29-30 Tavistock Square
London WC1H 9QU
Tel: 020 7679 4995 Fax: 020 7916 8528
info@sciencecampaign.org.uk
www.sciencecampaign.org.uk

Campaign for Science and Engineering in the UK

CaSE 06/10

Reinstating freedom in the research base

Response to the document *Science and Innovation Investment Framework 2004-2014: Next Steps*

1. The Campaign for Science & Engineering is pleased to submit this response to the consultation on the next steps in the science and innovation investment framework. CaSE is a voluntary organisation campaigning for the health of science and technology throughout UK society, and is supported by over 1,500 individual members, and some 70 institutional members, including universities, learned societies, venture capitalists, financiers, industrial companies and publishers. The views of the membership are represented by an elected Executive Committee.

2. We have not restricted our response to the proposed list of discussion questions in the consultation document nor have we felt constrained by the suggestion in Chapter 7 that we should only comment on the proposals in Chapters 2 and 3 of the consultation document. This would exclude the possibility of making any initial comments on the radical proposal to the abolish the Research Assessment Exercise, set out in Chapter 4, although we appreciate that more detailed processes are occurring on some of these other issues.

Chapter 2

3. The current framework for supporting science does not promote the taking of risks or innovative research. This is perhaps its greatest failing.

4. The funding of the science base has two elements, each of which (for slightly different reasons) has come to focus on safe research. The Research Councils, which by their nature tend to promote work within the existing collective research landscape of the experts who populate its panels, have become even safer in recent years, while the Funding Councils no longer offer substantial sums for institutions to invest at their own discretion in novel or high-risk work.

5. The trend for Research Councils to become safer in their choices is caused partly because success rates for grant application have fallen to very low levels. In physics, the chance of receiving a grant actually fell during the period when the science budget started to rise, and the House of Commons felt that the MRC's success rates had fallen by 2003 to levels that were so low as to be 'unacceptable'[1]. In essence, panels have barely enough money to support high-

quality work that will obviously deliver results, let alone anything with which to invest in more innovative research.

6. The underlying causes of this trend are fourfold. First, the increase of the science budget from 1998 onwards was initially used almost wholly to expand the volume of research rather than investing fully in the existing volume – the growth in the number of postdoctoral researchers has had the knock-on effect of increasing the number of potential applicants, and reducing the average success rate of each. Second, the growth in larger, longer-term projects has been so great that it has consumed an ever-increasing proportion of the available funding, even though total funding is growing. Third, the Research Assessment Exercise has become so all-pervading in its importance (because it is the only way for an institution to obtain any extra unencumbered research income) that individual researchers and research groups are under ever greater pressure to achieve targets that score highly in the exercise, which include receipt of Research Council grants. Fourth, a growing proportion of the science vote is under some level of central control by politicians and civil servants, partly because of ring-fenced pots for specific research areas which ought properly to be the preserve of other Government Departments; an example was the hypothecation of a funding stream for research on the rural economy[2], which ought never to have been included in the science budget, but should have come from the Department for Environment, Food & Rural Affairs[3]. In an extreme case, this absurd political control resulted in a series of very specific questions that researchers were required to answer in the next few years, including 'what is gravity?' and 'what does it mean to be a citizen of an expanding European Community?'[4].

7. These changes have occurred simultaneously with a severe deterioration in the Funding Councils' ability to support innovative work, again for several reasons (some of which are not unrelated to the factors that have influence Research Council funding). Principal among these has been the change in the relative funding levels between the Research Councils and Funding Councils.

8. In 1986, for every £1 the universities received from the Research Councils for specific projects, they received £1.27 from the Funding Councils for all of the purposes it supported. Just two years ago, this ratio had fallen so that they receives just £0.70 in Funding Council investment for every £1 of Research Council funding[5], and after some recovery, the figure is now £0.86. This remains a fall of one third on the historic figure, and the general perception is that the burden on this funding has increased (for example, through greater reporting requirements and a growth in Health and Safety regulation).

9. The consequence of this is that, whereas in the past there was an assumption that some unencumbered Funding Council resources were available to invest in genuinely innovative research fields, nobody now believes this to be true. In science and engineering, HEFCE has exacerbated this problem with its bizarre approach to funding teaching. Its failure to recognize the full costs of teaching in these subjects (indeed, its unjustified and unjustifiable decision to reduce the relative level of funding for them) has placed science departments under

astonishing financial stress, making the concept of unencumbered funding for high-risk or innovative work even more laughable.

10. The introduction of a system for paying the full economic costs of Research Council grants has some potential to alleviate these problems, but only if the level of funding for the Funding Council block grant is sustained or preferable increased. If the increased contribution to projects from the Research Councils leads to a presumption that Funding Council resources can be reduced, researchers' inability to conduct genuinely innovative or high-risk work will remain highly compromised.

11. The only way to allow researchers genuine flexibility to respond to new challenges is to allow the universities unencumbered funds to be used at their own discretion. This principle was supposed to be enshrined in the 1993 White Paper, and has been repeated using various forms of words in numerous official documents more recently. But it is no longer really true that universities have such funds, at least not in sufficient quantity to provide the flexibility that the current consultation rightly aspires to generate.

