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PRIME MINISTER

I enclose the first report of the Ministerial Sub-Committee on Research and Development. I had hoped to be in a position to report agreement in detail on the Pull-Through Scheme but it is taking Departments some time to determine which of their programmes would best fit within the Scheme and therefore what sum to earmark for their contribution. In some cases the sums are not large but they may be significant in relation to Departmental R & D spend.

I think there is an element of dragging of feet but I judge it best to give colleagues the benefit of the doubt until September. Your endorsement of the Scheme at this stage would give support to our efforts to arrive at an adequate budget. It would also give support to the discussions we now need to have with industry.

PAUL CHANNON

// August 1986

DEPARTMENT OF TRADE & INDUSTRY

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PRIME MINISTER

WORK OF THE MINISTERIAL SUB-COMMITTEE ON RESEARCH AND DEVELOPMENT: E(RD)

The new Ministerial Sub-Committee on Research and Development was established in the spring in response to the work of the MISC 119 Group, with the remit to develop policies to enhance the contribution of R&D expenditure, public and private, to the development of the economy. E(A) at their meeting on 19 February (E(A)(86)6th Meeting) set the new Sub-Committee a substantial work programme, and asked for a first report by the summer.

- 2 E(RD)'s main tasks were as follows:
 - (a) to consider urgently Sir Robin Nicholson's proposal for a new scheme to 'pull-through' scientific and technological advances into marketable products and services;
 - (b) to secure more benefit for the economy from the resources devoted to defence R & D, in the light of E(A)'s decision to constrain defence R&D expenditure to the path set out in the 1985 Long Term Costings;



- to reassess the shape and content of the Science
 Budget, with the objectives of sustaining the
 quality of the UK science and engineering base and
 securing greater economic benefits from exploiting
 the scientific research carried out within this
 framework;
- (d) to devise further measures not involving direct Government expenditure to encourage additional private sector R&D;
- (e) to explore ways of changing the objectives of Government R&D programmes so as to give much greater weight to their potential contribution towards strengthening the competitive position of UK industry;
- (f) to oversee appropriate UK participation in European and international collaborative R&D programmes.

PULL-THROUGH

On ((a) above, E(RD) has concluded that there should be a single scheme capable of covering all the Departments with significant research programmes, and all the Research Councils. The fundamental purposes are to give new impetus to pull advances in basic science and technology through into goods and services of value to the economy, to forge more effective links between industry and research institutions on an inter-Departmental and cross-sectoral basis and hence to influence the programmes of those institutions in the direction of greater relevance to industrial needs. A hallmark of projects to be undertaken within the Pull-Through

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framework is that industry will be expected to contribute at least half the costs over the lifetime of each project.

- The present intention is that the largest contributions - from within existing resources - will come from the Science and Engineering Research Council, the major sponsor of 'strategic' research (i.e. work in areas with clear prospects of eventual application, but prior to the stage of specific commercial development) as part of the Science Budget, and from the Department of Trade and Industry, the principal source of Government support for applied research and development with the general objective of improving the efficiency and competitiveness of UK industry. In addition it is proposed that other Departments whose research programmes are primarily intended to serve particular objectives - procurement for defence, development of energy related technologies, the reduction of environmental pollution, and so on - will also contribute by identifying projects of significance to them which could better be carried forward within the Pull Through framework, and by earmarking the finance needed for the Government's contribution to these projects.
- The participation of the Ministry of Defence will be particularly important both in amount (rising to £15 million a year when the scheme is in full operation) and in the contribution this will make to integrating defence R & D work more closely with the rest of the economy in accordance with the recommendations of MISC 110. The Chief Scientific Adviser's suggestion of a system of parallel defence and civil development contracts (see paragraph 6 of the Annex) is intended to contribute further towards this objective.



