



GOVERNMENT IMPLEMENTATION PLAN

**IN RESPONSE TO THE COUNCIL FOR SCIENCE AND
TECHNOLOGY REPORT:**

**“REVIEW OF SCIENCE & TECHNOLOGY
ACTIVITY ACROSS GOVERNMENT”**

Office of Science and Technology

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COUNCIL FOR SCIENCE AND TECHNOLOGY
REVIEW OF S&T ACTIVITY ACROSS GOVERNMENT:
GOVERNMENT IMPLEMENTATION PLAN

Introduction

1. During the first half of 1999, the Council for Science and Technology (CST) undertook a short, strategic study of departments' use of science and technology and considered what lessons may be drawn for Government science and technology as a whole. Their report was completed in July 1999¹.

Recommendations of the report

2. The report emphasised the importance of science and technology (S&T) and the central role it played in the work of Government Departments. Whilst there was much CST saw in their review that impressed them, they saw a need for a more forward looking, strategic approach to the use of S&T, and recommended that there should be greater co-ordination between Departments, and with others involved in R&D in both the public and private sectors, in the UK and overseas. CST also proposed that the Government should undertake a radical review, in co-operation with its EU partners, of the existing arrangements for European collaboration on R&D; and that departments should take stock of the supply of, and career opportunities for, people with appropriate knowledge and expertise to understand and interpret scientific and technical issues. The report's recommendations are listed in Box 1.

The Government Response

3. The Government response was announced by Lord Sainsbury, Minister for Science on 13 September 1999. The full text of the response is reproduced at Annex A. The response recognised that whilst many departments already went a long way toward meeting the recommendations, there was more that could be done.

¹ Full text of the report is available on the CST website at <http://www.cst.gov.uk>. Copies are also available from the Office of Science and Technology, telephone 0207 271 2097. Report URN 99/104

4. The Government response gave an undertaking to publish an implementation plan in Autumn 1999. However, the Ministerial Science Group decided to defer publication to allow the plan to be developed alongside work towards the Government's White Paper "Excellence and Opportunity: a science and innovation policy for the 21st century".

5. The Scottish Executive responded separately to the CST report². This stated that the report's recommendations would be considered in the context of a science strategy for Scotland.

Box 1

CST Report Recommendations

- a recognition of the central role of S&T in Ministerial and departmental accountabilities (paragraphs 6-8);
- a more strategic forward-looking approach to science and technology (paragraphs 9-14);
- that in each department, a senior official should be accountable for the development and delivery of the science strategy and that the strategies should be brought together and reviewed by the Ministerial Science Group (paragraph 12);
- better communications between departments and with the Research Councils and other governments, particularly in the OECD (paragraphs 16-25);
- a more consistent approach across Government to the use of S&T in industrial sponsorship and that someone in Government should take overall responsibility for this (paragraphs 17-18);
- a radical review, in co-operation with European partners, of the present approach to European collaboration (paragraphs 25-27);
- that departments consider collectively their needs for people with scientific and technical backgrounds and whether new actions are required both to meet these needs and to ensure that careers are good enough to attract the brightest (paragraphs 28-32);
- that a senior official should be responsible to Ministers for the level of scientific expertise within each department, ensuring that it has staff of the right calibre to act as an intelligent customer for science and technology, and to ensure that the issues they raise are properly understood (paragraph 33).

(References to paragraph numbers relate to the full CST report)

² Scottish Executive news release SE0593/99, 13 September 1999.

The Government Implementation Plan

6. The following section sets out how the CST's recommendations are being taken forward. The actions are summarised in the implementation plan at Annex B.

Departments covered by this plan

7. All departments and independent agencies with a significant annual S&T expenditure, as reported in *Forward Look 1999*³, will implement the CST's recommendations in accordance with this plan. The appendices to Annex B list the relevant departments and agencies. All are represented by Ministers who are members of the Ministerial Science Group.

8. Implementation of the CST's recommendations in Scotland, Wales and Northern Ireland is a matter for the devolved administrations concerned, and is not addressed in this implementation plan. However as noted above, the Scottish Executive are considering the recommendations in the context of ongoing work to develop a science strategy for Scotland. The way forward in Wales on a science strategy is being separately considered. Similarly, the Northern Ireland Assembly is working on a separate plan.

