TELECOMMUNICATIONS IN BRITAIN:

SWITCHING DIRECTION.

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CONTENTS

PREFACE

This study was undertaken at the suggestion of the Department of Industry.

Its purpose is to consider the implications for government policy which are raised by the British Telecommunications Act of 1981. For this Act has given the UK a unique telecommunications framework. In the words of Kenneth Baker, Minister for Information Technology:

"It is a halfway house between America's free market controlled by a regulatory authority and a Niagara of litigation, and the corporatist or national monopoly solution favoured in Europe".*1

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*1 Kenneth Baker MP speech to the Telephone Managers' Association London, 24.11.81

INTRODUCTION

1 The Historical Background

The telecommunications side of the British Post Office became a government monopoly in 1912, when the government took over all but one of the then privately owned and operated telephone networks. The exception was the network run by the City & County of Kingston-upon-Hull. That has remained independent, under licence. It is run very successfully, by a Manager who reports to a sub-committee of the council.

The Post Office was a civil service department until 1969, when it became a public corporation. The British Telecommunications Act 1981 set up a new corporation, British Telecommunications (BT) to run the communications and data processing business of the Post Office. BT was separated from the Post Office Corporation on 1st October 1981, when the Act became law.

British Telecommunications Act 1981

The Act broke the monopoly of the state corporation in some respects. First it created conditions under which, in due course, subscribers would become free to buy any telephone attachments, apart from the first telephone connected to each direct exchange line, from suppliers other than BT. Thus, the restrictions which previously prevented suppliers from selling their equipment directly to the customer have been removed. This also means the phased end of a system begun in the 1920's in which a certain number of manufacturers established themselves as the major suppliers of Post Office equipment.

These attachments must be suitable for use on the BT network and a system of standards and approvals to deal with them is being established.

Under the Act the Corporation has a general duty to provide a telephone service throughout the UK. It retains its monopoly in international services, and the private sector is not allowed to lease capacity on the BT network to third parties. Over the next 18 months there will be a progressive phasing out of BT's monopoly right to supply terminal equipment listed in Appendix 1. The rate at which this will become subject to competitive supply will depend on the progress made by the British Standards Institution's drafting committees and the British Approvals Board for Telecommunications (BABT) testing programme[1]. The dates for liberalisation of equipment given by the DOI are starting dates, so it should be stressed that not all equipment will be liberalised on day one of the new phase.

This Act therefore creates a unique telecommunications framework. In the words of Kenneth Baker, Minister for Information Technology "It is a halfway house between America's free market controlled by a regulatory authority and a Niagara of litigation, and the corporatist or national monopoly solution favoured in Europe[2]". It is this fact which dictates most of the issues raised in this study.

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1 See below p 5.

2 Kenneth Baker MP speaking to the Telephone Managers' Association, London 24.11.81.

1 The security of the user and the network;
2 the compatibility between network and terminal equipment;
3 maintenance policy;
4 long term policy plans of the DBP;
5 competitive policy and the competitive structure of the domestic equipment manufacturing industry.

In practice strong emphasis has been placed by the DBP on rigorous and detailed standards, and this has delayed the introduction of innovative equipment[1]. The standards and approvals machinery now being established in the UK could suffer from the same problem.

In the United States of America the Federal Communications Commission (FCC) have pursued a policy of liberalising the entire attachments market. In 1978 a new equipment registration programme was established based on two requirements.

1 No first party harm. Equipment must be designed in such a way that users cannot be physically harmed, for example, by mains voltage from the electriciy grid being brought into contact with unshielded metal parts.

2 No third party harm. Terminal equipment attached to the network must not interfere with the ability of third parties to use the network, or with the network itself. The network operator (eg AT & T) has the right to disconnect equipment which causes third party harm on condition that it notifies the FCC.

These requirements are relatively simple to assess and it usually takes only two months to complete the approval process for new equipment. It is an important feature of their registration

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1 See S Knieps, J Muller & C Von Weizsacker, Telecommunications Policy in West Germany & Challenges from Technical and Market Developments paper based on a study carried out for the West German Monopolies Commission, 1980.

