PART 5.

MT.

Confidential Filing

Information Technology,
Inadequacy of Interdepartmental
Whitehall Machinery
Acord Report.
[In attached folder: IT White Paper]

INDUSTRIAL

POLICY

PART 1: JANUARY 1980
PART 5: February 1987

Referred to	Date	Referred to	Date	Referred to	Date	Referred to	Date
~~2.2.87~~							
~~24.2.87~~							
~~22.4.87~~							
~~24.6.87~~							
~~21.7.87~~							
~~28.7.87~~							
~~12.10.87~~							
~~23.1.89~~							
~~22.2.89~~							
7.3.89							

PREM 19/2736

CLOSED

Published Papers

The following published paper(s) enclosed on this file have been removed and destroyed. Copies may be found elsewhere in The National Archives.

Government response to the ITAP report "Learning to live with IT"
ISBN 0 11 270633 9

Signed B. Walsh Date 10/8/16

PREM Records Team

dti

the department for Enterprise

The Rt. Hon. Lord Young of Graffham
Secretary of State for Trade and Industry

Dominic Morris Esq
Private Secretary to the
Prime Minister
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Department of Trade and Industry

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Our ref MM2AEU
Your ref
Date 7 March 1989

Dear Dominic,

Further to my letter to you of 23 January 1989, I enclose an advance copy of the IT White Paper responding to the Trade and Industry Select Committee on IT. This will be laid before Parliament at 3.30pm on Thursday 9 March. The Secretary of State will be giving a press conference at 3.45pm.

The White Paper takes account of the comments you and others made on the earlier draft. Briefing for the Prime Minister and the Leader of the House is being produced separately.

I am copying this letter to the Private Secretaries of Cabinet Ministers and Trevor Woolley.

Yours,
Gareth.

GARETH JONES
Private Secretary

the Enterprise initiative

IND POL: IT PT5

pmg.vd

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2 papers. 1 pp

Treasury Chambers, Parliament Street, SW1P 3AG

Gareth Jones Esq
Private Secretary to
The Rt Hon Lord Young of Graffham PC
Secretary of State
Department of Trade and Industry
1-19 Victoria Street
LONDON SW1H OET

22 February 1989

IT WHITE PAPER: GOVERNMENT RESPONSE TO THE TRADE AND INDUSTRY SELECT COMMITTEE REPORT ON INFORMATION TECHNOLOGY

Your letter of 15 February refers.

The Paymaster General, as the Treasury Minister responsible, has seen Lord Young's proposed IT White Paper and is content for it to be published as drafted. In regard to Lord Young's proposal that the Chancellor should be formally associated with the publication, the Chancellor suggests that it would be more appropriate for the Paymaster to be mentioned given his responsibilities in this area.

Copies of this letter go to the recipients of yours.

MALCOLM BUCKLER
Private Secretary

IND POL: Info. Technology Pt5.

PS/F/82

Department of Employment
Caxton House, Tothill Street, London SW1H 9NF

Telephone 01-273 5803
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Secretary of State

Gareth Jones Esq
Private Secretary to the
Secretary of State
Department of Trade and Industry
1-19 Victoria Street
LONDON
SW1 0ET

Dear Gareth

IT WHITE PAPER: GOVERNMENT RESPONSE TO THE TRADE AND INDUSTRY SELECT COMMITTEE REPORT ON INFORMATION TECHNOLOGY

Thank you for copying to us your letter of 15 February to Dominic Morris and the draft White Paper, which will form the Government's response to the Select Committee Report.

My Secretary of State has now seen the draft and is content for publication to go ahead.

Copies of this letter go to the Private Secretaries to the Prime Minister, members of E(A), the Secretary of State for Education and Science and to Sir Robin Butler.

Yours

Bryony

BRYONY LODGE
Private Secretary

IND POL . Info Technologys pt 5

ELIZABETH HOUSE
YORK ROAD
LONDON SE1 7PH
01-934 9000

Gareth Jones Esq
Private Secretary to the
Secretary of State for Trade
& Industry
1-19 Victoria Street
London
SW1

22 FEB 1989

Dear Gareth

IT WHITE PAPER: GOVERNMENT RESPONSE TO THE TRADE AND INDUSTRY SELECT COMMITTEE REPORT ON INFORMATION TECHNOLOGY

You copied to me your letter of 15 February to Dominic Morris seeking clearance of the draft White Paper in response to the Select Committee report.

My Secretary of State agrees that it is timely to issue a statement of Government policies in the IT field and, subject to what is said below, is content with the references to education and training and to research in IT.

On the draft White Paper itself, I understand that the policy objective for education and training has now been recast to read:

> "to stimulate the provision of education and training to meet the needs of IT users and suppliers for suitably qualified manpower."

We are content with this. I have also attached a note of minor amendments we should like to see made to Chapter 4, some of which have already been discussed with DTI officials. The amendments to paragraph 4.3 reinforce the importance given to IT within the National Curriculum, and express the benefits of IT initiatives in schools more positively. The

additional sentence in paragraph 4.4 builds, I hope in suitably neutral terms, on Mr Baker's recent announcement that he hopes to be able to improve the equipment base in further education through additional capital resource allocations. Finally, a reference to the EC COMETT programme has been added to paragraph 4.11.

I hope that you are able to take these amendments on board. I have copied this letter to the recipients of yours.

Yours sincerely,

T B JEFFERY
Private Secretary

AMENDMENTS TO DRAFT WHITE PAPER

Paragraph 4.3: Amend penultimate and final sentence to read:

"The use of IT will also be taken into account in determining attainment targets and programmes of study for other subjects within the National Curriculum. Additionally, the working group for Design and Technology has been asked to recommend attainment targets and programmes of study specifically for IT skills and awareness, to provide a framework for the development of IT capability across the curriculum. Taken together these developments will ensure that all pupils become IT-literate and develop the skills they will need in the world of work."

Paragraph 4.4: insert new penultimate sentence to read:

"The Government recognise that it is vital for students to have access to up to date IT equipment during their studies. We are considering what more we can do to improve the equipment base in colleges."

Paragraph 4.11: insert new final sentence to read:

"Also, the European Commission's COMETT programme promotes cooperation between higher education and industry and between European countries to develop training in new technologies."

IND POL: Wkp Tech. Prs.

Vhe KK

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

20 February 1989

Dear Gareth

IT WHITE PAPER: GOVERNMENT RESPONSE TO THE TRADE AND INDUSTRY COMMITTEE REPORT ON INFORMATION TECHNOLOGY

Thank you for your letter of 15 February. The Prime Minister has seen this and the final drafting of the Government response. She has made a number of drafting comments on the text which I should be grateful if you would ensure are taken on board in the version which is published. These are set out in the attached note. Subject to these, the Prime Minister is content for the draft enclosed with your letter of 15 February to be published early next month as a White Paper.

The thought underlying the small drafting changes is that the Select Committee were never very precise about what they meant by a 'strategy'. In view of that, the Prime Minister thinks we do not need to say that the Government's actions are not a strategy. The Select Committee may accept it as what they meant by those words. She notes that the Government's action amounts to £100 million of programme expenditure.

I am copying this letter to the Private Secretaries to Members of E(A), to Tom Jeffery (Department of Education and Science) and to Trevor Woolley (Cabinet Office).

Yours

Dominic

(DOMINIC MORRIS)

Gareth Jones, Esq.,
Department of Trade and Industry.

PM2ALX

IT: GOVERNMENT RESPONSE TO THE FIRST REPORT OF THE HOUSE OF COMMONS TRADE AND INDUSTRY COMMITTEE: 1988/89 SESSION

Summary: Page 2

First tiret should read:

> " - to support basic research in higher education institutions; and to encourage UK firms to use this and other research to strengthen their technological capability, where appropriate in co-operation with European partners;"

The last paragraph of Government policy towards IT should read:

> "This policy framework is backed up by a coherent set of programmes which address the issues affecting IT that are properly the concern of Government."

Chapter 6: paragraph 6.6

Second sentence should read:

> "It is also appropriate for SERC to encourage links with European Programmes."

JD3ABF

PRIME MINISTER

IT WHITE PAPER

Lord Young seeks your approval for the publication of the attached Government response to the Trade and Industry Select Committee's report on information technology in the form of a White Paper.

The Select Committee's report was fairly awful. The main thrust of its recommendations was for a "Government Strategy" for IT. To the extent they could be pinned down on this, their view of "a strategy" was the worst sort of corporatist picking winners dressed up with some rhetoric on public procurement. The summary of their recommendations is given at the end of the attached document (Flag B).

The draft White Paper is a fairly solid if unexciting defence of the Government's existing policy and a rebuttal of the Committee's demand for a strategy for IT. I do not suggest you wade through all of it though you will want to look at the summary, and the language in chapter 6 of the White Paper, particularly the highlighted passages where I have put Flag A.

I would suggest two drafting changes. On the second page the draft summary one of the Government's objectives is cited as being "to support basic and strategic IT research in higher education institutions". I think the words "and strategic" are at best misleading, and should be taken out. The other change is in paragraph 6.6 in the passage around which I have put square brackets, which I think should either be omitted altogether or use instead language close to that in your Royal Society speech, e.g.,

> "To concentrate on those research teams and areas of research where the UK has demonstrated intellectual flair and leadership."

Content for Lord Young to publish the attached as a White Paper at a suitable date early next month?

Do you wish me to propose to DTI the two changes I have mentioned above?

DM

17 February, 1989.

dti

the department for Enterprise

The Rt. Hon. Lord Young of Graffham
Secretary of State for Trade and Industry

. Dominic Morris Esq
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Our ref PS3CBV
Your ref
Date 15 February 1989

Dear Dominic,

IT WHITE PAPER : GOVERNMENT RESPONSE TO THE TRADE & INDUSTRY SELECT COMMITTEE REPORT ON INFORMATION TECHNOLOGY

We are due to reply to this Select Committee report early next month. This letter seeks clearance of the attached reponse.

The Secretary of State considers that the Committee's report makes no convincing case for any significant change in Government policies. He has, therefore, decided to respond to the Committee by publishing a positive and robust White Paper giving a comprehensive statement of the Government's policy towards IT and which also addresses the Committee's detailed recommendations.

The attached draft has been prepared in close consultation with interested Departments. In view of the Treasury's interests in the subject matter, the Secretary of State proposes that the Chancellor of the Exchequer should be formally associated with the White Paper.

It would be helpful to have agreement to these proposals by close of play on Tuesday, 21 February.

the Enterprise initiative

dti

the department for Enterprise

Copies of this letter go to the Private Secretaries to members of E(A) and the Secretary of State for Education and Science, and to Sir Robin Butler.

Yours

Gareth

GARETH JONES
Private Secretary

the enterprise initiative

Final Draft

RESTRICTED

DRAFT

INFORMATION TECHNOLOGY

GOVERNMENT RESPONSE TO THE FIRST REPORT OF THE HOUSE OF COMMONS TRADE AND INDUSTRY COMMITTEE: 1988/89 SESSION

Presented to Parliament by the Secretary of State for Trade and Industry and the Chancellor of the Duchy of Lancaster in association with the Chancellor of the Exchequer by Command of Her Majesty.

March 1989

SUMMARY

This White Paper is the Government's reply to the House of Commons Select Committee's report on Information Technology (IT). To meet the Committee's concerns about the coherence of government policy the response is a comprehensive statement of the Government policy's towards IT. It also addresses each of the Committee's 52 detailed recommendations. (These are set out in Appendix A with cross-references to the relevant paragraphs of the White Paper.)

Government policy towards IT (Chapter 1)

The Government's five main policy objectives towards IT are:

- to promote the widespread use of IT within the UK in accordance with best practice, so that businesses and others can become more efficient and effective through the use of IT to meet their needs;

- to ensure, so far as possible, that the education and training system meets the needs of IT users and suppliers for suitably skilled manpower;

- to improve the efficient functioning of the IT market and to encourage its development by liberalising the telecommunications market; supporting the

development of international standards; and promoting open markets internationally;

- to support basic ~~and strategic IT~~ research in higher education institutions; and to encourage UK firms to use this and other research to strengthen their technological capability, where appropriate in co-operation with European partners; and

- to make the fullest possible cost-effective use of IT within government to increase the efficiency and effectiveness of public administration and to achieve the business objectives of each government department.

This policy framework ~~is not an overall "strategy" for IT~~ is backed up by but represents a coherent set of programmes which address the issues affecting IT that are properly the concern of government.

Government's approach to IT (Chapter 2)

The Government are unable to accept the three themes of the Committee's report:

- All aspects of IT policy should be the responsibility of a single Minister or department. The Government do not believe this is either feasible or desirable: IT touches on many aspects of government policy.

- Government, as a single purchaser of IT, should make greater use of its influence in the marketplace. The Government do not agree that it is appropriate to view central government - or the public sector - as a single purchaser. Government departments and other public sector bodies have widely differing needs. Moreover, the Government do not consider that public procurement should be used as a policy instrument to pull-through technology.

- The roles of DTI and CCTA should be re-aligned. The Government consider that DTI and CCTA have distinct roles. DTI works throughout the economy to promote best practice; to stimulate technology transfer; to improve the efficiency and competitiveness of the IT market; and to encourage collaborative research. CCTA is responsible for promoting business efficiency and value for money in the development and use of information systems by government departments and agencies. DTI is concerned to see that messages it is putting across to business users are heard, as appropriate, in the public sector. A new DTI/CCTA high-level committee has been established to formalise existing links on matters of common interest.

Use of IT (Chapter 3)

This chapter describes the main DTI programmes under the Enterprise Initiative to promote use of IT:

- Financial and Information Systems Consultancy Initiative;

- Manufacturing Systems Consultancy Initiative;

- £12 million Advanced IT technology transfer programme;

- £12 million Open Systems technology transfer programme.

As part of DTI's objectives of securing a more efficient market by improving the provision of information to business, DTI has published the results of an official survey which provide some basic information about the use of IT in the production sector. DTI has also recently commissioned a study to investigate the effectiveness of IT systems, especially in small and medium-sized firms.

IT skills (Chapter 4)

The use of IT in the learning process is being encouraged at all levels in the education system. Current schemes include the DES's IT in Schools Initiative (£30 million per year for 1988/89 and 1989/90) and the DTI's £6 million Technology in Schools programmes.

IT also features prominently in the training schemes run by the Training Agency, for example the High Technology

National Training initiative. Trainees on Employment Training will be able to undertake IT training as part of their Individual Action Plans.