As well as the Ministry of Defence, the Department of Transport and the Northern Ireland Office have agreed earmarked contributions. Other Departments, envisaged by E(RD) as having an important role in initiative, have yet to determine their contributions. Therefore we are signficantly short of the commitment needed, if we are to achieve establishment of a programme with an aim of building up Government expenditure to about £100 million in 1990/91. This figure would lead to a total expenditure of £500 million over 4 to 5 years, including industry's contribution of at least 50 per cent of the funding. My intention is to finalise the details, which includes continuing work by officials on the arrangements for implementing the scheme, consultations with industry, and report to you again by the end of September. I believe this scheme will be an important signal of the Government's commitment to research and development and I hope that you would feel able to make an announcement yourself.

DEFENCE R & D

On (b) above E(RD) has endorsed the conclusions of a further (and final) report from the MISC 110 Group of Officials. This made a number of recommendations with a view to ensuring that the potential wider benefits to UK industry and the UK economy are taken fully into consideration at every stage of decision making about defence R & D and procurement. These are set out in the Annex to this minute. They are designed to build on present arrangements for interdepartmental coordination; because they will involve not only senior officials and committees but also people at the level where proposals and specifications being to be formulated, they will mean a significant change in the decision-making environment. I therefore attach particular

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importance to the remits to the Ministry of Defence (MOD) to prepare clear instructions for promulgation through the Department to ensure that the industrial dimension is taken fully into account at the formative stage, and to prepare an overview of international collaboration prospects from a UK industrial as well as a military standpoint. Meanwhile the Defence Secretary will be producing a paper for the Sub-Committee in September on the implications for his Department of compliance with the E(A) decision.

SCIENCE BUDGET

- 8 On (c) above, the Advisory Board for Research Councils (ABRC) are preparing a report on strategic research priorities (due early next year), which will include consideration of ways to enhance the wider economic benefits of the research work financed from that Budget. E(RD) has asked the Board to consider in particular:
 - (a) the case for a stronger centralised management of the activities of the Research Councils;
 - the case for a different allocation of expenditure between the ABRC and the University Grants
 Committee (UGC) which would associate overhead costs more directly with research programmes, so allowing for a more effective concentration and selectivity of research effort;
 - (c) further steps to sharpen the management of research programmes and projects, providing for more stringent evaluation of progress towards pre-set objectives;

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(d) increased participation by industry at different levels of decision making.

The ABRC report will also incorporate the UGC's ideas for improving the allocation of the funds they control, in the light of their recent initiative to improve the information base about the relative research capabilities of university departments. Meanwhile the Assessment Office have been asked to take the lead in the preparation of a paper, for consideration by E(RD), on possible steps to induce industry to contribute more to, and draw more effectively from, the work of Research Councils and universities.

PRIVATE SECTOR R & D

9 The question how to get more private sector R & D expenditure and activity (d) above, remains crucial - but difficult. The unsatisfactory performance of UK industry emerges clearly once again from this year's annual review of Government-funded R & D, which you discussed last week with Sir Francis Tombs, the Chairman of ACARD. The Official Committee on Research and Development (E(RD)(0)) will be reporting to E(RD) in the autumn, in the light of advice from the Advisory Council on Applied Research and Development (ACARD) and the DTI Technology Requirements Board.

OTHER DEPARTMENTAL R & D PROGRAMMES

10 As to the objectives of other Government R&D programmes ((e) above), E(RD) will be considering separate reports on the R&D programmes of Environment and Transport Departments this autumn, followed by reports on the R&D programmes of the Department of Health and Social Security, and of the

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Department of Energy, before the end of the year. The R&D programme of the Ministry of Agriculture, Fisheries and Food is scheduled for early 1987.

INTERNATIONAL COLLABORATION

On (f) above, in addition to the further work on defence collaboration referred to in paragraph 7 above, E(RD) last month considered the UK's response to the European Commission's proposals for the EC Framework Programme for R & D and decided that we should aim to achieve agreement under our Presidency to a programme which represents only a modest increase above the current level of spending, and which is oriented more towards areas where there is likely to be early scope for exploitation by industry. It will be a difficult negotiation and the precise balance will only emerge as the discussions proceed; but we have already succeeded, with the support of France and Germany, in forcing the Commission to reduce significantly their opening bid. E(RD) will consider, as necessary, the implications for the balance between national and EC R&D programmes and for the allocation of Euro PES provision.

