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A P P E N D I C E S

(Green Paper on the Development of the
Common Market for Telecommunications
services and equipment)

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CURRENT REGULATORY DEVELOPMENTS

A. Regulatory Developments inside the Community

This survey of regulatory trends in the Community was carried out during the first half of 1987 in conjunction with the Senior Officials Group on Telecommunications (SOG-T). The information was drawn from a range of sources available to the Commission, and was confirmed by the SOG-T. For easy reference, tables are reproduced from the Green Paper.

B. Regulatory Developments outside the Community :

- United States

- Japan

PRESENT TELECOMMUNICATIONS MARKET STRUCTURES IN THE EUROPEAN COMMUNITIES [1]

COUNTRIES	Belgium	Denmark	France	Germany	Greece	Ireland
1. Relations with postal services	S (1)	PTT (5)	PTT	PTT	S	S
2. Basic Service Network						
a) Local	GM (PC)	OM (5)	GM	GM	GM (PC)	GM (PC)
b) Long-distance	GM (PC)	OM	GM	GM	GM (PC)	GM (PC)
c) International	GM (PC)	GM	GM	GM	GM (PC)	GM (PC)
d) Mobile	GM (PC)	OM	GM (6)	GM	PL	GM (PC)
Terminal Equipment						
a) Supply :						
Main Telephone set	M	M	L	GM	M	M (21)
PBX	PL	M	L	L	L	L
Telex	PL (2)	M	L	RC (LIM)	L	L
Modem	PL (3)	PL	L	L (20)	L	L
Data Terminal	L	L	L	L	L	L
Mobile	M	L	L	L	PL	L
b) Maintenance :						
Main Telephone set	M	M	L	M	M	M (21)
PBX	PL	M	L	L	L	L
Telex	PL	M	L	M	M	L
Modem	PL	PL	L	L (20)	L	L
Data Terminal	L	L	L	L	L	L
Mobile	M	L	L	L	L	L
4. Use of leased circuits						
a) Domestic :						
Shared use/resale	N (4)	N	N (7)	Y (8a)	N	N (4)
Interconnection with public network	N	N	N (7)	Y (8b)	N	N (4)
b) International :						
Shared use/resale	N (4)	N (4)	N (4)	Y (8a)	N (4)	N (4)
Interconnection with public network	N (4)	N (4)	N (4)	Y (8c)	N (4)	N (4)

[1] SOURCES : Member States (SOG-T)
Abbreviations : see following page

PRESENT TELECOMMUNICATIONS MARKET STRUCTURES IN THE EUROPEAN COMMUNITIES [1]

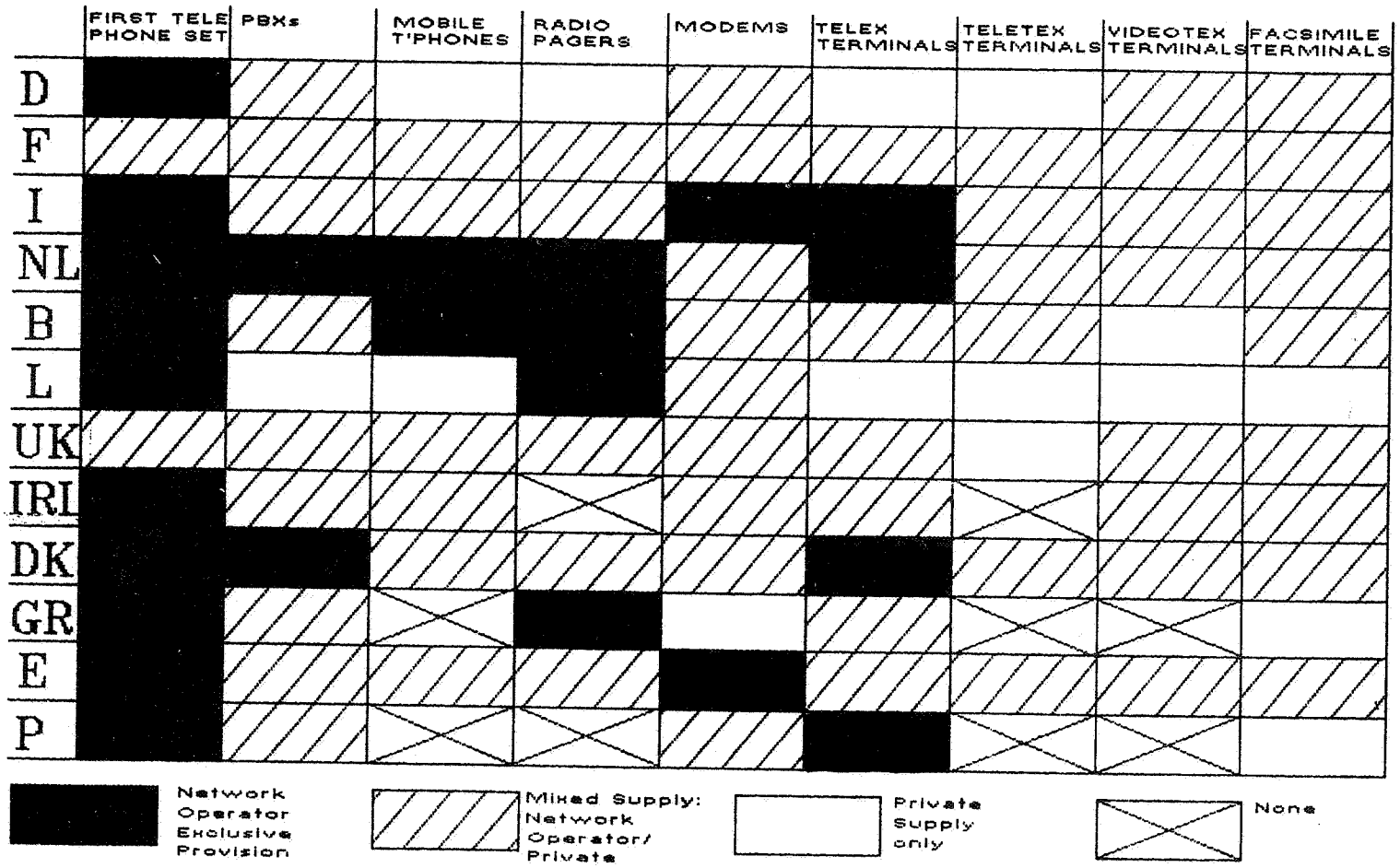
COUNTRIES	Italy	Luxembourg	The Netherlands	Portugal	Spain	United Kingdom
1. Relations with postal services	S/PTT (5)	PTT	PTT (10)	PTT (5)	S (16)	S
2. Basic Service Network						
a) Local	GM (PC)	GM	GM (11)	GM (PC)	OM (16)	RC (LIM)
b) Long-distance	GM (PC)	GM	GM (11)	GM (PC)	OM (16)	RC (LIM)
c) International	GM (PC)	GM	GM (11)	GM (PC + OM) (5)	OM (16)	RC (LIM)
d) Mobile	GM (PC)	GM	GM (11)	-	OM (16)	RC (LIM)
3. Terminal Equipment						
a) Supply :						
Main Telephone set	M	M	M (12)	M	M	L
PBX	L	L	M	L	RC (LIB) (19)	L
Telex	M (3)	L	M	M	L	L
Modem	M (3)	PL	L	PL	M	L
Data Terminal	L	L	L	L	L	L
Mobile	L	L	M (13)	-	L	L
b) Maintenance :						
Main Telephone set	M	M	M	M	M	L
PBX	L	L	M	L	L	L
Telex	M	L	M	M	L	L
Modem	M	PL	L	PL	M	L
Data Terminal	L	L	L	L	L	L
Mobile	L	L	M (13)	-	L	L
4. Use of leased circuits						
a) Domestic :						
Shared use/resale	N (9)	N	N (14)	N (15)	N	Y (17)
Interconnection with public network	N (9)		N (14)	N (15)	N	Y (17)
b) International :						
Shared use/resale	N	N (4)	N (4)	N (4)	N (4)	Y (18)
Interconnection with public network	N	N (4)	N (4)	N (4)	N (4)	Y (18)

[1] SOURCES : Member States (SOG-T)

Figure 2.