Employers - both IT suppliers and users - must take the lead in making a reality the concept of training through life for all employees. The IT industry needs to build on its recent initiatives to increase the levels and standards of IT training.

Improving the IT market (Chapter 5)

The Government are committed to open and competitive markets, both domestically and internationally. The Government have no plans to require the creation of a national broadband communications network based on fibreoptic cable. It is not for the Government to usurp the role of the market, to impose particular technological options, or to dictate the timing of their introduction.

DTI provides significant support for IT standards-making under a £17 million programme. DTI will be consulting widely on the proposal to establish, within the framework of BSI, an "IT standards institute". DTI is also writing to a number of leading IT firms to invite their participation in an exercise to establish their individual "balance of trade".

Research and development (Chapter 6)

DTI and SERC have implemented improved arrangements for managing support for IT R&D, including a joint advisory board, the Information Technology Advisory Board (ITAB). ITAB advises on DTI and SERC support for IT R&D.

In 1989/90, it is forecast that about £100 million will be spent on IT R&D under a range of programmes, including the European programmes in which the UK participates.

Use of IT in government (Chapter 7)

Departments are encouraged to develop information systems strategies and to publish the essential elements of these to make IT suppliers aware of their plans. Departments are increasingly using IT consultancy services. By the mid-1990s as much as one-third of departments' IT systems development and computer operations could be performed by the private sector.

CCTA provides a procurement service which departments may, but are not required to, use. Procurement procedures are regularly reviewed. Other ways to speed up the overall process, by reducing the pre-procurement timescale, are also being examined. In recent years CCTA has developed Standing Arrangements as a straightforward means of handling standard IT purchases. In 1987/88, 88% of all contracts for IT were placed by departments under these arrangements, without further CCTA involvement of any kind.

Conclusion (Chapter 8)

Government continues to attach a high priority to IT. The activities in support of the Government's policy objectives represent a coherent and comprehensive programme. It is within this overall framework that the Government's policy towards IT will continue to evolve.

CONTENTS

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Chapter 1: Government policy towards IT

Chapter 2: Government approach to IT

Chapter 3: Use of IT

Chapter 4: IT Skills

Chapter 5: Improving the IT market

Chapter 6: Research and development

Chapter 7: Use of IT in Government

Chapter 8: Conclusion

Appendix A: Committee's recommendations

CHAPTER 1

Government policy towards IT

Introduction

1.1 The Government are grateful to the House of Commons Select Committee on Trade and Industry for their detailed and considered review of UK policy on Information Technology (IT).* The Committee's report rightly recognises the importance of IT and the impact it has on many aspects of every day life. Reflecting the pervasive nature of IT - which has potential applications in every area of economic activity - the report contains a number of wide-ranging recommendations about this complex and fast-changing technology.

* [Footnote] Information Technology: First Report of the House of Commons Trade and Industry Committee: 1988-89 Session. HMSO 1988.

Volume I - Report ISBN 010 271 4894.
Volume II - Minutes of evidence and appendices ISBN 010 272 9891.

1.2 The Committee expresses unease about the difficulties

it encountered in seeing a clear government policy towards IT. It fears that the Government are taking decisions about IT in isolation. Accordingly, the Government have decided to reply by giving a comprehensive statement of the Government's policy approach both to the IT market and the developing technology and to the use of IT within government. In doing so, the Government respond to each of the Committee's detailed recommendations. Appendix A lists the Committee's recommendations and identifies the relevant paragraphs of the White Paper. In addition, chapter 2 explains why the Government do not accept the three basic themes that run through the Committee's report and form the basis of the main recommendations.

Policy framework

1.3 The White Paper "DTI - the department for Enterprise" (Cm 278, January 1988) sets out the Government's policy towards business and enterprise, the central theme of which is the belief that sensible economic decisions are best taken by those competing in the marketplace. The Government's responsibility is to create the right climate so that markets work better and to encourage enterprise. As the White Paper stated: "the aim of our policy is thus to encourage the process of wealth creation by stimulating individual initiative and enterprise and by promoting an

understanding of market opportunities combined with the ability to exploit them." The White Paper also noted that "Successful businesses innovate, often using technology to improve their products and processes" and set out the rationale and objectives for DTI's innovation policy. This places greater emphasis on technology transfer and collaborative R&D - both between companies and between higher education institutions (HEIs) and companies - and moves support away from single company cases and R&D projects that are close to the market.

Policy objectives

1.4 Within this policy framework, the Government have the following specific objectives towards IT:

* to promote the widespread use of IT within the UK in accordance with best practice, so that businesses and others can become more efficient and effective through the use of IT to meet their needs;

* to ensure, so far as possible, that the education and training system meets the needs of IT users and suppliers for suitably skilled manpower;

* to improve the efficient functioning of the IT

market and to encourage its development by liberalising the telecommunications market; supporting the development of international standards; and promoting open markets internationally;

* to support basic and strategic IT research in HEIs; and to encourage UK firms to use this and other research to strengthen their technological capability, where appropriate in cooperation with European partners; and

* to make the fullest possible cost-effective use of IT within government to increase the efficiency and effectiveness of public administration and to achieve the business objectives of each government department.

1.5 These objectives, and the Government programmes that support them, do not amount to an overall "strategy" for IT. Used in this context "strategy" implies attempts to "pick winners", to ignore market signals or to impose a "best" solution. The Government agree with the Committee that there should be no formal strategy of that kind. This is not, however, to say that the Government have no role. Government action can be justified to seek to correct failings in the

market mechanism and the Government have specific responsibilities, for example, in relation to education. Chapters 3 to 7 describe in greater detail the Government's activities in support of the above above objectives. They amount a set of clear and consistent programmes which address the issues affecting IT that are properly the concern of government.

Organisational framework

1.6 The Department of Trade and Industry (DTI) has a broad role in relation to the use of IT and the health of the IT market. Within this overall framework a number of departments and bodies have specific responsibilities: the Department of Education and Science (DES) through its responsibilities for education and for the science base; the Employment Department (ED) and the Training Agency because of their responsibilities for training issues; the Science and Engineering Research Council (SERC), which is responsible for funding basic and strategic IT research in the universities and polytechnics; and the Central Computer and Telecommunications Agency (CCTA), which assists government departments to make the best possible use of IT.

1.7 DTI receives independent advice on many aspects of its IT work. The Information Technology Advisory Board was

established in 1988 by DTI and SERC to provide advice to both organisations about their support for IT under the Joint Framework in Information Technology. The FOCUS Committee on IT standards has, since 1981, provided advice on broad UK strategies on open systems standards. The Secretary of State has also set up a group to advise on the impact of the single European market and the issues of particular relevance to the information and communication sectors.

CHAPTER 2

Government's approach to IT

2.1 There are three themes in the Committee's report about the Government's approach to IT. For the reasons that are explained in this chapter, the Government do not accept the views put forward by the Committee on these issues.

Responsibilities within government (Recommendations 51 and 52)

2.2 The Committee considers that there should be a single senior Minister with overall responsibility for all aspects of government policy towards IT. In view of the pervasiveness of IT and its impact on a range of government policies, the Government do not believe that it is either feasible, or desirable, to locate responsibility for all aspects of IT policy within a single department. Nevertheless, as paragraph 1.6 indicates, DTI does have a broad role in relation to the IT market as a whole. This includes its role in identifying imperfections in the operation of the market and considering the scope for government action to deal with them. Such action could involve other government departments. The Government do not, however, believe that they should go beyond this and give DTI

executive responsibility for all aspects of government policies that affect IT. That would only serve to confuse.

2.3 The Government note the Committee's comments about the handling of IT issues at Ministerial level within DTI but are satisfied that the present allocation of responsibilities is sound.

Government and IT (Recommendations 44 and 50)

2.4 A central theme of the Committee's report is that government should make greater use of its influence in the marketplace to promote wider policy objectives such as the pull-through of new technology. This is based on the premise that the Government - and, the Committee implies, the public sector as a whole - can be regarded as a large single purchaser of IT. The Government do not agree that it is appropriate to view the public sector in this way. This implies a homogeneity of needs and a measure of central control over the activities of a wide range of public sector bodies which do not, and should not, exist.

2.5 In the narrower field of central government, this view supposes that responsibility for planning, purchasing, installing and operating IT in all government departments can be co-ordinated and directed by a single unit. The

Government are convinced that this is not practicable. The organisation of IT within central government combines operational independence and central advice and support. It is for each department, as a user, to determine an information systems strategy that best meets its own needs. Central guidance and assistance enables departments to benefit from the experience of their colleagues and, where it is sensible to do so, to take advantage of a collective approach (for example, when making standard purchases or when the needs of several departments can be met by a common service, as in the case of the Government Data Network).

2.6 The Government do not consider that public procurement should be used as a policy instrument to pull-through technology. Public sector bodies use IT to help them achieve business needs. As intelligent users of IT they should be encouraged to articulate their needs and so provide the right measure of market pull.

The role of DTI and CCTA (Recommendations 49 and 50)

2.7 The Committee may not have fully appreciated the distinct roles of DTI and CCTA, which is a part of HM Treasury.

2.8 DTI works throughout the economy to promote best

practice; to stimulate technology transfer; to improve the efficiency and competitiveness of the IT market; and to encourage collaborative research. This role extends to the public sector, especially in relation to technology transfer and standards, and involves DTI in ensuring that the key messages it is putting across to business users are being heard, as appropriate, in the public sector. DTI is already active in bringing together private and public sector interests, for example, in developing guidance about the use of software technology in the STARTS initiative (Software Tools and Applications for large Real Time Systems). Moreover, the interest of public sector users in open systems standards (referred to in chapter 5) has led to public sector bodies hosting the first two of DTI's OSI demonstrator projects.

2.9 CCTA is responsible for promoting business efficiency and value for money in the development and use of information systems by government departments and agencies. The role of CCTA has evolved over time. The Freeman Review in 1983 (published as "IT in the Civil Service No. 8") marked a change from a regulatory role, when there was much greater central control over IT within central government. CCTA now has a predominantly advisory role of the kind the Committee appears to favour in paragraph 110 of its report.

2.10 The Government do not accept the Committee's view that a significant re-alignment of the responsibilities of DTI and CCTA is required. The changes proposed by the Committee would serve instead to confuse the complementary roles of the two organisations. The Government accept, however, that DTI and CCTA have common interests in a number of areas and have established a new DTI/CCTA high-level committee to formalise existing links and to ensure that the complementary activities of the two bodies are used to maximum effect.

CHAPTER 3

Use of IT

3.1 The Government agree with the Committee's views about the crucial importance of using IT effectively and the need for senior management involvement in the determination of an information systems strategy that supports the needs of the business. The Committee also rightly draws attention to the problems of measuring IT use and assessing its effectiveness.

DTI activities (Recommendation 6)

3.2 Much has happened since this Government's initiatives in the early 1980s to promote greater awareness of IT. It was then recognised that the convergence of computing and communications would have a significant impact on business, although its detailed implications could not be clearly foreseen. Action was directed at increasing basic understanding of the technology and its potential applications. Subsequent DTI activities have promoted greater business awareness of specific applications or technologies, for example, the programmes to stimulate

awareness and use of value-added and data services (VANGUARD) and to promote knowledge and use of interactive video technology.

3.3 Although businesses have taken great strides in utilising IT, it would be illusory to think that all have achieved the full potential offered by the developing technology. Some firms, especially smaller ones, are not using IT as widely or as successfully as more advanced and often larger users. The Enterprise Initiative meets this need through the Financial and Information Systems Consultancy Initiative. This provides subsidised advice for businesses with up to 500 employees to enable them to obtain expert guidance on improving existing information systems or planning, designing, introducing and operating new ones. Similarly, the Manufacturing Systems Consultancy Initiative provides expert advice on modern manufacturing methods and systems, including computer-aided design and flexible manufacturing systems.

3.4 In addition, there tends to be a reluctance among users to plan and implement information systems to take account of state-of-the-art technologies or the developing framework of open systems standards. As a result they are failing to reap the business benefits which use of these technologies and new standards can bring. Under the

Enterprise Initiative, there are two technology transfer programmes that promote greater awareness and take-up in these areas. These are the Advanced IT technology transfer programme (para 3.5) and the Open Systems technology transfer programme (para 5.10).

3.5 The £12 million Advanced IT technology transfer programme promotes a better understanding of the business benefits to be gained from software engineering, expert systems, advanced computer systems architectures, and improved human-computer interaction. Through the establishment of centres of expertise, demonstrator projects, and the publication of codes of practice, users of IT are being shown how they can improve the competitiveness of their business operations by applying these technologies. A major element of the 3-year programme seeks to stimulate the use of modern software methods and tools. These can greatly improve productivity in software writing and so mitigate the problems caused by the shortage of people with IT skills (see para 4.1). This element thus parallels the key priority of the main DTI/SERC R&D programme (see para 6.10).

3.6 There is a concern, which the Committee notes, that use of IT may now be constrained by uncertainties about the economic benefits to be gained from the use of information

systems as strategic management tools. The Committee expresses concern about the effectiveness of IT use within the UK. Take-up of IT varies considerably between firms and between sectors, although there is no ready explanation for this. Many firms, however, find it difficult to make the step changes from using IT to automate existing activities, to using information systems to improve management effectiveness, and finally their use for strategic purposes - changing the way in which firms do business or helping to define new business areas.

3.7 DTI has recently commissioned a study to investigate the factors bearing on the effectiveness of information systems, especially in small and medium-sized firms. In the light of this study DTI will consider whether further steps can and should be taken, in the context of the Enterprise Initiative, to encourage the more effective use of information within business.

Evaluation (Recommendations 7 and 8)

3.8 The Enterprise Initiative plays a key role in promoting best practice among small and medium-sized firms. The Consultancy Initiatives have been particularly successful, with over 12,000 consultancy projects having been approved in the first year. Rigorous evaluation is an

essential part of the programme and DTI already has in place a continuing exercise to monitor and evaluate the effectiveness of the Consultancy Initiatives. This includes sample surveys of firms both shortly after completion of supported consultancy projects and again after about two years. These aim to assess the extent to which consultants' recommendations have been implemented and the resulting benefits. These assessments will, where appropriate, cover awareness and use of IT, particularly for projects under the Financial and Information Systems and the Manufacturing Systems modules.

3.9 The aim of the evaluations of the Consultancy Initiatives is not to monitor the take up of IT. They are to provide a firm indication of the impact the consultancies have had on management thinking and firms' readiness to adopt best practices and to seek external expert advice, where appropriate. It is DTI policy to publish the results of evaluation work wherever this is possible without breaching confidentiality.

