support communities among them.
- Raising awareness: to inspire and educate people about microbiology, and allow them to make informed decisions which recognize the importance of microbiology and its advances.
- Influencing policy: to ensure that appropriate scientific information and expert opinion are made available to policy- and decision-makers and that the improvement of resources and infrastructure for microbiology is supported.
- Professional development: to promote microbiology as a career from school level onwards and support career and professional development of microbiologists.

The Society is a Charity registered in England and Wales (No. 264017) and in Scotland (No. SC039250) and a Company Limited by Guarantee, registered in England and Wales (No. 1039582).

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Department
for Business
Innovation & Skills

Triennial Review of the Research Councils: Call for Evidence

The Triennial Review of the Research Councils is one of the Department for Business, Innovation and Skills (BIS) reviews of non-departmental public bodies (NDPBs), in accordance with the coalition government's commitment to review public bodies, with the aim of increasing accountability for actions carried out on behalf of the state.

The review is occurring as scheduled during the second year of the programme (2012-13) and was announced by David Willetts, Minister for Universities and Science, by Written Ministerial Statement on 9th January.

The review is being conducted in two stages in accordance with Cabinet Office guidance which is available at: http://resources.civilservice.gov.uk/wp-content/uploads/2011/09/triennial-reviews-guidance-2011_tcm6-38900.pdf

- Stage 1 will consider the core functions of the Research Councils, assess the need for these functions to continue and the structural options for continued delivery of these functions.
- If the conclusions of Stage 1 are that the Research Councils should continue as Non-Departmental Public Bodies, then Stage 2 will examine corporate governance arrangements.

Please note that this is not a review of the government's underlying policy on the funding of the research base, but of the structures for its delivery.

During the course of the review government hopes to receive evidence from a wide variety of stakeholders. We would therefore be pleased to receive any information that any party with an interest in the subject wished to submit the review. Topics on which we would be particularly grateful to receive evidence to inform the review include:

- The structure, governance and coordination of the Research Councils and the extent to which this contributes towards the successful delivery of their functions.

- The relationship between the Research Councils and other funding bodies, including governmental, private and third sector funders.
- The relationship between the Research Councils, those they fund, the 'customers' of research and the wider public and the extent to which these relationships enable the functions of the Research Councils to be delivered with maximum impact.

A detailed list of the questions we are seeking answers to may be found in the Annex, below. Please feel free to answer either some or all of the questions in your response.

Any responses to this call for evidence should be sent to the Triennial Review mailbox RCTriennialReview@bis.gsi.gov.uk by **28 February 2013**.

Annex: Questions for Respondents

Theme	Questions
Purpose	<ol style="list-style-type: none"> 1. Do the Royal Charter objectives for the Research Councils (below) need to continue to be delivered? 2. How well aligned do you think Research Council priorities are with these Royal Charter objectives? 3. How closely are and should Research Council research objectives be aligned with those of government?
Effectiveness and efficiency	<ol style="list-style-type: none"> 4. How effective are the Research Councils at delivering their objectives? 5. Are the current disciplinary divisions appropriate to allow the Research Councils to foster excellence and innovation in the research base? 6. To what extent is there duplication between the functions of the Research Councils (from promoting and support research through to advancing and disseminating knowledge, generating awareness and providing advice) and other providers in the sector? 7. What is your view on whether seven Research Councils is the right number?
Interaction and coordination	<ol style="list-style-type: none"> 8. How effective do you consider RCUK to be and why? 9. Are there any functions currently performed by RCUK that you think should be performed at Research Council level or vice versa? 10. Where do the Research Councils need to work in partnership and how good are the Research Councils at doing this? 11. How good are the Research Councils at challenging the status quo – both in the sectors they support and in government? 12. Do the Research Councils have effective ways to share best practice?
Dissemination and communication	<ol style="list-style-type: none"> 13. How do Research Councils ensure that use of research is maximised, including by those in other Councils, the private, public and third sector?

Theme	Questions
	<p>14. How well do you think the funding mechanisms are understood by applicants (existing and new)?</p> <p>15. How well do you think Research Councils communicate with the general public?</p>
Funding mechanism	<p>16. Is the funding mechanism appropriately open to a range of institutions/researchers, including new entrants as well as incumbents?</p> <p>17. Does Research Council funding work well alongside block grants to institutions?</p>
Economic Impact	<p>18. How good is the UK at attracting private investment and human talent into research in comparison with other countries? What factors influence this?</p> <p>19. How effective is the funding mechanism at delivering value for public money and deciding the best targets for new research?</p> <p>20. How easy is it for UK businesses, individuals and policy makers to access the research base?</p>

Royal Charter objectives:

- Promote and support research
- Advance knowledge, understanding and technology and provide trained researchers to meet needs and contribute to UK competitiveness, effectiveness of public services and policy, and to enhance quality of life and creative output of the nation
- In relation to this:
 - (i) generate public awareness;
 - (ii) communicate research outcomes;
 - (iii) encourage public engagement and dialogue;
 - (iv) disseminate knowledge; and
 - (v) provide advice.

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