Survey of Terminal Equipment Regulatory Supply Conditions

Updated 16:00, 23 /4/87



NOTE:a table of this kind is inevitably a simplification; it describes the dominant features of the regulatory situation in each country for public network terminating equipment

LEGEND :

PTT	Posts and telecommunications services provided by the same organisation	OM	Monopoly of other types (private entity, etc).
S	Separate organisation	RC (LIM)	Regulated competition with limited entry
M	Monopoly	RC (LIB)	Regulated competition with liberalised entry
PL	Partly liberalised (some types liberalised, others not)	FC (LIB)	Free competition with liberalised entry
L	Liberalised	Y	Generally permitted
GM	Government monopoly (government agency)	N	Generally prohibited
GM (PC)	Government monopoly (public corporation)		

NOTES

(1) RTT and Régie des Postes depend on the same PTT Minister
(2) First telex terminal under monopoly, progressive liberalisation announced.
(3) On request by the CEC, progressive liberalisation announced.
(4) Subject to exceptions.
(5) Telecommunications service providers exist in addition to PTT, on a monopolistic basis (concessionary basis, regional monopoly, etc).
(6) Licensing of additional providers to be announced.
(7) Steps regarding licensing of private providers of Value-Added Services announced.
(8a) Shared use permitted, resale prohibited.
(8b) Voice-band circuits : as far as technically possible, but at one end only (TKO, July 1986).
(8c) International fixed connections without restrictions ; "flat-rate" circuits with restrictions.
(9) New legislation on VANS is being discussed in Parliament.
(10) A larger degree of separation between postal and telecommunication organisations within PTT has been announced for 1989.
(11) PTT to be converted to limited liability company in 1989.
(12) Government has decided to liberalise all terminal equipment as of January 1989.
(13) Cordless telephone / car telephone / public pagers under monopoly ; closed mobile systems, radio telephones on ships, etc...liberalised.
(14) Usage for VANS to be liberalised.
(15) Currently under consideration in commissions.
(16) Telex, telegram, public facsimile (Burofax), etc...are provided by the PTT.
(17) Pure resale prohibited until at least 1989.
(18) As (17), subject to additional restrictions.
(19) Digital PBX's are supplied under monopoly.
(20) Complete liberalisation has now been implemented after agreement with the European Commission on July 30th 1986 and will take place after conversion of CCITT Recommendations into specifications and definition of testing procedures.
(21) T.E. does not hold a monopoly, but is at present exclusively licensed by the Ministry.

REGULATORY DEVELOPMENTS IN BELGIUM

I. REGULATORY BODY

Ministry of Post and Communications ("Ministère des Communications et des PTT").

II. TELECOMMUNICATIONS OPERATOR

Régie des Télégraphes et des Téléphones (RTT) (public corporation)

III THE CURRENT SITUATION WITH REGARD TO SERVICES AND EQUIPMENT

Major services operated by the RTT are the following :

VOICE : Public Switched Telephone Network (PSTN)
Mobile Radio Service (Mobilophone). RTT is due to introduce a cellular system in 1987 (NMT 450 MHz / BENELUX)
Radiopaging (Sémaphone)

DATA : Non-switched leased lines
Datel Services over PSTN
Packet switched network (DCS)

TEXT : Telex network
A Teletex network is due to begin in May 1987
Electronic mail (DCS Mail)
Facsimile

VIDEO : A trial videoconference system is run between Brussels and Luxembourg in conjunction with the EC. In addition, RTT is due to set up a public videoconferencing studio during 1987

VIDEOTEX : A public videotex service, based on the Prestel standard, opened in 1985, which now has some 1000 subscribers

There has been a certain amount of relaxation in recent years over equipment provision, notably in the area of telephone sets. RTT's monopoly here was relaxed in 1985, so that there is now only a monopoly on the first telephone set. Further sets can be bought privately or from the RTT.

Certain other areas of equipment supply are also outside the monopoly, such as PABXs with more than ten extensions or more than two exchange lines, modems above 2400 bit/s, teletex/videotex and facsimile terminals. The RTT is currently having discussions with the European Community with regard to further relaxation of the monopolies on telex and modem equipment. At the time of writing the position was that the RTT has agreed to extending monopoly relaxation to modems below 2400 bit/s, and to the first telex terminal, within the next three years.

All equipment connected to any RTT network must first be approved, approval procedures being carried out by RTT itself.

IV. CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

Telecommunications services are provided by the Régie des Télégraphes et des Téléphones (RTT) under two laws dating from 1930 [Loi du 19 juillet 1930 et Loi du 13 octobre 1930]. These laws, which confer a monopoly to operate telephone and telegraph services, form the legal basis of the operation of telecommunications services in Belgium. RTT's interpretation of this monopoly extends to the supply of a range of customer premises equipment. Telecommunications operations are characterised both by the RTT's broad interpretation of its monopoly, and by the legal constraints placed on the RTT through its statute, with regard to the management of its employees and the financing of its investments.

Regulatory control is not separate from telecommunications operation. The General Administrator of the RTT reports to the Secretary of State in the Ministry of Posts and Communications. Regulatory authority ultimately lies with the Ministry, but regulation of the network, frequency setting, type approval, standards and other regulatory activities are carried out by the RTT itself.

Use of leased lines for the exchange of messages is currently not allowed unless the users concerned belong to the same company or group of companies (with the exception of specific services provided by organisations such as SITA, SWIFT, GEISCO, IBM and Reuters). The longest-established of these networks (SITA) will soon be subject to usage-sensitive tariffs, information on usage being obtained primarily from the users. The other networks (SWIFT, Reuters, etc.) are currently subject to usage-sensitive tariffs.

The PTT has up until now been an organisation with wide-ranging monopoly powers run under close governmental supervision. However, it seems now to be widely recognised in Belgium that one of the effects of the tight controls on the RTT has been to restrict its ability to react to rapid technological developments.

It was for this reason that a special commission (the so-called "four wise men" commission, "Commission des Sages") was appointed to look into the possibility of transforming the RTT into an entity with a much greater degree of autonomy. The Commission reported at end of October 1986 [Rapport de la Commission chargée d'examiner la possibilité de doter la Régie des Télégraphes et des Téléphones d'une plus grande autonomie et créée par Madame P. D'Hondt-Van Opdenbosch, Secrétaire d'Etat aux Postes, Télégraphes et Téléphones, 28th October 1986].

The main findings of the Commission, with regard to the regulatory environment, are set out below.

Public network

The Commission's report takes the position that the basic infrastructure should remain under monopoly control, on the grounds that only a monopoly can ensure that the network is run efficiently and economically while at the same time achieving the necessary economies of scale. The monopoly would extend to, and include, the subscriber's access point.

The operation of the public infrastructure, as well as the infrastructure itself, would also remain under monopoly control, including telephone, telex and data transmission.

Terminals

Beyond the access point the Commission recommends that all terminal equipment, including modems, be subject to open competition. It forsees complete liberalisation of the Belgian terminal market over a period of three to five years.

