

Theme	Questions
Purpose	<p>1. Do the Royal Charter objectives for the Research Councils (below) need to continue to be delivered? <i>Scientific research – blue skies research in particular – is necessarily part of the means for a developed country to maintain its intellectual “seed corn”. A slightly hands-off arrangement (exemplified by the Councils’ Royal Charter) is sound practice, especially from the perspective of the Society – allowing the long term planning which is essential in “big science” such as astronomy, space research and critical branches of geophysics.</i> <i>In geophysics, the cross-over and mutual benefits between academia and industry are well-known. In astronomy and space science, projects such as instruments for large observatories or spacecraft drive innovation in both public and private sectors. Applications such as medical imaging and security technology have been greatly enhanced by the work initially carried out by scientists working in universities.</i></p> <p>2. How well aligned do you think Research Council priorities are with these Royal Charter objectives? <i>They fit well enough for the basic structure not to be changed (see answers below).</i></p> <p>3. How closely are and should Research Council research objectives be aligned with those of Government? <i>They should follow specific Govt priorities wherever possible and should not be in conflict with them. However, particularly in regard to long term planning where time scales exceed those of political changes, national scientific interests are paramount. Councils responsible for maintaining long term assets and programmes associated with them should not be subject to demands to match all present immediate initiatives. Peer review by scientific panels is a key form of advice for Research Councils and should help inform Government objectives in this area.</i></p>
Effectiveness and efficiency	<p>4. How effective are the Research Councils at delivering their objectives? <i>Within the astronomy community and subject to the vagaries of the varying financial climate, there is at present good trust of the primary providers (STFC and NERC). Set up in 2007, the STFC initially had some structural difficulties and unnecessary tensions between different parts of its remit. Working with the community and organisations like the RAS, STFC now enjoys a good level of trust amongst scientific researchers. If there are major changes to the research council landscape, this could destabilise this and other relationships and ultimately be detrimental to the international standing of UK science.</i></p> <p>5. Are the current disciplinary divisions appropriate to allow the Research Councils to foster excellence and innovation in the research base? <i>Astronomy and space research have always pushed technological limits whatever the overall governing structure. However the long term nature of the facilities needed militates towards a structure where the research council management is able to keep its collective ear close to the science community. In the present set-up, the interfaces between the UK Space Agency and the RCs need monitoring as they cross disciplines but there is on the whole good cross-communication at this time (with for example science and technology under a single director at the Agency).</i> <i>A continuing concern of the astronomy community in particular is the tension between the funding of facilities (such as those at the Rutherford Appleton Laboratory), the funding of grants for researchers and support for international</i></p>

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	<p><i>subscriptions. Intervention by the last science minister led to a review in 2009 that helped resolve much of this conflict, but there remains a risk that it might re-emerge in future reorganisations. Whatever the outcome of the Review, the Government should ensure that the structure has the transparency and stability to support the diverse portfolio of UK research.</i></p> <p><i>Part of the reason for creating STFC was to achieve an across the board approach to engagement in international organisations, including pressing for efficiencies in those bodies. This is still very much work in progress and should be a key consideration in the Review.</i></p> <p>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?</p> <p><i>There appears to be very little duplication as such, as there are essentially no other routes, at least in the public sector, of accessing research funding of this type. However where responsibilities are linked across interfaces coordination procedures need to be clear. The role of the UK Space Agency vis-à-vis delivering science capacity to STFC and NERC is now bedding down. At the same time, the innovation and growth agenda that drives the Agency doesn't always seem to directly fit to Research Council objectives.</i></p> <p>7. What is your view on whether seven Research Councils is the right number?</p> <p><i>There may not be an 'ideal' number of Research Councils, but there is no convincing evidence that reducing the number of research councils will be beneficial for the UK research base. Larger units respond less well to the needs of individual subjects. The creation of STFC in 2007 is a good example, a body that took several years (and intervention at ministerial level referred to in the answer to q. 5) to successfully deliver its research remit and to win the confidence of the scientific community. Restructuring the present configuration to create a new set of research bodies would carry the risk of losing that confidence again and at the same time create a set of boundaries that could in particular hinder cross-disciplinary research.</i></p>
Interaction and coordination	<p>8. How effective do you consider RCUK to be and why?</p> <p><i>The present almost "light touch" approach of RCUK devolves power and keeps the programme content and evolution closer to the science community.</i></p> <p>9. Are there any functions currently performed by RCUK that you think should be performed at Research Council level or vice versa?</p> <p><i>The Councils should be about delivering science. A shared but carefully run overarching administrative capacity could engender more effective management. There is however continuing concern in the scientific community about the Shared Services Centre, the company set up in 2007, but which runs at a high cost and appears not to deliver the greater efficiency promised at the time of its creation.</i></p>

