

Prime Minister

PRIME MINISTER

RESPONSE TO ACARD REPORT ON INFORMATION TECHNOLOGY

This report was published in September 1980 and its wide ranging recommendations covered many aspects of IT policy. Much has happened in IT since then with the Government being particularly active. We have announced new industrial initiatives, launched IT Year 1982, introduced the Micros in Schools scheme, established the Advisory Panel, steered the BT Bill through to Royal Assent and launched the IT centres. I have therefore delayed preparing a response to the Council until more of these initiatives had been announced and the general shape of our IT strategy could be seen.

However, I think it is now appropriate to respond to the Council. This will enable us to show that many of their recommendations have been accepted and will provide a document for release to the Press which conveniently summarises much of what we have been doing in IT.

I therefore attach a draft response to the ACARD report for your approval and hope that I will be able to send this to Dr Spinks in the next couple of weeks.

I am copying this minute, and the draft response, to the Home Secretary, The Lord Chancellor, the Foreign Secretary, the Chancellor of the Exchequer, the Lord President, the Secretaries of State for Employment, Defence, Environment, Scotland, Wales, Northern Ireland, Social Services, Trade and Education and Science, Robin Ibbs and to Sir Robert Armstrong.

KB

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31 July 1981

Yes - it will get more publicity in August - because of lack of political momentum.

This draft response gives a fairly impressive list of initiatives. Press Office do not feel that publication in August will detract from its impact. Content for Mr Baker to respond to ACARD as proposed?

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cc: Ho  
Lco  
Fco  
Hmt  
LPO

10 DOWNING STREET

From the Private Secretary

3 August 1981

DM WO  
MOD NIO  
DCE DHSS  
SO O/Trade

RESPONSE TO ACARD REPORT ON INFORMATION TECHNOLOGY

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CPRS CO

The Prime Minister was grateful for Mr. Baker's minute of 31 July.

She is content with the draft response to ACARD attached to his minute, and agrees that he should send this to Dr. Spinks in the next couple of weeks.

I am sending copies of this letter to John Halliday (Home Office), Michael Collon (Lord Chancellor's Office), Brian Fall (FCO), John Wiggins (HM Treasury), Jim Buckley (Lord President's Office), Richard Dykes (Department of Employment), Brian Norbury (MOD), David Edmonds (Department of the Environment), Godfrey Robson (Scottish Office), John Craig (Welsh Office), Mike Hopkins (Northern Ireland Office), Don Brereton (DHSS), John Rhodes (Department of Trade), Peter Shaw (Department of Education and Science), Gerry Spence (CPRS) and David Wright (Cabinet Office).

W. F. S. RICKETT

Jonathan Hudson, Esq.,  
Department of Industry.

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DEPARTMENT OF EDUCATION AND SCIENCE  
 ELIZABETH HOUSE, YORK ROAD, LONDON, SE1 7PH  
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 FROM THE MINISTER OF STATE

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Kenneth Baker Esq MP  
 Minister of State and Minister  
 for Information Technology  
 Department of Industry  
 Ashdown House  
 Victoria Street  
 LONDON SW1

12 August 1981

Dear Kenneth,

## RESPONSE TO ACARD REPORT ON INFORMATION TECHNOLOGY

Thank you for sending Mark Carlisle a copy of your minute of 31 July to the Prime Minister and of the draft response to this report. I am replying in Mark's absence from the office. We are content for you to send it to Dr Spinks but I would like to suggest some small amendments to the education section of the response to take account of developments since the draft was prepared and to ensure that the response better reflects the current emphases of the educational initiatives.

The amendments I would wish to see are as follows:-

Paragraph 31

replace "..... are to ensure that every secondary school pupil during his or her time at school has some worthwhile experience ....." by

"..... are to stimulate and support action by local education authorities (LEAs) and schools which is designed to give secondary school pupils some worthwhile experience ....."

In our view this better reflects the aims of the two Programmes.

Paragraph 32

Add the following sentence at the end of this paragraph.

"At the post graduate level, the Science and Engineering Research Council (SERC) has initiated, and now supports, MSc courses in integrated circuit design at a number of universities."

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This gives a better overall picture of the contribution of the education service.

Paragraph 33

(i) Replace the existing second sentence beginning "Institutions will face difficult choices ....." by

"The University Grants Committee (UGC) has now announced its grant allocation to individual universities for 1981/82 and provisional grants for later years, and has offered institutions both general and particular guidance on their expenditure. The Government hope that consistent with this guidance institutions will take into account the contribution which certain disciplines relevant to IT can make to the long term health of the economy and of the current level of demand from potential students for such courses."

(ii) amend the final sentence to read:

"Proposals in this area were published on 27 July."

Both these changes are necessary to take account of developments since the original draft was prepared.

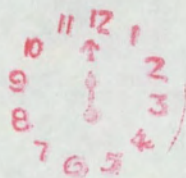
Finally there is a reference in paragraph 20 to the Science Research Council which should now be amended to the Science and Engineering Research Council to reflect the change in the Council's title.

I am copying this letter to the recipients of your minute.