SUMMARY

12 E(RD) has made a start on what will need to be a continuing process if our objectives are to be achieved. Colleagues and their Departments have begun to give emphasis to the need to extract greater benefits for the economy from Government expenditure on R & D. But we have a long way to go and the proof of the pudding will be in the eating; much remains to be done to translate general objectives into detailed achievements on the ground. The first real test of this is the implementation of Pull-Through.



- i Some progress has been made in developing the Pull-Through Scheme, but there is still significant work to be done, especially regarding the earmarking of funds. A further report, including recommendations as to the timing of an announcement, will be made towards the end of September.
- the recommendations in the final report from the MISC 110 Group of officials have been endorsed (see Annex) and the Defence Secretary will produce a paper for September on the implications for his Department of compliance with the E(A) decision.
- the ABRC will complete its report on strategic research priorities, which will incorporate a section from the University Grants Committee and will also consider the case for stronger centralised management of research;
- iv ACARD and DTI Technology Requirements Board are to advise on private sector R & D in September.
- Reports on the R & D programmes of Environment and Transport Departments will be considered in September, of Health and Energy before the end of this year and of Agriculture, Fisheries and Food early in 1987.
- vi no more than a modest increase in the level of spending for the EC Framework Programme will be aimed for and its emphasis will move away from energy towards projects of relevance to industrial competitiveness.



I am copying this minute to colleagues on E(A) and E(RD), to the Lord President of the Council and the Foreign and Commonwealth Secretary, and to Sir Robert Armstrong.

PAUL CHANNON
// August 1986

DEPARTMENT OF TRADE AND INDUSTRY



ANNEX

RECOMMENDATIONS ON DEFENCE R&D

The Ministry of Defence should widen industrial representation (including civil as well as defence industry) on RE management boards and on other Committees advising the Ministry on defence R&D procurement questions.

