



RESTRICTED

PRIME MINISTER

Prime Minister 1

Agree to the recommendation
in paragraph 4 overleaf?

Let it continue.
I see no need for another W/R
review in 2 years time. 23/11/61

Advisory Council for Applied Research and Development (ACARD)

In my minute of 21st September I told you that the review of the future of ACARD which you asked us to carry out in the autumn of this year was in hand and that I was likely to recommend that ACARD was a useful body and should continue.

2. The review has now been completed and a report is attached. All the Departments concerned with the work of ACARD (Industry, Education and Science, Energy, Environment and Defence) and the CPRS endorse the view that a body such as ACARD is needed and that it operates cheaply and effectively. We have a number of ideas for further improving its effectiveness, for example by broadening the membership to include technologists holding executive positions in industry in addition to directors of research. The success of ACARD undoubtedly depends very much on its chairman and on the official support we provide. As I said in my minute of 21st September we believe that the acting Chairman, Sir Henry Chilver, would be a worthy successor to Dr. Spinks, and that the new Chief Scientist in the CPRS will be well qualified to stimulate and steer the work of ACARD into fruitful areas.

3. As it happens, a Sub-Committee of the House of Lords Select Committee on Science and Technology will be reporting towards the end of the year on the subject of Science and Government. We have reason to expect that the Sub-Committee will support the activities of ACARD and endorse the need for such a body. It is possible that they might favour some merger between ACARD and the Advisory Board for the Research Councils (ABRC). All Departments agree, however, with the recommendation in the penultimate paragraph of our Report that the ABRC, which has the task of advising on the allocation of resources to the research councils and on pure research matters, should be kept separate from ACARD and that effective liaison should be maintained by the existing arrangements for overlapping membership. It does not seem worthwhile to delay completion of the review until the Sub-committee have reported; we should



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keep uncertainty and delay to a minimum, if we want ACARD to continue effectively, and we need to go ahead as soon as possible with the recruitment of new members.

4. I therefore recommend that ACARD should continue, but that there should be another review in two years' time to confirm that there is still a need for such a body and that it is operating effectively. Meanwhile we shall take account of any suggestions which may emerge for increasing further the effectiveness of ACARD including any relevant recommendations from the Lords Sub-committee.

5. I am sending copies of this minute to Sir Ian Bancroft and to Mr. Ibbes.

Robert Armstrong

22nd October 1981

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REVIEW OF THE ADVISORY COUNCIL FOR APPLIED RESEARCH AND DEVELOPMENT

GENERAL BACKGROUND

ACARD was established in 1976 and met for the first time in January 1977. The decision to set up the Council was announced in a memorandum (No 25) to the Select Committee on Science and Technology (Science Sub-Committee) by the then Lord Privy Seal. The then Government had concluded that, among improvements in the co-ordination of policies towards science and technology there should be a forum of external advice to central Government on applied R and D and technology, playing a similar role to that being undertaken in the field of scientific research and training by the Advisory Board for the Research Councils (ABRC). Unlike the ABRC, ACARD was to concentrate mainly on the industrial application of science and technology rather than on pure science. It was also to take into account private sector R and D as well as that financed by Government and the Council's membership was to be drawn largely from people with experience relevant to the development of technology and industry.

2. When the current administration came into office in 1979 the Prime Minister agreed, following a review by Sir Leo Pliatzky, that ACARD should continue in existence for another two years and should then be reviewed. The Prime Minister asked Sir Robert Armstrong to report on ACARD's performance in the autumn of 1981. At the same time Dr Spinks was appointed as the new Chairman. It was decided not to appoint a Ministerial Chairman (the Prime Minister had not given any other Minister a co-ordinating role in scientific matters parallel to that of the Lord Privy Seal in the previous administration).

3. Notes giving current membership, terms of reference and a list of published reports to date are attached (Annexes 1 and 2). The Head and Chief Scientist of the Central Policy Review Staff act as assessors to the Council as do Chief Scientists of the Departments of Energy, Industry, the Environment and the Ministry of Defence. The Chief Scientists attend the Council's meetings. The Council's Secretariat (two Principal Scientific Officers) is provided by the Cabinet Office.

4. The full Council meets half a day four times a year, but much of its work is carried out in small working groups. The membership of such groups is drawn partly from the Council and partly from non-members who can make a special contribution to

the subject under review. Typically a working group meets monthly for six to twelve months and will seek both written and oral evidence to aid its enquiry. The subjects for working group investigations have until recently been chosen by the Council itself although the most recent report ("Exploiting Invention") was requested by the Prime Minister. ACARD reports are submitted to the Prime Minister with a request for permission to publish. This has never been refused.