Licensing Under The 1981 Act

As stated above[1] the Act[2] gives the Secretary of State powers to grant licences to companies other than BT to provide certain telecommunications services to customers in the UK.

Licences will not for the time being be granted for international services or for re-sale of capacity on BT's network.

Value added services (VANS) became eligible to apply for licences from 1st April 1982. The DOI requires applicants to provide information about the management of the system, the services which will be available, who will have access to the service and the type of equipment it is proposed to use. Following consultation[3] with BT, the DOI will then decide whether or not to issue a licence.

A panel of three experts, chaired by Professor Cattermole[4], has been set up by the Secretary of State to advise on general issues of licensing policy and to provide an appeals procedure for applicants whose licence has been refused by the Department. The Department is considering issuing a general licence to enable all companies who provide VANS or wish to do so to operate provided they meet only minimun conditions.

The Act requires new legislation to be passed if any future Government wishes to withdraw licences that have already been issued.

Certain telecommunications systems such as private circuits linking company offices with one another within a single set of premises can be provided without a licence if they are exempt from BT's monopoly as defined under the Act.[5]

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1 see p 2

2 BT Act 1981, Section 15

3 see p 5

4 Professor K W Cattermole, Professor of Telecommunications, the University of Essex

5 BT Act 1981 Section 13

+ Point of Sale

One of the largest new markets for applied technology will be associated with the introduction of 'smart cards', plastic credit cards which incorporate a micro-processor and memory allowing individuals to shop and perform financial transactions without any paperwork or postal dealys. In the future a common feature of cash desks in shops will be a transaction telephone linked to a number of banks and allowing instantaneous approval and transfer of money between customers and retailers.

+ Telephone

One should not overlook the simple telephone call and the many advantages and consequences which will follow from making it significantly cheaper.

Britain is well placed to exploit this growth market because:

1 She is strategically situated at the hub of transatlantic communications;

2 she has a strong electronics industry;

3 in Cable & Wireless she has a major telecommunications company which supplies 75 countries.

Probably the greatest repercussions stemming from the introduction of the new generation of telecommunications will be in the developing "Third World", particularly in countries with scattered populations. For these countries, a modern telecommunications infra-structure will gradually become as important as a transport network. Clearly, there exists a large export potential for British companies entering this field and many new jobs are likely to be created, although the recent Communication Studies and Planning report commissioned by the DOI underlined the importance of credit arrangements for such deals[1].

1 Reported in The Times, 20 April 1982

For example, Thomson-CSF and Siemens have won a contract worth £2 billion to modernize and extend Egypt's telephone network. Philips, AT & T (Canada) and L M Ericsson have secured a contract worth $5 billion to modernize and replace Saudi Arabia's exchange system.

L M Ericsson, the Swedish based manufacturer, is a good example of the type of company British manufacturers might try to emulate. Ericsson has an impressive exports record - the company has sold its AXE digital exahanges to 27 countries[1]. Many factors - credit arrangements, cost, technical merit and also political contacts - play a part in winning such orders. However, Ericsson's performance is all the more remarkable when the small size of the company' domestic market is taken into account, although it can be argued that a small home market encourages export sales.

Developing Third World countries such as Brazil will represent an important new market in future. If some British manufacturers can win orders for basic switching systems and telecommunications equipment in such countries, this will help to provide a spring-board for those who specialise in sophisticated value added services and indeed the whole range of equipment sometimes referred to as information technology. Meanwhile the importance of the European market, much neglected in the past, should not be forgotten.

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1 The Economist, Telecommunications Survey, p 10, 22nd August 1981

Recent American experience is also interesting. Increased competition in the United States during the last few years has accelerated the introduction of new products in the market, enlarged the spectrum of products available, and as a result of competitive entry, additional regulatory signals are available to help the FCC[1] determine the appropriate tariff revisions necessary to promote a competitive environment[2]. Free entry to the market has promoted dynamic efficiency since the new entrants are not compelled to offer a universal service, consequently their investment risk is lower and the market is able to act as a truly efficient process for potential new services and products[3].