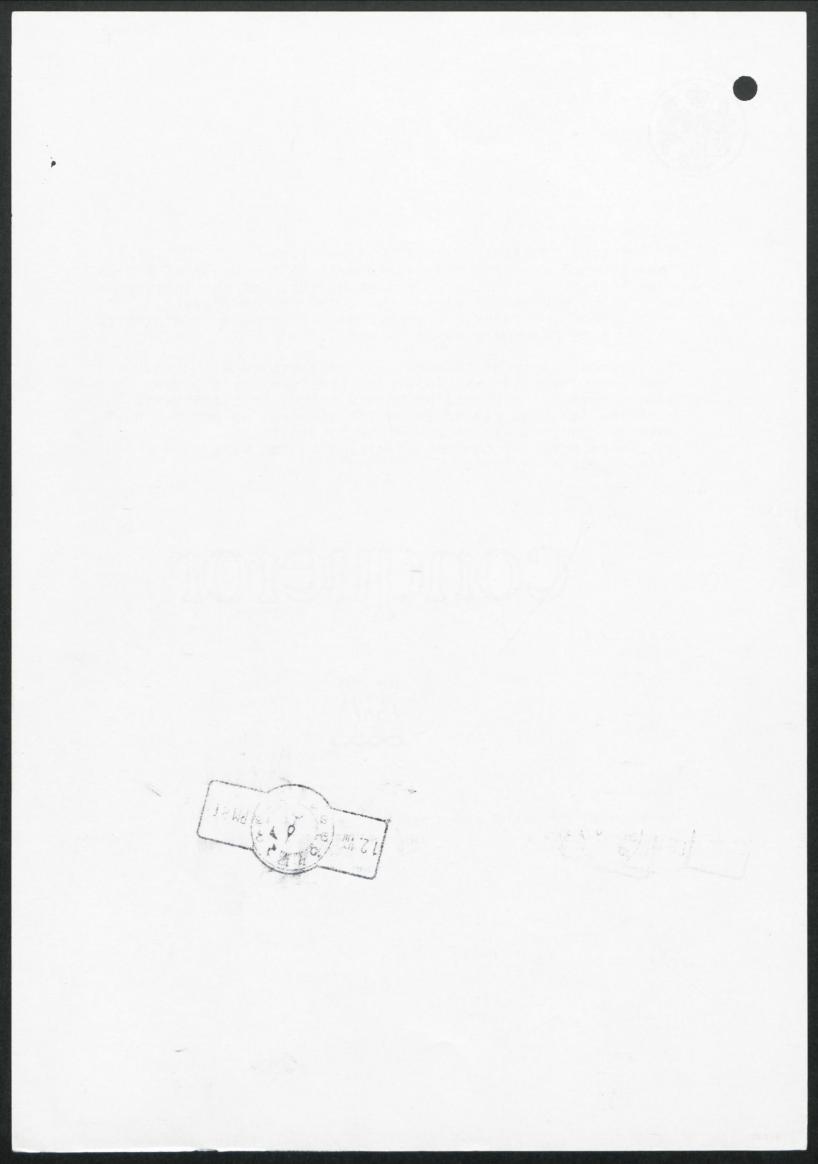
- The Ministry of Defence, in consultation with the Department of Trade and Industry and the Treasury, should prepare proposals for sharpening the incentives the REs have to promote industrial applications of their work, and report to Ministers by December 1986.
- 3 The Department of Trade and Industry and the Ministry of Defence should jointly commission the proposed case study by consultants of spin-off from defence R&D contracts. The results should be reported to Ministers as soon as possible; the objective should be to complete the work by the end of the year.
- The Ministry of Defence, in consultation with the Department of Trade and Industry and the Assessment Office, should review means of encouraging industry to exploit MOD-funded R&D programmes and the intellectual property arising from them, and should consider other steps to improve the availability and flow of information, so as to facilitate the transfer of technology from defence into civil applications. A report should be made to Ministers as soon as possible after the case study at 3 has been completed.
- Arrangements should be developed by the Ministry of Defence, in consultation with the Department of Trade and Industry, the Treasury and the Assessment Office, covering the nature, scope and timing of interdepartmental consultation in the ocurse of decision-making in defence procurement and the factors including industrial impact, scope for civil applications and prospects for defence exports to be taken into account in reaching decisions. A report should be make to Ministers by November 1986.

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- Further consideration should be given by the Official Committee on Research and Development to the proposal by the Chief Scientific Adviser, Cabinet Office, for the institution of a pilot scheme for back-to-back defence and civil development contracts. A report should be made to Ministers in the same timescale as for 5 above.
- The Ministry of Defence, in consultation with the Department of Trade and Industry, the Treasury and the Assessments Ofice should prepare a report for Ministers, again on the same timescale as for 5 above, oB prFspet UK defence requirements to be met by international, collaboration, and the considerations which will govern the UK's approach to them.

DEPARTMENT OF TRADE AND INDUSTRY 1 August 1986



CONFIDENTIAL WO187 MR ADDISON - No. 10 8 August 1986 E(RD): PROGRESS REPORT TO THE PRIME MINISTER The Secretary of State for Trade and Industry will be sending this report to the Prime Minister today or early next week. 2. The working support of E(RD) is going reasonably well but it is disappointing that the Pull-Through scheme is not yet ready for announcement. You may wish to have some further background on this which, for understandable reasons, is not included in the report. 3. The original concept of the Pull-Through Scheme was that for the first one Government funding would be 25% each from the Science and Engineering Council (SERC) and the Department of Trade and Industry. The other 50% was to be found by a transfer from one or more Departments. Sir Robin Nicholson's proposal to E(RD) was that this should come from the fast reactor programme funds from the Department of Energy. It would be a matter for the CEGB to then decide whether they wished to make good those funds for the fast reactor programme. 4. This proposal was resisted by the Secretary of State for Energy and the alternative proposal of seeking contributions from a number of Departments was suggested. It was, perhaps, too easily accepted. The implications of this alternative concept are that the element of a real transfer of resources into Pull-Through is called into question - the opportunity to transfer the R & D funding responsibility from the public purse to the industry which could be expected to benefit in the long term was lost

- by bringing a number of Departments into a general scheme the intention to develop a number of more narrowly targetted schemes is lost.