*Yam era*  
*Dant*

BARONESS YOUNG

IG 1981



*[Faint, illegible red stamp]*

DRAFT

## RESPONSE TO ACARD REPORT ON INFORMATION TECHNOLOGY

## Introduction

1. The Government welcomes the report by the Advisory Council for Applied Research and Development (ACARD) on information technology (IT) both for its important contribution to policy formation in IT and for its stimulus to wider debate about the significance of information technology. Like ACARD, the Government regards the effective development and application of IT as a key element in the future industrial and commercial success of the United Kingdom and recognises the great potential significance of IT for both society and the individual. Important new developments are already in hand - for example new information systems, including accounting systems, in banks, offices and shops; greatly extended use of satellite transmissions; new, interactive uses for the domestic TV etc - which neither public nor private sectors in the United Kingdom can afford to neglect.

2. There are already, of course, notable United Kingdom successes in IT. As ACARD pointed out, many of the displays used in calculators and digital watches rely on our technology. British software has a high international reputation. We have powerful interests in satellite communications technology and a world lead in some types of marine navigational equipment. And perhaps of most significance for the future, the United Kingdom had the first operational public viewdata service (Prestel) and teletext services (Ceefax and Oracle), both being new forms of information service with potentially huge applications invented entirely in the United Kingdom. In addition, the United Kingdom is a respected supplier of all types of information - news, educational, financial etc - and has the great advantage of the worldwide use of the English language. Government, through its regulatory functions, purchasing power and financial aids, must help industry and commerce to build upon these strengths.

3. Outside the telecommunications responsibilities of British Telecom, which are of key importance, the main responsibility for exploiting the new technological developments in commercial markets both here and overseas must, of course, rest with the private sector. The success of British industry and commerce in marketing new products and services rests fundamentally on the skills and resources available within the private sector. But the Government

can play a key role by pursuing general financial and economic policies designed to promote an environment in which private initiative and enterprise can flourish so that the new market opportunities opened up by IT may be vigorously exploited.

4. The Government also recognises that it has a specific role in promoting the development and application of IT more directly. There are three main aspects to this role -

i. First, there is the development of an appropriate legal, regulatory and physical framework for IT. Government policies towards British Telecom influence the provision of the national communications infrastructure and the international links that are crucial to the development of IT. Government regulates the use of radio frequencies and represents United Kingdom interests in international negotiations on the allocation and use of such frequencies and on the technical and operating standards for radiocommunication services. It is responsible for the legal environment in which information services operate and it has an important role to play in the development of computer and telecommunications standards.

ii. Secondly, the Government can assist the development of IT products and the effective exploitation of IT through, for example, support of R and D, assistance in the development of new products through the Product and Process Development Scheme, supporting the identification and exploration of new applications of IT, encouraging "awareness" of IT in industry, commerce and the public generally and helping to provide suitably qualified manpower through the educational and training systems.

iii. Thirdly, Government itself handles large quantities of information and needs to make extensive use of IT products and services throughout its own activities. Through enlightened public purchasing decisions, it can stimulate the manufacture of new commercial products and can influence the development of standards that run across a wide range of applications.

5. The response to the specific recommendations in the ACARD report that are given below illustrate how, in those areas covered by ACARD, the Government is developing policies to fulfil those roles.

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Recommendation i.

One Minister and Government Department should be responsible for co-ordination of Government policies and actions on the promotion and development of information technology and its application through awareness, education and training, sponsorship of industry, provision of risk capital, public purchasing, publicly funded R and D, national and international regulations and standards, legislation, communications and related programmes such as satellite technology.

6. ACARD made it clear that this recommendation did not imply a transfer of detailed responsibilities, but improved arrangements for co-ordinating policies that affect the development and application of IT. Government has also recognised the need to address the questions posed by the new technology in a coherent manner, and to respond effectively to the challenges of IT, and has therefore made significant changes in its own policy-making and executive structures.

7. A Minister with specific responsibilities for IT was appointed in November 1980, the first such appointment in any country. The Minister of State for Industry and Information Technology takes responsibility, under the Secretary of State for Industry, for all the Department of Industry's activities concerned with IT, but he has in addition a general responsibility for overseeing the development of coherent Government policies towards IT.

8. Secondly, the Prime Minister announced on 2 July that a panel of advisers representing a wide range of IT interests had been appointed to provide the Government with a market-orientated input to policy. Much of Government policy on IT is aimed at creating an environment in which market forces can operate effectively and it is therefore important that private sector interests should contribute to policy formation. The members of the panel are:

Mr M J Aldrich	Managing Director, Rediffusion Computers Ltd
Mr I H Cohen	Managing Director, Mullard Ltd
Mr C A Davies	Managing Director, Information Technology Ltd
Dr D F Hartley	Director, Cambridge University Computing Services
Mr C N Read	Director, Inter-Bank Research Organisation
Mr C G Southgate	Chief Executive, Computer Services Division British Oxygen Company Ltd.

They will individually or collectively, be available to advise all Departments on the implications for IT of their policies, This will again add coherence to Departments' policies.