12. One of the greatest barriers to business-university collaboration is the cost to industry of investing in collaborative work. The new rules on full economic costs, while admirable for work that is wholly funded from the public purse, are making this situation even worse. Unless universities can engage in collaboration in a way that makes financial sense to industry, industry will look elsewhere for partners.

Chapter 3

13. The proposal to create a Large Facilities Council has an obvious logic. Many large scientific projects are now vastly expensive, and the UK cannot hope to have one of everything. We need to be sensible and strategic about which large facilities the country can afford or host itself and which it is prepared to help fund overseas. Probably the best way to make proper judgements about this is to consider each potential large facility against each other, rather than comparing large capital-intensive projects with dissimilar claims on money, such as short-term, smaller scale experiments.

14. Moreover, large projects are now occurring in subjects other than particle physics and astronomy, such as the Biobank project in the biological and medical areas. We are concerned that the consultation concentrates exclusively on the existing concept of 'big science' as being primarily about a very small number of subjects, apparently excluding such biological and medical areas, or indeed any other subjects. When the House of Commons criticised the financial management of the Medical Research Council a few years ago[6], it was plain that part of the underlying problem was that the growth in larger, longer-term projects had not been factored into the Research Councils' overall strategies. Committing large sums a long time into the future had left relatively little to fund short-term projects or to respond flexibly to changing circumstances.

15. It seems probable that we will see further growth in the number and range of potential projects where vast sums have to be committed over long periods. Making appropriate decisions about which of these to fund will demand a sophisticated process, and CaSE agrees that some form of Large Facilities Council would be a suitable model.

16. However, care will need to be taken not to create barriers between the infrastructure and the people who use it, so the newly merged entity will need to be different from an ordinary Research Council. It must respond to the scientific needs defined by the subject-based Councils rather having a particular research agenda of its own. Its relationship of serving the needs of the subject-based Research Councils will need to be clearly defined, perhaps by drawing some of its membership *ex officio* from the members of the Research Councils. This would need to be clearly worked out and agreed before moving forward.

17. Because of these considerations, and because the Large Facilities Council would not necessarily deal exclusively with particle physics and astronomy, it clearly would not be appropriate for it to retain grant-awarding powers in particular fields. Such a function should be transferred to the EPSRC.

Chapter 4

18. CaSE will respond more fully to the consultation issued by the Department for Education & Skills on the new arrangements for research assessment.

19. However, in broad terms, we support the proposal to move to a metrics-based system of allocation for the short to medium term, because the RAE in its present form takes up far too much of the time and effort of people who would be better employed doing other things. There must be a better way of distributing research funding. But we are not convinced that the generally good agreement between the RAE-based scheme and one based on metrics is an argument in favour of the latter for the longer term.

20. The current proposals assume that the present system is producing the right results, but that the same results can be achieved more easily.

21. In fact, the whole point of the dual support system is supposed to be that the two different streams of funding support different kinds of work, so in the long term, as we move to a system of Research Councils paying the full economic costs of the work they support, there is no obvious intellectual case for the Funding Council block grants to mirror external sources of income.

22. Funding Council distributions should be available, at least in part, for institutions to pursue novel, exciting research that is not yet at the stage where a Research Council would be willing to invest. Genuinely new ideas that do not fit the prevailing paradigms of conservative grant-awarding committees have been squeezed out of the system in recent years, for a variety of reasons, some of which are set out in our comments on Chapter 2.

23. So while we agree that the RAE should go, and that the metrics-based system will produce at least as good a result without the attendant bureaucracy, we believe that in the longer term, the system should be judged not on how closely it reproduces what the RAE would have done, but on how well it contributes to supporting the sort of research we most want to see done, taking properly into account the need for genuinely novel research ideas.

Chapter 5

24. CaSE will contribute to the process being led by Sir David Cooksey to develop the "single, jointly held fund" for health related research.

25. In principle, we do not oppose the idea, since we believe that it has the potential for significant improvement in the way the Department of Health's research budget is used. We know from the auditing of money specifically allocated to cancer research that National Health Service research funds can leak out of the research system into other areas[7], and there is a widespread view among the research community that even when NHS money is allocated to research, the processes for distributing it do not meet the rigorous standards that would apply to the Research Councils.

26. However, we would strongly oppose any suggestion that any of the MRC's budget should be moved into the Department of Health, or indeed any tendency for the MRC's currently high-quality peer review systems to be diluted by the sloppier approach adopted by the Department of Health.

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Notes and References

[1] *The Work of the Medical Research Council,* Third Report of the House of Commons Science & Technology Committee, Session 2002-3 [HC 132].

[2] *The allocation of the Science Budget*, Office of Science & Technology, 2002.

[3] Although comparisons are difficult because of changing departmental responsibility, but DEFRA's budget for research and development is currently 33% lower than the combined budget in 1997 of the old Ministry of Agriculture and Department of Environment [*SET Statistics*, Table 3.2, available at http://www.dti.gov.uk/files/file22027.xls.].

[4] *A Vision for Research*, RCUK, 2003.

[5] http://www.dti.gov.uk/files/file22026.xls

[6] *The Work of the Medical Research Council,* Third Report of the House of Commons Science & Technology Committee, Session 2002-3 [HC 132].

[7] *Cancer Research – A Follow-up,* First Report of the House of Commons Science & Technology Committee, Session 2001-2 [HC 444].