It is foreseen by the Commission, however, that the RTT will be able to continue to offer all types of equipment for sale or rental in this sector. Prevention of cross subsidy would be achieved through the control of a 'Comité de Surveillance', through the creation of separate profit centres, and by setting up subsidiaries ('filiales').

Private networks

The Commission's report argues that the necessity of providing circuits on a universal basis (i.e., to all those who request them) means that the consequently heavy investment in the infrastructure must be recovered through means such as the payment of rental charges which are more closely related to the cost of provision and, in certain circumstances, usage-linked tariffs.

The Commission recommends that flat-rate fixed rental charges are applicable if a circuit is being used exclusively by the subscriber. However, the Commission recommends that it would be advisable to charge usage-based tariffs in return for authorising, for example, shared usage of circuits by third parties or use of the circuit to offer special services. This, it is argued, would prevent simple resale of capacity, while at the same time encouraging the development of "value-added" services. The report argues that unless such special tariffs are charged by RTT then parallel networks offering specific services at marginal cost will develop which would take away traffic which would otherwise be carried on the public network.

Proposed new structure of RTT

The Commission recommended that the RTT should, following a preliminary phase, be transformed into a public limited company (Societé Anonyme d'Intérêt Public) with the status of a semi-governmental body (sui generis). It is envisaged that a single ministry will take responsibility for telecommunications services, although this ministry is not named.

In the interim phase, pending the creation of a limited company, a consultative committee (Conseil Superieur Consultatif) would be set up.

Standards : A body charged with the responsability for standardisation and equipment authorisation (Service pour la Normalisation et les Autorisations en matière des télécommunications - NAT) would be set up. This body, which would be autonomous although located within one of the ministries, would take over the standardisation and type-approval tasks currently carried out by the RTT.

Procurement : The RTT would in future have to be able to work out its investment programme autonomously, although in view of the strong impact of PTT purchasing on the Belgian economy this would have to be carried out within the framework of the government's overall industrial policy. It is recommended by the Commission that the RTT should be guided by the government as regards purchases in the area of the basic infrastructure, and by market forces in the area of terminals.

Regulatory control : A Government Commissioner would be responsible for exercising control over aspects of law, regulation and public interest.

As a consequence of the current discussions on regulatory issues and the future RTT investment programme concerning in particular network equipment ("Contrat du siècle"), it is likely that there will be changes in Belgium with regard to relations between the PTT and the government, PTT procurement and the rules pertaining to the provision of equipment and services.

REGULATORY DEVELOPMENTS IN DENMARK

I. REGULATORY BODY

Ministry of Public Works

II. TELECOMMUNICATIONS OPERATOR

The General Directorate of P&T executes the functions of the Ministry on a delegated basis in the Posts and Telecommunications Sector.

The regional concessionary enterprises, Copenhagen Telephone Company, Jutland Telephone Company, Funen Telephone Company and state enterprise South Jutland Telecom, are in charge of all regional telecommunications activities, including customer contact, each within its own geographical area.

Another state enterprise, Telecom Denmark, is responsible for international and nationwide telecommunications between the regional companies.

Operator	% installed telephones
Copenhagen Telephone Company (KTAS) 50% state-owned	49
Jutland Telephone Company (JTAS) 50 % state-owned	39
Funen Municipal Telephone Company (FKT) Co-operative owned by local authorities	8
South Jutland Telecom State enterprise (Part of P&T)	4
	100

Telecom Denmark	(Part of the PTT responsible for international services plus the cables and radio relay links connecting the above companies)

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

Major services currently operated are as follows :

VOICE :	Public Switched Telephone Network (PSTN) Mobile radio : the Nordic Mobile Telephone Service, NMT, (450 and 900 MHz automatic cellular service). Radio paging service (OPS) (non-voice)
TEXT :	Telex network Facsimile (Telefax) Teletex service (2400 bit/s) Electronic mail service introduced in 1984
DATA :	Circuit Switched Public Data Network (Datex) Packet Switched Public Data Network (Datapak) Datel services over the PSTN and leased circuits Videotex : Teledata, based on the Prestel standard.
VIDEO :	Videoconferencing facilities are being operated and there are now 4 studios. Cable TV : 8000 local or municipal cable owners (MATV). The P&T and the concessionary companies provide a national infrastructure (Hybrid network).

Regarding "value-added" services, private operators may freely offer such services in the case of general (two-party) traffic, e.g. in connection with data processing bureau activities. If "value-added" services involve the transmission of third party traffic, private operators may offer such services provided the transmission takes place by means of the public switched networks. However, it is a condition that a licence should have been obtained. So far, licences have been issued to a number of firms transmitting telex messages for third parties. Regarding the use of leased circuits, these may not be used for the transmission of third party traffic. However, a licence permitting such transmission may be granted subject to specific stipulated terms and provided that certain conditions are met. Thus, licences to transmit third party traffic by means of leased circuits have been issued to, e.g., SWIFT, SITA and 13 Danish firms.

In general, the P&T and the concessionary companies have had a monopoly on the supply of main items of customer premises equipment in each of their own areas (i.e., without competing with each other). The P&T and the concessionaries, however, have relinquished their control of the market in recent years and now only retain the right to supply telephone sets, telex terminals, modems above 1200 bit/s and PABXs. These monopolies, too, are due to be relaxed within a few years.

Equipment approval is carried out by the Telecom Inspectorate (P&T State Enterprise).

The P&T and the concessionary companies either issue international calls for tender, using a qualified bidders list, or deal directly with a particular supplier. All carriers purchase equipment from foreign as well as domestic suppliers.

IV. CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

The statutory basis for public activities in the field of telecommunications is found in the Act on Telegraphs and Telephones and in acts known as the Concessionary Acts. The basic principle is that the State has a monopoly of public telecommunications; and that the Minister of Public Works may grant concessions to others for the operation of various telecommunications services. Accordingly, concessions have been granted to three telephone companies : the Copenhagen Telephone Company (KTAS), the Funen Telephone Company (Fyns Telefon), and the Jutland Telephone Company (Jydsk Telefon).

KTAS and the Jutland Telephone Company are organised as limited liability companies in which the State holds a controlling interest. The Funen Telephone Company is a municipal company run on a co-operative basis.

Under their concessions, the concessionary telephone companies have a monopoly of operating local telephone services within their respective geographical areas. Local telephone services in the geographical areas for which no concessions have been granted are handled by the State, represented by the Post and Telegraph Office (P&T), which is also in charge of a number of other tasks in the telecommunications sector.

In the field of radio, activities are regulated by the Act on Radio Communications; the basic principle of the act is that the establishment and operation of equipment for radio communication in Danish territory is only permitted under a licence from the Minister of Public Works.

At the beginning of 1986 the Danish Government decided to change the organisation of the telecommunications sector and reassign the tasks it carries out. The principal aim of these changes is to improve customer service and to simplify the structure of telecommunications services in Denmark.

The reassignment means that a number of tasks, as well as plant and equipment, have been transferred from P&T to the three concessionary telephone companies. This applies to the majority of customer-related activities and the responsibility for most inland telecommunications services. The parts of the telecommunications network which are associated with the regional networks of the telephone companies have also been transferred.

The transfer was carried out with effect from 1 January 1987.

On 1 June 1986 an internal reorganisation took place within P&T's telecommunications branch. The telecommunications departments of the General Directorate have now been restructured, and three new State enterprises have been set up: The Telecom Inspectorate, South Jutland Telecom, and Telecom Denmark. According to the General Directorate of P&T, this new organisation means that regulatory tasks and the remaining State-run activities concerning construction and operation within the telecommunications branch have been separated.

