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W.0604

23 September 1983

PRIME MINISTER

SEMINAR ON SCIENCE, TECHNOLOGY AND INDUSTRY

- Attached is a list of what I felt were the key points which arose at your Seminar on Science, Technology and Industry, together with some resulting actions for Departments. It has been discussed with your Policy Unit.

You may wish to comment on the list, but if you agree, I suggest it is sent from your Office to the Offices of appropriate Ministers with a request to keep you informed of actions taken.

Action 4(a) is the study you have already agreed I should undertake but I have not referred to it as such in order to prevent leaks if the list is sent to Departments.

I am copying this minute and the attachment to Sir Robert Armstrong.

*RBN*

ROBIN B NICHOLSON  
Chief Scientific Adviser



10 DOWNING STREET

*From the Private Secretary*

DR. NICHOLSON

Seminar on Science, Technology and Industry: Follow-up

We spoke about the follow-up to this seminar and agreed that you would handle further work and I would refer any enquiries to you. We agreed also that it would be useful for the two of us to confer in the first week of December. We would aim to compose a letter which would ask Departments to report progress on the key points circulated with Michael Scholar's letter of 3 October.

AT

6 October 1983

NR

## SEMINAR ON SCIENCE TECHNOLOGY AND INDUSTRY

### Key Points

#### 1. Science and Technology Education

Children do not have basic grounding in science or learn 'why things work' - therefore our population is technically illiterate and a poor workforce for modern times. Universities are not responsive to employers' needs and training is too academic.

#### Action from DES and MSC

(a) Accelerate action on science and technology teaching in schools (eg TVEI), consider "new blood" approach

(b) Devise new incentives for universities to become market-oriented in their graduate output.

#### 2. The Science Base

The strong UK science base is seen as an essential UK asset by industry and there is evidence that the strength is slipping: the unpredictability of future key areas of science makes selection, except by quality, dangerous.

#### Action from DES

(a) Identify constraints on science base and restore to health by better allocation of public funds and more use of private sector funds.

#### 3. University/Industry Links

University/industry links are improving but more must be done;

substantial resource is better used.

The administrative Civil Service lacks knowledge of science and engineering.

Action from Cabinet Office

(a) Examine long-term future of Government Research Establishments

(b) MPO assess whether current schemes to improve scientific and technological capability in the Civil Service will yield results this century; if not, devise better schemes.

5. Value and Protection of Intellectual Property Rights

Ideas and knowledge must be regarded as tradeable goods: they should be sold, not given away accidentally or deliberately - nationalised industries are particular culprits with the latter.

Action from DTI

(a) Implement Cabinet Office report on Intellectual Property Rights and Innovation when measures are agreed.

6. The Industrial Scene

Small and large companies have complementary roles in innovation which require different assessments of risks and rewards. Compared with other countries, the private sector puts insufficient funds into R & D. Cost-plus contracts from public purchasers stifle innovation.

Identification of markets (especially abroad) and effective marketing are essential for successful innovation. Companies must learn better how to manage innovation. Rapid development of inventions, the use of product champions and the right management attitudes are critical; a better system of MBA training is needed.

The UK must be prepared to import technologies, but internal development

there was a general welcome for the Muir Wood report. The best links are people: there should be more short-term exchange at high levels - academics on boards, industrialists on councils - and more long-term exchange at working level.

Action from DES

- (a) Rapid response to Muir Wood
- (b) Academic appointments and promotions to reward those who are industrially oriented; abolish system of tenure
- (c) Devise 'invention leave' scheme to enable academics to develop their inventions
- (d) Grant university and polytechnic staff the right to market their inventions and advice, subject only to a levy paid to their parent institution.

Action from DTI, MoD, DoE, DEn, DHSS, MAFF

- (e) Universities are a under-utilised resource; applied research should be commissioned in them by industry and by Government Departments. SERC's moves to become more applied are commendable but neither it nor other research councils should have to fulfill that role.

Action from DoE

- (f) Remove planning constraints which are preventing growth of science parks.

4. Government Research Establishments and the Civil Service

Government Research Establishments have static populations and are remote from the market place - the national need requires that this

of certain key technologies is essential. The coherence of Alvey approach for a key technology was commended.

Action from Treasury

(a) Reassess balance between strict accountability of spending public funds and the encouragement of risk-taking which has to have large rewards when successful.

Action from MoD

(b) Review MoD standard conditions of contract; ensure widespread application of results from R & D contracts.

Action from DTI

(c) Monitor success of the "Support for Innovation" programme; ensure inclusion of marketing in innovation packages

(d) Monitor success of Alvey programme and stimulate industry to identify and collaborate in other key technologies

(e) Stimulate CBI and Business Schools to greatly improve the quality of management of innovation.

Action from DES

(f) Devise repayable loan scheme to replace grants for MBA students.

Action from ACARD

(g) Form Working Group to consider how to increase industrial R & D spending.

7. The Financial scene

There is rapid growth in all types of financing of innovation, but it is not clear (a) whether the fiscal treatment of all these schemes is fair

and balanced, and (b) whether the range of schemes matches the needs of innovation. The financial disincentives of job mobility and risk/reward sharing are thought to discourage innovation.

Action from Treasury

- (a) Take action on 'portable pensions' (with DHSS)
- (b) Improve tax treatment of share option schemes
- (c) Consider the extension of Investment Trust status to Venture Capital companies.

Action from ACARD

- (d) Form Working Group on type and balance of financial demands of innovation and financial supply of the City.

8. Morale and Attitudes

There is unanimous agreement from both individuals and the media that the most important fact was that the seminar happened and that the Prime Minister and her senior colleagues, and senior people in industry, finance and academia demonstrated their interest in the subject. There are successes in bringing UK inventiveness to fruition, and the theme of 'identify and analyse success, then build on it' came through clearly. Morale and attitudes were improved on all sides. It is critical that the momentum is maintained.

Action from No 10

- (a) Ensure that the Prime Minister's speeches contain references back to the seminar, the 'success' theme, lessons learnt from the seminar and to resulting actions taken.
- (b) Ensure that the Prime Minister's visit programme includes examples of successful innovation and reference is made to the seminar.
- (c) With Cabinet Office consider programme of smaller follow-up

meetings to better identify specific problems and test reactions to Government proposals.

Action from Private Offices of other Ministers involved

(d) As (a) and (b) above.

Action from Cabinet Office and ACARD

(e) Consider information programme to disseminate 'success' theme more widely.

RBN,

ROBIN B NICHOLSON

Cabinet Office  
23 September 1983



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