

Putting Science and Engineering at the heart of Government policy

A response to the inquiry by the Innovation, Universities, Science and Skills Committee

Introduction

1. The British Academy, the UK's national academy for the humanities and social sciences, is pleased to respond to the Committee's inquiry, *Putting science and engineering at the heart of Government policy*.

2. The issues raised by the Committee are timely - it is essential that government policy draws effectively on the full range of expertise within the UK's world class research base. But this must include by disciplines in the humanities and social sciences (HSS) as well as those in science, technology, engineering and medicine (STEM).

3. Within each of these broad groupings of research a wide range of distinct methods is used. Policy formation has to draw on a variety of types of work. Many policies that draw on *empirical* work in STEM subjects also need to draw on *empirical* work in HSS (for example, drawing on sociological and demographic work to estimate effects on specific populations of possible policies if implemented), on *normative* work in HSS (for example, to identify options that it would be permissible/wrong or lawful/unlawful to introduce), and on *analytic* and *quantitative* work in HSS (for example to identify the economic consequences of proposed policies; to identify where there are dangers of introducing perverse incentives).

Summary

4. The British Academy makes the following key points:

- We agree that there should be an integrated approach across government. Any strategy to put 'science' at the heart of policy-making should use a fully integrated concept of the science and research base - i.e. one that covers the humanities and social sciences as well as the natural sciences. Policy implications cannot be derived solely from empirical research or research in STEM alone. Government policy makers need to draw more effectively on humanities and social science expertise, and leverage these under-valued assets to create a fully informed, rounded approach to public policy-making.
- The case has not been made for setting up a separate Department for Science. If such a Department separated research policy from HE teaching, it could be damaging. To separate 'science' in the narrow sense from other relevant disciplines would be unfortunate and retrograde. A separate Department of 'Science' (in the broad sense) would have to include HSS disciplines.
- The Government is failing to take full advantage of this country's world-class HSS research base, as shown in the Academy's recent report, *Punching Our Weight: the humanities and social sciences in public policy making*. There are deficits in the way that Government commissions research, but also there is a

widespread misconception that the only research that matters is done in STEM subjects.

- The Government should be able to draw on the best advice available. The Government could do more to recognise the role played by learned societies as a source of independent advice.
- Current practice in public consultation often falls short of the best practice standards set by researchers. The Government needs to draw more effectively on the expertise available in HSS disciplines to improve its understanding of what works and what does not.
- There should continue to be an overarching national policy for science and research, rather than a series of regional policies. Quality in research is assured by a national approach. Both STEM and HSS research are based on groups and institutions that are not regional, indeed are often international. Any efforts to develop regional policies should ensure that they complement and feed into the overarching national policy.
- A careful balance should be struck between setting overarching strategic objectives and micromanaging the work of the research councils. Robust mechanisms are needed to encourage communication between Government and research councils to ensure that Government priorities do not inadvertently distort the research effort.
- Public engagement is an example of a public policy area where the Government needs to draw more effectively on what HSS research has to offer.
- It is essential that all relevant national and regional bodies recognise and play to their several unique strengths, and also (when required) work effectively together.

More detailed responses to the Committee's call for comments

The Committee has invited evidence on the specific issues in italics.

Whether the Cabinet Sub-Committee on Science and Innovation and the Council for Science and Technology put science and engineering at the heart of policy-making and whether there should be a Department for Science

5. These are two separate questions. In response to the first, it is essential that 'science' is at the heart of policy-making. But this requires a sufficiently broad concept of the science and research base, which is all too frequently lacking - i.e. one that covers the humanities and social sciences as well as the natural sciences. The social sciences and humanities are crucial for sound policy-making in their own right, as shown in the Academy's recent policy report, *Punching Our Weight: the humanities and social sciences in public policy making*, chaired by Sir Alan Wilson. In addition, scientific and technological advances have political, social and cultural implications, which can only be fully understood and translated into practice if all disciplines are accessed. It is now widely recognised that these implications need to be identified 'upstream' if there is to be general public acceptance of significant changes in policy.

6. Understanding the influence of religious, cultural and language differences is essential for effective policy-making in many areas, and is of vital importance for much 'scientific' (in the narrow sense) research. Linguistic, sociological, cultural and historical understanding of particular regions is also vital for fully rounded, effective foreign policy.

7. The science and research base will only be at the heart of government policy-making if effective cross-government mechanisms are in place. The new Cabinet Sub Committee for Science and Innovation (chaired by the Minister of State for Science and Innovation) is tasked with 'considering issues relating to science and innovation, and [will] report as necessary to the Committee on Economic Development'. While the composition of the Cabinet Sub-Committee makes it well placed to fulfil this important cross-government role, it will clearly be important that there continues to be parliamentary scrutiny to review the effectiveness of the Committee's work.

8. In response to the second question, the Academy believes that any call to set up a separate Department for Science will need to be backed up with evidence to demonstrate both the need for, and the added value of, such a Department. The current structure has much to commend it. At present, the Department for Innovation, Universities and Skills is responsible for science and innovation, and for further and higher education, with oversight of the bodies responsible for funding teaching and research and intellectual property. To set up a separate Department for 'science' could lead to a separation of university research policy from university teaching policy. In our view, this would be unwise, and would clearly work against efforts to ensure that the UK has a properly integrated higher education policy. For example, good graduate programmes responsible for the next generation of researchers need to be integrated into research practices and cultures, e.g. peer review.

9. If a Department for Science were created up, it would have to include the humanities and social sciences, in order to reflect the full range of the research base and provide the essential societal insights that are required to translate science and technology policy into practice. A narrow view of 'science' would represent an unfortunate and retrograde separation of disciplines, utterly inappropriate in terms of the challenges facing society today.