Apart from liberalisation of certain types of terminal equipment the Danish monopoly of telecommunications has remained unchanged.

Denmark is preparing a liberalisation of all terminal equipment located at the subscribers premises within a few years in accordance with the plans adopted in the EEC. Today telephone sets, telex terminals, modems with data signalling rates above 1200 b/s and PABXs are the only terminals under the monopoly. A more neutral type approval body has been established.

REGULATORY DEVELOPMENTS IN FRANCE

I. REGULATORY BODY

Ministry of Posts and Telecommunications (Ministère des Postes et Télécommunications).

Under the law of 30 September 1986, part of the regulatory function (including responsibility for frequency allocation for private uses and broadcasting) has recently been transferred to a new, independent Commission Nationale de la Communication et des Libertés (CNCL). This transfer is to be completed by 31th December 1987.
[Loi no 86-1067 du 30 septembre 1986 relative à la liberté de communication, Journal Officiel de la République Française, 1st October 1986].

II. TELECOMMUNICATIONS OPERATOR

The French PTT is a state organisation responsible to the PTT minister. The "Administration des Postes et Télécommunications" comprises two directorates, one for posts and the other - "Direction Générale des Télécommunications (DGT)" - for telecommunications.

DGT has two principal areas of responsibility :

- network and services provision for the whole of the country ;
- entrepreneurial activities, such as provision of customer premises equipment and advanced services.

[see Code des Postes et des Télécommunications]

The "Télédiffusion de France" (TDF) operates a specialised network for broadcasting and television purposes.

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

The French organisation in the field of telecommunications is characterised by a situation involving both monopoly and liberalism. Legally, the law has not explicitly instituted a monopoly of telecommunications but a "régime d'autorisation". It is under this law that France has had a relatively liberal policy in the field of terminals and PABXs.

DGT and its subsidiaries have a general monopoly of network infrastructure and basic telecommunications services. Current exceptions fall into two categories :

- closed value added network services (eg, SWIFT and SITA) ;
- utilities' communications networks (eg, SNCF and EDF).

See also TDF (above) and current regulatory trends (below).

The DGT currently supplies the following services under monopoly : telephone, telex, telegraphy and mobile telephony (currently being changed, see below). Other, typically more recent services are supplied under monopoly by wholly or partly owned subsidiaries of DGT.

Under the Law on Audio-Visual Communication [Loi du 29 juillet 1982 sur la communication audio-visuelle], certain information and transaction services are open to competition. These include electronic mail and the switching of messages associated with transnational services.

France has the most digitised telephone network in the world (56% of trunk transmission and more than 50% of subscribers' switching). It also has by far the largest videotex service (Télétel/Minitel) in the world, supporting many national information and transaction services. In February 1987 there were over 2.4 million terminals, 4,000 private Télétel servers, with over 4 million hours of connection time.

On 28th January 1987, it was announced that an analogue cellular mobile telephony network is to be introduced. This is to be supplied privately, additional to the DGT Radiocom 2000 service.

Major services currently provided by the DGT and its subsidiaries :

VOICE : Public Switched Telephone Network
Analogue mobile telephony (Radiocom 2000)
Videoconferencing (Visioconference)
ISDN (RNIS - Renan 1987/1988 trial)

DATA : Non switched analogue and digital leased lines
PSTN (data over the switched telephone network)
Transcom - 64 Kbit/s
Packet Switched Data Network (Transpac)
CSDN (Transdyn - digital satellite circuits with assignment on demand and variable bit-rate)
ISDN (trial, see above)

TEXT : Telex
Teletex
Facsimile
Mailbox (Missive)
Videotex (Télétel/Minitel via PSTN and Transpac)
ISDN (trial, see above)

Both DGT and private companies supply most kinds of terminal equipment, subject to the following exception : DGT does not supply large PABXs at all. Supply of the first telephone handset was liberalised in 1986.

Most type approval work is conducted within the DGT.

IV. CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

Proposals for a new telecommunications law are to be submitted to parliament before the end of 1987. This law is to redefine the service boundaries between the state and private sectors, and between the monopolistic and competitive sectors.

The shape of this new law is currently being determined in the course of a national debate in France. A special commission (mission à la réglementation) has been established by the Ministry of Post and Telecommunications to draft the new law.

In the meantime, the Law of September 1986 [loi liberté de communication, op.cit] has established the framework and set the trend towards a more competitive environment both of the television and the telecommunications sectors.

According to early statements, the newly established Commission Nationale de la Communication et des Libertés [Décret no 86-1220 du 1er décembre 1986 relatif à l'organisation et au fonctionnement de la Commission Nationale de la Communication et des Libertés, Journal Officiel de la République Française, 2nd December 1986] will favour competition and relaxation of regulatory controls.

According to a number of public statements, the Ministry of Post and Telecommunications is in favour of a step-by-step introduction of competition, to allow DGT time to prepare to operate in a competitive environment. Specifically, the Ministry seems to believe that DGT needs to :

- acquire sufficient experience of operating in competitive markets ;
- develop an appropriate tariff structure;
- construct an appropriate financial relationship to government.

The Ministry envisages liberalisation in five areas :

- value-added services;
- local distribution of cable television;
- public telephone booths;
- teleports;
- mobile communications.

Liberalisation of terminal equipment supply is already well advanced (see above).

According to an announcement of 28th January 1987, a second provider is to be licenced in cellular mobile communications (see above).

According to an announcement of 10th March 1987, a competitive framework is to be introduced for value-added services. Value added services will be differentiated according to :

- small services, subject to simple registration procedure with the Ministry ;

- large services intended for a broad public, subject to a special licensing regime (special tariff system for leased lines ; compliance with international standards ; limitation of pure resale of transport capacity to 15%).

Details of this announcement are shortly to be specified by special regulations ("Décrets").

The DGT and French companies have taken action in the expectation of a liberalisation of the value added services market. For example :

- DGT : has set up COGECOM (Compagnie Générale des Communications) as a holding company for all DGT subsidiaries, such as France-Câbles-et-Radio, Société Transpac, Télésystèmes, etc ;

- Caisse des Dépôts et Consignation : has subsidiaries which supply videotex and databases to municipalities;

US firms such as IBM and AT&T are making great efforts to establish themselves in the French market-place at present. For example :

- IBM has set up a joint venture with Sema-Metra and Paribas to supply value-added services ;

- Bull and Geisco (a subsidiary of General Electric) are attempting to set up a similar venture ;

- AT&T has sought to acquire control of CGCT.

REGULATORY DEVELOPMENT IN GERMANY

I. REGULATORY BODY

The Federal Minister of Posts and Telecommunications, as the head of the Deutsche Bundespost (DBP), in co-operation with the Administrative Council of the DBP, has responsibility for regulation.

The Administrative Council of the DBP consists of members of Parliament (Bundestag and Bundesrat), of representatives of trade and industry and of the staff, and of communications and finance experts. Members of the Administrative Council are not bound by instructions.

II. TELECOMMUNICATIONS OPERATOR

Deutsche Bundespost (DBP).

In the Federal Republic of Germany, telecommunications is a Government responsibility according to the Basic Law. Both regulatory and operational tasks are fulfilled in a uniform way by the Federal Minister of Posts and Telecommunications and by the Bundespost, which he manages, taking into account the aims of government policy.