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9. Thirdly, interdepartmental machinery for examining IT issues at official level has been established. In support of this, a small unit has been set up in the Cabinet Office specifically concerned with ensuring the coherence of IT policy, helping to promote IT within Government and providing continuing contact between the external advisers and Departments. This unit is headed by Mr J B Unwin, an Under Secretary on loan from the Treasury and includes staff seconded from the private sector as well as officials. The formation of the unit was also announced by the Prime Minister on 2 July.

10. Finally, the relevant official responsibilities in the Department of Industry have been reorganised to bring together under one Deputy Secretary command the divisions responsible for sponsorship of the electronics and computing industries, for the Microprocessor Application Project (MAP), and for British Telecom. This change has strengthened the links between units responsible for different elements of IT policy. In addition, the Central Computer Agency of the Civil Service Department was re-organised last year to improve its ability to handle the growing connection between computers and telecommunications that is characteristic of IT. The Agency's title was, as ACARD acknowledged, changed to the Central Computer and Telecommunications Agency.

## Recommendation ii.

Responsibility of regulation of communications and broadcasting should be exercised by a single Government Department.

11. ACARD drew attention to four principal responsibilities which should, it suggested, be brought together -

- control of the use of radio frequencies;
- regulation of private communications systems;
- approval of equipment for connection to the public communications network;
- regulation of 'value added' services using the network.

12. The Radio Regulatory Department of the Home Office is responsible for the allocation of radio frequencies and, in conjunction with British Telecom (BT), for regulation of private communications systems.

13. The approval of equipment for connection to the public communications network is at present the responsibility of the Post Office but the liberalised telecommunications regime envisaged by the Government will require the establishment of independent standards-making and certification procedures. This task will be under-

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ken by existing bodies with the necessary expertise - the British Standards Institution (BSI) and the British Electro-Technical Approvals Board (BEAB). BSI has agreed to write the new standards that will be required, and in doing so will take full account of existing relevant national and international standards and recommendations. The BEAB has been asked to undertake responsibility for certifying that particular items of equipment meet the standards laid down by BSI. It is intended, though, that the standards themselves will not take effect for network connection purposes until they have been approved by the Secretary of State for Industry in consultation with BT.

14. A final decision on licensing policy for value-added network services and transmission services has still to be made, so that it is not yet possible to define precisely what organisational arrangements will be required. The Department of Industry will have a major interest but, as in the case of terminal equipment, it is likely that the Office of Fair Trading (OFT) will play an important monitoring role under any licensing system in order to ensure fair competition.

15. The organisational changes outlined in paragraphs 7 - 10 above will enable these policy areas to be properly co-ordinated. The Minister of State for Industry and Information Technology and the IT Secretariat in the Cabinet Office will have a broad co-ordinating role and will be well placed to take up any issues which bear on information technology. But bringing the relevant functions now carried out in different Departments and outside Government together in a single organisation would raise a wider range of issues going well beyond IT.

16. Wider issues also arise from the allocation and regulation of radio frequencies for which the Radio Regulatory Department (RRD) of the Home Office is responsible. The frequency spectrum is a limited resource. Great care is needed to ensure that priority users like the emergency services are adequately catered for and that interference among users - whether in the United Kingdom or elsewhere - is minimised. In addition, international regulatory agreements impose constraints on the allocation of frequencies within the United Kingdom while there are also, as ACARD acknowledged important links between radio regulation and broadcasting. In view of these various and, at times, competing interests, the Government considers that the Radio Regulatory Department ought to remain within the Home Office, RRD

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will, however, work closely with the Department of Industry and with the IT unit in the Cabinet Office, which will help to ensure that industrial and commercial issues receive due weight in relation to the other issues which must be taken into account.

Recommendation iii.

The Government should make it clear that effective exploitation of information technology is essential to the future industrial and commercial success of the United Kingdom. This commitment should be emphasised on all suitable occasions by Ministers and officials.

The Government should support its views with publicity for existing United Kingdom achievements in information technology and imaginative promotion of them.

Innovative applications of information technology by Government Departments, local authorities and public corporations should be encouraged and plans for them should be publicised.

17. The Government fully endorses the view of ACARD that the effective exploitation of IT is essential to this country's future industrial and commercial success. Ministers and officials are indeed making this clear on suitable occasions. The appointment of a Minister with specific responsibilities for IT emphasises the Government's commitment to the importance of IT.

18. The Government sees a need not only to promote United Kingdom achievements in IT but more generally to create awareness of possibilities and implications of IT. The Minister for Information Technology recently announced plans for a co-ordinated information technology awareness campaign which will provide publicity for IT through Ministerial visits and speeches, exhibitions, seminars and other events culminating in a major IT Week and Conference in the autumn of 1982 - designated as IT Year. The objective of the campaign is to increase awareness in all areas of society of what IT offers, and so enable them to take advantage of the new services and equipment. Initiatives already taken include the DOI's Micros In Schools scheme and the Education Departments' £10 million Microelectronics in Education Programme. These two projects complement each other in assisting schools to understand and use microelectronics and its applications. In addition the MAP Microtrain launched on 6 May provides

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mobile exhibition, lecture room and advice centre. It is visiting 21 centres throughout the country demonstrating, and allowing people to try out a wide range of British microelectronics applications, including those in IT.