Extension of competition in the UK might seem the logical next step. In his statement to Parliament on 30th July, 1981, the Minister for Information Technology said that the Government was considering whether to allow the private sector complete freedom to use the BT network to supply services to third parties, including simple re-sale; and whether to extend liberalisation to the area of international services. The Government has said that, for economic reasons, it does not intend to license an additional telephone network beyond BT and Mercury for the time being.

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1 FCC: The Federal Communications Commission, established under the 1934 Communications Act to regulated inter-state and foreign communications by wire and radio. Intra-state communications fall under the jurisdiction of the state although certain activities are subject to FCC authority.

2 Liberalisation of the use of British Telecommunications' Network, paras. 113-115, Department of Industry, HMSO, 1981.

3 Telecommunications Law Reform, American Enterprise Institute pp 11-12, February 1980.

& also J Muller, Potential for competition and the role of PTTs, Telecommunications Policy, IBC Business Press, March 1981

Professor Littlechild[1] agrees broadly with Professor Beesley's view that transmission economies dry up quite soon[2]. Littlechild argues[3] that economies of scale, where they exist, can be offset by lower overhead costs and superior marketing. It is not yet clear whether they can be completely outweighed. Moreover, other firms may have lower operating costs. The diseconomies of scale incurred by such a large organisation as BT have recently been highlighted by Sir George Jefferson[4].

The Mercury Project, running in direct competition with BT may provide evidence that economies of scale for operators are not essential for survival. Even if they are as crucial as British Telecom have argued, then it has little to fear from liberalisation since it enjoys an overwhelming market dominance.

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1 S C Littlechild, Professor of Commerce at the University of Birmingham. Author of 'Elements of Telecommunications Economics', Peter Peregrinus Ltd, on behalf of the Institution of Electrical Engineers, 1979.

2 Beesley notes that there is a clear fall-off after 5,000 circuits and a similar fall-off can be seen in the case of exchanges (Report para. 118). The effect of new technologies (satellites, microwave, optical fibre, mobile radio, etc.) on economies of scale have been analysed by Gupta-Fuss (1979), Meyer et al (1979), Nadiri, Shankerman (1979) and Waverman (1975). They suggest that the extent of economies of scale has been reduced, particularly in trunk calls, but that some economies of scale in local networks still pertain.

Gupta, V.K., Fuss, H.A., Returns to Scale and Suboptimal Capacity in Canadian Manufacturing: A Cost Function Approach, Institute for Policy Analysis, University of Toronto, 1979.

Meyer, U.A., The Economics of Competition in the Telecommunications Industry, Charles River Association, August 1979.

Waverman, L., The Regulation of Intercity Telecommunications in A. Phillips (Ed.): Promoting Competition in Regulated Markets, Washington D.C., 1975.

3 Private Correspondence with CPS, 16th March and 22nd April 1982.

4 British Telecom, Chairman's message to management and union officials reported in The Times, 26th January, 1982.

(3) Security

In its response to the Beesley Report[1] BT says it "provides a national network which guarantees certain standards of communication ... To meet these standards is costly, but essential for the general maintenance of communications ... for national security reasons". The accompanying footnote[2] suggests that the reference is primarily to the vulnerability of communications in case of war or national emergency. BT has not made its case here, but the issues are obviously sensitive: presumably the Corporation cannot explain its measures to protect national security without revealing them to a potential enemy. If the general public is to appreciate this argument, it must be made clearer to them. So far as normal security is concerned, i.e. confidentiality of communications between a pair of correspondents, this is a technical problem which applies to any telecommunications service, regardless of ownership.

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1 "Further considerations relating to the British Telecommunications network and proposals to permit competition" p.10. British Telecom. (1981).

2 Ibid.

BRITISH TELECOM

Present Investment situation and problems

BT's investment programme this year will cost around £2 billion and it is expected to rise to £3 billion a year by 1984-85. The precise figures are given below[1]. One third of this investment will go on modernization and improvement to the quality of service; one third to meet forecast growth in demand; the remainder will be spent on subscriber apparatus, building and services. It is worth noting that 40% of investment expenditure is represented by labour costs - building exchanges, running cables, wiring houses, etc.