Measuring the use of IT (Recommendation 10)

3.10 The Government are sympathetic to the Committee's suggestions that more authoritative indicators of the use of IT should be developed to enable trends in IT usage to be

monitored and comparisons made. To be of greatest use, such information should be capable of being compared with similar data from other major developed countries. There are, however, difficulties in measuring effective usage in practice and qualitative information of this kind is hard to collect. Moreover, there could be a significant potential form-filling burden on IT users, who may be less convinced about the utility of such an exercise.

3.11 The Government have, in fact, already begun to collect certain basic information about IT usage. Data about investments in computers and numbers of computer staff in the production sector were collected in the 1986 Annual Census of Production. An analysis of those results was published on 10 February 1989 in British Business. Similar data are being collected in the 1988 Annual Census of Production and, in the light of those results, the Government will decide whether this information is of sufficient value to justify collection on a regular basis. (In parallel, similar information for various services sectors was collected in 1987.) The Government are also participating actively in the work of the Organisation for Economic Co-operation and Development which aims to produce a set of internationally-agreed indicators of IT usage.

Computer auditing (Recommendation 1)

3.12 Auditors have been auditing electronically recorded data for many years using audit software in conjunction with manual procedures. In principle, a competent auditor should be able to deal with modern business practices and the Government are not aware of any evidence to support the Committee's concern that technological advances may be out-stripping the capability of auditors. Nevertheless, DTI is inviting the major accountancy bodies, together with the Auditing Practices Committee, to say whether, in the light of their knowledge and experience, they see a need for a review of this subject.

CHAPTER 4

IT skills

4.1 The effective use of IT and the development of the UK IT sector depend crucially on the availability of people with the necessary skills to develop, install, maintain and operate IT systems. The recent White Paper "Employment for the 1990s" (Cm 540, December 1988) makes clear the Government's view that employers must take the lead in making a reality the concept of training through life for all employees. The Government welcome the Committee's support for that principle. The Government consider that all those involved in education and training must play their part in meeting the requirements of industry, commerce and the public sector for a suitably qualified workforce.

IT in education (Recommendations 11 and 27)

4.2 In all the debates about skills shortages it is recognised that a programme to increase awareness of IT, to enhance competencies in IT-relevant disciplines and to increase the output of IT-qualified manpower, needs to cover the whole of the education service. At the schools level, DTI's Micros in Schools schemes and DES's Microelectronics Education Programme have already provided initial hardware

and software together with some teacher training. DES's current 5-year IT in Schools initiative aims to increase the extent and effectiveness of schools' use of IT in teaching and learning for pupils of all ages and abilities. Expenditure has been set at about £30 million per year for 1988/89 and 1989/90. The main areas of support will be more microcomputers for educational use in schools, the employment and training of 600 advisory teachers in IT, provision of in-service training for classroom teachers, and the funding of the National Council for Educational Technology to provide the necessary support services on the use of IT across the curriculum. DTI is also providing support for the introduction of new technology into schools, particularly in the areas of design and technology, under its £6 million Technology in Schools programmes.

4.3 The Training Agency's Technical and Vocational Education Initiative (TVEI) is increasing the number of school leavers with a grounding in technology. Launched on a pilot basis in 1983, all Local Education Authorities (LEAs) are now involved in TVEI. DTI's Enterprise and Education Initiative encourages employers to help children to gain and develop enterprising attitudes and apprioriate work skills. IT will feature in the new National Curriculum now being established. The first statutory attainment targets and programmes of study - those for mathematics and

science - will include targets covering IT. The use of IT will also be taken into account in determining attainment targets and programmes of study in other subject areas. Taken together these developments will go a long way to ensuring that all pupils become IT-literate and develop the skills they will need in the world of work.

4.4 Preparation for work is also a primary objective of vocationally-related further and higher education. This means that students need to possess the range of technological competencies needed by employers. Colleges need to ensure that IT is fully integrated into the curriculum and placed in the proper vocational context. The Government have introduced a range of programmes to provide support for this process. At further education level, IT has been made a priority area within the Education Support Grants scheme (with funding of some £30 million between 1985 and 1990), the LEA grants scheme for teacher training and other selective funding schemes. These will provide additional computer equipment for colleges, additional teaching materials and more in-service training and staff development. In addition, the Training Agency supports curriculum development projects aimed at integrating IT more fully into vocational centres in further education colleges.

4.5 In the higher education sector, 140 projects to apply

IT to teaching across the whole subject spectrum have been supported in universities by the University Grants Committee and the Computer Board for Universities and the Research Councils. The Select Committee refers to the Computer Board's initiative to improve the IT equipment base in universities by encouraging funding from external sources or donations by equipment suppliers. So far this initiative has resulted in the installation of some £11 million of equipment. The Computer Board's report on this initiative will include an evaluation based on the ratio of the resources invested to the value of the equipment provided.

4.6 To meet the demands for highly qualified IT manpower, the Government have introduced measures to increase the provision of relevant courses in HEIs, often with considerable support from industry. For example, the Engineering and Technology Programme (ETP) - launched in 1985 with the support of £43 million from public funds - will by 1990 have provided 5,000 extra places at undergraduate and postgraduate level, 80% of which are in IT-related subject areas. The ETP and the earlier IT in HE initiative have significantly increased the places available for postgraduate IT training. Postgraduate conversion courses are particularly successful. These enable those already holding a non-technology degree to obtain the qualifications necessary for an IT career. In addition,

pre-degree conversion courses have been running since 1987 for students who are qualified to enter higher education but who lack the A-levels traditionally required for engineering and technology degree study.

4.7 The IT Institute of the University of Salford and the Cranfield Information Technology Institute (both of which receive funding from the ETP) have been set up with the active assistance of business to increase the supply of IT training, through courses comprising academic study and industrial experience. The Committee suggests that consideration should be given to encouraging other institutions to provide similar courses.

4.8 The Government agree that the education service has to be more responsive to the needs of employers. Business needs to express its requirements clearly to further and higher education institutions who, in turn, must say what they can provide and what more they could do with the direct assistance of business. The existing opportunities for contacts both between institutions and between institutions and business provide a ready means for the exchange of experiences and good practice in course provision. The Government encourage all institutions to draw new ideas to the attention of their colleagues. Courses such as those provided by the Salford and Cranfield Institutes are already

well established in the polytechnics and colleges sector.

4.9 The Government believe that the necessary dialogue can be most effective when carried out by individual employers and institutions locally. The Government's main role must be to encourage this process throughout the country. The Secretary of State for Education and Science has asked the Universities Funding Council and the Polytechnics and Colleges Funding Council (both of which have a substantial element of lay membership with successful business experience) to consider ways in which they might reward success in developing co-operation and links between higher education and business.

IT training

4.10 IT training features prominently in the training schemes run by the Training Agency. The High Technology National Training initiative provides support for high level vocational training courses which aim to meet current or future national skills needs. Open to unemployed people and those looking to change their careers, the courses run for up to one year and require significant amounts of prior learning and relevant industrial or commercial experience. The majority of these courses are in computer science or in (with an IT component). Currently over 3,000 students benefit,

including over 800 on postgraduate courses. Computing and IT is a compulsory element in all Youth Training Scheme (YTS) programmes. The Information Technology Centres, set up by the Training Agency and DTI, offer specific training in computing and electronics for over 10,500 YTS trainees each year. Trainees on Employment Training will also be able to undertake training in IT as part of their Individual Action Plans.

4.11 Demographic patterns will result in a reduction in the number of new entrants to the labour market over the next few years but, because retirements will also be relatively low and an increase in the number of women workers is expected, the working population is expected to expand slightly. This increases the need for employers to undertake a massive training effort over the years ahead, directed primarily at the people they already employ. They must also enable employees at any age or stage to have access to training. To meet this demand, education and training providers will need to use open, distance and flexible learning systems more widely, including those which make use of IT. The Professional, Industrial and Commercial Updating Programme (PICKUP), launched by DES in 1982, has stimulated further and higher education institutions to increase substantially the quality and quantity of updating training to meet employers' and employees' needs.

4.12 The IT industry has taken a number of welcome steps recently to increase levels and standards of training within the industry. Both the Computing Services Industry Training Council's Industry Standard Development Programme and the Professional Development Scheme of the British Computer Society rightly recognise the influential role that employers can play in encouraging the acquisition and development of skills, particularly in a world of fast-changing technology such as IT. The IT Industry Lead Body has recently been set up to produce, in consultation with employers and other interested parties, clearly defined standards of work-based competencies in all IT occupations. These will form the basis of future vocational qualifications in IT. The industry needs to build on these initiatives.

Training information (Recommendations 12 and 13)

4.13 Publication of information about the level and trends for expenditure by industry in training in the UK and competing countries is important in monitoring the overall position. The "European Labour Costs Survey", published by the European Commission most recently in 1984, collects statistics on some of the costs of training for EC member States and provides basic information with which to make comparisons within the European Community. Comparison with

other developed countries is more difficult because of lack of comparable data.

4.14 The Training Agency is seeking to improve the range and quality of statistics about training in Great Britain and a major study of the funding of training has recently been undertaken. The Training Agency will be publishing the results shortly and building on this to develop a more reliable picture of trends in training activities. In addition, DTI, ED, the Training Agency and DES are funding a special three-year study by the Institute of Manpower Studies to monitor the changing patterns of supply and demand for IT professionals.

4.15 Training Access Points are helping to make more accessible up-to-date and comprehensive information on education and training opportunities for jobs at every level and in every sector of the economy. There are currently 170 computerised public access points. These can be used by individuals and employers who can also be referred to more detailed advice and guidance, where required.

4.16 A requirement that information about investment in training should be disclosed in company accounts, which the Committee proposes, raises difficult questions of definition and measurement. Unlike research and development, for which

there has been an Accounting Standard since 1977, there is neither a definition nor a specified accounting treatment for expenditure on training. It would, therefore, be burdensome to require companies to disclose their investment in training. There is, however, growing evidence of the association between training and development of staff and business success. Decision making about training must be linked to wider business decisions. This goes beyond disclosure of company training expenditure and includes issues such as business planning, coherent skill supply strategies, training plans and evaluation of costs and benefits. Through the Business Growth Training programme, the Government are helping businesses to relate the training and development of people to business objectives, and to spread best practice.

CHAPTER 5

Improving the IT market

5.1 A major aim of DTI is to secure an open and competitive economy both at home and abroad. DTI is taking a variety of measures to increase the efficiency and competitiveness of the IT market.

Communications infrastructure (Recommendation 9)

5.2 With the development of IT networking capabilities communications become increasingly important, as the Committee notes, although generally its enquiry did not consider telecommunications issues in detail.

5.3 The basic principle underlying Government policy in telecommunications is the promotion of effective competition. To that end the Government have introduced competition at all levels of telecommunications - in the supply of equipment; in the supply of services over the network, for example liberalisation of the value-added and data services market; and at the network level, both for fixed and mobile telecommunications.

5.4 As far as the networks are concerned, in 1983 the Government made it clear that they did not intend to license operators other than British Telecommunications plc and Mercury Communications Limited to provide the basic service of carrying messages over fixed links for a period of at least seven years. The licences require the networks to interconnect fully, thus providing a national communications network to meet users' needs. The purpose of this duopoly policy is to allow Mercury the necessary time to install and consolidate its network and BT to adapt to competition, so that both companies can operate as effective competitors in the marketplace. The Government have confirmed this policy on many occasions, most recently in the White Paper "Broadcasting in the '90s: Competition, Choice and Quality" (Cm 517, November 1988). The policy will not be reviewed until November 1990.

5.5 It is not for the Government to usurp the role of the market, to impose particular technological options, or to dictate the timing of their introduction. The Government have no plans to require the creation of a national broadband network based on fibreoptic cable. The choice of technology used, and the rate and extent of the introduction of new technology, such as optical fibre, is a matter for commercial judgement by the network operators in response to user demand. BT is already replacing much of its trunk

network with optical fibre cable and Mercury has also installed a significant optical fibre-based network.

5.6 It is sometimes suggested that the prohibitions in BT's and Mercury's licences which prevent the provision of entertainment services direct to the home are obstructing the extension of optical fibre into the local loop. The Government believe this suggestion is unjustified. BT has recognised that because of its size and position a regulatory constraint may be inevitable in the short term as an incentive to the development of competition in the local network. BT has also indicated that this is not impeding its planning at present. Nor does this restraint prevent BT and Mercury applying to provide telecommunications and entertainment over a separate network in local cable franchises. The Government understand that BT is planning such a field trial at Bishops Stortford. Recognising, however, that the balance of advantages and disadvantages inherent in this regulatory constraint could change with time, the Government proposed in the Broadcasting White Paper that the principle behind this prohibition should be reviewed at the time of the duopoly review starting in November 1990.

Standards (Recommendations 28, 29 and 32)

5.7 The Government welcome the emphasis the Committee gives to the importance of standards in the IT field, particularly standards designed to provide for the inter-connection and inter-working of different makes of IT products. Such standards will result in a more open market, bringing the benefits of greater competition, easier market entry, enhanced opportunities for software suppliers, wider user choice and the avoidance of users being "locked-into" the products and technology of a particular supplier. The Government have long recognised the fundamental importance of internationally-agreed open systems standards for IT and are firm supporters of the International Organisation for Standardisation's framework of "open systems inter-connection" (OSI) standards.

5.8 DTI, together with the British Standards Institution (BSI) and industry, are reviewing the national arrangements for contributing to the development of international IT standards. A report, commissioned jointly by DTI and BSI, advocates the need for a strategic approach to IT standards and proposes that, within the framework of BSI, a new body should be established which might be called the "IT Standards Institute". This body would formulate UK strategy for IT standards generally and would set up, manage and finance a suitable work programme to ensure that the UK contribution to international work is directed at those

areas that are considered to be of greatest importance to the UK. Users and suppliers most concerned with IT standards would need to provide active support for this new body. The FOCUS Committee has firmly endorsed the report's proposals. DTI will now be consulting more widely in order to elaborate, with industry, commerce and other interested parties, the detailed development of this new approach to defining and representing UK IT standards priorities internationally.

5.9 Most of the expertise in the complex field of standards-making is drawn from IT suppliers, users and consultants. Nevertheless, DTI provides a significant degree of support for the process under a £17 million programme. About one-third of the 3-year programme is devoted to the development of OSI standards, including the funding of UK experts to attend international standards-making meetings and support for user groups - thereby stimulating greater user involvement in the standards-making process. The programme also aims to provide assistance for the development of necessary conformance testing facilities and a recognised certification regime for OSI products. In addition, the programme covers support for other aspects of IT standards-making, testing and certification including IT security standards and software standards (where the main

emphasis is on certification of quality management systems and on safety-critical software).

