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Submission to:

BIS; Triennial Review of the Research Councils: Call for Evidence

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From:

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This response is from AIRTO (The Association of Independent Research and Technology Organisations). AIRTO's members comprise representatives from:

- Public Sector Research Establishments (PSREs)
- Non-profit distributing member and non-member based research and technology organisations (RTOs)
- Privately held research and technology companies (including Contract Research Organisations - CROs)
- Universities (Enterprise/Technology Transfer Departments)
- R&D departments of industrial companies
- Business support (including Access to Finance) and early stage technology-based venture capital companies

AIRTO's members generally operate in the private sector but with varying degrees of interaction and financial involvement from the public sector. All are to a significant extent involved in aspects of the translation of ideas, research and technological advances into the commercial arena, for clients in both the private and public sectors.

AIRTO's response to the questions posed follows:

Purpose

1. Do the Royal Charter objectives for the Research Councils (below) need to continue to be delivered?

The Royal Charter objectives continue to need to be delivered, either via the Research Councils as now constituted or via equivalent delivery mechanism(s). Research, technology, knowledge, understanding and trained researchers are essential to underpin the UK's competitiveness and economic growth, along with a number of other important attributes such as market knowledge, experienced business management expertise and access to finance. Research related activities and outcomes also contribute to quality of life, health, security, arts, creative activity and other essential features of our society.

Generation of public awareness, communication of research outcomes, public engagement and dialogue, dissemination of knowledge and provision of advice is also essential in order to ensure that research can be translated effectively into everyday life and that advances will be accepted by society.

It seems inconceivable that a modern developed society could continue to develop and thrive in the absence of such underpinnings.

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

It appears that Research Council priorities are generally well aligned with these objectives.

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

There should always be provision for a healthy proportion of curiosity driven research. However, in other respects, Research Council research objectives should be as well aligned with government objectives as possible and practicable, so that to a significant extent research outcomes deliver against government strategic priorities (i.e. challenge-led). Without such alignment, and a downstream system resourced and geared up to translate research outcomes into practical benefits for the economy and society, research spending will not deliver the desired impact and the UK will be slower than other nations to compete on the global stage.

Effectiveness and efficiency

4. How effective are the Research Councils at delivering their objectives?

The Research Councils are generally good at supporting research. They are perhaps less good, at least from time to time, at communicating with the research community and with the wider stakeholder community and with dealing with changing priorities.

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

The science budget needs to stretch as far as it can and management and administration costs need to be minimised and effectively targeted. There is likely to be an efficiency of scale, and hence the extent to which specific activities can be centralised or outsourced is worthy of regular review. The different disciplines necessarily vary in their approach to defining what constitutes good science, and consequently in the criteria they use to identify good research proposals. Therefore, whilst there may be some overlaps in terms of generic functions such as finance and human resources, there are major differences between physical, natural environment and biological/medical domains. Some sharing of certain generic back office processes and functions might be appropriate, provided that the savings that could be made on any reasonable timescale do not outweigh the cost of the changes involved.

Innovation could be fostered by encouraging close links between the domains and even via increasing the number of interdisciplinary programmes, but one-size-fits all approach or system is, in our judgement, unlikely to work well. A single, overarching Research Council would almost certainly need internal discipline orientated divisions.

A disadvantage of the present system, however, is that some research topics fall between the Research Councils and so do not get addressed. An example would be engineering technologies for commercial space and satellite applications, which are excluded from consideration by both STFC and EPSRC.

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?

We are not sure that we can answer this question with a great deal of confidence. The dual funding system carries the risk of overlap between HEFC and the Research Councils in supporting the exploitation of research outcomes. This is an area where there is also activity supported by the TSB and delivered by established non-university channels.

We would not advocate rationalisation without a great deal of forethought and care as over-provision is probably a lesser risk than under-provision in this important area.

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

Again, we are not sure that we can answer with a great deal of confidence. There could perhaps be some merit in looking at combining EPSRC and STFC, perhaps BBSRC and MRC and perhaps ESRC and AHRC. Also, a single, divisional Research Council could have some merit but the disruption and cost of change might take a long time to recover, and disruption to research while we are seeking to use research outcomes to contribute to economic recovery might be detrimental to the overall end result, certainly in the near term.

Interaction and coordination

8. How effective do you consider RCUK to be and why?

RCUK is a mechanism for counteracting the disadvantages of having seven autonomous Research Councils. Some overarching body is needed to provide the cohesion that would otherwise be missing. Appropriate functions could include: promotion of science and other research, representation of common Research Council interests, and stimulation of cross disciplinary and inter Council initiatives for example.

We do not have sufficient recent experience to comment on the effectiveness with which RCUK performs, but past experience was generally good.

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

We are not sufficiently close to RCUK and the Research Councils to be able to comment with any great confidence.

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

The Research Councils should certainly address interdisciplinary areas and work together to ensure that important topics do not fall between their programmes and thereby become neglected. In addition, in some areas, it is clearly important that working in partnership effectively with other government agencies and departments is vital for maximising return on investment in research (e.g. TSB; Department for Health for MRC). The separation between research money for Research Councils, Government Departments and innovation isn't always helpful in assuring a joined up approach to science investment in the UK. We believe that there is a need to address any barriers that exist between the Research Councils (consideration of some consolidation may be beneficial, as referenced in our answer to Question 7), and the TSB and other Government science funding to minimise overlap and gaps, thereby ensuring that there is a seamless transition of science and innovation through the various technology readiness levels. This is fairly complex and takes effort. From a distance, it appears that more could be done.

