



House of Commons
Science and Technology
Committee

**Government Response
to the Committee's
Ninth Report, Session
2002–03: The Work of
the Engineering and
Physical Sciences
Research Council**

**Second Special Report of Session
2003–04**

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The Science and Technology Committee

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Office of Science and Technology and its associated public bodies

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Second Special Report

On 3 November 2003 the Science and Technology Committee published its Ninth Report of Session 2002–03, *The Work of the Engineering and Physical Sciences Research Council*. On 5 January 2004 we received a memorandum from the Government which contained a response to the Report. The memorandum is published without comment as an appendix to this Report.

Appendix

Introduction

The Government welcomes the Committee's report on the Work of the Engineering and Physical Sciences Research Council (EPSRC). The Committee's scrutiny provides a valuable assessment of the operation of EPSRC. We welcome the positive comments that were made about innovative EPSRC policies such as its Doctoral Training Accounts. The report provides valuable input to the continued refinement of EPSRC operations and we note that EPSRC has begun work to address many of the recommendations.

The Government agrees with the Committee's view that there may be opportunities for greater sharing of ideas and approaches across Research Councils. The Government notes that RCUK will look at the recommendations from the Committee's reports on the work of all the Research Councils and consider the opportunities for the further sharing of ideas and best practice between Councils.

The note below sets out the Government's response to the Committee's recommendations.

Support for research

1. We applaud any attempt to create stable funding for research teams that does not create ossification. Portfolio Partnerships seem well conceived and we look forward to their formal appraisal. (Paragraph 15)

The Government welcomes the Committee's endorsement of the Portfolio Partnership approach to providing improved stability and flexibility for leading research teams with a proven track record of achievement and sustained EPSRC funding. Portfolio Partnerships will be evaluated both at the individual partnership level and in terms of their broader impact on the EPSRC portfolio as part of normal business. The Portfolio Partnerships are new but in due course a major evaluation of this method of support will be undertaken.

2. EPSRC is increasingly isolated in its refusal to address the problem of contract research staff. It has failed to provide a coherent explanation for not allowing them to apply for its grants. We urge it to reconsider its policy. (Paragraph 19)

In the engineering and physical sciences there is a healthy flow of highly trained researchers via PhD studies, contract research positions and possibly fellowships, into permanent employment in industry, the public sector and the universities. Contract

research staff do not generally have a long trail of short term contracts. However, the EPSRC acknowledges that robust procedures with sufficient flexibility to accommodate exceptional instances are appropriate. Accordingly EPSRC will adopt the same arrangements as NERC whereby contract researchers can be co-investigators on grants, thereby supporting their own salary and other employment costs.

3. There is a good argument that research teams with a good track record should benefit from more stable funding. However, we believe that the Portfolio Partnerships scheme is a better way of achieving this than Platform Grants while continuing to subject the teams to rigorous peer review. (Paragraph 20)

The Government sees benefits in both of these arrangements for supporting research. Platform Grants are aimed at providing continuity of support for people and can be held by individuals. The awards are for a maximum of £400K and for a period of 5 years. The funding is not intended to be restrictive and groups are free to apply for other EPSRC grants.

Portfolio Partnerships however, are aimed at world-leading groups with a proven track record of attracting sustained funding and the aim is to provide stable support for the entire activity of the group within a coherent scientific theme. The Portfolio Partnerships awarded to date are between £1million and £6million in value.

Both mechanisms of support will be evaluated at the individual level and at a broader level. The best practice for the operation of these two mechanisms of support will continue to evolve in light of these evaluations.

4. EPSRC's balance between responsive and managed mode does not concern us unduly; but, in making a case for Spending Review allocations, it must not be tempted to sell new eye-catching programmes to the Treasury at the expense of funding across all the disciplines that it funds. (Paragraph 25)

The Government notes the Committee's conclusion and aims to ensure the continued success of UK science across a broad range of disciplines. Research capacity in engineering and physical sciences needs to be maintained to support not only the economy but also progress in other scientific areas that rely on advances in core physical sciences and engineering. Like other Research Councils, EPSRC has a healthy and considered mix of responsive mode grants for all disciplines and managed mode grants which link into major new programmes. The evolving nature of science and research places increasing emphasis on cross-disciplinary work and many of the major new programmes therefore not only involve more than one Research Council but require a healthy supporting base across a wide spectrum of basic disciplines.