1 British Telecom's Capital Requirement

£ million cash

	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
British Telecom	816	844	993	1,215	1,545	1,898	2,380	2,725	2,960

Expansion of size and use of telecommunications system

Table 3.9

	1980-81	1985-86
Size of system (thousands):		
Working telephone connections	18,400	22,500
Working telex connections	90	116
Data transmission terminals	82	162
Residential penetration per 100 households	74	86
Telephone calls (millions)		
Inland (effective calls)	20,200	25,050
Overseas (million paid minutes)	1,410	3,300

Extracted from the Government's Expenditure Plans 1982/83 to 1984/85 Cmnd. 8494-II p. 72 and p. 81.

Sir George writes that these problems are aggravated by demarcation disputes, inflexible working practices, rigidity on manning levels and a predisposition against accepting change. Considerable savings could also be achieved through cuts in headquarters' overheads and 'over generous' office accommodation.

In the Chairman's view "Management must bear the main responsibility for most of what is wrong - and for putting it right, with the help of unions and staff". Significantly, Sir George criticises BT's "slow and expensive promotion and appointments procedures, with seniority often more influential than merit"

To date most of BT's investment funding has been self-financed. Depreciation costs represented 30.4% of BT's total expenditure and 75% of its investment funding in the financial year 1980-81. Hence, the role of depreciation allowances is crucial to the financing of BT's capital programme. Yet it is clear from the 1980-81 Report and Accounts that BT's depreciation accounting procedures are unsatisfactory. Book valuations need to be treated with caution, for example, BT's net assets are doubled in value if assessed at current cost rather than historic cost depreciation.

For fixed assets with a net book value of £4316 million (at historic cost) the auditors were unable to identify with regard to the balance sheet the value of assets no longer in use, or the amounts excluded in repect of assets written out in the books but still in use. On the profit and loss account, the auditors were unable to give an accurate figure for the depreciation included in respect of assets disposed of prematurely during the financial year ending 31 March 1981, or, in certain cases, the differences between the estimated and actual proceeds and cost of recovery. The auditors further noted shortcomings in the accounting and control procedures for materials valued at £335 million awaiting installation. A number of other reservations with regard to the valuation of these fixed assets are enumerated by the auditors.

BT plans to rectify, with the help of its auditors, the deficiencies in its accounting procedures. The major problem

Little progress seems to have been made in the five years since this report was written. Until the advent of liberalisation the Government had not been in a position to evaluate on behalf of the customer the possible trade-offs between standards of service, investment requirement, operating costs and prices. Until now BT has effectively dictated consumer choice since it alone was in a position to interpret what it saw as customers' requirements.

Nor does the Government's financial appraisal of BT place enough emphasis on checking previous investment decisions so as to monitor the accuracy and quality of British Telecom's forecasting capacity.

British Telecom's investment programme and financial requirement are treated by the Government as part of the annual PESC review, now highly formalised. As the primary concern of this review is the level of the following year's PSBR, the debate focusses on the Government's macro economic policy. In this crucial way the exercise differs markedly from the project management business approach which treats investment programmes in a much broader time-scale. The concentration on the PSBR may result in excessive funding of investment from retained revenue leading directly to higher prices than necessary.

As far as BT is concerned this annual Government review is very much a question of agreeing a figure for the External Financial Limit (EFL). The Corporation's proposals are prepared with requests for funds substantially above what BT itself really believes it will receive. Similarly, BT's answers to the standard Treasury questionnaire dealing with nationalised industries financial/investment plans are framed in an essentially political manner. The series of meetings held every summer to resolve the precise shape of BT's investment and financial programme culminate in a final bargaining session to hammer out the EFL figure.

Government appraisal of nationalised industry finance is also handicapped by the constant changes in personnel which are so much part of the administrative civil service tradition. Moreover, civil servants are ill prepared by their training to operate in a

FUTURE REGULATION & LICENSING

Whatever the future of BT there is a need for a new telecommunications regulatory agency to make competition and liberalisation work more effectively for the benefit of the consumer, and to replace the present arrangements made at the DoI[1]. This agency should be established for a five-year term in the first instance.