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

Challenging the status quo is important and recent experience has shown that the Research Councils tend to get into difficulties with at least some elements of the communities that they support when radical change is introduced. This may require greater attention to communication and handling some entrenched views in various parts of their communities. Challenging the status quo in government has to be handled delicately as government is ultimately the paymaster. Generally, changing attitudes underlying the status quo is a lengthy process (requiring years of patient dialogue).

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

We are unable to comment.

Dissemination and communication

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

Research Councils try to maximise the uptake of research outcomes by publicising activities, outcomes and achievements, both in conventional ways and by forging partnerships with key stakeholders. However, EPSRC, for example, appears to concentrate on major companies who can co-fund research and this may shut out lesser organisations.

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

The level of understanding varies and depends on how much effort the applicants put into understanding the mechanisms. The Councils do inform their communities but constant changes of process and priorities do not necessarily help with understanding current priorities and mechanisms, particularly where applicants are under intense time and other pressures.

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

In general, we think that there is room for considerable improvement. Their branding and profile is not very high and the public would not really understand or appreciate their function. This is an area where a single, overarching body could promote the work and achievements of all seven research councils more efficiently and effectively, particularly with regard to public engagement.

Funding mechanism

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

Efforts are made to encourage new entrants but needs constant attention as the peer review process tends to favour incumbents. Funding is tending to be concentrated on fewer, larger research led universities, which risks excluding some good quality specialist expertise elsewhere.

There is a need for more applied research to bridge the gap between fundamental and breakthrough research preparation for commercial and other uses; Research Councils need to do as much as possible to push through outcomes by using applied research to increase 'end user readiness' of academic outcomes. This should probably include greater use of 'Follow-on Funds', with increased involvement of RTO sector being considered, to maximise return on investment, through bringing technological and commercial awareness and expertise to bear.

There should be more flexibility to engage non-university research institutions who can contribute value to the research and knowledge base in RC funded work, particularly in applied research, but also indirectly via increased involvement in the peer-review process

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

From past experience there would seem to be some complications involved in trying to ensure that work isn't double funded. This can push apart funding mechanisms that would ideally be complimentary. We do not have sufficient first-hand experience to comment further.

Economic Impact

18. a more defined, systematic framework 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 suffers from having relatively few remaining large, research intensive industries capable of funding research at university level. Mid-cap and smaller companies generally find it difficult to put aside the time and money and to find in-house expertise to match the requirement of funding university work. . The UK's well established research and technology organisations, RTOs, are well equipped in many instances to help such companies, either on a self-sufficient basis or in conjunction with university partners. Many RTOs work with universities in this manner, but approaches vary locally, and the UK could benefit from [adopting a more defined, systematic framework to support this](#). The recently launched Catapults (which are effectively new RTOs) are intended to provide a better match to the research needs of such parts of the private sector, in specifically identified technology areas.

Human talent is attracted to the research base, but much of it is from abroad, where the UK's global reputation in research and the English language make it an attractive destination.

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

Dual funding makes value difficult to determine at anything other than a global level. On deciding best targets, the system works for curiosity-driven research and probably for work funded in conjunction with large organisations or charities. Otherwise it is unclear whether or not there could be a better system. Joint projects between university teams and other institutions where complimentary expertise has already been assembled would be advantageous, but the inability of Research Councils to fund organisations which are not universities to any significant extent makes this difficult and probably results in some loss of efficiency and time, and therefore value for money.

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

Access is not easy. Determined efforts are being made through advanced database search mechanisms, but the university system is not generally designed to be user friendly in a lot of small ways. An external user friendly interface seems to be seen as a costly overhead that takes money from research, and the beneficial impact of such activity is difficult to measure.

Linkage with industry could be strengthened. Activities like the EPSRC college and industrial CASE awards, for example, are useful vehicles, but industry should have a larger part to play in defining research needs, and could be particularly helpful in assisting with the identification of the postgraduate skills required to deliver a thriving economy. However, there is a continued need for curiosity driven research as an important deliverable of the Research Councils and this should continue to be recognised in a proportionate way within funding portfolios.

Declaration of interests

This submission is made by the Association of Independent Research and Technology Organisations (AIRTO). The organisation represents research organisations and technical consultants, operating in the space between the academic research of universities and the commercial needs of industry. AIRTO members undertake research and development, and knowledge and technology transfer. This submission does not necessarily represent the views of individual member organisations. AIRTO currently comprises organisations, employing more than 20,000 scientists and engineers, with a combined annual turnover in excess of £2billion (AIRTO Ltd. is a company limited by guarantee registered in England No. 1217006 Register office address: National Physical Laboratory, Hampton Road, Teddington, Middlesex, TW11 0LW. AIRTO is a not-for profit organisation funded by membership subscriptions, and managed under contact by NPL Management Ltd.). The members of AIRTO currently are:

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