However this latter point could be turned to advantage in enabling more cross-Departmental topics to be tackled and in getting Departments used to working together rather more.

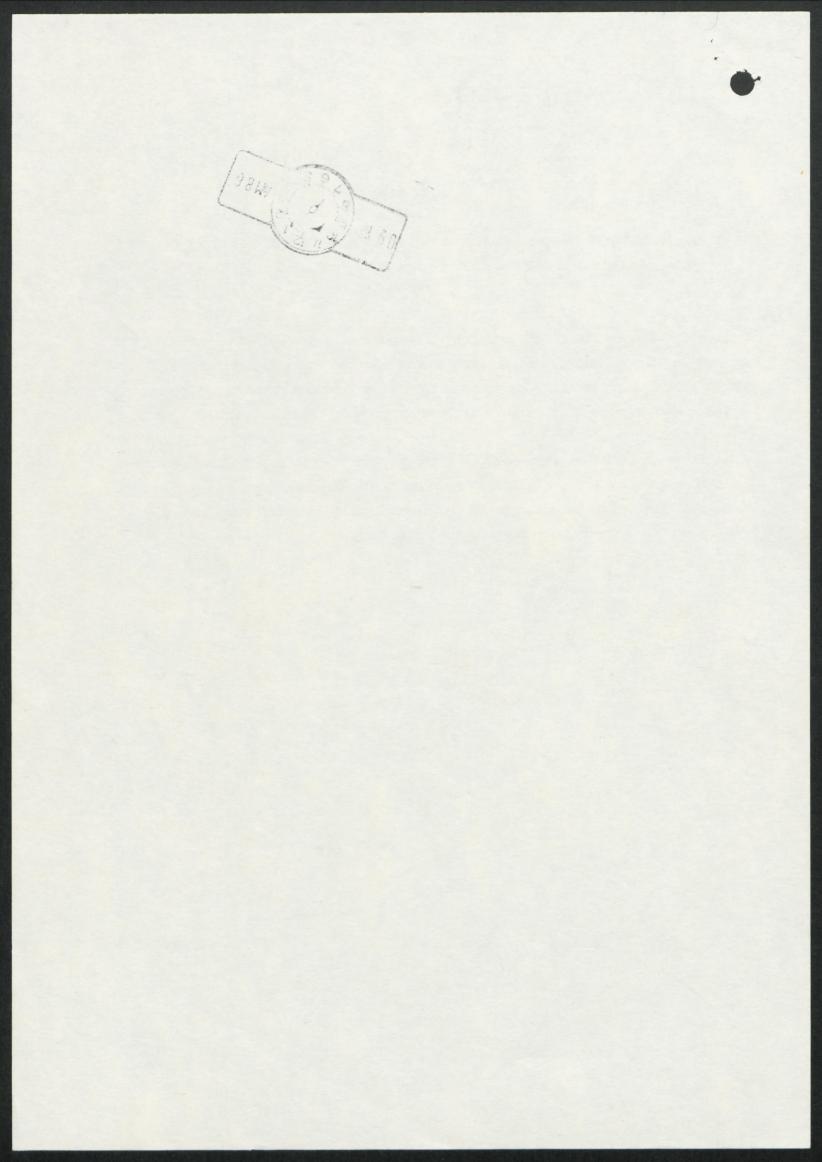
- 5. But despite enthusiasm for the principle of the scheme Ministers are showing a marked reluctance to name a figure which they will earmark from their own R & D budgets for the five year period. This is causing the Secretary of State for Education and Science some concern because if the full sum being aimed for (ie £100m by 1990/91) is not forthcoming the Research Councils, and in particular SERC, may well resist taking part because it will appear to them that their funds are being siphoned off into particular Departmental programmes.
- 6. In order to maintain pressure on Ministers to reach agreement on the budget by late September it would be helpful to have a strong endorsement for the Scheme from the Prime Minister. I attach a draft paragraph which might be included in her response to Mr Channon.
- 7. I am copying this minute to Brian Unwin and John Wiggins.