Science and Innovation Strategies

10. A major thrust of the CST report was the need for a more strategic approach to S&T. Government accepted the recommendation. In line with the Government's White Paper "Excellence and Opportunity: a science and innovation policy for the 21st century", it now intends to build upon this strategic approach to S&T by encouraging innovation in the way departments pursue their objectives, whether framing regulation, purchasing and delivering services, or managing and controlling risks. In the S&T area departments will maximise the potential for innovation from their S&T activities, and include within their science strategies a statement of how they will drive innovation. All departments whose work is relevant to science and innovation will publish science and innovation strategies. The content of these strategies will vary to some extent from department to department, depending on how the science and innovation work is ordered and on the nature of the programmes. But there are particular elements in

³ The Forward Look 1999: Government-funded science, engineering and technology, Cm 4363

terms of presentation and content which will be common to all. The key elements of a science and innovation strategy are summarised in Box 2.

11. The Ministerial Science Group (MSG)⁴ exists to promote a co-ordinated and coherent approach to S&T policy-making across Government. Consistent with this role, the CST proposed that departmental strategies should be brought together and reviewed by the MSG. The Government has accepted this recommendation. The review process will ensure that strategies address all the key elements. It will also complement the *Forward Look* exercise and allow Ministers to take an overview of total Government S&T activity. Finally, it will allow for identification of any gaps in Government S&T activity or further opportunities for cross-Government working.

12. The strategies will be developed during the remainder of this year, although the departments involved in the cross-cutting review of science and research⁵ began work on outline strategies for the purposes of that review. The Ministerial Science Group will take an overview of all departmental strategies in Spring 2001, prior to their implementation at the start of the financial year 2001/02.

Foresight

13. CST recommended that Department's S&T strategies should take full account of the outputs from Foresight. The Government accepted this recommendation in its published response. It will ensure that departments will, as part of their strategic approach, make more systematic use of Foresight.

14. The key elements of Foresight are the pooling of knowledge and ideas about future possibilities, needs and requirements, the matching of visions of possible futures to UK circumstances, strengths and potential capabilities, and taking action now to address opportunities and threats facing the UK in the medium to longer term.

⁴ MSG is an informal Committee of Ministers with responsibility for science, chaired by Lord Sainsbury. Membership includes Ministers from the devolved administrations.

⁵ This cross-cutting review formed part of the Spending Review 2000 process and aimed to ensure that science which is supported from public funds in England was being properly conducted and exploited to the benefit of the economy at large.

15. Foresight processes will become a key element of departments' approach to S&T, informing long-term planning, and providing a basis for the systematic involvement of stakeholders in developing the departmental strategy for science and innovation.

Box 2

Key Elements of Departmental Science and Innovation Strategies

- A statement of measurable S&T policy objectives and goals, showing how they relate/contribute to departmental priorities and objectives and Public Services Agreement; listing the opportunities, threats and key scientific issues the department will need to address for the longer-term; and showing how they take account of Foresight.
- Proposals for meeting the defined objectives and goals, including identification of relevant activity and knowledge in the science base and overseas; definition of R&D priorities and programmes to fill gaps in knowledge; and identification of the Department's core research and analytical capabilities.
- A statement of how the R&D needs will be met, including the Department's strategy for R&D procurement and use of collaboration.
- A report of the risk assessment undertaken, showing the factors which threaten achievement of goals, and planned actions to offset these risks.
- A statement of innovation/knowledge transfer policy and the mechanisms to be used to achieve these goals.
- Where relevant, a statement of the policy on commercial exploitation of research undertaken by Departments and their Public Sector Research Establishments.
- A description of the S&T programme evaluation process to assess the quality, relevance and progress.
- Description of the departmental scientific advisory system.
- A statement of the approach to stakeholder dialogue and communication.

Communications

16. Government is committed to the improvement of communications between departments, with the Research Councils (and funding councils where appropriate); and with counterparts overseas. As part of the development of their science and innovation strategies, departments will review and seek to improve communications. The Ministerial Science Group will consider the outcomes of these reviews alongside the strategies in Spring 2001.