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

Major services available and networks used are as follow:

Service	Network
Telephone service	Public telephone network (PSTN) Mobile radio network (C 450 cellular radio)
Telegraph service Telex service Teletex service Telebox service (MHS)	)))IDN *)
Voice mail service Telefax service (facsimile)	))PSTN
Data Communication services Bildschirmtext (interactive videotex service) Temex (teleaction service)	IDN; PSTN PSTN, Datex-P PSTN, data networks
Radiopaging service (Eurosignal)	PSTN Radiopaging network
Videoconference service	Videoconferencing trial network
Leased circuit service (flat rate, usage-sensitive rate)	all international networks

*IDN = Integrated Text and Data Network
- Datex-P (packet switched data network - PSDN)
- Datex-L (circuit-switched data network - CSDN)
- HfD (public data network for fixed connections)
- telex network
- teletex network
- GENTEX network

The business policy of the DBP is characterised by the idea of open systems interconnection. The description of services is a necessary prerequisite for achieving the aim of secure, worldwide and unrestricted communications.

The DBP does not offer services of different categories. In compliance with its legal obligation, the DBP provides services in line with the technological development and market demand. Several of the services are comparable to the "value-added services" offered in other countries. The regulations of use allow applications and user data networks that are comparable to the provision of "value-added services" for third parties in other countries. For this purpose fixed and switched connections are used. According to recent (external) studies, some 700 private services are currently offered on the German market which are called "value-added services". These value-added services do not require licensing.

The DBP does not produce terminal equipment on its own. Most of the terminal equipment is either provided by the DBP in competition with private suppliers or the market is entirely left to private suppliers. The legal monopoly is only maintained for the first telephone set at the main station. The former partial monopoly for modems was abandoned in 1986 after the intervention of the Commission. The technical specifications for terminal equipment guarantee secure functioning and compatibility.

The standards for privately supplied terminals to be connected to the public networks are developed by the Telecommunication Engineering Centre (FTZ) of the DBP on the basis of international standards and finally set by the Ministry of Posts and Telecommunications.

Type-approval is the responsibility of a separate office (Central Approval Office for Telecommunications - ZZF) in Saarbrücken, which reports directly to the Ministry.

IV. THE CURRENT TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

The DBP is a Government administration headed by the Federal Minister of Posts and Telecommunications. It acts in line with government policy, irrespective of whether a service is provided under monopoly or in competition. It should be noted in particular that the DBP provides its services to everybody on equal terms. There are no regional differences in the supply of services.

Thus the DBP operates services both under monopoly and in competitive sectors and is also responsible for regulatory control. There is no separation between the three functions within the DBP. In the terminal sector, for example, the DBP acts as both a regulator and a participant in the market, in the case of the first telephone set as a monopoly supplier and in some cases as a competitor to private companies.

Unlike most European countries, post and telecommunications in the Federal Republic of Germany are Government responsibilities under the Constitution (Basic Law, Art. 73 and 87). According to the Basic Law, the Federation has exclusive power to legislate in telecommunications; it has to fulfil all major telecommunications tasks - providing the necessary infrastructure - through a Federal authority which has its own administrative substructure. In fulfilling these tasks, the Federation has to:

- guarantee the Basic Rights of privacy of posts and telecommunications, freedom to inform oneself and the prohibition of censorship (Basic Law, Art. 5 and 10);

- comply with the principles of administration based on the rule of law (inter alia equal treament, prohibition of discrimination).

According to the DBP and much legal opinion in Germany, this means that the Government must not withdraw from major fields of telecommunications and that its main responsibilities in telecommunications cannot be transferred to private companies. However, it is possible to legally allow private companies to assume telecommunications activities - and this has already been done, in some cases.

These principles have led to a number of laws and ordinances on which the functioning of telecommunications mainly depends. This has very important effects on the discussion about regulatory policy. The wording of the Basic Law seems to leave some scope that can be filled by legislation.

a) Rulings of the Federal Constitutional Court with regard to the Basic Law

The Federal Constitutional Court in Germany (BVerfG) has dealt with three telecommunications cases (First Broadcasting Judgement, decision of the BVerfG on the Postal Administration Law, decision on direct calls). The main conclusions are:

- The Federation has reserved for itself the right to regulate telecommunications, and considers this one of its direct tasks; this certainly includes the regulation of telecommunications installations;

- The Constitution grants the right to hold a monopoly in the service sector also, but does not prevent the monopoly from being relaxed in some fields;

- The BVerfG has not decided so far whether or not it would comply with the Constitution if the DBP manufactured equipment.

b) The Telecommunication Installations Act (Fernmeldeanlagengesetz (FAG), in the version published on 17 March 1977)

The regulations concerning the legal basis of telecommunications have been effective since 1928 without any changes. They grant the DBP the full legal monopoly to set up and operate telecommunications installations. This aims to enable the DBP to provide the public with a nationwide and well-functioning telecommunications network. However, the Act also allows for the possibility of permitting private companies to set up and operate telecommunications installations, thus opening up some sectors of telecommunications to others. As a result, the Federal Minister of Posts and Telecommunications can decide whether certain services

- should be operated under a full monopoly;

- - should be open to other parties in competition with the Deutsche Bundespost;

- should be open to other parties without the participation of the Bundespost.

c) The Postal Administration Law (Postverwaltungsgesetz, 23 July 1953)

This law forms the basis of the Bundespost's organisation; it stipulates inter alia:

- Posts and telecommunications have to be operated together;

- The budget of the DBP is separated from the Federal Budget;

- The global costs of the Bundespost have to be covered by its consolidated earnings. This involves a global cost-recovery principle which requires that deficit services are subsidised by profitable services, not only within telecommunications but also between telecommunications services and postal services;

- The DBP is exempted from taxation. However, the DBP currently has to pay 10% of its total turnover to the Federal Budget, regardless of whether services are offered under monopoly or in competition with other bodies and regardless of whether the services are profitable or not. In total, the levy is approximately equal to the tax burden of companies.

- As a member of the Federal Government, the Federal Minister of Posts and Telecommunications is accountable to Parliament. He is entitled to lay down postal and telecommunications regulations within the legally defined framework. These consist, in particular, of the Government orders concerning the use of services and tariffs. Such orders are subject to the approval of the Administrative Councils of the DBP. The vote of the Administrative Council can be overruled by the Federal Government. The Federal Minister of Posts and Telecommunications always issues orders in consultation with other members of the Federal Government, particularly with the Federal Minister of Economics.

In practice, a complex system of "Benutzungsverordnungen" (regulations of use) has evolved over the years. In 1986, these regulations were combined in one order concerning the regulations of use, the Telecommunications Regulations (Telekommunikationsordnung - TKO). The TKO was adopted in July 1986 and is to become effective in January 1988.

Regarding future trends, the most important question is that of changing both the legal framework and the practical situation, for the following reasons:

- the erosion of the boundary lines between telecommunications, EDP, office equipment and the information industry make it necessary to define much more precisely the role and responsibility of the DBP and private terminal and service providers ;

- the on-going discussion in Germany on the role of the DBP, and particularly on the extent to which the DBP should modify its regulations and increase activities in new competitive markets ;

- developments in other countries and the activities of the EC Commission have an impact on the German situation.

The problem of the DBP being both a regulator and a competitor is at the core of the re-regulation discussion in Germany. As a partial response, the DBP transferred the type approval procedure to a separate organisation [ZZF, vide supra.] in 1982.

According to the DBP, the TKO [vide supra], which is to be implemented in 1988, is to develop a single, integrated regulatory scheme in preparation for an ISDN environment, and to ensure the unrestricted use of the network.

A major aspect of the discussion with regard to the conditions of use of the networks is the question of unrestricted use and of what services can be offered in Germany, as well as of the conditions on which they are to be made available. The DBP has argued that a static separation of services is not possible; it is therefore not aimed at.