JOHN W FAIRCLOUGH

Chief Scientific Adviser

DRAFT PARAGRAPH FOR RESPONSE FROM THE PRIME MINISTER TO THE SECRETARY OF STATE FOR TRADE AND INDUSTRY ON THE E(RD) PROGRESS REPORT

I look forward to receiving your further report in September when you will have agreed the budget and detailed arrangements for the Pull-Through scheme. I agree that the Scheme will be an important signal of our commitment to the research and development which will lead to greater wealth creation. I will expect E(RD) to give priority to settling the details of the Scheme and, now that it is agreed that it should be a general initiative across Government, it will be necessary for a significant number of Departments to take part and for the total budget to be adequate to the task. I will consider your advice about an announcement when you report in September.



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MR ADDISON

Mr Fairclough
Mr Unwin o.r.
Mrs Cunningham

WORK OF E(RD)

You should have received today Mr Channon's end of term report on the work of E(RD). However, because of messengerial delays, it did not get into Mr Channon's box last night, so that you will not receive it until next week. I am sorry about this; but there is not immediate time pressure, and it will not matter if a reply is delayed for a week or so.

- 2. The work E(RD) had done on defence and the science budget is straightforward and uncontroversial as far as it goes; Departments are all agreed on what needs to be done next, but translation of current efforts into a real improvement in the economy will only happen gradually over time, and as a result of sustained effort. E(RD) has also played a useful role in processing questions relating to the UK's approach to the EC R & D Framework Programme, but we are still only at the early stages of EC negotiations.
- The difficult area is Pull Through Sir Robin Nicholson's proposal for a new scheme to get industry, the universities and the public sector research institutions working together more effectively to translate the scientific and technological advances into marketable products and services. It was not possible to reach agreement on the basis proposed by Sir Robin, i.e. that 50 per cent of the funding should come from a reduction in the Department of Energy Nuclear Reseach Programme, with DTI and SERC providing the remainder. An alternative approach, which would have required smaller PESC transfers to DTI/SERC from a range of potentially interested Departments did not win support either - the other Departments simply do not have money they can afford to hand over. But the Ministry of Defence did offer to undertake a significant volume of the research in which they are interested within the Pull Through framework, which should have the effect of drawing in civil industry and ensuring that military and civil technology progress side by side. On this basis MOD would not actually transfer money to DTI, but would make funds under their own control available to support projects managed inter-departmentally and incorporating a substantial civil element. E(RD) agreed in effect to settle for this, on the basis that the other Departments with significant R & D programmes would participate in the same way.
- 4. Defence having offered £15 million a year (towards the target of £100 million, of which DTI and SERC would each subscribe £25 million), the DTI sought 'commitments' from the Departments of Energy, Transport, etc. I rather suspect that they were a bit flat-footed in pressing for 'firm commitments to specified amounts of earmarked funds', with the result that the potential contributors feared that they were still trying in effect to secure PESC transfers by insisting on quantified commitments which exceeded the scale of the projects within the other Departments' programmes capable of being undertaken within the Pull Through Framework. As a result other Departments have been reluctant to commit themselves to specific figures. DTI further fear that other Departments, while proclaiming adherence in principle to the idea of