19. The Government is also providing support and publicity for a number of projects demonstrating United Kingdom capabilities in IT. These will create interest in potential applications and help to promote new and innovative applications of this technology. They include the projects in education mentioned above, in the health sector, in improving access to information held in Government Departments and other public bodies such as the Health and Safety Executive (for instance the Companies Registration Office is examining the possibility of providing access to some its records via Prestel), in telecommunications and in a wide range of office automation applications. The Department of Industry has announced plans for eight 'office of the future' projects, costing in total up to £2million. These will stimulate the development of new products by UK manufacturers and enable them to demonstrate the capabilities of their systems. Particular attention will be paid to promoting interest in viewdata and teletext, where the United Kingdom has a world lead. The Department of Industry, for example, is installing its own internal viewdata system on a pilot basis to explore the scope for improving information handling within the Department and to improve services to firms. Further major projects are being planned.

20. ACARD pointed out the significance of developments in satellite communications and broadcasting technology. The Government has supported the creation of a strong United Kingdom presence in space technology through participation in the European Space Agency (ESA) where the United Kingdom has emphasised the need for collaboration in telecommunications, and is continuing to promote such applications of space technology. Project Universe, for instance, is a three year, £3million project, which will demonstrate business communication via satellite between computers in six locations and will involve the Department of Industry, Science Research Council, British Telecom, GEC-MARCONI, Logica, Loughborough University of Technology, Cambridge University and University College, London. It utilises the ESA Orbital Test Satellite, one of ESA's communications satellites, for all of which British Aerospace have acted as prime contractor. Further stimulus to the UK space industry will come from the Ministry of Defence's decision to purchase a new military communications satellite from British Aerospace and Marconi Space and Defence Systems. Direct broadcasting by satellite was the subject of a Home Office study published in May 1981. In a forward to this report, the Home Secretary indicated that the Government favoured the introduction of a two channel operational service in the mid 1980's, provided that such a service could be founded from private source.

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21. The Government is aware of the need to encourage industrial users of information to take advantage of the rapidly growing opportunity for on-line searching of information data banks in science, technology, medicine and general business information. For many United Kingdom users of information, the introduction of BT's public packet switched telecommunications network will bring down the costs of using interactive data bases in the near future. In particular, users will have cheaper and easier access to the information held on European data base hosts on the EURONET/DIANE network.

22. Recognising the need to stimulate the use of on-line searching, the Department of Industry has provided the United Kingdom focus for access to the European Space Agency's computerised information system (now also available on EURONET) through services from the Technology Reports Centre (TRC) at Orpington. The services are DIALTECH, which enables users with their own terminals to dial directly and carry out searches on any of the 30 data bases now available. For users without terminals, or less familiar with on-line information retrieval, there is a second service, TECHSEARCH, in which experienced staff carry out searches on behalf of the customer. During 1980/81, demand for DIALTECH showed an increase of about 30 per cent, with industrial users accounting for almost 70 per cent of the total usage.

23. In addition, DoI and the British Library jointly fund the On-Line Information Centre, an information and referral service for potential users of on-line search services and equipment. In 1980/81 this centre answered almost 2000 enquiries, an increase of 54 per cent on the 1979/80 figure, with almost 60 per cent coming from the industrial and industrial service sector.

Recommendation iv.

The Post Office (or its successor for telecommunications) should have the mandate to provide a world-competitive United Kingdom communications network and should have sufficient finance for procurement and installation, whether from public or private sources.

24. The Government agrees that a first class telecommunications system will be a crucial element in determining the ability of United Kingdom firms to exploit IT. It therefore attaches great importance to the investment programme it has agreed with BT, whose plans involve a substantially increased level of expenditure during the next few years compared with the recent past. This is designed to enable

customer demand to be met, to improve the quality of service and to modernise the network in order to facilitate the application of new IT systems in the United Kingdom. The Government recognises, however, that the industries' internal resources are unlikely to prove sufficient for its investment programme and has agreed to provide substantial quantities of external finance. It increased BT's external financing limit (EFL) for 1980/81 to £223 million, which compares favourably with recent years when net repayments were required and has announced for 1981/2 a £200million increase in the EFL, bringing it up to £380million.

25. However, the Government hopes also to see the private sector taking an increasing share in telecommunications investment following the passage of the BT Bill. It would welcome joint ventures between BT and the private sector which would inject private sector finance into particular areas of investment, for example in the supply of attachments and the provision of services auxiliary to the main network. The introduction of private sector competition into certain areas following the relaxation of the telecommunications monopoly could help to free resources for investment in the main telecommunications network. The Government has also indicated its readiness to consider possible new forms of financing for industries such as BT, but has specified that such new forms should introduce a market discipline for the management of the industries concerned, and should tap new sources of finance in order to avoid adverse effects on the money supply.

Recommendation v.

Careers services at both school leaver and higher levels should review the guidance given to students about opportunities in information technology, in order to attract entrants from a wide range of disciplines.

26. The Government agrees that careers services should take account of the new opportunities in IT-related occupations. The relevant part of the ACARD report has been drawn to the attention of careers officers in the Local Education Authority Careers Services.