COSTS

5. The costs of ACARD are met from Cabinet Office vote. ACARD members are unpaid but their expenses are reimbursed. In 1980/81 these amounted, for Council and Working Group members, to about £3,000. The cost of supporting staff (1½ Principal Scientific Officers, 1/10th Assistant Secretary and CPRS support of 1/5th Under Secretary and 1/3rd Adviser) in the same year and also borne on Cabinet Office vote, amounted to about £63,000.

REVIEW

6. The activities of ACARD have been reviewed in accordance with the standard analysis proposed by the Civil Service Department for the review of advisory bodies and there has been consultation with the Departments mainly concerned with ACARD's work (Industry, Education and Science, Energy, Environment and Defence). The conclusions are summarised in the following paragraphs.

Is there a continuing need for outside advice in the field of applied R & D?

7. ACARD provides a forum for discussion of applied R and D and technology by those in industry concerned directly with their application and Chief Scientists concerned with Departmental R and D policies. ACARD has concentrated on advising the Government on new and developing technologies (eg microelectronics, biotechnology, information technology) and broader subjects (eg innovation and technological change) which cut across Departmental boundaries and are of relevance to many industrial sectors. ACARD thus provides part of the machinery for co-ordinating the separate R and D activities and policies of Departments and relating these to the needs of industry. For the future ACARD proposes to strengthen its relationship with Departments by entering into a dialogue with them on policy and priorities for R and D and technology, and intends to develop closer links with industry. At the same time it will continue to carry out in depth studies of new or developing technologies and broader studies on the impact of technology and technological policy. The need for

outside advice in this area has, if anything, increased since the last review, with the growing public awareness that the United Kingdom's future economic success depends on moving ideas swiftly and effectively from the laboratory to the market place.

Is there a need to maintain a special formal body for this purpose or could the need be met equally well by informal, ad hoc methods?

8. Advice could be taken from those in industry and elsewhere on an ad hoc basis but it is not clear that this would be any cheaper (see para 5) or more effective than the current arrangements. There is an additional advantage in having a publicly visible body providing advice to Government on science and technology and involving people from outside Government. This is particularly important with a decentralised system of support for R and D. ACARD has become increasingly well known publicly over the past three years through publication of its reports and the growing number of those in industry and the universities who have had direct contact with ACARD's work through membership of the Council or its working groups, or by providing advice in its studies, or through feedback and discussion of its reports. Abolition of ACARD would probably lead to considerable outside criticism on the grounds that Government was discounting the importance of science and technology. (A sub-Committee of the House of Lords Select Committee on Science and Technology is currently considering Science and Government including the need for a possible strengthening of the machinery for co-ordination at the centre; and the House of Commons Education Science and Arts Committee is also currently considering science policy.)

Is ACARD doing a good job, judged by its terms of reference and the practical usefulness of its advice?

9. ACARD's main output has been the publication of nine reports (listed in Annex 2). The reports make recommendations directed to Government, industry and others on how the benefits of scientific and technological developments can be maximised. The effectiveness of the reports can be judged in two main ways - the extent to which the recommendations have been put into effect by the Government and other bodies to which they were directed, and the extent to which the reports have raised general public awareness of important technological issues.

10. A quantitative assessment of the responses to ACARD's reports is given in Annex 3. In most cases the Prime Minister has asked the Departments concerned to prepare a response to the report and both the report and the Government's response have been published. Many of the recommendations have been put into effect. In some cases

action would probably have resulted anyway (eg the establishment of Celltech) although ACARD probably helped to accelerate the process; in others ACARD could claim to be the instigator (eg the appointment by the Science and Engineering Research Council of a Director for Biotechnology).

11. The ACARD reports have also been well received by the media and the public with a sale in each case of 2,000 to 5,000 copies. Their success can be attributed partly to their content and timeliness and partly to the format of the reports and their concise and readable style. The treatment given to the reports not only in the scientific and technical press but also in national newspapers such as The Times and the Financial Times has undoubtedly increased public awareness of important technological issues and of ACARD's role.

12. In addition to publishing reports, ACARD is also developing a useful dialogue with Ministers and Departments over their R and D strategies; Sir Keith Joseph attended the Council in his capacity as Secretary of State for Industry and Mr Shelton, Parliamentary Under Secretary of State at the DES attended the October meeting.