5. Concerns have been expressed over the quality of successful managed mode compared with responsive mode proposals and critics will not be satisfied by EPSRC's assertion that the standard is "broadly comparable". We recommend that EPSRC, in consultation with the other Research Councils, introduce a standardised and transparent system of proposal grading. (Paragraph 27)

The Government notes that within EPSRC a standard grading system operates for responsive and managed modes and the principal criterion in determining a grade for a

proposal is research excellence. For managed activities an additional criterion of whether the proposal is relevant to the strategic aims of the programme is also considered. Different research communities have different cultures and as a consequence the Council has developed a relative rather than an absolute grading system which is used to compare proposals considered at an individual meeting against each other.

EPSRC makes decisions at a strategic level on the level of support for its Programmes and the balance of support within them for responsive and managed activities. This is carried out through the Balance of Portfolio exercise when the EPSRC Council is advised on these issues by the Technical Opportunities Panel (TOP) and the User Panel (UP). In reaching these decisions TOP, UP and Council are also informed by Programme evaluations which include evaluations of managed activities.

We also note that EPSRC, as part of RCUK, recognises the importance of benchmarking the peer review process across the Research Councils. EPSRC will be the next Research Council to be independently audited by an externally appointed panel using the joint Research Council benchmarking process.

6. EPSRC's Technical Opportunities Panel and the User Panel provide a broad customer view that is important. Their establishment reflects well on EPSRC and the other Research Councils should consider setting up similar bodies. (Paragraph 29)

7. We support the establishment of the User Panel and the Technical Opportunities Panel. While any advisory body is likely to have its critics, this can only be addressed if these Panels operate in a transparent manner. In addition to publishing their membership, we recommend that the advice they provide to the Chief Executive should be made public. (Paragraph 32)

The Government welcomes the Committee's endorsement of the work of EPSRC's Technical Opportunities Panel (TOP) and User Panel (UP). It has been EPSRC's practice to disseminate the advice provided by TOP and UP for discussion with the research community through a range of fora including Regional Seminars and University visits by members of EPSRC staff. The Committee's suggestion of a more formal public record of TOP and UP's advice is a helpful one and in future a précis of their meetings will be published on the EPSRC website alongside the record of Council discussions.

RCUK is committed to the sharing of best practice between Research Councils. RCUK will look at the recommendations from the Committee's reports on the work of all the Research Councils as a whole and consider opportunities for further learning and sharing of ideas.

8. We recognise that the Treasury has taken an enlightened view of science and engineering as a driving force in the knowledge economy. But the welcome increases in the Science Budget could have been better phased in such a way as to allow the Research Councils to disseminate its funds in a stable fashion. (Paragraph 39)

The Government welcomes the Committee's recognition of the substantial additional funding allocated to science and engineering in recent Spending Reviews. These increases are now incorporated into each Research Council's baseline. It is acknowledged that the average expenditure profile of a research programme may not exactly match the cycle of Spending Reviews. However, OST and the Research Councils aim to maximise the

flexibility available to individual Councils in planning their programmes through the use of End of Year Flexibility and the effective management of the Science Budget as a whole.

9. We are not convinced EPSRC has done all it could to manage its funds and as a result success rates for grant applications have fallen substantially in the last two years at a time when EPSRC's budget has risen substantially. We recommend that it consider what measures could be taken to avoid this situation reoccurring. (Paragraph 42)

The Government notes EPSRC's continued efforts to improve the stability of its funding, and at the same time fund research of the highest quality. Demand patterns and operations within universities (e.g. time between awarding a grant and the actual start date) fluctuate considerably and these factors can also cause variations in the stability of funding available. As far as EPSRC is able, it mitigates the impact of these fluctuations, and as evidenced to the committee it has delivered a consistently increasing volume of live research.