It can be argued that institutional machinery already exists to monitor BT's competitive behaviour. Under Sections 11 and 12 of the Competition Act 1980 the Monopolies and Mergers Commission is authorised to investigate BT's efficiency and costs, the service it provides to the customer and whether it abuses its monopoly position [2]. BT's practices and prices are also open to review by the Post Office Users' National Council (POUNC) . Moreover, complainants against any network or equipment supplier other than BT can bring their case to the courts in the usual way.

Since the introduction of competition, the prices and the practices of BT are being determined more by the operation of the market place than they were previously. Is there any case for a new regulatory authority which might interfere with these market disciplines and run the risk of judging commercial issues ex ante?

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1 See pp. 9-10 Licensing under the Act

2 See also the Memorandum accompanying the Telecommunications Act 1981 (para 14) which states: "The Director General of Fair Trading, as part of his normal duties under the Competition Act and Fair Trading Acts, will be monitoring the new arrangements and will look into any allegations of anti-competitive or unfair trading practices by any party that are brought to his attention".

Apart from the fact that the general legislation on monopoly restrictions, involving the Office of Fair Trading (OFT) leaves much to be desired and might itself be a matter of reform, it is open to question whether the OFT procedure is sufficiently flexible to deal with an industry the sine qua non of whose progress in the next few years will be prompt decisions? As competition in the telecommunications industry increases, licensing and regulatory problems will be more rather than less evident. There may well be a proliferation of hard cases in the next few years. These will require swift and firm action to establish the basic procedures for this technology-based industry and to produce an environment in which it can flourish.

Therefore while OFT has a place in regulating market behaviour and defending the interests of the consumer, the size and importance of the telecommunications industry suggest that, as an interim measure, a separate body is needed, especially to look after licensing and technical problems.

In a truly competitive environment the market itself would regulate the industry. But since British Telecom is likely to remain the dominant network provider[1], some form of licensing and adjudication will be necessary to limit BT's anti-competitive instincts and to promote competition.

Under the Section 15 of the BT Act 1981 the DoI is required to "consult" BT on the issuing of licences. BT thus enjoys a statutory right to discover the technical and commercial features of equipment and services to be offered for sale by its competitors. The term 'consultation' leads to the inevitable suspicion among competitors that BT may delay, obfuscate, oppose their entry into the telecommunications market place, or introduce a "carbon copy" of the competing service.

Therefore it is recommended that a Telecommunications Regulatory Authority (TRA) be set up. Its main purposes would be:

1 To ensure equity in tariff structures in the early days of competition.

2 To be responsible for the issuing of licences.

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1 See section on Economies of Scale pp 15-16

Options for the Organisation of the TRA

The obvious place for the TRA would be within the Department of Industry where there already exists a structure which could be enhanced and developed to fulfil this role.

The disadvantage of this option are: firstly, the lack of experience most civil servants have of operating within a business-risk environment, and, secondly, their lack of technical expertise. Such a body would need continuity and a constantly developing core of knowledge, unlikely to be attained with the generally changing personnel of a civil service department. Moreover, it would be susceptible to the dangers involved in change of political control. Itmight also, for obvious historical reasons, be too dependent on BT. It would need members who could command respect from the industry, unlikely to be found within the DOI, although this could be overcome by the secondment of independent experts.

It is therefore recommended that the TRA is set up outside the Department of Industry. The advantages of such an Authority, similar to the Civil Aviation Authority (CAA), would be in its continuity and independence from government, and hence its subjection to minimal political interference. The Chairman and Board, appointed by the Secretary of State, would be people of reputation respected by both industry and the public. It would then be their duty to choose their own staff.

While such an independent Authority would have delegated powers there could be an Appeals system against its decisions to the Secretary of State, who would retain ultimate responsibility for the Authority. When there was intervention by the Secretary of State this would be plain for all to see, as it is in the case of the CAA. Moreover, such a body should, like the CAA and other similar existing Authorities, be subject to the normal OFT and MMC procedures (the CAA is to be investigated by the MMC in 1982). This would provide a double check, but again carefully thought out, so as not to hinder progress.