13. ACARD has interpreted its terms of reference fairly broadly but has generally worked within them. It has not done any specific studies on international collaboration (item 4 of its terms of reference) but has considered international aspects in several reports. ACARD is aware that it has not studied these specifically but returns to them from time to time; so far a suitable topic for detailed study has not emerged.

Should changes be made to the composition and operation of ACARD which would streamline its work or reduce costs?

14. ACARD has a rolling membership with about one third replaced each year. This allows adjustments to be made in its composition according to the sort of study it is likely to wish to carry out. There has been no suggestion that ACARD should be either substantially larger or smaller: it is probably about right. ACARD meets four times a year for half a day and this seems adequate - although whole day meetings have been held on occasions. Much of its work is done through working groups and ACARD also has a steering group comprising the Chairman, Deputy Chairman, Chief Scientist, CPRS and working group chairmen, which when necessary meets between Council meetings.

Is there scope for amalgamating ACARD with another body?

15. ACARD could be amalgamated with the ABRC but there is little to be said for it. The ABRC has the task of advising on the allocation of resources to the Research Councils and advising on pure research matters. Its functions are thus distinct from, albeit complementary to, those of ACARD. There is a need for liaison between the two bodies but the existing arrangement of overlapping membership is adequate to meet this need.

CONCLUSION

16. All Departments concerned with ACARD's work are agreed:

- i. that there is a continuing need for outside advice to the Government on how applied research and development can best be deployed in both the public and private sectors;
- ii. that a formal publicly visible body such as ACARD is the best means of providing this advice;
- iii. that ACARD has made useful recommendations which have been implemented, and has raised public awareness of important technological issues;
- iv. that there are no changes in its composition or operation which would further reduce its costs, which are small;
- v. that it would not be appropriate to amalgamate ACARD with the ABRC or any other body.

It is therefore recommended that ACARD should continue, with a further review in two years' time.

CABINET OFFICE

The Advisory Council for Applied Research and Development (ACARD) was established in 1976 with the following terms of reference -

'To advise Ministers and to publish reports as necessary on -

- i. applied R and D in the United Kingdom and its deployment in both the public and private sectors in accordance with national needs;
- ii. the articulation of this R and D with scientific research supported through the Department of Education and Science;
- iii. the future development and application of technology;
- iv. the role of the United Kingdom in international collaboration in the field of applied R and D.'

The members of the Council (August 1981)* are -

Dr A Spinks CBE FRS (Chairman)	formerly Director of Research, ICI Ltd
Sir Henry Chilver F Eng (Deputy Chairman)	Vice-Chancellor, Cranfield Institute of Technology
Viscount Caldecote	Chairman, Delta Group plc
Sir Kenneth Corfield	Chairman and Chief Executive Standard Telephones and Cables Ltd
Dr D L Georgala	Head of Laboratory, Unilever Research
Professor W B Heginbotham OBE	Director-General, Production Engineering Research Association
Mr C S King CBE	Deputy Chairman BL Technology Ltd
Dr B C Lindley	Director of Research, Dunlop Ltd
Sir Alec Merrison FRS	Vice-Chancellor, University of Bristol, Chairman of the Advisory Board for the Research Councils
Mr A M Muir Wood F Eng FRS	Senior Partner, Sir William Halcrow & Partners
Mr D H Roberts	Research Director, GEC Ltd
Dr L Rotherham CBE F Eng FRS	formerly Vice-Chancellor, University of Bath
Mr J L van der Post F Eng	Chief Executive, Water Research Centre

* The 2 union members of the Council recently resigned (due to pressure of work)



ADVISORY COUNCIL FOR APPLIED RESEARCH AND DEVELOPMENT
70 Whitehall, London SW1A 2AS Telephone: 01-233 6139

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 - iv. the role of the United Kingdom in international collaboration in the field of applied R and D.'