5.10 Under the Enterprise Initiative, the £12 million Open Systems technology transfer programme (referred to in para 3.4) aims to stimulate the use of open systems standards through increased awareness by business of the benefits to be gained from specifying and installing equipment which meets such standards. This 3-year programme covers software standards and IT security standards, in addition to OSI standards and the MAP/TOP profiles (the Manufacturing Automated Protocol and the Technical and Office Protocol). Demonstrator projects, user clubs and centres of excellence will be established and developed to share experiences and to illustrate the advantages of adopting open systems standards. Case studies and training material will also be produced.

5.11 As for the use of OSI standards in public procurement - to which the Committee refers - Council Decision 87/95/EEC, which came into force in February 1988, requires the use of appropriate European or international standards in public procurement in the IT and telecommunications field. This specifically includes OSI standards and applies throughout the European Community. Although the Decision provides for a number of exceptions, to deal with occasions

when reference to such standards may not be appropriate, the use of these derogations must be justified by the procurer and is open to challenge.

5.12 OSI standards are so framed as to allow a number of different possible routes to implementation. CCTA has developed the Government OSI Profile (GOSIP) as a suitable means of complying with the Decision. GOSIP is not the only way of meeting this Community obligation and it is, therefore, not a mandatory requirement for the UK public sector. GOSIP is, however, increasingly being adopted as a convenient and helpful approach to the specification of OSI products in procurement. CCTA is currently discussing with the European Commission the development of a Community-wide harmonised approach to specifying OSI products in public procurements, based on GOSIP.

5.13 The Government accept the need, to which the Committee draws attention, to monitor developments in the USA on technical standards in relation to computer security. The Government already actively monitor IT security standards-making activities in the USA and elsewhere and have developed working links with US and European agencies concerned with the development and application of IT security standards. The Government consider that the interests of UK commercial users and suppliers are best

served by appropriate provision being made for security in international IT standards and will continue to work towards that objective. It must, however, be recognised that the UK and other governments have legitimate national security interests in this field which may, in particular instances, inhibit the free flow of technology.

International trading environment (Recommendations 30, 31, 33 and 34)

5.14 For firms to be competitive, they will need increasingly to take a wider view of the markets in which they operate and to regard Europe as the home base from which to tackle world markets. That has long been the case for hardware manufacturers. It is now true for software and computing services firms. DTI's Europe Open for Business campaign is helping UK firms to prepare for the challenge of competing in the European Community's single market. Whilst there are undoubted benefits to the UK economy in having an indigenous IT supply capability, this can only be on the basis that UK firms are able to satisfy the demands of the international marketplace. To seek to protect UK firms from such disciplines would not only jeopardise their future competitiveness but would also risk damaging the interests of UK IT users.

5.15 The Government are firmly convinced that the only sensible approach is to maintain open and competitive international IT markets; and where restrictions still exist to work towards their removal. The IT equipment markets, including the Japanese and American markets, are relatively free of obstacles to trade - the main regulatory controls being the ones the western nations apply to the export of certain high technology goods under the COCOM arrangements. The Committee's Second Report on Trade with Eastern Europe contains a number of recommendations about COCOM which will be dealt with in the Government's response to that Report. There are also barriers because of the existence of proprietary standards which tend to fragment the market: the adoption of international open systems standards will alleviate those difficulties.

5.16 Public procurement is not as open in certain countries as it is in the UK and in some other European countries. Within the European Community there are Directives on public procurement that require major supply contracts to be subject to competition (except in certain specified circumstances). A directive took effect from January 1989 to improve the effectiveness of the Supplies Directives and to take account of recent changes to the 1979 Agreement on Government Procurement of the General Agreement on Tariffs and Trade (the GATT procurement code). The

European Commission has made proposals for Council directives for improving compliance with the Supplies Directives and on procurement in the previously excluded sectors (water, energy, transport and telecommunications). Further proposals are expected on the public procurement of certain services, including IT consultancy and software services. On a broader level, the improvements to the GATT procurement code took effect in February 1988 and negotiations are taking place on extensions to the code to include entities whose procurement might be influenced by governments and to cover the procurement of services.

5.17 As regards reciprocal access to markets, to which the Committee refers, the Government expect to see non-discriminatory access to all international markets, including the Japanese and American markets, for European goods and services, in accordance with the general principles of GATT. The Government do not, in general, see that the liberalisation achieved in the single market in Europe should be used to seek a "balance" of trade with individual trading partners. The single market is a stimulus to other countries to open their markets within the framework of the multilateral trading system. On public procurement, which is not covered by the GATT except under the procurement code, the Government are, however, prepared to accept the retention in the measures for the excluded

sectors of a more limited provision than that proposed by the Commission. The amended provision would preserve freedom of choice but allow Community purchasers to disregard offers of predominantly third country origin where the third country had not agreed to provide reciprocal access for Community suppliers, possibly under a broadening of the GATT procurement code.

5.18 The Committee expresses concern about the re-export controls applied by the US authorities. The Government's main objective is to reduce the scope of national export controls and to continue to reject US claims to extraterritorial jurisdiction in this area. The 1988 US Trade Act did not, as the Committee suggests it did, provide for the expiry of all US unilateral export controls. That provision applies only to national security controls, almost all of which are agreed multilaterally in COCOM. It does not eliminate unilateral US export controls for foreign policy or nuclear non-proliferation purposes. Rules implementing some of the export control provisions of the Trade Act have been published and the Government have commented on them, urging the US authorities to extend the relaxations as far as possible. The Government will continue to monitor the position. Wherever possible the Government work with Community partners in opposing US claims to extraterritorial jurisdiction. This cannot,

however, always be achieved because, within the Community, opinions differ on certain aspects of jursidictional questions.

IT statistics (Recommendations 3, 4 and 5)

5.19 The Government do not wholly agree with the Committee's view that one way of tackling the UK's trade deficit would be to improve the collection of statistics. The Government are not convinced that refinements to existing statistical series would do much to help UK firms' ability to compete effectively. The Government do, however, see possible merit in the Committee's suggestion of collecting and publishing figures for the "balance of trade" of the larger IT companies. Such information could be useful if it enabled firms to identify scope for more local sourcing of components (one of the significant elements of the trade deficit). The Government are prepared to undertake a voluntary exercise of this kind, provided the major firms are willing to co-operate. DTI is writing to a number of leading IT firms to invite their participation in this exercise.

5.20 The Government are glad that the Committee recognises the difficulties that exist in developing IT statistics, particularly those relating to services where there is no

internationally-agreed method of capturing the required data. As the Committee notes, the computing services enquiry has now been made mandatory for the larger firms, so as to improve the quality of the data. In addition, the classification for this statistical series is being reviewed. Attempts to collect data on the new and growing area of value-added and data services have, so far, failed because the service providers have been unwilling to participate in that voluntary enquiry.

5.21 The difficulties that exist with the classification of IT products and services are inevitable given the continuous rapid changes that occur in this sector. As part of a general exercise, the United Nations and the European Community are carrying out revisions to the international classification for the IT sector and the Government are co-operating actively in that work. DTI is also participating in an OECD initiative to collect from member countries comparable statistics for the IT sector.

CHAPTER 6

Research and development

Policy approach (Recommendation 16)

6.1 The Government welcome the Committee's support for the objectives for DTI's innovation policy and their rationale which were described fully in Chapter 8 of the White Paper "DTI - the department for Enterprise". This places emphasis on pre-competitive collaborative R&D, especially on European programmes such as ESPRIT and Eureka. Since the White Paper contained a full statement of the DTI's policy towards the support of R&D, the Government see no need to make a further detailed response to the IT86 report as the Committee suggests. The amount of public money available for collaborative R&D is broadly as recommended by that report, although with greater emphasis on European programmes. The Government welcome the Committee's view that those companies interested in pursuing the applications proposals of the report should explore the CBI's suggestion of alternative sources of funds.

Management of IT R&D

6.2 The Government have taken positive action to improve the management of support for IT R&D. DTI has brought together virtually all its own IT R&D activities in a new unit, the Information Engineering Directorate, to ensure that they are managed effectively. The Directorate includes industrialists on secondment from firms and academics loaned by universities, as well as civil servants. DTI has recently advertised a number of short-term appointments in the Directorate in order to bring more people with experience outside government into the management of support for collaborative research. In addition, links between DTI and SERC have been improved and their support for IT R&D co-ordinated within the Joint Framework in Information Technology. SERC is responsible for funding basic and strategic research in the universities and polytechnics and provides postgraduate studentships. In the IT field, these activities are managed by SERC's Information Technology Directorate which works closely with the new DTI unit.

6.3 DTI and SERC have also established the Information Technology Advisory Board (ITAB) and a supporting single structure of committees to serve both organisations. ITAB consists of a roughly equal number of industrialists and academics. Representatives from the Ministry of Defence (MoD) and CCTA also attend ITAB and MoD specialists attend some of the committees. This enables DTI and SERC to

co-ordinate their research with MoD wherever practicable. ITAB has wide-ranging terms of reference and provides advice on basic research, collaborative programmes, technology transfer, and education and training as well as on R&D priorities and the development of new programmes. This is the first time that a single body has been given such a role and should enable a more coherent approach to be developed.

6.4 Moreover, steps have been taken to improve co-ordination between national R&D effort and European programmes. More help is provided to UK firms trying to win Community research funds. The UK research effort in national and Community programmes is organised to prevent duplication of research and to ensure that it is carried out on an appropriate basis. The Government welcome the Committee's recognition of UK success in ESPRIT.

Research Funding Priorities (Recommendations 15, 20, 21, 22 and 23)

6.5 Government is only one source of funds for IT research and the chief responsibility for financing industrially relevant R&D must lie with firms themselves. As the Committee says, this is an area where firms should be expected to act in their own long term interests without additional government assistance. Any consideration of

priorities for government spending in IT research must take this into account, as well as competing demands on the public purse for other potential research topics and other areas of government expenditure. The level and type of IT R&D which will be appropriate in industry must be a matter for individual firms to decide. It will vary from company to company, depending on a firm's size, markets, business strategy and many other factors. It is not for the Government to interfere in these decisions, or to set arbitrary standards.

6.6 Academic research is primarily the responsibility of SERC, which will always wish to reserve a significant proportion of its funds to be able to respond to unsolicited bids for high-quality basic, curiosity-driven work. It is, ~~however,~~ also appropriate for SERC ~~to fund work in chosen technical areas in a more directed way, and~~ to encourage links with European Programmes. All these activities fall within the Joint Framework in Information Technology, where the balance between them is kept under constant review.

6.7 Priorities for public support for IT R&D and the funding allocated by DTI and SERC are decided following detailed consultation with industry and academia: both through ITAB and its committees and through public

consultation. This is a continuous process and during 1989 existing priorities will be reviewed and new programmes developed. The Committee asks about the effect of additional funding for IT R&D and computer science research. However, that would be a hypothetical exercise since additional funding would be allocated following the consultation process explained above. Substantial funds are provided by the Government for IT R&D, as the Committee notes. The amount for 1989/90 is forecast to be about £100 million, including the funds made available under European programmes.

6.8 The Government's research priorities take account of work carried out overseas, of which the DTI keeps itself informed. The Japanese Government's SIGMA software programme, to which the Committee draws particular attention, has been visited on a number of occasions and its potential importance is appreciated. Several aspects of the SIGMA awareness activities are paralleled in the UK by the DTI's own activities, for example, the Software Engineering Demonstrators in Industry programme and the Software Productivity Centre.

6.9 Decisions about future support for IT R&D, both on a European and national basis, must depend on many factors. These will include the strength of the case for future

support, taking into account the relative success of existing programmes, as well as advice received, for example, from ITAB. The national effort for collaborative IT R&D will in future take the form of a series of focused programmes run within an overall framework, reflecting the particular circumstances of the topic concerned as well as any corresponding work in Europe. Within the framework, continuity of funding for fundamental research will be maintained. The scope for any possible hiatus of funding for research will therefore be reduced. Priorities for research will, however, be kept under review and there can be no guarantee that any level of support in a particular area of research will be continued indefinitely.

The Information Engineering Advanced Technology Programme

(Recommendations 17, 18 and 19)

6.10 This Programme provides an example of how collaborative IT R&D is now managed. Following a decision in principle by Ministers on the finance available for the Programme, detailed strategy documents were prepared for consultation in March 1988. ITAB considered the research priorities within the Programme and the response to the first call for outline applications. The detailed funding for each research area was decided in December 1988. Following ITAB's advice, DTI and SERC have agreed three key

priorities for the Programme: (1) to improve the productivity of the UK IT community and so mitigate the problem of skill shortages; (2) to maintain the UK science base, both in industry and universities, to ensure that the UK can benefit from future European programmes; and (3) to support work designed to maintain or create a UK world lead, rather than just to catch up or keep pace.

6.11 Nearly 900 outline applications were received for research of £600 million. Over 150 full collaborative proposals have now been received involving nearly £150 million of research. These include more small and medium-sized firms (75) than large firms (62). Some of the small firms are new to collaborative research. The Committee expresses fears that, because academic partners are funded wholly from public funds, small firms may receive less than 50% support and so be dissuaded from taking part. The above results, however, demonstrate that small firms are still attracted to collaborative research. In any event, the rules enable grants of varying levels to be offered to different industrial partners provided there is no breach of the basic rule that public funding should not exceed 50%. In appropriate cases this would allow smaller firms to receive support of 50% with other industrial partners receiving a slightly reduced rate of grant.

6.12 A detailed analysis of the projects eventually supported will be published in due course. The Programme will be subject to detailed evaluation throughout its life. As was noted in paragraph 3.9, DTI policy is to publish the results of evaluation work. In addition, DTI and SERC will publish an annual report on the Programme, continuing the pattern established under the Alvey Programme.

Other IT R&D programmes

6.13 There are a number of other new UK collaborative research programmes in the IT/electronics field. The main ones are shown in Table 1. The UK is also actively involved in the European programmes, including ESPRIT, RACE (communications), AIM (medical informatics), DELTA (distance learning) and DRIVE (IT in road transport). UK firms participate in a number of EUREKA projects, including ESF (Eureka Software Factory) and FAMOS (flexible assembly in manufacturing).