10. The Peer Review College has many advantages, such as its cost and flexibility, but it is important that, however good it is, the system retains the confidence of the community. We conclude that EPSRC has some way to go before convincing some members of its community that its peer review system is fair and robust. It should take active steps to address this problem. (Paragraph 52)

The Government welcomes the Committee's recognition of the advantages of the EPSRC Peer Review College, which was first introduced in 1995 and is reconstituted every 3–4 years, and agrees that it is essential that the peer review system is seen by the research community to be effective and legitimate. The EPSRC peer review system will be reassessed by an independent visiting panel (members nominated by Royal Society, Royal Academy of Engineering, CBI) in 2004 and the results of the audit will be shared with the research community. EPSRC have taken a proactive approach to ensure its community has a full understanding of the process, that it is transparent and that it continually evolves and improves in response to feedback. EPSRC will continue to take active steps to improve understanding and confidence in its process. For example mock panels have been well received by both the 2500 College members who have taken part in them and also within universities, particularly for new faculty members.

Since 2001, EPSRC has implemented a structured approach to the improvement of its business processes, including looking at improvements to the management of peer review. Specific examples of quality improvement activities include: studies of information required by all stakeholders (including applicants & peer reviewers) to support the proposal submission & peer review process; an examination of ways to maximise the added value of peer review panel discussion; a validation of the selection process of panel members; and an identification of the expectations and perceptions of EPSRC stakeholders.

EPSRC acknowledges the need to continue to work with its research community to secure their confidence in its peer review process.

11. The introduction of modest incentives for peer reviewers is an imaginative way of rewarding the contribution of peer reviewers to scientific endeavour. Increased competition between institutions and financial pressures could generate pressure on

institutions to discourage activities such as peer reviewing that are in the interests of science and engineering but not necessarily the reviewer's employer. We recommend that EPSRC conduct a detailed evaluation of the scheme and that Research Councils UK encourage its take up by other Research Councils. (Paragraph 53)

The Government welcomes the Committee's support of the EPSRC pilot scheme to introduce incentives for peer reviewers. The scheme was first established in September 2001 and the first payments were made in April 2003. EPSRC is currently defining the scope of an evaluation and aims to evaluate the statistical evidence for an improvement in the return rate and to conduct a survey of the community. The outcome of the evaluation will be shared with other Research Councils.

12. We believe that fusion has a potentially important role in future electricity generation. We are looking to EPSRC to take a strong lead in ensuring that the UK becomes in due course an exporter of fusion technology not an importer. (Paragraph 61)

The Government notes the Committee's positive statements about EPSRC's stewardship of the UK Fusion Programme. EPSRC is working with Culham and the Fusion Advisory Board to prioritise the future research requirements for a fast track approach to fusion power. The Government agrees that steps should be taken to strengthen the role of UK industry in the Fusion Programme and welcomes the recent initiatives in this area by the new Director of Culham Science Centre, Sir Chris Llewellyn-Smith.

Support for researchers

13. Doctoral Training Accounts have been well-received and we are pleased to see that EPSRC is helping other Research Councils to implement their own schemes. (Paragraph 65)

The Government welcomes the Committee's endorsement of Doctoral Training Accounts and the steps EPSRC has taken to work with sister Research Councils in their wider implementation.

14. EPSRC has an understandable desire to recruit the best postgraduates from overseas, particularly in shortage areas. We recommend that Research Councils UK and the DTI look closely at mechanisms which could enable all the Research Councils to provide maintenance grants to non-UK nationals. (Paragraph 66)

The provision of Research Council maintenance awards to EU students is governed by the Education (Fees and Awards) Regulations 1997. Government has agreed to retain the current rules on eligibility, pending the outcome of a case currently being progressed in the European Court.