FUTURE OWNERSHIP AND FINANCING OF BT

It is essential that there is a national telecommunications service which is efficient and adequately financed. In the foreseeable future BT, in one form or another, will remain the principal provider of this service. Therefore the future financing and thus ownership of the company is fundamental to its success or failure.

It is therefore recommended that BT is sold as a single unit as soon as possible to the general public. It is recommended that at least 51% of the company's equity is offered, so that the Corporation is not merely privatised but denationalised, ie, does not retain any Treasury guarantee.

BT will then be in a position to attract private capital. Discussions with financial specialists suggest that this will not be difficult. Potential buyers will be provided with a clearer profile of the financial state of BT by the measures which the Corporation is taking to rectify the inadequacies in its own accounting procedures[1], this will enable each component part of the business to be identified.

It is argued that BT is too large to sell as a single unit. Seen in the context of the magnitude of the annual sale of gilts this is not so. It would in any case be quite possible to stagger the sale over two years. The sale will also require:

i) The capitalisation of BT's net assets. The present valuation procedures do not reflect an open market valuation of their worth.

ii) A definite decision on the appropriate regulatory environment[2].

In view of the recent experience with regard to the sale of shares in Cable & Wireless and Amersham International a tender sale may be preferable to a straight flotation .

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1 See pp 22-23

2 See pp 27-29

Attractive terms should be offered to BT staff to encourage them to take a stake in their own business. The sale will be in the best interests of the members of the POEU, putting them into a high-productivity, high-wage growth company, instead of one subject to all the constraints of nationalisation. Moreover such a company will be well placed to absorb the skilled workforce which the extension of technology, seen for example in the Government's 'Micros in Schools' scheme [1], should produce.

Other measures to promote the privatisation of BT could include:

1 The prior division of the Corporation into a number of Company Act companies with separately accounting local subsidiares. This would be the logical next step from the current arrangement for establishing area accountancy procedures within BT[2]. Management responsibilities would be better defined, profit centres diffused and progress easier to monitor. Professor Littlechild advocates[3], the division of BT into five subsidiaries: Terminal Equipment, Network Services, International Circuits, Domestic Network and Local Distribution. He believes that most of BT's business will soon be subject to competition: international circuits, the most important domestic circuits as well as VANS and terminal equipment. The deciding factors on how this could be achieved, he feels, are the extent of economies of interdependence between the various divisions of BT, the advantages of competition, the practical administrative hurdles of splitting up BT in a short space of time and the likely political response to such a move. As far as local networks are concerned, Professor Littlechild suggests that these could be divided into independent regions so that comparisons could be made. An example of an efficient local network already exists in the Kingston-on-Hull telephone service.

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1 Launched in June 1981, this scheme will put a computer into every maintained primary and secondary school.

2 See pp 22-23

3 S C Littlechild, "Ten Steps to Denationalisation" Journal of Economic Affairs, October 1981

GOVERNMENT POLICY TOWARDS TELECOMMUNICATIONS EQUIPMENT SUPPLIERS

The 1981 Act has partly liberalised the position of the telecommunications manufacture and supply industries. This section considers whether government has any role to play in the activities of these industries.

If no explicit policy is outlined, the Government will tacitly acknowledge an implicit policy so long as it retains a majority share in BT, through its acceptance of BT's tariff policy, investment criteria, financial targets and procurement policy etc.

The Government has set up the current BSI programme for equipment[1]. It is not really necessary for government to be involved in this procedure since the industry could operate a voluntary scheme in association with the BSI.

In 1979 the Supreme Court of the USA ruled against AT & T's 'Primary Instrument Concept'. The American experience of free competition between terminal equipment in the light of that decision, and the success of the FCC's equipment registration programme indicates that the present primary instrument policy laid down under the British Telecommunications Act 1981 may not be justified[2]. Mandatory requirements should be limited to safeguarding against first and third party harm.

In the UK, user safety (first party harm) falls within the scope of the Consumer Protection Act and the Health and Safety at Work Act and is also covered under British Standards 415, 58580 and 6204. The current programme of specifying British Standards for telecommunications equipment could be much simplified if it dealt only with the specific issue of network protection (ie, third party harm). BSI's two year programme could be considerably shortened, thereby saving time and money; necessary standards would be quickly available;

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1 See p 5

2 See p 17

It is not recommended that these industries receive different financial treatment from the government than any other industry.