The Council's published reports, available from Her Majesty's Stationery Office, are:

The Applications of Semiconductor Technology (1978) £0.85	ISBN 0 11 630807 9
Industrial Innovation (1979) £1.00	ISBN 0 11 630808 7
Joining and Assembly: The Impact of Robots and Automation (1979) £1.75	ISBN 0 11 630810 9
Technological Change: Threats and Opportunities for the United Kingdom (1980) £1.75	ISBN 0 11 630812 5
Computer Aided Design and Manufacture (1980) £2.25	ISBN 0 11 630814 7
R and D for Public Purchasing (1980) £2.50	ISBN 0 11 630815 X
Biotechnology (1980) £3.00	ISBN 0 11 630816 8
Information Technology (1980) £3.30	ISBN 0 11 630818 4
Exploiting Invention (1981) available free from ACARD	

ACARD REPORT TITLE

PUBLISHED

GOVERNMENT
RESPONSENUMBER
ISSUED
(March
1981)

COMMENTS ON RESPONSE TO REPORT

The Application of Semi-conductor Technology

September
1978

No specific
document

4995

Report published under the previous administration. There was no formal or published response to the report but the reports recommendations were almost completely accepted and implemented through the various initiatives on microelectronics announced at the December 1978 NEDC meeting.

Industrial Innovation

February
1979

No specific
document

4338

Report published at the end of the previous administration. Partial response by the then Lord Privy Seal in the course of a House of Lords debate on report in March 1979. No specific response from the present administration but many of the reports recommendations on small firms have been implemented in subsequent Budgets and other proposals (eg Royal Award for Innovation) have been taken up.

Joining and Assembly: The Impact of Robots and Automation

November
1979

April
1980

2745

The Government's response was mixed. It accepted the reports analysis of the importance of the subject but disagreed on some of the initiatives proposed for Government. Government support for robotics has though since been increased substantially and a robotics awareness campaign has been started.

Technological change: Threats and opportunities for the United Kingdom

January
1980

February
1981

3780

Cool reception from Government. There has been little action as a result of the report (apart from the appointment of Japanese consultants to aid technology transfer).

Computer Aided Design and Manufacture

February
1980

February
1981

2560

The Government accepted the majority of the reports recommendations.

R & D for Public Purchasing	March 1980	June 1981	1298	Government endorsed the main thesis of the report and accepted almost all of the recommendations (which contributed to the development of policy on public purchasing).
Biotechnology	April 1980	March 1981	2742	Government responded in the form of a White Paper, highlighting the importance of the subject and accepting the majority of the recommendations. The White Paper had a cool reception but most of the recommendations have been implemented. Major developments: Celltech established; SERC Director of Biotechnology; new Government and Research Council Coordinating machinery.
Information Technology	September 1980	October 1981	2755	Most of the recommendations have been accepted by the Government and are being implemented. Major developments: appointment of Minister for Information Technology; creation of Cabinet Office Unit; formation of IT Division in DOI; appointment of advisers to PM.
Exploiting Invention	May 1981	Imminent	c500	Commissioned by the Prime Minister and published at her suggestion. Government response awaited. Generally favourable reception.

MR WRIGHT

Advisory Council for Applied Research
and Development (ACARD)

The Prime Minister has seen Sir Robert Armstrong's minute of 11 December, reference AO6901.

She has asked whether it is really necessary to suggest to Dr. Spinks that he should resign the Chairmanship of ACARD at this stage. She realises the problems that his illness has caused, but she feels it would be heartless to ask him to resign. She would much prefer to leave things as they are.

WR

14 December 1981

Prime Minister,

No - surely we can

Content to proceed
as at A?

Ref. A06901

Wait... We cannot-

PRIME MINISTER

do such a heartless thing

WM
11/12

to Dr. Spinks. etc

Advisory Council for Applied Research and Development (ACARD)

In my minute of 21 September (Ref. A05591) I told you that the Chairman of ACARD, Dr Alfred Spinks, was mortally ill, and would not be able to resume his duties; and that for the time being Sir Henry Chilver, the Deputy Chairman of ACARD, would act as Chairman. We have now completed the review of ACARD's usefulness, and you have agreed that it should continue in being. We have the report of the House of Lords Sub-Committee of the Committee on Science and Technology. They recommend that ACARD should continue; indeed, they would like it to evolve into a Council for Science and Technology. They have not recommended - as some thought they might - that ACARD should have a Ministerial Chairman; they propose an independent part-time Chairman.

2. Dr Nicholson, the Chief Scientist (CPRS), thinks that the time has come to recognise that the present situation is unsatisfactory, and to move to a definite appointment of a new Chairman in place of Dr Spinks. Mr Ibbs, who is an old friend and colleague of Dr Spinks, has volunteered to undertake the difficult task of suggesting to Dr Spinks that he should resign the Chairmanship of ACARD on the grounds of ill health. Sir Henry Chilver undoubtedly has what it takes to be Chairman of ACARD; and, if the Government decided to accept the House of Lords Sub-Committee's recommendation that ACARD should evolve into a Council for Science and Technology with an independent part-time Chairman, he would be a perfectly appropriate Chairman for that.