Table 1

Other UK collaborative IT/electronic R&D programmes

Programme	Area of research

LINK Molecular Electronics Programme.	New organic materials for novel electronic and optoelectronic devices.
LINK Advanced Semiconductor Programme.	New compound semiconductor materials and processes for the next generation of electronic and optoelectronic devices.
LINK Industrial Measurement Systems Programme.	Advanced instrumentation and measurement technologies with the emphasis on systems integration.
LINK Personal Communications Programme.	Third-generation mobile personal communications technologies.
High Temperature Superconductivity Advanced Technology Programme.	New superconductivity materials for electronics applications.
Gallium Arsenide Advanced Technology Programme.	New processing techniques and advanced electronic

devices in Gallium Arsenide.

R&D statistics (Recommendation 14)

6.14 DTI carries out annual surveys of industrial R&D and every four years collects and publishes the information the Committee seeks, showing the breakdown of current expenditure on R&D into the Frascati definitions of basic research, applied research and experimental development (except in certain cases where figures are combined to preserve commercial confidentiality). This data does not include software R&D for which there is currently no internationally-agreed definition. The latest information for the IT/electronics products sector is given in Table 2.

Table 2

Current expenditure on R&D carried out within industry in 1985: analysis by type of work

£ million

Product Group	Total	Basic Research	Applied Research	Experimental development
Office machinery	5.9	0.5		5.4
Electronic data-processing equipment	302.5	0.1	28.8	273.7
Telegraph and telephone equipment	350.2	59.3		290.9
Electrical instruments and control systems	232.0	5.9	30.0	196.1
Radio and electronic capital goods	495.1	3.8	46.8	444.5
Components other than active components	37.6	0.8	6.3	30.5
Electronic sub-assemblies and active components	143.1	27.9		115.2

Electronic consumer goods	9.4	2.2		7.1
Total for IT and electronics	1,575.8	34.2	178.0	1,363.4

Source: Department of Trade and Industry

6.15 Details of Government support for R&D are published in the "Annual Review of Government Funded R&D" and the overall figures are broken down in accordance with the Frascati definitions. The review also provides a further detailed analysis by primary purpose, of which "primary purpose 1" is broadly equivalent to basic research. Since basic research is defined not to have any particular application or use in mind it is difficult to attribute accurately the proportion of basic research which supports IT.

Taxation issues (Recommendations 24 to 26)

6.16 The Government have noted the Committee's comments about taxation matters. It has been the practice of successive governments not to comment on proposals for changes in taxation in the period immediately before the Budget.

CHAPTER 7

Use of IT in Government

7.1 Government departments and agencies are vitally interested in the economic, efficient and effective development and use of IT to support their operations. The Committee devoted a significant proportion of its enquiry into this use of IT. This chapter describes the nature and scope of CCTA's role, its relationship with user departments and government practices in relation to IT use.

Roles and responsibilities in Government

7.2 CCTA has a crucial part to play in the Treasury's exercise of its overall responsibility for promoting business efficiency and value for money. CCTA does this principally through advice and encouragement to departments, rather than through any bureaucratic machinery of control or comprehensive co-ordination. This stance accords with the Government's overall management strategy for the Civil Service of encouraging delegation and the taking of direct responsibility and accountability within departments themselves, while retaining essential central controls over public expenditure. CCTA must, therefore, work closely with

departments, without duplicating their work or carrying out tasks that are better or more cost effectively done by departments.

7.3 Departments are responsible and accountable for developing their strategic plans for information systems to meet their business needs. Within this framework they decide on and prepare their procurement requirements for IT equipment and services; decide what proposals from the IT supply industry best meet their requirements; and run their information systems to deliver the business benefits.

7.4 In support of these departmental responsibilities, CCTA's role is to make sure that each department has formal mechanisms for the planning, control and operation of information systems and a cost-effective strategy to meet its business needs; and to improve departments' awareness of the potential for exploiting IT systems. CCTA also promotes the development and availability to departments of methodologies and tools to improve the quality and timeliness of IT systems; and develops and encourages the use of standards to widen options and safeguard departments' investment in IT. In addition, CCTA offers procurement services to departments.

7.5 As the experience and expertise in departments grows in planning, implementing and managing major IT systems, CCTA's

role will continue to change. CCTA has already moved a long way from the detailed co-ordinating and regulatory role it once had. It now acts as a centre for strategic advice and guidance and for the development of new systems and tools. CCTA's central position enables it to assist in bringing departments together to exploit new developments both in the management of IT and its procurement. A leading example is the recent development and implementation of the Government Data Network - with a private contractor responsible for providing the specified service and with roles and responsibilities within government carefully divided between the Treasury and departments.

Strategies for information systems (Recommendations 35, 36 and 37)

7.6 All departments and agencies have IT steering committees. These are generally chaired at Grade 2 or Grade 3 level depending on need. Major IT decisions are often taken at top management levels (chaired by the Permanent Secretary). Ministers are involved as necessary.

7.7 All but the smaller departments and agencies have some form of information systems strategy. These strategies are designed to further the development of the business, exploiting opportunities where it is cost effective to do so.

Departments are expected to seek Treasury endorsement of these strategies as a condition of delegation of powers of financial approval for IT projects and so as to set the major IT project proposals as they arise in the strategic context. CCTA has produced guidance and offers support for departments in developing strategy, and also provides consultancy assistance to complement that supplied by the private sector.

7.8 Departments are actively encouraged to publish the key elements of their strategies and forward plans. In some cases the strategy, or a management overview, is published. Alternatively, the key elements of the IT strategy are described as part of other published documents such as annual reports or business plans. The IT supply and service industry already has a better forward perspective of government departments' strategies for IT than for many other IT users.

Senior Management Awareness of IT (Recommendations 38, 39 and 40)

7.9 The Government firmly endorse the need in the Civil Service for senior management awareness and experience of IT. Senior managers need to appreciate what IT has to offer, be aware of its problems and opportunities and be actively involved in the strategic planning process and in managing

IT-induced change. They need to be committed to what is proposed both to achieve success and to deliver the business benefits.

7.10 As IT becomes more widespread, middle managers increasingly gain this experience on the job, through participation in project boards and from training courses and seminars. As people move up to senior management further training is given. The Top Management Programme for all newly appointed Grade 3s covers the use of IT. At that level a course providing high level briefing on strategic, managerial and some technical aspects of IT was inaugurated by the Civil Service College in 1987. At Grades 1 and 2 individual IT tutorials have been provided by the College since 1985.

7.11 Senior officials are regularly involved in discussions and presentations at IT steering committees, which include contributions from outside consultants, internal IT professionals and CCTA. CCTA produces guidance material targetted specifically at members of steering committees. The sharing of experiences and contributions to policy formulation are also crucially important. CCTA organises an annual seminar for the chairmen of steering committees and key directors of IT; and twice-yearly meetings drawing in all the main IT practitioners in government, at which matters of policy are discussed, presentations made and experience

shared. This latter forum will enable DTI to report on its project to provide PCs to all Grade 7 staff. The contract for that project has now been let. Implementation is being phased over a period to ensure that essential training and support is given.

Supply of IT Services to Government (Recommendations 2, 46 and 47)

7.12 The Government already make considerable use of the IT services sector. Government spending on this has doubled to £200 million over the last two financial years and is expected to continue to grow. By the mid-1990s as much as one-third of departments' IT systems development and computer operations could be performed by the private sector.

7.13 The prime motivation for departments to use the IT services sector is their need for additional skills and experience or to achieve business systems to time and with a reduced risk of delay or service shortfall. Against this departments have to guard against excessive dependence on any particular supplier through, for example, clear specification and use of open systems standards. CCTA will shortly publish a comprehensive series of guidance documents for departments and agencies. One set will cover the use of the IT services sector generally, and on consultancy, turnkey projects and

facilities management specifically.

Government Procurement (Recommendations 41, 42, 43, 45 and 48)

7.14 Procurement of IT is the responsibility of individual departments. CCTA offers procurement services which departments can choose and for which they pay. If they choose to use them (and all have so far done so) the relationship with CCTA is set down in a supply and service agreement. CCTA brings knowledge of the marketplace and contracting expertise; departments bring knowledge of their requirements and executive authority.

7.15 Procurement of IT goods and services in government is subject, in common with all other requirements, to Treasury guidelines on public purchasing.* These emphasise that procurement of all goods and services must be based on value for money obtained through competition wherever practicable. They also make clear that "additional cost or greater technological risk can be justified if a department expects to gain improved value for money over the longer term". This longer term perspective of value for money has existed for some years but departments have, however, generally considered their best interests lay in acquisition of tried and proven systems rather than in using untried technology.

This reflects the experience of the private sector as the Committee notes in paragraph 41 of its report.

* Footnote: Public Purchasing Policy: Consolidated Guidelines issued by HM Treasury in January 1987.

7.16 Similarly, there is no difficulty in taking a longer-term perspective in investment appraisal. The timescales used in any particular case will be chosen to reflect the life of the investment. Investment appraisal techniques can accommodate investments with long paybacks and which require a long term strategic view to be taken - one that should be in line with the department's information systems strategy. Any investment must, however, be able to demonstrate value for money over its life. As the Committee rightly points out in paragraph 106 of its report, there is little scope in the public sector for "leap of faith" investments.

7.17 Acquisition of IT products and services can be complex. The approach adopted within central government is for departments to begin by defining the need and expressing this in an Operational Requirement (OR). On the basis of this, prospective suppliers formulate a proposed solution. Only when the solutions offered are established as meeting the OR does the formal tendering process start. The more

significant requirements are relatively difficult to specify and skill is needed to establish through discussions and demonstrations that the solutions offered fully meet those requirements. The procedures are overlaid by the obligations imposed Community directives and the GATT procurement code (see paragraph 5.16). These obligations, however objective, do add significantly to the time involved in the formal procurement processes adopted by public authorities in the member states when compared to the options open to private sector organisations. Such comparisons as are available indicate that timescales in the UK are at least as short as those of other member states.

7.18 Some suppliers have complained that the cost of selling to government is too high, as the Committee notes. The Government believe there is scope for improvement through tighter shortlisting of suppliers and reducing departments' requirements for benchmarks and demonstrations to the bare minimum necessary for the most complex projects. This does imply early disclosure to CCTA and departments of suppliers' capabilities and plans, particularly in relation to conformance to standards. Other ways to speed up the overall process, by reducing the pre-procurement timescale, are being examined.

7.19 Procurement procedures are regularly reviewed. The

most recent improvement was the introduction by CCTA in 1988, after extensive consultation with industry, of revised rules for tendering and conditions of contract for all types of requirements. CCTA also develops new procurement procedures as necessary. This was essential for the procurement of the Government Data Network service and the lessons learned will be carried through into the new CCTA (see paragraph 7.13).

7.20 Much of CCTA's work on standards is designed to simplify the specification of requirements and reduce procurement timescales. Departments are well placed to meet the Community requirements to specify standards (see paragraph 5.11) through CCTA's initiative in the development of the GOSIP profile of OSI standards options which match the needs of government users. GOSIP will make the process of establishing technical compliance with the OR progressively easier and will reduce the procurement timescale - and hence the costs incurred by potential suppliers.

7.21 The work on developing IT strategies, policies and plans is essential preparation for the procurement process. The strategy should define the standards, methods, technical architecture required, and the scope of the major procurements (often related to common or infrastructural requirements). This work will increase the quality, and help speed up the definition, of requirements for subsequent

procurements.

7.22 Over the last few years CCTA has introduced simplified procurement methods for use where this is consistent with the nature of the requirement. There is a simplified OR procedure for use when a department or agency believes that less discussion will be necessary to establish common understanding of the requirement and proposed solutions. Similarly, where the value of the requirement is likely to fall below £100,000 departments can make direct use of Standing Arrangements. These enabling agreements, started in 1982, are drawn up between CCTA and suppliers and provide an agreed contractual framework, including price discounts, against which future orders can be placed with great simplicity. CCTA has negotiated more than 100 Standing Arrangements which in 1987/88 accounted overall for £100 million of business. 88% of all contracts for IT were placed by departments, without further CCTA involvement of any kind, using these arrangements.

CHAPTER 8

Conclusion

8.1 The ubiquity of IT, and its ability to change the way in which organisations operate, make it a very important technological influence on the efficiency and the competitiveness of the UK economy. The Government recognise this continued importance of IT to industry, commerce and the public services. IT is indispensable if UK firms are to remain efficient and effective competitors in world markets. IT is also an essential factor in improving the quality and responsiveness of public administration. IT touches on many aspects of Government policy and can help to achieve a variety of policy objectives.

8.2 This Paper has set out the Government's policy objectives towards IT and the actions taken by DTI and other departments in support of those objectives. Those activities form a coherent and comprehensive programme. There are certain areas, such as education, where Government is inevitably involved. Elsewhere government action is justified only where there is evidence of market failure. This reflects the Government's basic philosophy that those operating in the IT marketplace are best able to determine

the direction and pace of development of IT.

8.3 Within this overall framework, government actions have changed from time to time to take account of the development of IT and its growing use. It is within this overall framework that the Government's policy towards IT will continue to evolve.

APPENDIX A

This table show the paragraphs in the White Paper that address each of the Committee's recommendations.