S&T Capability

17. CST recommended that the Government should consider whether there is anything additional that must be done to maintain the necessary capability to meet departments' needs for S&T expertise. They also recommended that there should be a senior official in each department responsible to Ministers for the level of scientific advice. The Government response recognised the need for the highest quality scientific advice in policy-making and service delivery. Departments will now review their current and future needs for scientific and technical staff and will audit the arrangements to meet these needs. These reviews will take due account of the work overseen by the Civil Service Management Committee to meet the *Modernising Government* commitment on 'bringing in and bringing on talent' and, where relevant, the work taking forward the recommendations of the Performance and Innovation Unit report on analysis and modelling in central Government. The outcomes from these reviews and recommendations for action will be brought together for collective consideration by the Ministerial Science Group in Spring 2001.

Industrial Sponsorship

18. CST recommended that there should be a more consistent approach across Government to the use of S&T in industrial sponsorship and that someone in Government should take overall responsibility for this. CST subsequently considered this issue in greater detail in their report *Technology Matters*⁶ which examined ways of strengthening the capacity of UK businesses to create wealth from science and technology. Government is considering further the Council's recommendations in this area, however DTI is working with HM Treasury to develop an inter-departmental best practice guide on "sponsorship for productivity", clarifying the appropriate roles for government at sector level, within the framework of the government's productivity and competitiveness agenda.

Review of European Collaboration

19. Public consultation on UK approach to Framework 6 commenced in February 2000, following Ministerial conclusions on initial UK objectives for the future of European research in December 1999. The commission has since produced a

⁶ "Technology Matters". Report on the exploitation of science and technology by UK business, Council for Science and Technology, February 2000.

communication *Towards a European Research Area*⁷ which widens the debate beyond the Frameworks and addresses many of the issues identified by Ministers. The outcome of the UK's consultation will form the basis of a position paper to the Commission during the Summer. This will in turn contribute to the Commission's formulation of its guidelines document on FP6 expected in Autumn 2000 and its formal proposals on FP6 scheduled for early 2001.

⁷ European Commission communication COM(2000)6 dated 18/01/2000 "Towards a European Research Area".

GOVERNMENT RESPONSE TO THE COUNCIL FOR SCIENCE AND TECHNOLOGY'S REPORT OF ITS REVIEW OF S&T ACTIVITY ACROSS GOVERNMENT

The Government warmly welcomes this report. Its broad thrust is very much in line with the direction this Government is taking through our modernising Government agenda. As the sub-group recognised, this Government attaches great importance to S&T and the way in which it is used in departments. The findings and recommendations of the sub-group provide a most valuable input to our consideration of how we take this agenda forward.

We have already taken some steps in the direction advocated by the CST. For example, in recognition of the importance of S&T to so much of our activity, we have established the Ministerial Science Group to promote a co-ordinated and coherent approach to science and technology across Government. There is also a Minister in each Department with specific responsibility for the use of scientific advice in policy making.

We fully accept the CST's advice on the need for departments to adopt a strategic approach to S&T, taking full account of the long term nature of S&T expenditure and relating it clearly to their Public Service Agreements. Whilst many departments already make substantial efforts here and go a long way towards meeting this recommendation, there is more that can be done. We agree that there should be clear accountability within departments for the development and delivery of their S&T strategies and that these strategies should be brought together and reviewed by the Ministerial Science Group.

Promoting joined-up Government is a high priority, and we support the CST's call for better communication between departments on all matters relating to S&T. Departments and Research Councils also attach importance to this and there are many examples of good practice in, for example, the concordats between the Research Councils and Departments. Departments will consider what more can be done to improve their links with, and knowledge of S&T activity elsewhere in the UK and overseas.

We also recognise the need for the highest quality scientific advice in policy making and service delivery. We shall consider how best to take forward the CST's recommendations in relation to the supply of high quality in house expertise.

We welcome the views of the Council on the importance of European collaboration in science and note their concerns as to whether the Framework Programmes are cost effective in promoting such collaboration. The UK has been a consistently strong player in the Framework Programmes and our science and industrial community clearly makes effective use of the opportunities on offer. In some areas European collaboration is the key to success and the Framework Programmes have made an important contribution.

Nonetheless, the Government shares some of the concerns of the Council about the Framework Programmes. While both the orientation towards objectives and the management of the Frameworks has steadily improved, the system remains complex to manage and can be inflexible in the application of its mechanisms to different types of research problem. The Government therefore accepts the recommendation for a

searching review, and is pursuing this in developing its view on the 6th Framework Programme. The Government has already initiated work intended to feed into this, which will examine the effectiveness with which the Programmes address real needs and the scope for further improvements in their value to the users of the research output.