According to the current DBP position a precondition for unrestricted use of the networks on the basis of continuing "universal service" obligations therefore is the harmonisation of the tariffs for fixed and switched connections. One possibility for achieving this is "usage sensitive" tariffing for fixed connections and national leased lines. This mode of tariffing has been applied since 1986 for international fixed connections and will be gradually introduced for national fixed connections and national leased lines.

The Federal Government has set up a "Government Commission for Telecommunications" ("Regierungskommission Fernmeldewesen") which is to make proposals regarding the future regulation and organisational structure of telecommunications in Germany. The Commission is due to report in August 1987.

REGULATORY DEVELOPMENTS IN GREECE

I. REGULATORY BODY

Ministry of Transport and Communications

II. TELECOMMUNICATIONS OPERATOR

Hellenic Telecommunications Organisation SA (OTE). Publicly owned but financially autonomous [OTE Statute].

Telecommunications services are provided by the Hellenic Telecommunications Organisation (OTE) which is a government owned corporation operating as a public utility and which is, according to its statute, administratively and financially autonomous. It reports primarily to the Ministry of Transport and Communications. OTE has a monopoly in the provision of networks for telecommunications and broadcasting.

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

Major services currently provided by OTE are as follows :

VOICE : Public switched telephone network
Radio paging (in operation in several urban centres).

DATA : Non switched leased lines
International packet-switched service (Helpak)
(A national packet switched network, Hellaspac, is to be developed)

TEXT : Telex network
Facsimile (Telefax)

"Value Added Services"

Private networks currently are restricted to a single form of transmission, so that the same line cannot be used for transmitting both voice and data.

Regarding terminal equipment, there is a monopoly on the supply of the first telephone set and radio-pagers, but for all other equipment there is an open market.

Type approval of equipment is carried out by OTE's research department, which is officially empowered to approve equipment.

IV. THE CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

Regulatory control of the telecommunications sector in Greece is dispersed among several organisations. The undersecretary of the Ministry of Transport and Communications exercises regulatory authority over the investments, staffing, operations and tariffs of OTE. OTE has to submit its investment plans and any proposed changes in tariffs for services for approval by the Ministry. The Ministry is also responsible for frequency allocation, using expertise from OTE.

The Ministry of National Economy also has a role to play in overseeing the telecommunications sector in that, in common with other public sector organisations, OTE has to submit its investment plans for final approval by this Ministry. The OTE's capital investment must not exceed an amount which is fixed by the government.

Purchasing plans are examined by the Ministry of Industry, Energy and Technology, which controls purchasing for the whole of the public sector, which then refers the matter to the Ministry of National Economy for authorisation for the transfer of funds.

The main focus for Greek telecommunications currently is on improving existing infrastructure. Each year the OTE invests some 20-25 bn drachma of which over 90 per cent is absorbed by telephone services, owing to the need to satisfy the outstanding telephone demand. Thus OTE is not yet able to put any great resources into either digitisation of the network or the development of new services. These problems will be addressed to some extent by the programme STAR, involving co-financing by the Community.

REGULATORY DEVELOPMENTS IN IRELAND

I. REGULATORY BODY

Department of Communications

II. TELECOMMUNICATIONS OPERATOR

Telecom Eireann (state-owned company)

[Postal and Telecommunications Services Act, 1983].

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

Major services operated are the following :

VOICE : PSTN
Mobile Radio (Eircell)
Radio pagers (this service is currenlty offered in major urban areas by private companies, but TE will in future compete with a service called Eirpage, providing wider coverage)

TEXT : Telex
Facsimile
Mailbox (Eirmail, based on the UK's Telecom Gold System)

DATA : Packet switched (Eirpac)
Leased Circuits

VIDEOTEX : Specialised videotex services are provided by a number of companies. Telecom Eireann is not directly involved in these but provides videotex access service for videotex users.

With the formation of Telecom Eireann the monopoly on the supply of customer equipment was officially lifted, and the changes were gradually implemented. Thus, with the exception of the first telephone set for the time being, all terminal equipment can be obtained both from TE (through its subsidiary, Telecom Eireann Information Services) as well as from private suppliers. TE is not involved in equipment manufacture.

With regard to TE purchasing policy, large tenders are issued internationally.

Equipment approval is carried out by the Department of Communications. In addition to approval of equipment for connection to the network, a licence for the supply and maintenance of equipment is also needed.

IV. CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

Since the Postal and Telecommunications Services Act of 1983 there have been considerable improvements in communications services in Ireland, as well as major changes in the organisation providing services.

Until 1984 telecommunications services were administered by the Department of Posts and Telegraphs. Following the Irish Postal and Telecommunications Services Act, which came into force at the end of 1983, Telecom Eireann (TE), a state-owned company, was set up. It is this Act which forms the legal basis for the framework of the telecommunications sector in Ireland. The Act stipulates that the company has the privilege of the provision of telecommunications services within the state, with a monopoly which extends to the connecting point in the subscriber's premises. A separate body (An Post) deals with postal services.

Regulatory control is not wholly separated from TE. Regulatory authority lies, ultimately, with the Department of Communications. However, TE is closely involved with certain aspects of regulation. For example, the Act stipulates that TE may grant a licence to a third party to provide a telecommunications service. (In the case of a refusal by TE to grant such a service, the applicant may appeal to the Minister of the Department of Communications.)

The Eurokom (electronic conferencing) service operated by University College Dublin is an example of such a telecommunications service.

Frequency allocation and type approval are carried out by the Department of Communications, Telecom Eireann and the national electrical test house of the Institute of Industrial Research and Standards (a state-owned body), act on an agency basis, on behalf of the Department of Communications to test equipment for approval purposes.

TE, although wholly owned by the state, is run independently and receives no government subsidy. It raises money from non-governmental sources, through a separate subsidiary (state-owned) investment company (Irish Telecommunications Investment - ITI) which was set up in 1981, although the amount of money which can be raised is restricted by the overall public sector borrowing requirement limits.

With regard to the conditions of use of the network, there is the possibility of granting licences to organisations wishing to provide a telecommunications service. In general, resale of capacity on leased circuits, or their interconnection with the public network, is not allowed, but decisions in this area are made on a case-by-case basis (see above).

The supply of customer premises equipment has gradually been deregulated since this reorganisation took place, and a certain amount of rebalancing of local and long distance tariffs is foreseen in the future. Beyond this, however, no further changes are envisaged at present.

REGULATORY DEVELOPMENTS IN ITALY

I. REGULATORY BODY

The Ministry of Posts and Telecommunications is the legal regulatory body.

II. TELECOMMUNICATIONS OPERATOR(S)

Italian telecommunications are controlled exclusively by the state, which can operate them directly or grant them to concessionary companies.

[Codice postale e delle telecommunicazioni].

The organisation of service provision is at present complex. Services are provided primarily by state organisations in the Ministry of Posts and Telecommunications and by subsidiaries of the state-owned IRI/STET holding company. The three subsidiaries are SIP, ITALCABLE and TELESPAZIO.

Together these constitute the public operating companies.

A bill on the institutional reorganisation of the sector has been proposed by the Minister of Posts and Telecommunications. Its main points are as follows :

1. Telecommunications to be operated by companies of the IRI/STET state holding group ;

2. The Ministry of Posts and Telecommunications to become the "planning and control body" for the whole sector.

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

Major services currently provided by the public operating companies are as follows :

VOICE : Public Switched Telephone Network
Mobile telephony (RADIO MOBILE)
Radio Paging (TELEDRIN)

DATA : Leased Lines
PSTN (data over the switched telephone network)
Circuit Switched Data Network (RFD-RTD)
Packet Switched Data Network (ITAPAC)

TEXT : Telex
Teletex
Videotex (VIDEOTEL)
Facsimile
Message switching (International Information Service IRICON)

At present, there is a monopoly in the supply of the first telephone set, modems and telex terminals.