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	<p>10. Where do the Research Councils need to work in partnership and how good are the Research Councils at doing this? <i>In responding to government initiatives, in coordinating at European level (as EU plays an increasing part in blue skies research), and in feeding technology driven by science into industrial applications. There are research facilities (e.g. Diamond, ISIS) that serve communities supported by a number of research councils. Careful coordination at RCUK level is needed to ensure these are supported at a level consistent with the needs of those communities. There are also areas of interdisciplinary research where cross-council coordination is important.</i></p> <p>11. How good are the Research Councils at challenging the status quo – both in the sectors they support and in Government? <i>The approach to astronomy in the UK has been guided from a rather institutionally based national system 40 yrs ago to a much more flexible university based system which is, regarding facilities, almost entirely now based on international cooperation and where British scientists are forced to function at the highest European or world level if they are to succeed. Much of this success has come in the last decade and a half where it has been PPARC and then STFC at the helm, who together thus challenged and changed the way research was carried out.</i></p> <p>12. Do the Research Councils have effective ways to share best practice? <i>This is clearly a function for RCUK. However it must always be recognised that “one size does not fit all” and best practice does not mean same practice.</i></p>
Dissemination and communication	<p>13. How do Research Councils ensure that use of research is maximised, including by those in other Councils, the private, public and third sector? <i>In astronomy the increasing scale of facilities and instrumentation has inevitably led to increasing levels of cooperation between Council, academia and industry. By and large, working together fosters mutual respect and transfer of skills.</i></p> <p>14. How well do you think the funding mechanisms are understood by applicants (existing and new)? <i>It seems generally fair to say that the schemes are understood well by the community, which does not imply that they are popular. The STFC Consolidated Grants scheme in particular has led to confusion amongst recipients and their institutions.</i></p> <p>15. How well do you think Research Councils communicate with the general public? <i>STFC (in contrast with NERC) seems to have found ways to galvanise public interest and inspire not just schoolchildren but the public as a whole. They have been very willing to partner with the community and to help the academic community in learning how to communicate the exciting nature of their science. There should however be better links between the RCs and DfE so that cutting edge research can to an extent help shape school science curricula.</i></p>
Funding mechanism	<p>16. Is the funding mechanism appropriately open to a range of institutions/researchers, including new entrants as well as incumbents? <i>Astronomy, space and planetary science and geophysics require access to large facilities and are generally pursued in collaborations, which mean they take place in fairly large university or other groups. Mentoring normally takes place within the groups and amongst researchers themselves.</i></p>

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	<p>17. Does Research Council funding work well alongside block grants to institutions? <i>There needs to be a separation of function between block grant and research funding. Heterogeneous sources of funding engender flexibility in approach.</i></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? <i>Human talent has been attracted into UK astronomical academia by an open research environment, reasonably competitive salaries, and most of all by the very high reputation of the institutions that do astronomy. Cooperation with the private sector is widespread in geophysics and there are also good examples of this in astronomy.</i></p> <p>19. How effective is the funding mechanism at delivering value for public money and deciding the best targets for new research? <i>The competitive peer review process that underpins the manner in which funding for astronomy and geophysics is distributed has been essential in building the high reputation of these disciplines in the UK. More directive approaches can yield short term gains but do not sustain long term competitiveness.</i></p> <p>20. How easy is it for UK businesses, individuals and policy makers to access the research base? <i>From the shallow but very inspiring level of TV shows like “Stargazing live” through to the manner in which professional journal publication in astronomy has evolved towards open access in the internet era, there should be little difficulty for anyone to access information on the present research trends and capabilities.</i></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; (v) provide advice.