Over the next few months the Government will consider the recommendations in the report in more detail. An implementation plan, setting out how the recommendations will be taken forward, will be published in the Autumn.

The Government would like to thank the members of the sub-group for the time and effort they have devoted to this report. Their constructive approach was greatly appreciated by the Departments involved in this review.

13 September 1999

IMPLEMENTATION PLAN

CST recommendation	Published Government response	Action
1. Recognition of the central role of S&T in Ministerial and departmental accountabilities (paragraphs 6-8)	In recognition of the importance of S&T to so much of our activity, we have established the Ministerial Science Group to promote a co-ordinated and coherent approach to science and technology across Government. There is also a Minister in each Department with specific responsibility for the use of scientific advice in policy making	Implemented.
<p>2a. A more strategic forward-looking approach to science and technology, making more systematic use of Foresight (paragraphs 9-14)</p> <p>2b. That in each department, a senior official should be accountable for the development and delivery of the science strategy (paragraph 12)</p> <p>2c. That the strategies should be brought together and reviewed by the Ministerial Science Group (paragraph 12)</p>	<p>We fully accept the CST's advice on the need for departments to adopt a strategic approach to S&T, taking full account of the long term nature of S&T expenditure and relating it clearly to their Public Service Agreements. Whilst many departments already make substantial efforts here and go a long way towards meeting this recommendation, there is more that can be done.</p> <p>We agree that there should be clear accountability within departments for the development and delivery of their S&T strategies</p> <p>We agree that these strategies should be brought together and reviewed by the Ministerial Science Group</p>	<p>All departments will produce a departmental science and innovation strategy, by January 2001, for implementation from FY 2001/02.</p> <p>A list of the officials responsible for the strategies is at Appendix 1</p> <p>MSG to take overview of strategies in Spring 2001. The strategies will be published.</p>

CST recommendation	Published Government response	Action
<p>3. Better communications:</p> <p>a. between departments (paragraphs 16-18);</p> <p>b. with the Research Councils (paragraphs 19-23);</p> <p>c. with other governments, particularly in the OECD (paragraphs 24 & 25)</p>	<p>Promoting joined-up Government is a high priority, and we support the CST's call for better communication between departments on all matters relating to S&T.</p> <p>Departments and Research Councils also attach importance to this and there are many examples of good practice in, for example, the concordats between the Research Councils and Departments.</p> <p>Departments will consider what more can be done to improve their links with, and knowledge of S&T activity elsewhere in the UK and overseas.</p>	<p>Departments will review communications with each other; with Research Councils (and funding Councils); and overseas connections, considering how effective these are and how they could be improved, as part of the development of their science and innovation strategy. MSG to consider outcomes in Spring 2001.</p>
<p>4. A more consistent approach across Government to the use of S&T in industrial sponsorship and that someone in Government should take overall responsibility for this (paragraphs 17 & 18)</p>	<p>Not addressed.</p>	<p>Government is considering further the Council's recommendations in this area.</p>

CST recommendation	Published Government response	Action
5. A radical review, in co-operation with European partners, of the present approach to European collaboration	<p>We welcome the views of the Council on the importance of European collaboration in science and note their concerns as to whether the Framework Programmes are cost effective in promoting such collaboration. The UK has been a consistently strong player in the Framework Programmes and our science and industrial community clearly makes effective use of the opportunities on offer. In some areas European collaboration is the key to success and the Framework Programmes have made an important contribution. Nonetheless, the Government shares some of the concerns of the Council about the Framework Programmes. While both the orientation towards objectives and the management of the Frameworks has steadily improved, the system remains complex to manage and can be inflexible in the application of its mechanisms to different types of research problem. The Government therefore accepts the recommendation for a searching review, and is pursuing this in developing its view on the 6th Framework Programme. The Government has already initiated work intended to feed into this, which will examine the effectiveness with which the Programmes address real needs and the scope for further improvements in their value to the users of the research output.</p>	<p>Public consultation on UK approach to future of European research commenced in February 2000, following Ministerial agreement to key UK objectives. Following analysis of the responses received, the next step will be for the Government to send the European Commission a position paper setting out the UK priorities for the 6th Framework Programme, for discussion with European partners during the second half of 2000.</p>