Recommendation	Paragraph
1. The Secretary of State should commission an inquiry without delay into electronic recording as a substitute for documentary auditing.....	3.12
2. DTI should take further steps to help companies in the computer services industry to grow through participation in major government contracts.....	7.12
3. DTI should collect and publish figures for the balance of trade of the larger electronics companies, showing the proportion of goods and services purchased from UK and EEC sources compared with sales in those markets.....	5.19
4. Immediate action should be taken by DTI in	

conjunction with the supply and user industries to measure more accurately trade in information technology products..... 5.20 and 5.21

5. The Government should, in collaboration with the European Community and the Organisation for Economic Corporation and Development, seek a new standard industrial classification covering information technology goods and services.... 5.21

6. DTI should develop with the supply and user industries standard criteria for measuring the return on IT investments, both for evaluating the expected return (ex ante), and that actually achieved (ex post)..... 3.6 and 3.7

7. DTI should publish an evaluation of the results of the consultancy scheme under the Enterprise Initiative to show what impact it has had on management thinking and on closing the gap between the average and best practices..... 3.8 and 3.9

8. DTI should publish an assessment of the effect on IT use in industry of the Enterprise Initiative..... 3.8 and 3.9

9. The Government should make a clear statement of its policy on a national communications network..... 5.3 to 5.6

10. DTI should propose to the European Commission the conduct and publication of a regular survey of information technology applications for all countries of the Community..... 3.11

11. DTI should set up, as a matter of urgency, a working party with the Department of Education and Science, the University and Polytechnic Funding Councils and the business sector to devise ways of increasing the number of institutions providing courses on the Salford and Cranfield models..... 4.8 and 4.9

12. The Government should compile and publish comparative figures and trends in the UK and competing countries for expenditure (in terms of both money and time) by industry in training both for IT skills and in management generally 4.13 and 4.14

13. Investment in training should be disclosed in company accounts..... 4.16

14. The Government should collect and publish statistics identifying basic research separately within R&D..... 6.14 and 6.15

15. DTI should, in collaboration with the European Commission, investigate the impact of the Japanese SIGMA programme on the European IT industry..... 6.8

16. DTI should make a full reply to the IT86 report, stating the reasons for not accepting the particular proposals made by the Bide committee. 6.1

17. 50% maximum funding of research projects should be raised to 75% in respect of IT projects involving collaboration between small firms and academic institutions..... 6.11

18. DTI should publish full details of the numbers of projects submitted and the number offered support under the national programme, broken down between large, medium and small companies..... 6.11 and 6.12

19. DTI and SERC should commission and publish an annual evaluation of the progress and

achievements of the national IT research programme..... 6.12

20. DTI should make a clear statement of how it chooses its IT research priorities and how it determines the amount of money spent on each. 6.5 to 6.9

21. The Government should plan now to avoid any hiatus in academic research in IT when both the national IT programme and Esprit 2 come to an end..... 6.9

22. DTI should report forthwith on the effect of increasing, by either £10 million or £20 million per annum, expenditure on the national IT programme on both the number of alpha-rated computer science research projects and the number of accepted national programme applications..... 6.7

23. The Government should take a clearer lead in identifying the levels of basic and applied research which are desirable in the information technology industry..... 6.5

24. DTI should investigate more closely the merits

of tax incentives for research and development for small and new firms in the information technology industry..... 6.16

25. Donations of equipment and software by companies to higher education institutions should be zero-rated for value added tax..... 6.16

26. The Government should review the effect of corporation tax rules on donations of IT hardware and software to academic institutions..... 6.16

27. The Government should evaluate and then report on the effectiveness of its initiative on equipment donations to universities for improving the equipment infrastructure of universities..... 4.5

28. Further steps should be taken in conjunction with suppliers and users to set strategic priorities for establishing standards and to speed up the process..... 5.8

29. Open System Interconnection should be made mandatory for public procurement forthwith

and that the Government should press for the same to apply to all public procurement in the European Community..... 5.11

30. The Government should, within the European Community, ensure that access by Japanese and US IT companies to the single market is on the same terms as access to those markets for European companies..... 5.17

31. The Government should keep the Committee fully informed about their progress in ensuring access for European firms to the US and Japanese markets..... 5.17

32. DTI should monitor and report on the development in the US of technical standards for security assurance or any other commercial use and ensure UK companies are not barred from market entry in the US or Europe by their security standards..... 5.13

33. The Government should press the new US administration to eliminate unilateral trade restrictions as soon as possible..... 5.18

34. The Government should consult with its EEC partners on joint action regarding the problem of extra-territoriality..... 5.18

35. The chairman of the information technology strategy committee in each government department headed by a Cabinet Minister should be at least at grade 2 level..... 7.6

36. Ministers of at least Minister of State rank should be involved in devising the information technology strategy for their departments and monitoring target achievements..... 7.6

37. A statement of each department's information technology strategy and the timescale for its achievement should be published in its annual report each spring..... 7.7 and 7.8

38. By the end of 1990 all staff at grade 3 and above in government departments should have attended a substantial course in awareness of IT and thereafter, promotion into those grades should be conditional on completion of such a course..... 7.10

39. All staff at Grade 3 and above in government departments should undertake periodic retraining to ensure that their awareness of information technology is kept up to date.... 7.10

40. DTI should report on the results of its programme to issue personal computers to all grade 7 staff and above and draw these results to the attention of other government departments..... 7.11

41. The public procurement process for IT products should be reviewed promptly with the objective of reducing both its time and cost to everybody's advantage..... 7.18 and 7.19

42. Special attention should be given to a cheaper and more straightforward procurement procedure for small projects whose cost does not take them into the category which have to be advertised throughout the European Community. 7.22

43. The Government should take a longer term and a broader view of value for money in public purchasing of information systems..... 7.15

44. DTI should identify potential IT applications in the public sector where public procurement would both improve government use of IT and draw through products made by UK and EEC companies..... 2.6

45. The Government should review its methods of investment appraisal for information technology systems..... 7.16

46. The Government should take steps to increase substantially the use it makes of "facilities management" and other information technology services available in the private sector rather than established in-house skills it does not need to own..... 7.12 and 7.13

47. CCTA should be asked to set out criteria which define the circumstances under which it is better to use outside contractors and when it is important to retain services or facilities in-house..... 7.13

48. Individual Government departments should have the freedom to deal directly with suppliers of IT goods and services without going through

the CCTA..... 7.14

49. The role of CCTA should be redefined..... 2.9 and 2.10

50. DTI should have a unit whose specific objective would be both to promote the effective use of IT throughout Government by demonstration and persuasion and to identify, in collaboration with the industry and public procurement authorities elsewhere in Europe, areas in which public procurement could be effectively used to pull through technologies in which European companies and particularly British companies have strength..... 2.6 and 2.8

51. IT matters should be dealt with at Minister of State level in the DTI..... 2.3

52. The Secretary of State for Trade and Industry should be made responsible for all aspects of Government policy on information technology and should produce an annual report on its implementation..... 2.2

dti

the department for Enterprise

The Rt. Hon. Lord Young of Graffham
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Date 23 January 1989

NBPM
ARCG
3-1-1

Dear Trevor,

The Secretary of State has decided that the Government's response to the Trade and Industry Select Committee Report should take the form of a Command Paper, explaining possitively the Government's IT policy and, in particular, responding to the unfounded criticisms of the use of IT within central Government.

We are working closely with CCTA and other Departments in drafting a response and current plans are to publish the report on 9 March.

I am copying this letter to the Private Secretaries to the Prime Minister, the Lord President, the Chief Whip, the Secretary of State for Employment, the Secretary of State for Education and Science, and the Paymaster General.

Yours sincerely,

GARETH JONES
Private Secretary

the Enterprise

010

CCBC
(letter only)
15pm

ELIZABETH HOUSE
YORK ROAD
LONDON SE1 7PH
01-934 9000

Sir Francis Tombs
Chairman
Advisory Council on Science and Technology
70 Whitehall
London SW1A 2AS

12 October 1987

Dear Francis.

As you know, the Information Technology Advisory Panel, the responsibilities of which have now been subsumed within the remit of ACOST, published last year a report entitled "Learning to Live with IT". The Prime Minister asked me to coordinate the Government's views on the report and I now enclose a pre-publication copy of the Government's formal response, which will be available to the public within the next few days.

You will see that the Government have welcomed the report, and are grateful to the Panel for its work. We wholeheartedly endorse the Panel's analysis of the potential of IT for enhancing education and training across the curriculum, and in this context we thought it helpful in our response to set out in some detail our policies on IT and the programmes being pursued by a number of Government Departments across the education service as a whole. We also endorse the Panel's recognition of the difficulties which can be associated with the incorporation of IT into teaching and learning, and of the continuing importance of the role of the teacher and the lecturer.

Broadly, we accept that the increased use of IT should be based on an understanding of its current and potential contribution, that the momentum of IT investment should be maintained, and that there should be adequate support for teachers and lecturers through training and re-training. Though the Government have been unable to accept in full the formal recommendations made by the Panel, we have set out the action we are now taking and, also, what might be done in the future, which will I believe go a long way towards meeting the needs identified by the Panel.

I have copied this letter, together with the enclosure, to the Prime Minister, to other Cabinet members, and to Sir Robert Armstrong.

Yours
Kenneth

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

28 July 1987

ITAP REPORT "LEARNING TO LIVE WITH IT"

The Prime Minister has seen your Secretary of State's minute of 21 July. She is content with the draft Government response to the Report, attached to your Secretary of State's minute.

I am copying this letter to the Private Secretaries to other members of the Cabinet and to Trevor Woolley.

M. E. Addison

Rob Smith, Esq.,
Department of Education and Science.

SP

Prime Minister ①
Content with the draft reply?
ITAP's last report had some over ambitious recommendations. The DES' proposed response is uncontroversial. MEW 22/7

Yes ms

PRIME MINISTER

INFORMATION TECHNOLOGY ADVISORY PANEL (ITAP) REPORT "LEARNING TO LIVE WITH IT": GOVERNMENT RESPONSE

When ITAP reported last year, you asked me to prepare, in consultation with colleagues, a draft co-ordinated Government response for your approval.

The draft response is attached. It includes a description of the Government's achievements thus far in this area. We consider this to be particularly necessary in responding to a report which evidently overlooks many of them. The response then proceeds to deal with the report's four formal recommendations which are addressed primarily to the Government.

The most significant of the Panel's recommendations is the call for a Commission of Enquiry into Education and Training. In our judgment this recommendation - for what would be an overblown Royal Commission - is not acceptable. Our reasoning is set out at paragraphs 34-37 of the draft.

I should be grateful for your clearance of this draft. The response as approved by you would then be delivered to the Advisory Body on Applied Research and Development (ACARD), which has absorbed the functions of ITAP. I shall thereafter arrange for the response to be published as with the Government's responses to previous ITAP reports.

Copies of this minute go to other members of the Cabinet, and to Sir Robert Armstrong.

KB.

KB

21 July 1987

Department of Education and Science

[redacted] AG B

F0324TRS1A(9)

Draft 17.7.87

GOVERNMENT RESPONSE TO THE ITAP REPORT ON "LEARNING TO LIVE WITH IT"

Introduction

1. The Government welcomes the report by the Information Technology Advisory Panel (ITAP) on "Learning to live with IT". The report rightly calls attention to the profound implications of IT for education and training, as well as to the crucial role of education and training in enabling people to benefit from IT.

2. The Government wholeheartedly endorses much of the analysis in the report, including:

its emphasis on the potential of IT for enhancing training and education across the curriculum;

its acknowledgement of the innovative and exciting work in schools, and the highly impressive calibre and knowledge of many teachers and lecturers;

its warning about some of the difficulties which can attend the incorporation of IT into teaching and learning;

and its insistence on the continuing importance of the teacher and lecturer, suitably trained to exercise their skills in the context of IT.

3. Government policies and programmes

Government, together with a number of other agencies, has a major role to play in the education and training system, and in the development of IT within it. Higher education planning bodies, local education authorities, the managers of institutions, the MSC and industry itself all have important parts to play. In particular it is employers who must take the major responsibility for ensuring

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that their employees are properly trained to meet the challenge of rapidly changing technology. Within this context, the Government has developed programmes, at all levels of the education and training system, designed to increase the emphasis on IT.

4. The Government policy on IT in schools in England and Wales has to be seen in the context of its policies for the whole curriculum. These were set out in broad terms in "Better Schools" (Cmnd 9469, 1985). This White Paper recognised that the new technologies are exciting and challenging; they can enrich the learning process in various ways and will increasingly affect what pupils need to learn. In particular, in the primary schools, the content of the curriculum should introduce pupils to the nature and use in school and in society of new technology and in secondary schools all pupils should be introduced to new technology and how it is affecting people's lives and work. Curricular policies in Scotland are also giving positive encouragement to the study and application of the new technologies in both primary and secondary schools.

5. The Government has recently announced proposals for a national school curriculum, which would give statutory backing to age-related attainment targets linked with programmes of study and assessment (including testing) over a range of subjects which would represent a broad, balanced and relevant foundation curriculum. Working groups are to be established for each of these subjects; and the first two, for mathematics and science, have already been set up. As part of their remit each of the groups will need to take proper account of the extent to which new technology is relevant to their discipline in both primary and secondary schools.

6. In support of its policies, the Government has initiated a range of programmes to support and develop IT activity in schools. The Micros in Schools scheme helped to provide a computer in every school in the UK. In England, Wales and Northern Ireland, the Microelectronics in Education Programme (MEP), as well as raising the general level of interest and debate in the topic, created materials, including some 2,000 computer programs, designed to extend the use of new technology across the curriculum; provided training at various levels for up to 100,000 teachers; and stimulated the LEAs to open up their computer centres and appoint their own advisers.

7. In Scotland, the Scottish Microelectronics Development Programme (SMDP), now incorporated within the Scottish Council for Educational Technology (SCET), has provided a software development and information service. The provision of training in the applications of the new technologies in education is an area of priority activity for the Colleges of Education and is supported by the SED specific grants scheme. Also in Scotland, the Government has enhanced local authority capital allocations in 1987/88 by £2m in order to encourage the purchase of equipment associated with Standard Grade scientific and technological subjects, including Computing Studies. The scheme will continue in future years.

8. On average there were by 1985 1.7 micro computers per primary school, and 13.4 and 17 micros respectively per secondary school in England and Wales. A survey that year showed that in primary schools younger pupils were using the micro mainly to develop keyboard and mathematical skills, while for older pupils the emphasis was on mathematics and problem solving. (In Scotland, where levels of provision are slightly higher, the computer in the primary school tends to be integrated into number work, language and environmental studies). The main use of computers in secondary schools was in computer studies departments, though they were being used in other subjects, in particular science, geography and CDT. However, outside computer studies and specific familiarity courses, the use of IT was found to be sporadic. Schools thus had a considerable way to go in exploiting the contribution IT can make across the curriculum.

9. Current Government initiatives are designed to assist the LEAs and schools in this task of integration. Proposals for a new Education Support Grant in England, from 1988/89, are designed to increase both the availability of hardware and the provision of cross-disciplinary advisory support. Subject to Parliamentary approval, the grants should cover some £8.5m under the hardware heading and £10.5m for advisory support in 1988/89; and they are envisaged as the first phase in a continuing programme. IT in some form is included in all pilot projects of the Technical and Vocational Educational Initiative (TVEI), and is likely to form an integral part of the extension phase of the initiative, to be introduced progressively in secondary schools and colleges throughout Great Britain from autumn this year. These programmes are complemented by

grants for in-service teacher training in the field of IT in schools -classified as a national priority under the new INSET grant arrangements - for which some £4m are available in the current year. In Scotland assistance with in-service teacher training is available to Education Authorities through the specific grants scheme and a range of award bearing and shorter courses is provided by the Colleges of Education.