CONFIDENTIAL Pull Through, and to the E(RD) decision, will in practice change neither the make-up of their programmes nor the way in which they are run. SERC are disappointed at the scale of other Departments' contributions in relation to their own, and inclined to question whether the inter-departmental apparatus is worth having. Their reaction is understandable, but I think the answer is that the inter-departmental programme is worth having, if only to ensure that a substantial volume of defence-oriented research is carried out within the revised framework. The best we can hope now is that the Department of Energy and other reluctant contributors will be ready to identify the broad orders of magnitude of their contributions to Pull Through over the next few weeks, so that there will be sufficient foundation for an announcement about the total size of the programme in September. It is, I am sure, a mistake to concentrate too much on the precise amounts - expenditure will in the end depend on projects being identified towards which substantial industrial as well as Government contributions can be attracted. This will only become clear gradually over However, given that the objective of the scheme is so clearly in the wider interest of the economy, we want Departments to approach it in as constructive a spirit as possible. It would therefore be very helpful if, in responding to the Trade and Industry Secretary's minute, the Prime Minister could make clear her support for the objectives, and her wish that other Departments should participate to the maximum extent possible, consistently with their own responsibilities and constraints. It would be helpful, too, if the inter-departmental and cross-sectoral character of the scheme could be endorsed, so as to restrict other Departments' scope for 'doing their own thing' without the participation of DTI and SERC. I do not know whether Mr Channon will endorse Mr Pattie's wish that the Prime Minister should herself announce the scheme. This is not a point on which an immediate decision is needed, and it would be sensible to reflect further about it when discussions about other Departments' contributions have been completed. If there were an occasion - either a speech, or a seminar with relevant industrialists and academics - to which an announcement by the Prime Minister could conveniently be linked, this would undoubtedly help to get the scheme off to a better start. But it would be for DTI/SERC to handle

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detailed questions.

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A J WIGGINS Cabinet Office 1 August 1986

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MR ADDISON

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1 August 1986

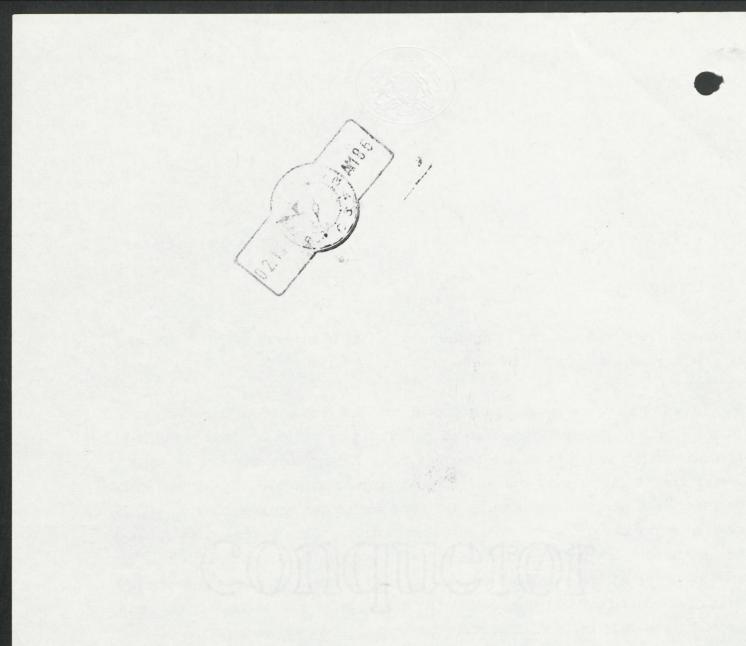
WORK OF E(RD)

I refer to Mr Channon's report on the work of E(RD) and John Wiggins' note to you on the same subject.

- 2. I feel I should express my disappointment with the pull-through proposal as it now stands. The identification of collaborative projects aimed at making an economic contribution is at the heart of the E(RD) process and responsibilities. I view the pull-through project as a test case of the E(RD) machinery and particularly whether the Departments can agree a common goal and make a contribution towards a realisation of that goal. I sense that a number of Departments are paying lip-service to the process by agreeing with the ideology, but at the same time expressing unwillingness to make the necessary financial contribution. I hope that the Prime Minister will find it possible to add her weight to the importance pull-through and to encourage the necessary financial commitments to make it happen.
- 3. I am copying this to Brian Unwin and John Wiggins.

JOHN W FAIRCLOUGH

Chief Scientific Adviser





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The Rt Hon Paul Channon MP Secretary of State for Trade and Industry 1 Victoria Street LONDON SW1H OET

September 1986

THE LINK PROGRAMME

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I was very interested to see a copy of your minute to the Prime Minister of 1 August, in which you reported on the work of E(RD) and on the progress of discussions on the Pull-Through concept, and of her Private Secretary's letter to you of 18 August. I had also seen the earlier correspondence on Pull-Through in response to Geoffrey Pattie's letter of 25 July.