CST recommendation	Published Government response	Action
<p>6a. Departments consider collectively their needs for people with scientific and technical backgrounds and whether new actions are required both to meet these needs and to ensure that careers are good enough to attract the brightest in the light of changes.</p> <p>6b. That a senior official should be responsible to Ministers for the level of scientific expertise within each department, ensuring that it has staff of the right calibre to act as an intelligent customer for science and technology, and to ensure that the issues they raise are properly understood</p>	<p>We recognise the need for the highest quality scientific advice in policy making and service delivery. We shall consider how best to take forward the CST's recommendations in relation to the supply of high quality in house expertise.</p>	<p>Departments to review present and future need for scientific staff; audit present and future supply arrangements; and make recommendations for action. MSG to consider outcomes in Spring 2001.</p> <p>A list of the senior officials responsible for S&T expertise in departments is at Appendix 2.</p>

LIST OF SENIOR OFFICIALS RESPONSIBLE FOR THE DEVELOPMENT AND DELIVERY OF DEPARTMENTAL SCIENCE AND INNOVATION STRATEGIES

Department of the Environment, Transport and the Regions Foreign and Commonwealth Office Home Office	Dr David Fisk, Chief Scientist and Head of Central Strategy Tony Brenton, Director Global Issues Dr Peter Young, Police Scientific Development Branch
Department for Education and Employment Cabinet Office	Nick Sanders, Director Higher Education Sue Duncan, Centre for Management and Policy Studies
Ministry of Defence	Professor Sir Keith O’Nions, Chief Scientific Adviser
Department of Health	Professor Sir John Pattison, Director of R&D
HM Treasury	Philip Rutnam, Head Enterprise Team
Department of Culture, Media and Sport	Tony Dyer, Head of Education Unit
Department for International Development	Andrew Bennett, Natural Resources Division
Department of Social Security	Dr Dan Murphy, Chief Research Officer, Social Research Branch
Ministry of Agriculture, Fisheries and Food	Dr David Shannon, Chief Scientist
Department of Trade and Industry	Dr David Evans, Head Central Directorate
Health & Safety Commission and Executive	Dr Paul Davies, Chief Scientist and Head of Hazardous Installations Directorate.
The Food Standards Agency	Dr Jon Bell, Director of Food Safety Policy
The Environment Agency	John Murlis, Chief Scientist
The Forestry Commission	Tim Rollinson, Head of Policy Practice Division.

LIST OF SENIOR OFFICIALS RESPONSIBLE FOR S&T EXPERTISE IN EACH DEPARTMENT

Department of the Environment, Transport and the Regions Foreign and Commonwealth Office Home Office	Dr David Fisk, Chief Scientist and Head of Central Strategy Tony Brenton, Director Global Issues Dr Peter Young, Police Scientific Development Branch
Department for Education and Employment Cabinet Office	Nick Sanders, Director Higher Education Sue Duncan, Centre for Management and Policy Studies
Ministry of Defence	Graham Jordan, Deputy Under-Secretary (S&T) ⁸
Department of Health	Professor Liam Donaldson, Chief Medical Officer
HM Treasury	Philip Rutnam, Head Enterprise Team
Department of Culture, Media and Sport	Tony Dyer, Head of Education Unit
Department for International Development	Andrew Bennett, Natural Resources Division
Department of Social Security	Dr Mansel Aylward, Chief Medical Policy Adviser
Ministry of Agriculture, Fisheries and Food	Dr David Shannon, Chief Scientist ⁹
Department of Trade and Industry	Dr David Evans, Head Central Directorate ¹⁰
Health & Safety Commission and Executive	Dr Paul Davies, Chief Scientist and Head of Hazardous Installations
The Food Standards Agency	Dr Jon Bell, Director of Food Safety Policy
The Environment Agency	John Murlis, Chief Scientist
The Forestry Commission	Tim Rollinson, Head of Policy Practice Division.

⁸ Head of Profession for the Defence Engineering and Science Group.

⁹ Although not formally Head of Profession for all scientists within MAFF, the Chief Scientist works closely with all policy divisions to ensure that they have the capacity to be intelligent customers for the R&D commissioned in their name.

¹⁰ Head of Profession for scientists and engineers in DTI.