However, opportunities to provide support to non-UK nationals are being explored. The Prime Minister recently announced the "Dorothy Hodgkin Postgraduate Awards" which will open to top-quality science, engineering, social sciences and technology students from developing countries opportunities to study for PhDs in highly rated UK research environments. EPSRC has been asked by OST to administer the scheme and will act as a conduit for funds from all contributors and co-ordinate placement of students.

Technology and knowledge transfer

15. EPSRC has made great strides in recent years to build up its relationship with the private sector. It may be impossible to please everyone but the Council should accept that more needs to be done. Some discontent may reflect unrealistic expectations about what EPSRC could do to enhance its relationship with industry. In these cases the Research Council should state clearly and publicly the limits of its operation. (Paragraph 77)

The Government welcomes the Committee's recognition of the active steps taken by EPSRC to engage with industry. The principles under which EPSRC engages with industry are that all collaborative activities are subject to peer review and the results of the research must be published. The establishment of internal sector teams charged with engaging directly with industry has been an important step in improving industrial interactions. EPSRC accepts that there is more to be done and in its Strategic Plan (2003–07) has set a target for increasing the percentage of research grants involving partnerships with industry, commerce and the service sector from 40% to 50%. Sector teams are undertaking a broad range of activities and visits to continue to build EPSRC knowledge of user needs and increase awareness of EPSRC amongst its user community. An analysis of sector activities has highlighted areas where EPSRC has strong industrial interactions and those areas which require further development. Specific actions with targets have been developed for each sector and these have recently been reviewed by the Technical Opportunities Panel and the User Panel. An ongoing programme of company placements for EPSRC staff has been instrumental in sharing knowledge and experience.

16. We recommend that the Department of Trade and Industry use its links with industry to promote collaboration with the Research Councils and, in particular, the CASE scheme to small businesses. (Paragraph 80)

The Government notes that DTI and EPSRC together support 22 of the 24 Faraday Partnerships which, inter alia, actively promote the take up of CASE and Industrial CASE studentships within their technology sectors. EPSRC is currently offering 130 CASE and Industrial CASE studentships per year through the Faradays. EPSRC is also working with agents in the English RDA regions and the devolved administrations in the UK to identify suitable SME's to receive industrial CASE awards.

Commercialisation of research

17. We have concerns about the long-term survival of spin-out companies and feel it would be worthwhile for EPSRC, with Research Councils UK and OST, to develop more sophisticated performance indicators to measure the extent to which the research it funds is being successfully commercialised in a sustainable fashion. (Paragraph 82)

The Government agrees with this recommendation. Research Councils have developed a range of indicators and evaluation activities to gauge the effectiveness of knowledge transfer which in addition to spin-outs includes patents, licensing agreements, exchange of people and co-publication of papers between industry and academia. A number of independent surveys also gauge academic-industrial interaction. These include the Higher Education – Business Interaction (HE-BI) survey commissioned by HEFCE on behalf of a

range of stakeholders including EPSRC and OST, and the UNICO (Universities Companies Association) survey of the commercialisation of UK university output. In addition OST is currently developing metrics for use by all Public Sector Research Establishments (PSREs) including Research Council Institutes to assess their knowledge transfer activities. Continuing work on developing knowledge transfer metrics is being carried out by two RCUK groups – the Performance Evaluation Group and the Knowledge Transfer Group. The Innovation and Lambert Reviews will also inform thinking on metrics for knowledge transfer.

Research Councils are also raising awareness of knowledge transfer opportunities through activities like the Research Councils Business Plan Competition which provides mentoring and training for researchers to enable them to choose the best route to commercialise their ideas.

Feedback and audit

18. We welcome initiatives to assess the long-term impact of Research Council funding. The Treasury has been generous in recent Science Budget settlements but it will not be long before it starts asking for the results of its investment. The Research Councils must have the answers if their increases in the research funding are to continue. (Paragraph 88)

The Government recognises the importance of systematically gathering evidence on the impact of its research investments and this will inform the OST input to the next Spending Review. Research Councils UK has established a Performance Evaluation Group, with representatives from each Research Council, whose responsibilities include synthesis of data and information needed to demonstrate the results of Science Budget investments.