27. The Careers and Occupational Information Centre (COIC) of the Manpower Services Commission (MSC) provides an up-to-date careers information service for the benefit of students, careers advisers and members of the public. IT and related developments are already mentioned in most of the relevant COIC products.

COIC has also offered, through the columns of its journal "Newscheck", to act as a clearing house for ideas, projects, experiences etc from the field of careers education where IT has been used or where its use is proposed. Some careers services - both private and public - are already using Prestel to provide careers information.

Recommendation vi.

The Government, its agencies concerned with training, and educational bodies at all levels, should examine the provision of education and training courses in subjects related to information technology and propose measures to stimulate an increase of training in firms.

28. The Government agrees with ACARD that there must be an adequate supply of appropriately skilled people if the United Kingdom is to take up the opportunities offered by IT. It also agrees that industry should train for its own needs, as it is far more likely than Government to know how best to meet those needs. Nevertheless the Government recognises that both education and training services need to adapt their programmes - and also use IT in their activities - in order to supply people with the requisite knowledge and awareness. This calls for contributions from all stages of the education service and all aspects of the training services. In bringing forward the measures described below, the Government has taken stock of the existing provision for education and training in subjects relevant to IT. It will continue to do so.

Education

29. Two publicly funded programmes, the Microelectronics in Education Programme (MEP) covering England, Wales and Northern Ireland, and the Scottish Microelectronics Development Programme (SMDP) have been started in order to widen the awareness of young people and their teachers of the applications of microelectronics and more generally of IT. The planned expenditure on these Programmes up to the end of 1983/84 is approximately £10 million. The Education Departments have recently published the strategies for the Programmes; MEP is to concentrate on teacher training, software development and dissemination of information through a system of Regional Centres. SMDP has already completed the first phase under which 68 institutions were supplied with hardware on loan and some back-up support. Its second phase will concentrate on the development of software for use in the institutions which benefited under the first phase.

30. In a complementary initiative announced by the Prime Minister on 6 April the Government is making available up to £5 million to assist those secondary schools which do not already have a microcomputer or purchase one. Government support will contribute half the cost, matching on a pound for pound basis funds provided locally. Two British manufactured machines are being offered under the scheme - the Research Machines Ltd RML 380Z and Acorn Computers Ltd BBC Microcomputer. A condition of the scheme is that two teachers from every school which applies have already undertaken or are about to undertake, a period of suitable in-service training in the use of microcomputers in education. Approaching 1000 applications have already been received.

31. The aims of the two Programmes and the scheme to supply microcomputers are to ensure that every secondary school pupil during his or her time at school has some worthwhile experience of using microcomputers; and that as a step in this direction every secondary school has its own microcomputer by the end of 1982.

32. The main source of the new supply of highly qualified manpower at both graduate and sub-graduate level, which will enable the United Kingdom to exploit IT to the full, is the higher and further education system. This is also a major provider of training for industry directly, for industrial training organisations and for national training organisations in the IT field. Demand for relevant courses in the electronics, computing and allied fields is at present buoyant. For example the numbers of undergraduates on single and joint honours courses in computer science in universities has nearly doubled - from 1000 to 2000 since 1974-75. Applications have shown an even sharper rise by 160 per cent since 1976. Similar increases have occurred in the number of students studying for degrees and Higher National Diplomas in computer science and closely-related disciplines in polytechnics and colleges. During this period considerable investment in equipment has been made in universities, polytechnics and colleges. The Computer Board has for example set aside over £1.5 million since 1979 from its grant to universities to allow them to purchase microprocessors for the development of computing networks.

33. In line with the Government's policy of restraining public expenditure, spending on higher education is to be reduced by rather more than 8 per cent compared to previously published plans by the end of 1983-84. Institutions will face difficult choices in finding these savings; but the Government hope that, in making these choices, institutions will take into account the contribution which certain disciplines relevant to IT can make to the long-term health of the economy and of the current level of demand from potential students for



such courses. One of the Government's objectives in their consideration of the future management and structure of public sector higher education (ie polytechnics and some other colleges) is to find ways of safeguarding and developing initiatives in subjects crucial to economic regeneration. Proposals in this area will shortly be published.

34. The Open University (OU) is already making a significant contribution to the supply of qualified manpower through the provision of courses relevant to IT. Over 6000 students were taking courses relevant to IT in 1981. Moreover, through the application of IT to its own operations, it is helping both to assess the potential for the wider application of IT in education and to widen public awareness of IT. The expertise and experience built up over the last 10 years by the OU have given the United Kingdom an international lead in this field. The OU is now seeking to expand considerably its activities in the post-experience education field. These could play a very important part in the national re-training effort which the rapid development of IT will require.

35. This need for up-dating and retaining is, of course, particularly clear in education itself. If teachers at all levels are to be in a position to widen the awareness of young people of IT, and to apply it successfully to the teaching of their own disciplines, they will need up-to-date knowledge of developments in IT and the confidence in applying it which can only come through "hand on" experience. Consequently, MEP (and SMDP) are supporting the development of appropriate in-service training; this will complement the existing efforts of local education authorities (LEAs) and institutions of higher education. In addition, schemes for seconding teachers to industry are operated by some LEAs; these can be of particular value in widening the awareness of teachers of IT.