I gather that progress on the Pull-Through scheme is to be discussed again at E(RD) on Tuesday and I thought it might therefore be helpful to register the fact that, although my Department does not have a research programme of the kind the Scheme is designed for, I have a close interest in this initiative (which I warmly endorse as a concept) on two counts.

The first concerns the implications for skilled manpower. Given the difficulties we have experienced nationally in meeting the demand for IT skills, I can see a very important additional role any central coordinating machinery for the scheme in drawing to the attention of the partners (Government, industry and the academic world) the future requirements for additional manpower and new skills which would stem both from the research phase of Link programmes and from subsequent industrial exploitation.

The second concerns the way in which industry will benefit. I fully endorse the aims of increasing industry's own expenditure on R and D and of forging closer links between higher education and industry. At the same time I am aware that past major collaborative programmes of this kind



(particularly Alvey and Esprit) have been criticised by some people in industry for the bias they appeared to show against participation by the smaller firms in the industrial sector concerned. I can well understand why it is more difficult for small firms to stake their claim to a share in these programmes, especially where there is an international dimension, but we should recognise that they have a particularly important contribution to make in innovation and many, as you know, are spinning out directly from University departments. I believe the effectiveness of the Link Programme as a generator of enterprise and employment will be far greater if mechanisms can be established from the start to ensure that participation by small firms, in their own right or as partners with larger companies, is both encouraged and facilitated.

I should be grateful if these points could be taken into account in Tuesday's discussion.

I am sending copies of this letter to the Prime Minister, to the members of E(RD), to Sir Robert Armstrong and to the Chief Scientific Adviser.



DE 2 BIL

10 DOWNING STREET

From the Private Secretary

18 August 1986

Deen Tim,

The Prime Minister has seen your Secretary of State's minute of 11 August reporting on the work of the Ministerial Sub Committee on Research and Development. She was grateful for this and looks forward to the further report in September on the budget and detailed arrangements for the Pull-Through Scheme. She very much agrees with your Secretary of State that the Scheme will be an important signal of the Government's commitment to the research and development which will lead to greater wealth-creation. She expects E(RD) to give priority to settling the details of the Scheme and believes that, now that it has been agreed it should be a general initiative across Government, it will be necessary for a significant number of Departments to take part and for the total budget to be adequate to the task. In this context, she has commented that the figure of £15 million which is envisaged as the contribution from the MOD is smaller than she expected, and will be viewed as relatively insignificant. If necessary, she will be prepared to chair a meeting herself to ensure a viable Scheme.

As far as the announcement of the Scheme is concerned, she would prefer to defer a decision until we are closer to establishing its content.

I am copying this letter to the Private Secretaries to the members of E(A) and E(RD), to Joan MacNaughton (Lord President's Office), Tony Galsworthy (Foreign and Commonwealth Office) and Michael Stark (Cabinet Office).

Timothy Flesher

Timothy Walker, Esq., Department of Trade and Industry. (x)

PRIME MINISTER

E(RD) REPORT ON PROGRESS

Attached at Flag A is the report by Paul Channon of the Ministerial Sub Committee on Research and Development. Also attached at Flag B is a note by John Wiggins of the Cabinet Office and Flag C is a comment by John Fairclough. As you will see, all three expressed a certain amount of disappointment on progress with the Pull-Through Scheme and recommend that in responding to Mr. Channon you should give Departments a nudge in the direction of providing resources from their research budgets.

Do you wish to respond as suggested in John Fairclough's minute? \bigvee \bigotimes

Mr. Channon hopes that you will announce the Scheme yourself, but John Fairclough and the Cabinet Office advise that a decision on this would be premature until we see what is actually produced.

Agree to defer a decision on the way in which the Scheme is announced until the final report of E(RD) is available?

Timothy Flesher

13 August 1986

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