3. We, therefore, recommend that Mr Ibbs should now be asked to suggest to Dr Spinks that he should resign the Chairmanship of ACARD, and that we should appoint Sir Henry Chilver as Chairman for a period of two years from 1 January 1982 to 31 December 1983.

A

RA

ROBERT ARMSTRONG

11 December 1981



a CPRS
CSI

JFA

Cent Mach

10 DOWNING STREET

From the Private Secretary

MR WRIGHT

Advisory Council for Applied Research and Development

The Prime Minister was grateful for Sir Robert Armstrong's minute of 22 October (Ref. AO5770). She agrees that ACARD should continue in being. She notes that any suggestions for increasing the effectiveness of ACARD, including those of the relevant Lords Sub-committee, will be taken into account.

However, the Prime Minister sees no need for another review in two years' time to confirm that there is still a need for such a body and that it is operating effectively.

I am copying this minute to Jeremy Colman (Sir Ian Bancroft's Office) and Gerry Spence (Central Policy Review Staff).

W.F.S. RICKETT

26 October 1981

HL



Govt
Mans

10 DOWNING STREET

From the Principal Private Secretary

SIR ROBERT ARMSTRONG
CABINET OFFICE

Advisory Council for Applied Research and
Development (ACARD)

The Prime Minister has seen your minute A05591 of 21 September 1981 and she is content with the interim arrangements for the Chairmanship of ACARD which you are making because of the illness of Dr. Spinks.

CAW

23 September 1981

V

010

Ref: A05591



Prime Minister.
Committee with us

APPOINTMENTS - IN CONFIDENCE *wireless arrangement?*

PRIME MINISTER

Yes

22 ix

Advisory Council for Applied Research and Development (ACARD)

I am very sorry to have to report that the Chairman of ACARD, Dr. Alfred Spinks, is seriously, indeed mortally, ill. There is no prospect of his being able to resume his duties.

2. When you agreed, after Sir Leo Pliatzky's review of quangos, that ACARD should continue, you asked that its usefulness and continuance should be reviewed after two years. That review is now proceeding and I will report the results in due course. I think it likely that I shall recommend that it is useful and should continue.

3. The question of appointing a new Chairman does not arise at the moment, and I would not want to raise it with you formally until we have completed the review. We are asking Sir Henry Chilver (Vice-Chancellor of Cranfield Institute of Technology), who is the Deputy Chairman of ACARD, to act as its Chairman during Dr. Spinks's incapacity. We are being careful to do this in a manner which in no way implies that he will be invited to take Dr. Spinks's place in due course; but he is in fact the strongest candidate to succeed Dr. Spinks as Chairman, on the assumption that ACARD continues in being, and he is bound to realise that his claims to succeed will be strengthened by his serving as acting Chairman in the meantime. I believe that he would in fact make a good Chairman. I understand that he has ideas for making ACARD more effective, and I believe, with him in the chair, and with a new Chief Scientist in the CPRS (on which I am minuting you separately), we should have a good opportunity for increasing ACARD's effectiveness.

RA

Robert Armstrong

21st September 1981

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22 Greville Place
London, N.W.6
01-624 5331

Dr. A. Spinks
Chairman
of
ACARD

Woodcote
Torkington Road
Wilmslow
Cheshire
Wilmslow (0625) 522316

fs.
Mrs

fs.

September 1st 1981

My Dear Prime Minister,

163

I am writing to thank you for your letter, and good wishes to my husband.

Sadly the long term outlook for him is very bleak, but all that is possible is being done to help him, and he is at home again.

Yours sincerely,
Patricia Spinks.



10 DOWNING STREET

PRIME MINISTER

John Ashworth tells me that Dr Alfred Spinks, Chairman of ACARD, is seriously ill in Manchester Infirmary, suffering from a brain tumour. Would you be willing to send a letter of sympathy on the lines of the attached?

CF

25 August, 1981



10 DOWNING STREET

THE PRIME MINISTER

26 August 1981

Personal.

My dear Mr. Spinks

John Ashworth told me you were unwell, and I just wanted to write to say how sorry I am, and to wish you a speedy recovery.

I would also like to say how much I appreciate the work you have done as Chairman of ACARD. It is always horrid to be ill, and I hope you will soon be back in action.

All good wishes,

Yours sincerely

Royce Hooper

Dr A. Spinks

JUP