Past UK experience suggests[1] that any financial attempt to bolster a specific industry rarely achieves its objective. The OECD study[2] comments "The (government) policies pursued in Western Europe have typically encouraged mergers and market-sharing agreements between domestic firms, making new entry difficult and, in some cases, retarding the adjustment to changing market trends".

What government can reasonably attempt to do is to remove obstacles which prevent the working of market forces[3]. Some of these have been discussed earlier[4], the most notable example being the present policy under which provision of the primary instrument remains the monopoly of BT. This guarantees BT 80% of the current market. Consequently the major British manufacturers are heavily dependent on the Corporation and are They are therefore naturally chary of upsetting the status quo[5].

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1 For example, in the steel industry. See E Cottrell The Giant with Feet of Clay CPS 1981 passim.

2 Information Activities, Electronics and Telecommunications Technologies, OECD Paris Vol 1, 1981 p121

3 The OECD study comments "overall (government) policies appear to have been most successful when strengthening market forces rather than attempting to supplant them" OECD ibid p 120

4 pp 13-17

5 The Times 19th April 1982
STC correspondence with CPS, 5th April 1982
Plessey correspondence with CPS, 4th March 1982

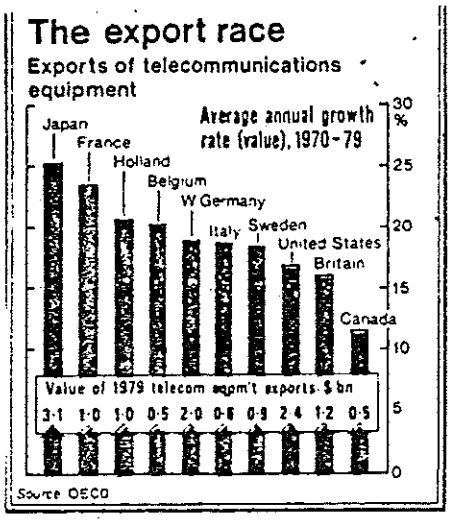
SPECIFIC RECOMMENDATIONS continued:

7 It is not recommended that the telecommunication industry receives different financial treatment from government than any other industry.

8 The Government should consider taking action to implement the Statement made by Kenneth Baker, the Minister for Information Technology, to Parliament on 30 July 1981; ie to allow the private sector complete freedom to use the British Telecom network to supply services to third parties, and to extend liberalisation to international services.

June 1982

Appendix 2 Telecommunications Exports/Imports Statistics



Source: The Economist, August 22 1981. Drawn from statistics published in Exports by Commodities, OECD, Paris.

United Kingdom

Telegraph and telephone apparatus and equipment

£m current price

1978		1979		1980	
Imports	Exports	Imports	Exports	Imports	Exports
53.7	98.3	61.1	110.9	70.1	96.4

Source: Business Monitor Quarterly Statistics, Government Statistical Service, HMSO.

Appendix 3b

Source: BT Report and Accounts 1980-81

1980-81 income was broken down as follows:

Rentals	
Business	210.7
Residence	651.0
Apparatus	426.6
	1288.3
Inland	
Customer calls	2079.3
Call office receipts	85.0
Private circuits	134.8
Telegrams	10.1
Telex	83.4
Agency and miscellaneous items	115.1
	2507.7
International	
Telephone service	554.4
Telegraph service	203.8
	758.2
GRAND TOTAL	4554.2

System X

System X is the BT specialised digital switching system, developed and manufactured in association with three rather uneasy partners - Plessey, GEC and STC. Its development has been subject to much delay, which is well outlined by Richard Pryke[1], who concludes that the late arrival of System X is due not to the inherent difficulty of introducing electronic switching, but to the way in which the Post Office "Frittered away the decade", following the introduction of AT and T's first electronic switching system in 1965.