10. The Microelectronics Support Unit (MESU), set up in 1986 under grants from the Education Departments, is now providing a central source of information for LEAs, support for their advisers and development of curriculum materials targetted at classroom use of new technology. In Wales, the Microelectronics Education Unit (MEU (Cymru)), has been retained by the LEAs and performs a co-ordinating role in close co-operation with MESU. The DTI continues to make available occasional sums intended to give a modest boost to the provision of computer hardware in schools, and its £3.5m software in schools scheme is helping schools to purchase software. The reconstituted Council for Educational Technology, funded by DES and other departments, is now well placed to perform a crucial evaluative role as new technological developments become available.

11. In the non-advanced further education (NAFE) sector, central agencies have been assisting college managements and their maintaining LEAs to increase their IT provision across the curriculum. The MSC has a central fund to help LEAs finance IT related activities in NAFE. In 1986/87 £290,000 was committed to activities such as staff development, curriculum development and the promotion of IT awareness. The DES has concentrated its efforts particularly through the Education Support Grant (ESG) programme which meets 70% of the cost of approved LEA expenditure on computer hardware; development of courseware materials; and staff training. In the first three years of the scheme, to March 1988, £30m of expenditure -including £18m on computing equipment - is being supported in this way. A similar scheme is operating in Wales, where the comparable figure for expenditure is just over £2 million. In Scotland the local authority capital expenditure programmes for 1986/87 and 1987/88 have been increased by £1.5m per annum to enable further education colleges to purchase micro electronic equipment and new technology in support of the Government's 16+ Action Plan.

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18. The Government is also encouraging the development of IT as a tool for the management of institutions. For example, Education Support Grant funding of £11.7m is being provided between 1985 and 1991, to enable the majority of English and Welsh LEAs to purchase management information systems for FE colleges. And the Government is providing £2.5m over the years 1986/87 to 1989/90 to enable the OU to make extensive use of computer based technologies to improve the efficiency of its operation.

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The Government is, therefore, already doing much - in association with others - to increase the emphasis on IT within education and training at all levels. The Panel, in the course of its report, calls for further action, in particular by Government. The four recommendations included in the report are dealt with below.

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opportunities and limitations of IT-aided learning and should identify the most effective way of applying IT within the formal educational system and elsewhere, in support of both student and teacher".

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25. Paragraphs 6 to 18 above describe some of the important IT programmes which Government has initiated, in collaboration with its partners in education and training. These are helping to furnish a sound basis for the cost-effective development of IT in education and training by the relevant authorities. In view of the importance which it attaches to this matter, however, the Government keeps under continual review the need for further initiatives on its part. For example, in the recent Higher Education White Paper (Cmnd 114), the Government said it would "take advantage of the potential of new technology to facilitate the extension and development of distance learning provision across a wide range of institutions, covering both learning materials and delivery systems".

26. Further Government initiatives could include demonstrator projects and other types of developmental work. There are already a number of centrally funded demonstrator projects, including the projects on the use of computers, in

university teaching (vide paragraph 13 above) and the MSC's work in the application of artificial intelligence to training. In addition, the MESU will help LEAs and schools to decide whether they might suitably mount demonstrator projects. And the TVEI pilot projects - which have devised a range of ways of helping to bring IT into pupils' lives -provide a good example of the type of scheme for concentrating resources at the developmental phase which the Panel favours.

27. Industry, too, can usefully contribute to initiatives in this area, including those led by Government; and under the proposed new Education Support Grant arrangements for IT in the schools and local authorities will be encouraged to seek contributions in cash or kind from industry to enhance the investment from public funds. The support given by companies to institutions included in the Engineering and Technology Programme (see paragraph 13) is an excellent example of what can be achieved through collaboration between education, industry and government.

28. At a European level, the Community's COMETT programme, whose operational stage begins later this year, offers a further source of support for developmental work on applications of IT to education and training. Of particular relevance is the COMETT scheme for "multilateral multi-media training initiatives", which will provide Community funding for training projects based on the new information and communication technologies.

29. The Government was interested to see the Panel's proposal on teacher production of education software and courseware. In the Government's views, while software production is likely to remain a complex process involving, programmers, systems analysts and other specialists, as well as teachers, programs may increasingly become sufficiently flexible to allow teachers to input their own material. The Government would wish to encourage such widening of opportunities for teacher input.

30. Recommendation 3: "The need to back up the provision of IT equipment and services with adequate support must be recognised. Training, retraining, consultancy, etc, must be regarded as essential elements in the realistic

introduction and use of IT in education, and continuing Government funding must be available for these aspects. At the same time, teachers themselves must take a positive attitude to the use of IT in education, through involvement in updating skills and in identifying areas in which IT is useful and relevant (or, indeed, in which it is a hindrance) to their work".

31. The Government entirely agrees that appropriate training programmes for teachers and lecturers are vital, if additional IT provision in education is to be effective. Criteria laid down by the Government in 1984 require that all students on initial teacher training courses gain an understanding and experience of the contribution of new technologies to all aspects of children's learning. Training of serving teachers was an important part of the MEP, and the MESU includes provision for support of teacher trainers. Lecturer training has a similarly important place in the IT in NAFE ESG programmes in England and Wales. And microelectronics has been designated a priority area in the new Local Education Authority Training Grants Scheme in England and Wales, which began in April 1987. Grant is being provided to promote training for schoolteachers and further education lecturers at a cost of £5m in England (and almost £300,000 in Wales) in 1987-88, and on that basis English LEAs have reported that they will undertake further training costing £2.6m, from grant set aside to meet locally determined priorities In the Scottish Colleges of Education, in addition to the creation of new BEd courses in Technology, all pre-service courses are expected to address the contribution of new technology to learning. The colleges also provide a range of in-service courses and these are supplemented, in the further and higher education sectors, by courses provided by the Microelectronics Education and Development Centre (MEDC). And the PICKUP programme has helped to develop over 250 in-service courses - of which a majority are in IT -to train polytechnic and college lecturers in the skills required to provide updating courses.

32. The Government agrees with the Panel's emphasis on the importance of teachers being positive about IT. Positive attitudes are, in turn, more likely to be fostered if IT is introduced after the necessary groundwork, including training, has been carried out. Government policies are designed to encourage adequate preparation for the introduction of IT.

33. Recommendation 4: "A Commission of Enquiry should be appointed with a remit to consider the educational system which this country will need for the next century".

More specifically the commission should be asked

- to examine the changes which are taking place in our society and in the light of those changes (and those taking place in other countries) to determine the future education and training needs of the UK;

- to consider how those needs can best be met, recommending where necessary changes:

  - to our current institutional structures;

  - to the locus of policy formulation for education and training;

  - to level and sources of funding;

  - to the collaboration between academia and industry and commerce, the professions and Government in the determination of requirements, in research and in the deployment of knowledgeable people to the teaching role;

  - to consider how the establishment of a sound domestic education and training policy can support UK activities overseas in terms of both cultural influence and commercial exports;

  - to recommend any new legislation or changes to existing legislation necessary to implement the policies which are proposed;

  - to consider the need for a permanent body to keep national education and training policies under review in the light of the now ever-increasing pace of technological and societal changes."

34. The Government agrees with much of the analysis underpinning this recommendation. In particular, issues surrounding IT's role in education and training cannot be divorced from wider questions about the future direction of education and training in a rapidly changing society. Policy should clearly be developed on the basis of the best possible assessment of future needs.

35. The Government is not, however, persuaded by the Panel's recommendation that a Commission of Enquiry be established. In the first place, Government and its partners in the education and training services, already have access to authoritative sources of advice on social and economic trends. Of course, projection of such trends into the future is a necessarily difficult undertaking, subject to wide margins of error. But it is not clear that the proposed Commission could provide significantly more reliable predictions than existing agencies, nor that, more generally, such a body would make a distinctive contribution to the stock of information relevant to an assessment of future needs.

36. The Government also sees significant difficulty attaching to the proposed Commission's role in recommending action to meet perceived education and training needs. The Panel acknowledges the complexity of the system for developing education and training policy, which involves, inter alia, a variety of agencies and interests; provision at a number of levels, from primary school to postgraduate research; and different arrangements in the constituent countries of the United Kingdom. But this very complexity calls into question the ability of a single body - acting only in an advisory capacity - effectively to encompass the range of issues and interests involved.

37. The Government's policy is to encourage maximum co-operation and co-ordination between the various partners in developing education and training policy, including policy for IT. At the level of Government itself, co-operation between a number of Departments in the IT area, has borne fruit in the related initiatives for developing IT in the schools, and, in higher education, the Engineering and Technology Programme. These Government-led initiatives have also involved other agencies in the education system and illustrate the progress

being made as a result of co-ordinated and co-operative endeavour. Further reforms now planned, such as the move towards an agreed national curriculum in the schools, will also have a significant part to play in ensuring that the education service continues to develop appropriate policies for the use and understanding of IT

29/6

Andy (Bearpark)

Just to prove something is happening. We hope to write to the PM after comments are received ie after 8 July. Alison 24/6

From the Secretary of State

With the Private Secretary's Compliments

DEPARTMENT OF EDUCATION AND SCIENCE

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The Rt Hon Viscount Whitelaw PC CH MC
Lord President of the Council
68 Whitehall
LONDON SW1

24 June 1987

Dear Willie,

INFORMATION TECHNOLOGY ADVISORY PANEL (ITAP) REPORT "LEARNING TO LIVE WITH IT": GOVERNMENT RESPONSE

When ITAP reported last year, the Prime Minister asked me to prepare a draft co-ordinated Government response. I attach a draft response and I should be grateful for your agreement and that of colleagues that this be submitted to the Prime Minister.

The draft response includes a description of the Government's achievements thus far in this area - particularly necessary, I think in responding to a report which evidently overlooks many of them. It then deals with the report's four formal recommendations which are addressed primarily to the Government. Of these, the most significant - and the one which attracted most attention at the time of publication - is the call for a Commission of Enquiry into Education and Training. In my judgement this recommendation - for what would be an overblown Royal Commission - is not acceptable. The reasoning is set out at paragraphs 33-36 of the draft.

I should be grateful for colleagues' responses to the draft by 8 July. Once the Prime Minister has cleared a final text, the Government response will be delivered to the Advisory Body on Applied Research and Development (ACARD), which has absorbed the functions of the now defunct ITAP. I shall thereafter arrange for the response to be published.

Copies go to the Chancellor of the Exchequer, the Secretaries of State for Employment, Trade and Industry, Environment, Social Services, Scotland, Wales and Northern Ireland.

Yours

Draft 16.6.87

GOVERNMENT RESPONSE TO THE ITAP REPORT ON "LEARNING TO LIVE WITH IT"

Introduction

1. The Government welcomes the report by the Information Technology Advisory Panel (ITAP) on "Learning to live with IT". The report rightly calls attention to the profound implications of IT for education and training, as well as to the crucial role of education and training in enabling people to benefit from IT.

2. The Government wholeheartedly endorses much of the analysis in the report, including:

its emphasis on the potential of IT for enhancing training and education across the curriculum;

its acknowledgement of the "innovative and exciting work" in schools, and the "high calibre and knowledge" of many teachers and lecturers;

its warning about some of the difficulties which can attend the incorporation of IT into teaching and learning;

and its insistence that, while IT offers the prospect of a significant enhancement of education and training, the role of the teacher and the lecturer will remain central.

3. Government policies and programmes

Government shares with a number of other agencies responsibility for the education and training systems, and for the development of IT within them. In the case of education, the managers of institutions, the local education authorities and the higher education planning bodies all have major

responsibilities. In the case of training, the MSC has an important role; but employers have the major responsibility for ensuring that their employees are properly trained to meet the challenge of rapidly changing technology. Within this context, the Government has developed programmes, at all levels of the education and training system, designed to increase the emphasis on IT.

4. The Government policy on IT in schools in England and Wales has to be seen in the context of its policies for the whole curriculum. These were set out in broad terms in "Better Schools" (Cmnd 9469, 1985). This White Paper recognised that the new technologies are exciting and challenging; they can enrich the learning process in various ways and will increasingly affect what pupils need to learn. In particular, in the primary schools, the content of the curriculum should introduce pupils to the nature and use in school and in society of new technology and in secondary schools all pupils should be introduced to new technology and how it is affecting people's lives and work. Curricular policies in Scotland are also giving positive encouragement to the study and application of the new technologies in both primary and secondary schools.

5. The Government has recently announced proposals for a national school curriculum, which would give statutory backing to age-related attainment targets linked with programmes of study and assessment (including testing) over a range of subjects which would represent a broad, balanced and relevant foundation curriculum. Working groups are to be established for each of these subjects; and the first two, for mathematics and science, [have already been]/[will shortly be] set up. As part of their remit each of the groups will need to take proper account of the extent to which new technology is relevant to their discipline in both primary and secondary schools.

6. In support of its policies, the Government has initiated a range of programmes to support and develop IT activity in schools. The Micros in Schools scheme helped to provide a computer in every school in the UK. In England, Wales and Northern Ireland, the Microelectronics in Education Programme (MEP), as well as raising the general level of interest and debate in the topic, created materials, including some 2,000 computer programs, designed to extend the use of new technology across the curriculum; provided training at various levels for up to 100,000 teachers; and stimulated the LEAs to open up their computer centres and appoint their own advisers.

7. In Scotland, the Scottish Microelectronics Development Programme (SMDP), now incorporated within the Scottish Council for Educational Technology (SCET), has provided a software development and information service. The provision of training in the applications of the new technologies in education is an area of priority activity for the Colleges of Education and is supported by the SED specific grants scheme. Also in Scotland, the Government has enhanced local authority capital allocations in 1987/88 by £2m in order to encourage the purchase of equipment associated with Standard Grade scientific and technological subjects, including Computing Studies. The scheme will continue in future years.

8. On average there were by 1985 1.7 micro computers per primary school, and 13.4 and 17 micros respectively per secondary school in England and Wales. A survey that year showed that in primary schools younger pupils were using the micro mainly to develop keyboard and mathematical skills, while for older pupils the emphasis was on mathematics and problem solving. (In Scotland, where levels of provision are slightly higher, the computer in the primary school tends to be integrated into number work, language and environmental studies). The main use of computers in secondary schools was in computer studies departments, though they were being used in other subjects, in particular science, geography and CDT. However, outside computer studies and specific familiarity courses, the use of IT was found to be sporadic. Schools thus had a considerable way to go in exploiting the contribution IT can make across the curriculum.