How Government formulates science and engineering policy (strengths and weaknesses of the current system)

10. The Academy is concerned that the Government is failing to draw upon the potential contribution of the UK's world-class humanities and social science research base as effectively as it could and should – a major weakness of the current system. One reason for this is the way in which Government commissions research. Commissioning requires expertise, a capacity to identify which research has already been done, what is needed, how the questions should be framed, and finally how the findings of the commissioned work should be evaluated and implemented.

11. A second reason is a too ready assumption that the only research that matters is done in STEM subjects. HSS research is important in its own right to provide the evidence that government needs when formulating policy, and also to provide a critical voice, challenging assumptions, as well as reviewing and evaluating the success of government initiatives.

12. An inclusive concept of the 'research base' rather than the 'science base' should be the starting point for all considerations of policy by Government. As an Academy report, *'That full complement of riches'* said: 'The language and concepts used by government to encourage the development of research and innovation are often derived unthinkingly from now outdated assumptions that seriously impede the full

exploitation of the arts, humanities and social sciences, and the diverse kinds of knowledge they yield.'

13. While there are welcome signs that the Government is trying to adopt more inclusive language and terminology, there is scope for greater progress, with the aim of including the humanities and social sciences 'at the very beginning of strategic thinking on issues related to the future development of the UK's research and training base.' This is particularly important as humanities and social science research (as demonstrated by *Punching our Weight*) contributes to many of the major strategic questions facing society today. Research in these disciplines enriches and informs society and provides the context in which policy and technological innovations can advance.

Whether the views of the science and engineering community are, or should be, central to the formulation of Government policy, and how the success of any consultation is assessed

14. These are two distinct questions. In response to the first, it is essential that the Government can draw on the best advice available. The Academy welcomed the recommendation made in 2006 by the Select Committee's predecessor, the Science and Technology Select Committee, that the Government should give greater recognition to the important role played by learned societies as a source of independent expert advice. In the Academy's view, there remains scope to enhance these relationships further. Through learned societies, Government policy makers can engage effectively with the wider research community.

15. As regards the second question, the Academy is concerned that current practice in public consultation falls short of the standards set by researchers. Standards of consultation practice need to meet appropriate standards of social scientific research. We believe that the Government could draw more effectively on humanities and social science expertise, in order to improve its understanding of what works and what does not, and to develop more sophisticated research methods and processes to underpin its engagement activities.

The case for a regional science policy (versus national science policy) and whether the Haldane principle needs updating

16. It would be counterproductive to replace a national science and research policy either with a series of regional policies or to attempt to develop a national policy based on regional policies. There is a risk of unnecessary duplication of effort and key national strategic objectives might be missed. In the Academy's view, there should continue to be a national policy rather than a series of regional policies for science and research. Regional issues could, of course, be fed into the overarching national policy.

17. We are unclear what the Select Committee has in mind when it refers to 'updating' the Haldane principle. The Government clearly has to be involved in the setting of overarching strategic priorities for the research councils and other funders, but it should recognise that it is not in a position (and should not seek) to micro-manage their work. Furthermore, Government needs to anticipate better the likely (and sometimes unintended) impacts that its proposed overarching priorities may have on the 'day-to-day' decisions taken by the research councils. It is essential, therefore, that both the Government and the research councils should maintain effective communication, to enable the Government to understand better the likely impact of any proposals that it may have in mind.

Engaging the public and increasing public confidence in science and engineering policy

18. Public engagement is an example of an area in which HSS research is needed – it helps policy makers to understand and listen to the public's concerns – and where there is considerable scope to increase the use of HSS expertise. The Academy's response to *A New Vision for Science and Society* stressed that the new strategy for the UK should draw more heavily on the full range of expertise available within the humanities and social sciences research base and should also seek to improve the integration of HSS understanding and expertise into the work being undertaken in the natural sciences. For example, formulating an adequate public policy on genetically modified crops and other products requires both an understanding of the relevant bioscience and also an understanding of the social contexts that shape beliefs, as well the legal and regulatory frameworks within which the technology is developed. Integrating such understanding within technical debates is vital.

19. The Government's recent efforts to develop a two-way interactive model of public engagement with science ('upstream' public engagement, where the public can be involved early on and throughout research and development processes) rely upon methods and ideas developed in humanities and social science. More needs to be done to ensure that these methods and ideas are not applied mechanistically – the Government needs to improve its understanding of their role, limitations, strengths and weaknesses. As stated in our response to *A Vision for Science and Society*, current techniques of public consultation conducted by public bodies do not always meet the highest social scientific standards. The Government needs to draw more effectively on HSS expertise in order to develop more sophisticated methods and processes to underpin its public engagement activities. In particular, 'the Academy considers that:

- the Government should review the impact of its past consultations on science-related policy, and conduct a meta-study on the success or lack of success associated with various approaches, and the reasons why some consultations are less useful than they might be.
- more work needs to be undertaken on the best ways of consulting with the public. There is no single template for public consultation, and understanding of the purposes strengths and limits of specific approaches is needed in commissioning any consultation in order to prevent the waste of public money.
- more work is needed to assess the reliability and effectiveness of various methods of 'upstream' engagement.'

The role of GO-Science, DIUS and other Government departments, charities, learned societies, Regional Development Agencies, industry and other stakeholders in determining UK science and engineering policy

20. All these bodies have distinctive roles. For example, the British Academy together with the other national academies, plays an important role as an independent and sometimes critical voice of government policies and initiatives, challenging certain assumptions and perceptions. It is essential that all relevant bodies recognise, and play to, their several unique strengths, and also (when required) work effectively together.