IV. CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

At present in Italy there is intense debate on liberalisation issues.

The telecommunications monopoly is seen as responsible for delays in the fulfilment of users' needs and for acting as a brake on technological development.

On the other hand, it is recognised that a monopoly affords certain advantages : overall savings for the telecommunications system, accessibility to all users over the whole country, and the avoidance of replication and multiplication of networks.

The tendency is to reconcile these points by confirming the monopoly on the network, basic services, including bearer capabilities, while liberalising value-added services and terminals.

Main trends of current discussion seem to be :

1. Public networks

   A policy is envisaged favouring, in the short term, the introduction and growth of public specialised networks, and, in the medium term, development towards ISDN ;

2. Dedicated systems (private networks for exclusive use)

   It is permitted at present to establish dedicated systems through leased circuits. It is likely that technological development will lead to a large rise in the number of dedicated networks.

   At present these networks are subject to the following restrictions :

   - they can only be used within the same company : single-user network (one legal entity) ;
   - the switching node remains the property of the public operator ;
   - interconnection with the public network is prohibited ;
   - services may not be provided for third parties.

   A bill on "control of telematic services" [Proposta di Legge la Penna, Picano ed altri : "Disciplina dei servizi di telematica", 7th November 1986] is under discussion in Parliament. The contents of this bill are :

   a. permission of multi-user single-application value-added networks, with private switching ;
   b. permission of interconnection of private and public networks ;
   c. permission of provision of value-added services to third parties ;
   d. continued prohibition of provision of bearer capacity to third parties.

3. Services

Under the new bill [id.], all basic services (telephone, telex, and telegraphy) as well as the new internationally defined tele-services, remain a state monopoly.

Bearer services are also a monopoly. However, the public operating company's responsibilities stop at the network-terminal interface.

4. "Value-Added Services"

The National Plan of Telecommunications 1985-1994 states that such services should be provided under free competition (see also above).

At present, value-added services are in practice divided into two categories :

1. Services closely related to telecommunications (protocol and transmission speed conversion, message handling, network management, etc.) : supplied by public operating companies when utilising equipment which is part of the public network; supplied by others on equipment which is external to the public network;

2. Services closely related to computer applications (file access, data collection, order collection, credit authorisation, etc.) : freely supplied by anyone.

Public operating companies have developed their involvement in value-added services by creating joint ventures. As a general orientation for the near future, the public operators are aiming to strengthen their presence in the supply of 'horizontal' value-added services, i.e., addressed to a wide range of users, and with a low added value content (e.g. home banking, meter reading, tele-alarms, tele-controls), using the structures of the telephone network.

5. Terminals

Under the law of 6th March 1987, article 287 of the Postal Code was amended to liberalise the maintenance of terminal equipment. As regards existing equipment already connected to the network, the new rules will come into force after eighteen months. [Law nr 75 published in the O.J. nr 58 of 11th March 1987 "Manutenzione degli impianti telefonici urbani, interni supplementari ed accessori].

It is also intended to liberalise the supply and maintenance of the first telephone set, modem, and telex terminal, following action from the EEC under Articles 37 and 86 of the Treaty of Rome. In November 1986, the Italian Administration agreed to this liberalisation.

REGULATORY DEVELOPMENTS IN LUXEMBOURG

I REGULATORY BODY

Regulatory and supervisory functions are exercised partly by the Ministry of Finance and partly by the Administration des Postes et des Télécommunications.

II TELECOMMUNICATIONS OPERATOR

Telecommunications services are provided by the Luxembourg PTT, "Administration des Postes et des Télécommunications" (P&T).

Telecommunications policy is formulated by the PTT and approved, depending on importance, at Ministerial or Cabinet level.

III THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

The PTT, a state monopoly provides the public networks : telephone, telex, leased lines, data switching, radio-telephone, radiopaging and emergency network.

Major services currently available are as follows :

VOICE	Public switched telephone network Mobile telephony (wide-area and cellular)
DATA	Non-switched leased lines PSTN (Data <=4800 bps over the PSTN) Packet Switched Data Network (Luxpac) Facsimile (via the PSTN) (Bureaufax, Téléfax)
TEXT	Telex Teletex (circuit switched and packet switched) Videotex Radio Paging (Semaphone and Eurosignal)

Videoconferencing and circuit switched data network are to be introduced shortly. A video conference link for the Community between Luxembourg/Brussels is in operation: it may be used also by other clients.

The PTT installs subscriber lines and provides a first telephone set. Modems are supplied by private suppliers or if so desired by the PTT. All other terminal equipment (except radiopaging) is supplied only by the private sector.

Shared use and/or resale of private leased circuits is under review.

The PTT is responsible for type approval of terminal equipment. Approval obtained in other Member States of the European Community is generally accepted without further test.

IV CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

The Government is preparing a new law on telecommunications, to update the present law and redefine the boundaries between the monopoly and the competitive sectors. Terminal supply has been competitive in Luxembourg for twenty years (with the exceptions given above).

A parliamentary commission is studying telecommunications issues, including liberalisation, the future structure of the PTT and the use of leased lines by service providers.

REGULATORY DEVELOPMENTS IN THE NETHERLANDS

I. REGULATORY BODY

Supervisory and regulatory functions (such as type approval and frequency control) are currently exercised by the PTT under the authority of the Ministry of Transport and Civil Works (Verkeer en Waterstaat).

II. TELECOMMUNICATIONS OPERATOR

The Netherlands PTT is a state-owned organisation under the political responsibility of the Ministry.

The tasks of PTT lie both in the postal and telecommunications field, and cover three distinct areas for telecommunications :

- regulation;
- the provision of basic network and telecommunications services to the whole of the country;
- the provision of entrepreneurial services like customer premises equipment and other commercial services.

[Laws regulating telecommunications services : Telegraaf- en Telefoonwet van 1904 ; Rijkstelefoonreglement van 1929 ; Telexbesluit van 1976 ; Data Decree 1982 ;
Laws with regard to status and organisation : Aanwijzingswet PTT van 1954 (Assignment Act, states the de facto PTT monopoly) ; Organiek Besluit PTT van 1954 (organisational regulations) ; Bedrijvenwet van 1928 (regulating public enterprises)]

During recent years, three commissions have been charged with the task of evaluating the present structure of the telecommunications sector in the Netherlands, and in particular the most desirable future status and structure for PTT. They have presented their reports and made proposals for changes :

The Swarttouw Commission, reported in 1982,
The Steenbergen Commission, reported in 1985,
The Zegveld Commission, reported at the end of 1986.

(see below)

The government decided in May 1986 the following main points :

- The PTT will become a public limited liability company (NV) on 1 January 1989. The government will own 100% of the shares. The NV will be a holding company with postal and telecommunications activities to be carried out in two subsidiaries (BV's).

- the markets for terminal equipment and for VANS will be liberalised;

- regulatory issues will be dealt with by a separate body in the Ministry.

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

At present, the following services are being provided by the PTT :

VOICE :	Public switched telephone network Mobile telephone network (ATF1 and ATF2) Radio paging (Semafoon, city paging) Leased lines
DATA :	Non-switched, leased lines PSTN (data over the switched telephone network) Packet switched public network (Datanet-1)
TEXT :	Telex network Teletex (via packet switched Datanet-1 network) Videotex (Viditel, via the PSTN) Mailbox (Memocom, Vidibus) Facsimile (via the PSTN)

The PTT is presently constructing a digital overlay network which will be completed in 1987. This will allow for digital end-to-end connectivity via 2 Mbit and 64 Kbit links and for the gradual introduction of ISDN.