#### Training

36. Although fundamental to the long-term supply of appropriately skilled people, the measures being taken in education will not immediately solve the problem of supply of skilled manpower. Here the role of the training services is crucial. In times of recession or rapid change this may not always occur on a sufficient scale and some element of support by the public training services may be called for. The present level of the Government's involvement in training for computer skills is very substantial. This accords with a widespread view of the importance of public training to contribute to the profitable exploitation of new technology and to meet the needs of cross sector occupations where efforts by individual industries seem likely to lead to shortfalls.

37. The Manpower Services Commission (MSC) has mounted a programme of action involving Industrial Training Boards (ITBs) and other training bodies to help spread awareness of new technology and to ensure that analysis of training need, training provision and content and throughput of trainees is adequate. It also supports relevant training by the MSC under the Training Opportunities Scheme (TOPS), the Training for Skills Programme and the Threshold Programme (for unemployed school-leavers). The number of places being provided on appropriate courses is rising and in 1981-82 it is expected that about 8,000 trainees will benefit from this support.

38. The MSC is making increasing use of information technology as a major component of computer based training. The 'Open Tech' proposals which have been published for consultation, would need to use information technology very widely and could contribute to IT training needs.

39. Within the Civil Service, a wide range of training and educational activity on IT takes place. A nationwide programme of courses and seminars on all aspects of IT is organised by the Civil Service college in consultation with the Central Computer and Telecommunications Agency. There is co-operation with the computer industry and educational institutions on training for managers at the most senior levels. Recently, for example, a new course on managing information held at the London Business School was attended by a number of Permanent Secretaries.

## Recommendation vii.

The Government, through Trade Associations and the National Economic Development Council, should improve the links between supplier and user interests in information technology in order that United Kingdom firms may be better able to anticipate future requirements.

40. The Government agrees that closer links should exist between supplier and user interests but looks to the commercial and industrial interests principally concerned to recognise the advantages of co-operation and establish appropriate arrangements. The encouragement of such contacts is of course central to the Government's public purchasing policy. The National Economic Development Council has also realigned its own work in the electronics field and established at the beginning of 1981 a new Information Technology Committee, reporting to a reconstituted Electronics EDC. This committee will examine the present structure of the United Kingdom industry to determine how best future demands in IT can be met. Membership of the IT Committee includes supplier, trade union and user interests. Trade associations in the IT field are also represented in the EDC itself and other Sector Working Parties and are in frequent contact with the Department of Industry. A Space Consultative Committee, to provide advice from industry on matters of space policy has also been established.

## Recommendation viii

The Government should recognise the importance, to the information technology supply and application industries, of United Kingdom strength in international discussions on regulations and standards, and staff and financial support must be available for such activities to ensure that our delegations go to them well prepared technically, commercially and politically, and ready to argue strongly for our national interest. Trade associations must similarly be prepared to play their part on behalf of their industries.

41. The importance of standards in the supply and application of IT is fully recognised by the Government. The Department of Industry has recently set up a Focus Committee on Information Technology Standards under the chairmanship of Mr Michael Marshall MP, Parliamentary Under Secretary of State at the Department. The membership of the Committee comprises

leading figures from the supply and user sides of information technology as well as from British Telecom (BT), the National Computing Centre (NCC), the British Standards Institution (BSI) and central government, and its function is to advise the Department and other organisations on strategy and activities across the field of information technology standards. The committee will draw on the views and actions of more specialised "sectoral" committees which will concentrate on IT standards in the private users', the public users' and the suppliers' sectors, and the Department sees this committee structure as one of its chief sources of industry views on standards. Views are also taken through the many Departmental contacts with industry on IT matters, including those stemming from representation on BSI committees, which have members from both government and industry.

42. One of the principal issues in IT standardisation is how best the United Kingdom should relate national to international activities. On the one hand it can be argued that no attempt should be made to adopt standards until they have been fully agreed in the appropriate international organisation; to do so would be to run the risk of being left in an exposed position. On the other hand there are many examples of successful moves at both national and company level to pre-empt the formal procedures by widely adopting a way of working which, by the universality of its adoption, becomes the prime - if not only - candidate for formal standardisation. There can be no general rule as to which of these approaches is right for United Kingdom, but it is certainly true that more forceful attempts than hitherto should be made to use the second one; for example, British viewdata and teletext standards are being vigorously promoted overseas.

43. The European Commission sees the use of standards in IT as an instrument of commercial policy in harmonising practice throughout member states and in trying to prevent one state, either inside or outside the Community, from imposing its practices (and hence its products) widely, and thus gaining a

monopoly position. The Commission, however, are also aware of the need to open up competition between member states (the 'Davignon initiative') and are conscious of the role standards can play in providing a basis for this. They have set up a Working Group on Standards to advise on the standards aims of the Four Year Programme on Information; this Group contains representatives of national government and of standards bodies (eg BSI) within the Community. The United Kingdom's aim on this Group is to ensure that Community IT standards strategy is, as far as possible, compatible with the needs of its own IT interests.

44. There are also the other international organisations referred to in the ACARD report, whose decisions are not legally binding but which work as a result of the wide acceptance of their recommended actions. One of the first tasks of the Focus Committee will be to examine United Kingdom representation, and support for United Kingdom representatives, on these bodies.