9. Current Government initiatives are designed to assist the LEAs and schools in this task of integration. Proposals for a new Education Support Grant in England, from 1988/89, are designed to increase both the availability of hardware and the provision of cross-disciplinary advisory support. [Subject to the necessary statutory consultations] the grants should cover some £8.5m under the hardware heading and £10.5m for advisory support in 1988/89; and they are envisaged as the first phase in a continuing programme. This is complemented by grants for in-service teacher training in the field of IT in schools - classified as a national priority under the new INSET grant arrangements - for which some £4m are available in the current year. In Scotland assistance with in-service teacher training is available to Education Authorities through the specific grants scheme and a range of award bearing and shorter courses is provided by the Colleges of Education.

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22. And Government is also supporting work in particular areas of education and training. For example, the MESU (described at paragraph 10 above) will be carefully evaluating the impact in the classroom of the materials which it develops. And the Government is funding a review by the CET into the contribution IT, in the context of open or distance learning materials, may be able to make to the problem of shortage of maths, physics and technology teachers by enabling more independent study by pupils. On a broader level, the Government intends to commission a rigorous evaluation of its strategy for investment in IT in schools; this, whilst not pretending to offer a definitive analysis of the potential in this field, should give a useful assessment of what is being achieved in practice. In Scotland, investigations by HM Inspectorate into the use of microcomputers in Further and Higher Education and into the use of microcomputers in learning and teaching in secondary and primary schools are contributing to a comprehensive evaluation of the impact of information technology in the classroom.

23. Recommendation 2: "There should be an additional budget, on a continuing basis, for IT-based applications in schools, colleges, universities, etc, to maintain the momentum of the investment already made in IT. In addition, demonstrator projects should be set up, to establish what can be done with IT and to stimulate innovation within both the educational system and the IT industry, including the development of a set of software tools to enable teachers to develop educational software and courseware more easily than at present. As well as the general support for IT, a small number of educational establishments, at all levels, should be sufficiently funded to develop applications of IT beyond that possible with the limited resources available generally."

24. Paragraphs 6 to 17 above describe some of the important IT programmes which Government has initiated, in collaboration with its partners in education and training. These are helping to furnish a sound basis for the cost-effective development of IT in education and training by the relevant authorities. In view of the importance which it attaches to this matter, however, the Government keeps under continual review the need for further initiatives on its part. For example, in the recent Higher Education White Paper (Cmnd 114), the Government said it would "take advantage of the potential of new technology to facilitate the extension and development of distance learning provision across a wide range of institutions, covering both learning materials and delivery systems".

25. Further Government initiatives could include demonstrator projects and other types of developmental work. There are already a number of centrally funded demonstrator projects, including the projects on the use of computers, in university teaching (vide paragraph 13 above) and the MSC's work in the application of artificial intelligence to training. In addition, the MESU will help LEAs and schools to decide whether they might suitably mount demonstrator projects. And the TVEI pilot projects - which have devised a range of ways of helping to bring IT into pupils' lives -provide a good example of the type of scheme for concentrating resources at the developmental phase which the Panel favours. (From later this year, TVEI will be progressively extended to 14-18 year olds in all maintained secondary schools and colleges).

26. Industry, too, can usefully contribute to initiatives in this area, including those led by Government; and under the proposed new Education Support Grant arrangements for IT in the schools, local authorities will be encouraged to seek contributions in cash or kind from industry to enhance the investment from public funds. The support given by companies to institutions included in the Engineering and Technology Programme (see paragraph 13) is an excellent example of what can be achieved through collaboration between education, industry and government.

27. At a European level, the Community's COMETT programme, whose operational stage begins later this year, offers a further source of support for developmental work on applications of IT to education and training. Of particular relevance is the COMETT scheme for "multilateral multi-media training

initiatives", which will provide Community funding for training projects based on the new information and communication technologies.

28. The Government was interested to see the Panel's proposal on teacher production of education software and courseware. In the Government's view, while software production is likely to remain a complex process involving programmers, systems analysts and other specialists, as well as teachers, programs may increasingly become sufficiently flexible to allow teachers to input their own material. The Government would wish to encourage such widening of opportunities for teacher input.

29. Recommendation 3: "The need to back up the provision of IT equipment and services with adequate support must be recognised. Training, retraining, consultancy, etc, must be regarded as essential elements in the realistic introduction and use of IT in education, and continuing Government funding must be available for these aspects. At the same time, teachers themselves must take a positive attitude to the use of IT in education, through involvement in updating skills and in identifying areas in which IT is useful and relevant (or, indeed, in which it is a hindrance) to their work".

30. The Government entirely agrees that appropriate training programmes for teachers and lecturers are vital, if additional IT provision in education is to be effective. Criteria laid down by the Government in 1984 require that all students on initial teacher training courses gain an understanding and experience of the contribution of new technologies to all aspects of children's learning. Training of serving teachers was an important part of the MEP, and the MESU includes provision for support of teacher trainers. Lecturer training has a similarly important place in the IT in NAFE ESG programmes in England and Wales. And microelectronics has been designated a priority area in the new Local Education Authority Training Grants Scheme in England and Wales, which began in April 1987. Grant is being provided to promote training for schoolteachers and further education lecturers at a cost of £5m in England (and almost £300,000 in Wales) in 1987-88, and on that basis English LEAs have reported that they will undertake further training costing £2.6m, from grant set aside to meet locally determined priorities In the Scottish Colleges of Education, in addition to the creation of new BEd courses in Technology, all

pre-service courses are expected to address the contribution of new technology to learning. The colleges also provide a range of in-service courses and these are supplemented, in the further and higher education sectors, by courses provided by the Microelectronics Education and Development Centre (MEDC). And the PICKUP programme has helped to develop over 250 in-service courses - of which a majority are in IT -to train polytechnic and college lecturers in the skills required to provide updating courses.

31. The Government agrees with the Panel's emphasis on the importance of teachers being positive about IT. Positive attitudes are, in turn, more likely to be fostered if IT is introduced after the necessary groundwork, including training, has been carried out. Government policies are designed to encourage adequate preparation for the introduction of IT.

32. Recommendation 4: "A Commission of Enquiry should be appointed with a remit to consider the educational system which this country will need for the next century".

More specifically the commission should be asked

- to examine the changes which are taking place in our society and in the light of those changes (and those taking place in other countries) to determine the future education and training needs of the UK;

- to consider how those needs can best be met, recommending where necessary changes:

  - to our current institutional structures;

  - to the locus of policy formulation for education and training;

  - to level and sources of funding;

  - to the collaboration between academia and industry and commerce, the professions and Government in the determination of requirements, in research and in the deployment of knowledgeable people to the teaching role;

- to consider how the establishment of a sound domestic education and training policy can support UK activities overseas in terms of both cultural influence and commercial exports;

- to recommend any new legislation or changes to existing legislation necessary to implement the policies which are proposed;

- to consider the need for a permanent body to keep national education and training policies under review in the light of the now ever-increasing pace of technological and societal changes."

33. The Government agrees with much of the analysis underpinning this recommendation. In particular, issues surrounding IT's role in education and training cannot be divorced from wider questions about the future direction of education and training in a rapidly changing society. Policy should clearly be developed on the basis of the best possible assessment of social and economic trends.

34. The Government is not, however, persuaded by the Panel's recommendation that a Commission of Enquiry be established. In the first place, Government and its partners in the education and training services already have access to authoritative sources of advice on social and economic trends. Of course, projection of such trends into the future is a necessarily difficult undertaking, subject to wide margins of error. But it is not clear that the proposed Commission could provide significantly more reliable predictions than existing agencies, nor that, more generally, such a body would make a distinctive contribution to the stock of information on social change.

35. The Government also sees significant difficulty attaching to the proposed Commission's role in recommending action to meet perceived education and training needs. The Panel acknowledges the complexity of the system for developing education and training policy, which involves, inter alia, a variety of agencies and interests; provision at a number of levels, from primary school to postgraduate research; and different arrangements in the constituent countries of the United Kingdom. But this very complexity calls into question the ability of a single body - acting only in an advisory capacity - effectively to encompass the range of issues and interests involved.

36. The Government's policy is to encourage maximum co-operation and co-ordination between the various partners in developing education and training policy, including policy for IT. At the level of Government itself, co-operation between a number of Departments in the IT area has borne fruit in the related initiatives for developing IT in the schools, and, in higher education, the Engineering and Technology Programme. These Government-led initiatives have also involved other agencies in the education system and illustrate the progress being made as a result of co-ordinated and co-operative endeavour. Further reforms now planned, such as the move towards an agreed national curriculum in the schools, will also have a significant part to play in ensuring that the education service continues to develop appropriate policies for the use and understanding of IT.

file DES

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

22 April 1987

ITAP REPORT: "LEARNING TO LIVE WITH IT"

Thank you for your letter of 15 April. I am sorry that we are unable to maintain the agreed schedule for the production of this response, and look forward to seeing the draft no later than the end of May.

P A BEARPARK

R. L. Smith, Esq.
Department of Education and Science

ESD8AM05

WBA

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O/F Wed 22/4

P A Bearpark Esq
Private Secretary
10 Downing Street
London SW1

15 April 1987

Dear Andy,

ITAP REPORT: "LEARNING TO LIVE WITH IT"

As Chris de Grouchy has already told you over the 'phone, I'm afraid we shall not be able to let you have an agreed co-ordinated Government draft response before Easter as we had hoped. Other Ministerially-directed pressures on the officials concerned have meant that the timetable has slipped a little.

We do however now have a draft departmental text and consultations with other Government departments begin this week. We therefore hope to let you have the draft co-ordinated response by the beginning of June at the latest.

Yours sincerely,

R L SMITH
Private Secretary

IND. POL: Info. Tech: PCS

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WBG

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From the Minister of State
for Industry and Information Technology

RT HON GEOFFREY PATTIE MP

Rt Hon John Biffen MP
Lord Privy Seal
Privy Council Office
68 Whitehall
LONDON
SW1A 2AT

24 February 1987

Dear John

MICHAEL MARSHALL MP'S PRIVATE MEMBER'S MOTION ON INFORMATION TECHNOLOGY, 27 FEBRUARY 1987

As you will be aware, Michael Marshall has drawn second place in the ballot for Private Members' motions to be debated on Friday 27 February. Michael Howard will be replying for the Government in my absence.

Mr Marshall's motion calls attention to information technology and moves a Resolution. We understand that Mr Marshall intends to be generally supportive of the Government and, as Chairman of the Parliamentary Information Technology Committee, to commend the work of a recently retired member of PITCOM (Sir Ian Lloyd MP). I propose therefore that we should agree the motion.

I am copying this letter to Members of 'L' Committee and other Members of the Cabinet, and to Sir Robert Armstrong.

Yours ever

GEOFFREY PATTIE

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cc bG

DEPARTMENT OF EDUCATION AND SCIENCE

ELIZABETH HOUSE YORK ROAD LONDON SE1 7PH

TELEPHONE 01-934 9000

FROM THE SECRETARY OF STATE

Andy Bearpark Esq
Private Secretary
10 Downing Street
LONDON
SW1

cf. [illegible]

2 February 1987

Dear Andy,

ITAP REPORT: LEARNING TO LIVE WITH IT

Thank you for your letter of 30 January. As I told you over the 'phone I had already spoken to the officials involved. They have assured me that the response will be ready by Easter and have cleared this with the Cabinet Office.

Yours sincerely,

Rob Smith

R L SMITH
Private Secretary

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● PART 4 ends:-

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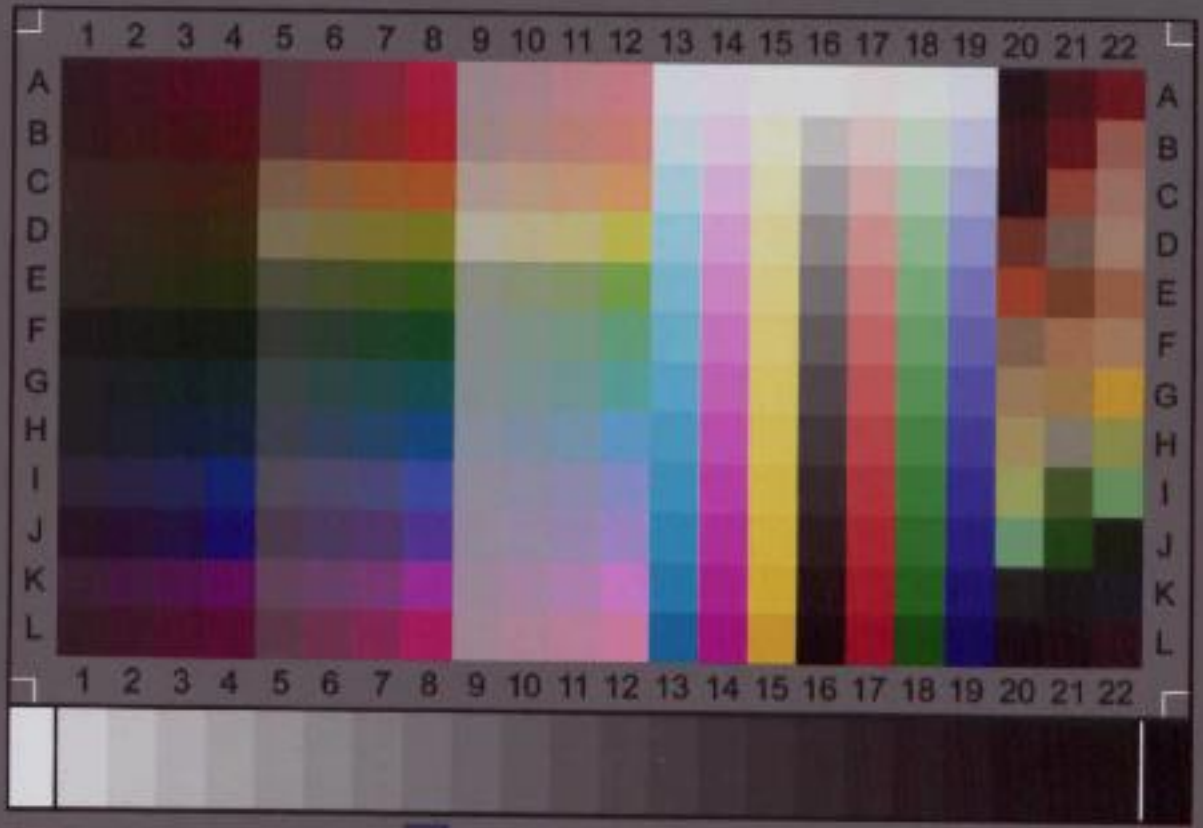
PART 5 begins:-

DES to AB 2.2.87.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