Now, however, eight System X exchanges are being built. The new switching technology will overlay the existing network. BT plan to link 30 cities by 1985 - 2.25 million people - and the trunk network should be completely modernised by 1992.[2]

System X should bring a significant improvement in the speed and quality of BT's telephone service. But over half of its exchanges will have to be converted before the System's full potential is realised. When operational System X will allow the customer to take advantage of such new services as fast push-button dialling, itemised phone-bills, call warning and call holding[3]. The Telecommunications' Users' Association, however, advises that, "For planning purposes, for the next five to ten years, unless you are in an exceptional area, you can forget about System X".[4]

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1 R Pryke, The Nationalised Industries, Martin Robertson, 1981, pp 164 - 180.

2 See British Telecom Business Plan 1980-90, BT July 1980, p 11 and see figure 20 from that page reproduced on p 49.

3 See p 48 below for a complete list of System X facilities

4 Quoted in Telecommunications Survey, The Economist 22nd August 1981,p 10. Seealso, the Telecomms Users' Handbook pp 12 - 14

Sales in the UK domestic market, which is the fourth largest telephone network in the world, should help System X manufacturers to bring down production costs through economies of scale. Economies should also result from the current trend of transferring the computer 'intelligence' element to the terminal apparatus. The crucial question now concerning System X is how far production costs can be reduced in order to make it exportable. John Whyte, BT's Managing Director of Major Systems, concedes that System X was originally designed and developed without much thought of export potential[1]. Plessey claims that System X could be adapted for the world market, "...relatively cheaply and quickly"[2]. yet in the two and a half years since it was introduced at Geneva[3] System X has still to be sold to just one overseas customer[4].

The company set up in 1979 to promote System X abroad, British Telecommunications Systems (BTS), is criticised for poor marketing. But the company is handicapped by its confused structure and purpose: BTS promotes rather than sells, its role is to earmark one of the three System X manufacturers to bid for contracts in certain geographical areas. Inevitably there are problems trying to iron out agreements between the four partners each with a 25 per cent share in BTS - GEC, STC, Plessey and BT. BTS is currently focussing its efforts on trying to win the contract for the modernisation of India's telephone network. If this is not gained, major upheavals can be expected in BTS.

The introduction of System X in Britain poses an interesting question; digital transmission may be very useful butit is expensive to introduce - many customers may prefer their existing service to the prospect of higher rentals for System X services which they do not particularly want. Customers requiring sophisticated facilities could purchase apparatus with built-in computer 'intelligence', (as they do now), or subscribe to a competing network. But under the current centralised BT structure customers are unable to exercise a proper choice since the quality and expense of the telephone service is determined by BT.

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1 Reported in The Guardian 5th April 1982

2 Correspondance between D Pitcher, Managing Director, Plessey Telecommunications and CPS, dated 2nd March 1982

3 At the General Telecoms Exhibition 1979

4 Potential sales to China have just been reported. See The Times 19th April 1982

SYSTEM X FACILITIES

Exclusive lines
Two-party lines
PBX lines
Coinbox lines
Remote concentrators
Dial or MF push-button
Direct dialling PABX
PBX night service
PBX hunting
Unrestrictive PBX numbering
Direct in-dialling to PBXs
Abbreviated dialling
Three-way calling
Dialled conference
Pre-set conference
Add-on conference
Don't answer transfer
Busy line transfer
Conversation transfer
Service interception
Don't disturb
Subscriber-controlled call barring
Call waiting
Alternative routing
Completion of calls meeting busy
Completion of calls meeting congestion
CNI (Called number interception) division
Consultation hold
Local or remote line and trunk testing, manual or automatic
Automatic number identification
Automatic ring-back
Automatic wake-up call
Limited duration of calls
Control re-call
Call observation
Limited area access
International direct dialling
Wide area telephone service
Network-wide malicious call trace
Network wide Freefone
Disabled subscribers
Preference working
Immediate ringing
Trunk offering
Calling or called-party release
Non-consecutive numbering of PBX groups with sequential or random selection
CCITT compatible high-level language man/machine communication for maintenance, operation and network management
Automatic fault indication with permanent record
Comprehensive statistical data read-out on demand
Bulk-billing or itemised billing
Local or centralised charging
Optional Administration Centre for network management
Interworking with all types of exchange and signalling systems including CCITT compatible common channel signalling

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