Recommendation ix

The Government should bring forward proposals for data protection legislation, taking into account the views of the Data Protection Committee, without delay.

45. The Home Secretary announced on 19 March the Government's intention to introduce legislation imposing safeguards on the way information about individuals stored in electronic systems is maintained and handled. On 14 May 1981 the United Kingdom became the ninth country to sign the Council of Europe Convention on Data Protection. The Home Secretary's announcement signified the Government's recognition of the need to afford greater protection to individual privacy in this way, to help increase the competitiveness in overseas markets of our manufacturers of IT products and to ensure that the flow of data into the United Kingdom from countries which have already introduced such safeguards is not restricted. The legislation, which will take a little time to prepare, will enable the United Kingdom to ratify the Council of Europe Convention. The terms of the announcement will provide a basis for planning future information systems.

Commendation x

The Government should put in hand urgently a review of the legal reforms required to aid and expedite the use of information technology in the United Kingdom and should then legislate to bring about such reforms as fast as possible.

46. ACARD made specific reference to copyright and the admissibility of computer generated evidence in legal cases, and passing reference to the laws of libel and fraud. The Government is not aware of legal difficulties in the latter areas. As for copyright the Government's Green Paper on copyright published on 15 July (Reform of the Law relating to Copyright, Designs and Performers' Protection - A Consultative Document; Cmnd 8302) contains a number of proposals for clarification of the law of copyright as it related to computers. In particular it follows the suggestion made in paragraph 6.19 of the ACARD Report that information held, for example, in electronic, magnetic or optical forms should be subject to copyright protection. The Green Paper proposal that the loading of a work into a computer should be a restricted act, requiring the authorisation of the copyright owner, will provide the necessary means of control over all subsequent uses of the work within the computer, including its transmission to distant terminals.

47. There is no general statutory provision governing the admissibility as evidence in criminal proceedings of computer records. Records of information generated by a computer and not merely stored by it would probably be admissible for this purpose if the courts were satisfied as to the way they were produced. However, records of information merely stored by a computer are usually hearsay evidence which is generally not admissible unless it constitutes a recognised exception, either at common law or by statute, to the hearsay rule. These statutory exceptions include, under the Criminal Evidence Act 1965, documents containing trade or business records compiled from information supplied by persons having personal knowledge of the matter dealt with in this information.

48. The Criminal Law Revision Committee in its Eleventh Report on Evidence (Cmnd 4991) recommended a general provision whereby computer records would be admissible as evidence in criminal proceedings if certain conditions were met. The Government will be looking into this matter further during the general consideration which it will be giving to the law on evidence in the context of the report of the Royal Commission on Criminal Procedure (Cmnd 8092).

49. In civil proceedings, the same distinction must be made between information generated by a computer and information merely stored by it. The latter is admissible under section 5 of the Civil Evidence Act 1968, provided that certain procedural requirements are complied with. However, this provision applies only to hearsay evidence, and the court must have regard to all the circumstances, such as the likelihood of its being accurate, in evaluating the weight which should be attached to it. The 1968 Act has worked well in practice, but as it does not apply to original evidence, computer-generated material is not covered by it. No problems have arisen so far in this respect and, as mentioned above in relation to criminal evidence, it is probable that information generated by computer would be admitted as long as the court was satisfied about the way in which it had been produced.

50. The Government has noted that the British Computer Society have recently produced a report on the admissibility of computer generated evidence and it will be considering the present position further with the Society in the light of that report.

Recommendation xi.

The Government should consider legislation to permit the creation of new organisational forms to aid joint information technology projects, taking into account precedents in France and Belgium.

51. New IT systems and services - providing, for example, for exchange of information and cash transfers between travel and hotel interests - may require the co-operation of public and private sector organisations and the setting up of joint organisations to operate the system. ACARD suggested that new forms of company entity are needed to facilitate such enterprises and in particular cited the French 'Groupement d'Interet Economique' (GIE) as an example of what was required. The Government believes, however, that United Kingdom company law and in particular the scope for using the private company for joint ventures, is already sufficiently flexible to provide for such enterprises. It does not, therefore, see the need for different legal terms of company entity.

## Recommendation xii.

The Post Office should be free to supply terminal equipment and information technology services for use with its network but should not have an exclusive right to do so. It should not be the approving authority for terminal equipment and services provided by others.

52. ACARD recognised, in a footnote to its report, that this had been adopted as Government policy. The arrangements for approving terminal equipment have been outlined above. Powers contained in the British Telecommunications Bill also permit the Secretary of State to license "value added" network services operated by third parties using BT's network, and commercial networks additional to the main public network (which will remain with BT). In his July 1980 statement, the Secretary of State for Industry announced that the Government intended to allow people more freedom to use BT's circuits to offer to others services not at present provided by BT. Subsequently the Department of Industry commissioned a study by Professor Beesley of the London Business School on the economic implications of allowing the use of leased circuits for all types of commercial services. This study was published in April 1981, and recommended full freedom for private sector suppliers to use the national network to provide services to third parties. The Government is attracted to Professor Beesley's recommendations in this area, but will hear the views of interested parties before coming to a final decision in July. Professor Beesley also considered the possibility of liberalisation of use of BT's international circuits and of competition with the main BT network in the United Kingdom. The Government has asked for BT's views on the complex issues raised by the first of these subjects; it has been exploring the scope for competing transmission systems and intends to make a statement on this as soon as possible.