19. We commend EPSRC on commissioning international subject reviews. Science and engineering are global pursuits and the UK's capabilities should not be viewed in isolation. (Paragraph 93)

The Government endorses the view that international reviews are an important means of benchmarking UK engineering and physical science against the best in the world. Each international review also provides a focus for community discussion with a town meeting arranged to discuss the review outcomes and identify follow-on actions.

We also fully share the Committee's view that science and engineering are global pursuits and the UK contribution should not be regarded in isolation. EPSRC's international strategy focuses on maintaining the strong links that exist between British researchers and their counterparts in North America and the European Union as well as looking for opportunities elsewhere in the world. In this regard EPSRC believes that China, India and Japan offer particular advantages and a new scheme "Interact" has been established to encourage new collaborations with these countries by supporting trips by individuals or groups and bilateral workshops.

Communication

20. We commend EPSRC on its attempts to build links with universities. Some of the criticisms we have heard about EPSRC could be the result of poor interaction in the past. (Paragraph 95)

The Government is pleased with the Committee's comments. The development of good links with universities is vital for EPSRC to successfully deliver its mission and it will continue to proactively build these links and work with its research community to ensure the future research and technological requirements of the UK.

21. We believe that EPSRC, in common with other Research Councils, could do more to employ electronic means to further engagement with its community. Some of the Research Councils use email to disseminate funding news but such services need to be extended to enable researchers and administrators to air their views and stimulate discussion. (Paragraph 98)

The Government notes EPSRC has a strong commitment to providing electronic services where stakeholders perceive that such channels provide benefit. In addition to the current website which offers general access to information, EPSRC has provided a range of electronic transaction services to its community. For example, Individual Grant Review reports and referee proformas can currently be submitted to EPSRC electronically using web forms. Similarly, alongside three partner Councils (BBSRC, NERC and PPARC) EPSRC has introduced a system, compliant with the published Je-S Framework, to allow the submission of grant application forms again using web facilities. EPSRC's most recent peer review College nomination and appointment process was also web-enabled. With respect to e-mail communications, extensive use is made in support of many grant-specific notifications to investigators and referees and in support of peer review meeting arrangements.

However, there are many other opportunities for EPSRC to exploit in delivering effective electronic services. The possibility of facilitating discussions within the community and providing personalised information regarding funding opportunities represent but two examples of these. EPSRC looks forward, over the current Strategic Plan period, to introducing additional electronic services that will prove to be of value to stakeholders. In so doing, EPSRC will also look forward to the opportunity of working with partner Research Councils to produce integrated services, possibly within the context of a common "portal". In this respect, many of the priorities for development are likely to be shared priorities.

UK research policy

22. EPSRC should consider what effect the features of a grant scheme have on how its funds are distributed to different institutions. Even better, it should determine what a healthy research profile looks like and devise funding mechanisms in particular fields that encourage that pattern. (Paragraph 106)

The Government notes that EPSRC seeks to maintain an appropriate breadth of research competencies and skills across its portfolio to ensure the UK is positioned for the next period of technological change. Evaluations of its portfolio and international reviews

provide evidence of strengths, weaknesses and gaps in its portfolio which it addresses when developing its Programmes through the Balance of Portfolio exercise.

23. We recommend that EPSRC, along with the other Research Councils, make clear the implications of the Government's higher education policy and express this publicly. Research Councils UK should collate and articulate a common Research Council view. (Paragraph 110)

The Government notes that the Research Councils working together in the framework of Research Councils UK (RCUK) have developed collective views on issues surrounding higher education policy and in particular its effects on the research landscape. RCUK has recently submitted collective views to consultations on the Research Assessment Exercise, the Higher Education White Paper and the Sustainability of University Research.

24. We recommend that EPSRC examine, with its stakeholders, whether setting up units or centres in close proximity to academic centres of excellence is a worthwhile mechanism for funding strategic research and protecting the engineering and physical science research base from the financial problems being faced by some universities. (Paragraph 111)

The Government notes the Committee's recommendation and EPSRC will examine this issue.

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