## Recommendation xiii.

The Government should employ public purchasing to pull through novel developments in information technology.

53. Government is a very large purchaser of IT products and services - it has, for example, more than 650 large and medium sized computers and spent £86 million on the purchase, hire and maintenance of administrative and scientific computers and £180 million on telecommunications in 1980-81.



The Government has already taken a major general initiative on public purchasing policy, which is being co-ordinated by the Secretary of State for Industry. The new policy emphasises the need for closer relationships between public sector purchasers and their suppliers, and the need for product specifications to be set wherever possible with export potential in mind, particularly in the case of novel and innovatory applications. This policy will be as vigorously applied to IT as to other sectors of industry. Within the international rules on public purchasing - the EC Supplies Directive and the GATT Agreement on Government Procurement - the Government will therefore continue to support British IT suppliers, in order to help them compete effectively. The projects funded to help promote awareness of IT - such as the Micros in Schools scheme - will provide further opportunities to support United Kingdom supplying interests.

Recommendation xiv.

The Government should consider the possible role of information technology in promoting national objectives, and give appropriate financial support to relevant projects.

54. The Government accepts that IT can assist in promoting many national objectives such as the raising of productivity throughout the economy and particularly in the public sector. It also enables many public services to be provided more speedily and effectively. But applications will, of course, have to be examined not only for their value in contributing to IT development but also with regard to the general constraints on Government expenditure and manpower. Where possible, though, such applications will be supported and the Department of Industry, through its Product and Process Development Scheme and in other ways, is already supporting many developments.

55. ACARD cited specifically the use of IT to assist the physically handicapped. The Government has actively pursued work for the handicapped generally in the International Year for the Disabled. It has sponsored research into electronic aids, for example at the National Physical Laboratory, and into their applications, through amongst others the Council for Educational Technology. It is now concerned to raise the awareness of National Health Service authorities, local education authorities and voluntary bodies

about the opportunities presented by IT. To this end, it is funding exhibitions, sponsoring conferences and supporting trials during this year and proposes to continue its encouragement during 1982 with a programme focussed on the needs of the disabled.

Recommendation xv.

The Science Research Council and the Department of Industry should keep their research priorities under review in the light of the needs of information technology.

56. The Government fully agrees with this recommendation and the current practice of both the Science and Engineering Research Council and the DOI is in fact in accordance with it. The former Computer Systems and Electronics Requirements Board regularly reviewed its priorities and made them known to contractors, potential contractors and the SERC. An attempt is at present being made to quantify the relative importance of the items in the latest statement of priorities which are: open systems interconnection; means of designing and implementing computer based facilities; aids to the efficient performance of office tasks; and data capture techniques.

57. SERC also reviews and states its priorities from time to time as is evidenced by its Specially Promoted Programmes (SPPs). In giving support for software tools and techniques, SERC has expressed the wish to increase support for the applications environment and for products and systems (displays, new computer architectures and microcircuit components). Emphasis is also placed on database utilisation, software technology, resilient systems and the man-machine interface.

58. DOI research priorities are reviewed in the light of perceived industrial IT needs as the major input comes from industrial members of Requirement Boards. Considerable industrial advice is also available to the SERC.

Recommendation xvi.

The Department of Industry, with the Ministry of Defence, the Science Research Council and the Post Office, should increase the present co-ordination of all publicly funded R and D applicable to information

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technology. It should also make a greater effort to ensure both that research which it supports is likely to be applied and that transfer of results to industry takes place.

59. Arrangements have now been established for closer and more regular consultation between Science and Engineering Research Council subject Committees and specialist groups of Department of Industry Divisions and Requirements Boards working in the field of information technology. These arrangements supplement the well-established use of Department of Industry staff as assessors on SERC committees and panels. The Council and Department of Industry have also appointed an industrialist to act as a co-ordinator of their interests in computing and to ensure improved liaison with - and awareness of the needs of - the hardware and software sectors of the industry.

60. Co-ordination of R and D undertaken for different purposes, ie to increase knowledge, to serve defence needs, to serve the needs of tele-communication services or to assist industry, is difficult to achieve and does impose an overhead. Where aims are compatible, co-ordination is improved by collaboration or by joint control. CSERB for example funded projects at RSRE jointly with MOD. In this case it was recognised that to obtain civil applicability and application of work undertaken for defence needs required extra funds and extra effort and the Board provided these.

61. As has been announced, CSERB is to be subsumed into a new Electronics and Avionics RB which will bring in a large application area (Avionics), which is also jointly funded with MOD, into the same forum. MOD and British Telecom will be represented on the new Board, as will DOI and SERC officials. DOI officials also serve on SERC and MOD Committees. Part of their brief will include improved co-ordination. Even more attention will be paid than hitherto to ensure the applicability of R and D support and the exploitation of results.

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