In the four largest cities, the PTT has now constructed optical fibre networks (in Amsterdam and Rotterdam in combination with Teleports) so as to provide large customers with new high speed and wide band services.

Two experiments have started, in Amsterdam and in South Limburg, to test the possibilities of interactive wide band communications and information services over the extensive Dutch cable TV networks, in combination with the PTT telecommunications network.

Supply, installation and maintenance of terminal equipment have been liberalized, except for telephone sets, PABXs, telex terminals, mobile car telephones, and public paging devices (semafoon). From January 1st 1989, these categories will also be liberalized and thus all terminal equipment will be freely obtainable as from that date (see below) subject to type approval conditions laid down by the government.

IV. CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

Three independent commissions were successively appointed by the Dutch government to advise on necessary adaptations of the tasks and functions of the PTT.

The Swarttouw Commission reported in 1982 [Rapport van de Commissie Swarttouw - Taak en functie van de PTT gezien in het licht van de informatie- en telecommunicatietechnologie, March 1982]. It came to the conclusion that, given the development in USA, Japan, and European countries, the terminal equipment market should be liberalised and PTT should reduce its close ties with the government.

The Steenbergen Commission was charged in 1984 to investigate the most desirable status - with the associated authorities - regarding future structure, regulatory tasks and supervision of the PTT.

The Commission had extensive consultations with a large variety of parties concerned, including : equipment suppliers and importers, users and service providers in and outside the Netherlands, the Ministries of Finance, Economic Affairs and Transport and Civil Works, with the PTT and the unions in the Netherlands, with PTTs abroad, and with the Commission of the European Community.

Main proposed measures were

[Rapport van de Commissie Steenbergen : Signalen voor straks. Een nieuwe richting voor PTT, July 1985]

1. The PTT should get an exclusive concession (licence) for its utility function. This is also a requirement resulting from the new status of the PTT as an NV (limited liability company).

2. The monopoly of the PTT for the provision, installation and maintenance of peripheral equipment should be revoked.

3. The PTT is obliged to supply leased lines to third parties, for their own use and for the provision of new services. Tariffs need to be in fair relation to those of traditional services. Resale of capacity and interconnection with the public network for new tele-information services should be allowed on the basis of a permit.

4. Regulatory activities will be dealt with by a separate body "Telecommunications Regulations and Permits" under the responsibility of the Ministry. Activities will include type approval, issuing of licences, control of the radio frequency spectrum.

5. Supervision of the PTT will take place through a Board of Commissioners.

6. Within Telecommunications, at least two different companies (BVs) will operate, for the public utility function and for the telecommunications enterprise.

7. A consultative body should be set up for the purpose of consultations and the transfer of information between the PTT and its users and suppliers.

8. An advisory council for telecommunications policy should be established. Its task should be to advise the government in respect of desired development and action in the field of telecommunications facilities and tele-information services.

The PTT largely endorsed the conclusions of the Steenbergen Commission. Its major reservations concerned : the legal separation of two subsidiaries for "utility" and "entrepreneurial" activities within Telecommunications, and the possible employment effects of the implementation of the proposals.

The Government decided in May 1986 [Taak en functie van de PTT met betrekking tot informatie en telecommunicatietechnologie. Het definitieve kabinetstandpunt, December 1985] that the PTT will be converted from a government-owned company to a limited liability company, whose shares will be in the hands of the government. The formal date for the implementation of the changes is 1 January 1989.

The government has postponed implementing the recommended separation of the PTT telecommunications into a BV for utility services and one for entrepreneurial activities. However, separate accounts will be required from January 1989 onwards for the activities run under monopoly and those run on a competitive basis.

The regulatory tasks of the PTT will be taken over by the Ministry.

The Department of Regulation and Permits in the Ministry will be responsible for :

- preparation and modification of the concession for telecommunication networks, cable TV networks, transmitters, etc ;

- the issuing of technical requirements for terminal equipment to be connected to the PTT network ;

- frequency regulation and control.

The most important concession to be issued will be the exclusive concession for NV PTT to provide national and international transport of information, and the exploitation of the telex - telephone - and data-networks.

Supply of tele-information services through leased lines will be allowed on the basis of a permit to be issued by the Ministry.

The PTT's monopoly of terminal equipment will end on 1 January 1989.

Recently, the Zegveld Commission has investigated the integration of PTT telecommunications networks and the extensive cable television networks existing in The Netherlands, and the relation between the PTT and the cable operators. In its report of December 1986 [Rapport van de Commissie Zegveld : Op weg naar integratie, December 1986], the Zegveld Commission recommends an integration of both networks in the next 20 years, leading to one local network for electronic transmission of all types of information. This IBCN (Integrated Broadband Communication Network) should be under the control of the independent PTT.

The Commission states that it is not clear at this moment how the market for new services will develop; however, to avoid the situation where service providers and network operators take a passive attitude, the government is urged to finance 50% of the initial investments for integration required over the period 1988-1992 (estimated at roughly ECU 160 M).

The government has started the discussion on the proposals made by the Zegveld Commission. It is expected that Parliament will treat this subject before the summer of 1987.

REGULATORY DEVELOPMENTS IN SPAIN

I. REGULATORY BODY

Ministry of Transport, Tourism and Communications (Ministerio de Transportes, Turismo y Communicaciones - MTTC). Within MTTC, the Direccion General de Telecommunicaciones (DGT) is responsible for telecommunications.

Direccion General de Correios y Telegrafos (CyT) is the Government Department, responsible for the provision of posts, telegram, telex and Public Facsimile (Burofax) services.

The Junta Nacional de Telecommunicaciones (JNT) is an advisory committee responsible for co-ordinating telecommunications developments.

II. TELECOMMUNICATIONS OPERATOR(S)

Telefonica (formerly CTNE) is the major service provider.

It has the status of a private company. 31% of shares in Telefonica are directly held by the government and a further 15% are the property of government owned institutions.

CyT provides telex, telegram and Burofax services.

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

Major services currently available in Spain are as follows :

VOICE : PSTN
Mobile Radio - two services. TAV (Motorola) and TMA (Ericsson), operate in the Barcelona and Madrid areas. TMA is also available in 5 further cities.
Radio paging service - Servicio Mensafonico is a one-way paging service. Radiobisquelda is a national non-voice service

TEXT : Telex network
Facsimile
Teletex, accessed through leased circuit connections to IBERPAC
Message handling services (SPCM, MHSS)

DATA : Leased circuits
Packet switched network (IBERPAC)
Service over the PSTN, up to 2400 bits/s
Transaction telephone service (Datafono), used mainly for EFT/POS
Videotex-IBERTEX, based on the CEPT standard

Regarding "value-added services", the resale of excess capacity on leased lines is currently not permitted. Telefonica manages those value-added services which exist, through its IBERCOM service (Integrated Services for Enterprise).

Regarding terminal equipment, Telefonica currently has a monopoly over the supply of telephone handsets and modems. All other types of equipment can, in principle, be supplied by private companies. Regarding PABXs, Telefonica has about 80% of the market, through its subsidiary Cosesa.

Equipment approval is carried out by Telefonica itself.

IV CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

Telefonica has had the status of a private company since its inception. The government exerts a strong influence through the following means :

- The government holds directly and indirectly 46% of the shares (see above) ;
- It is a requirement of Telefonica's concession that there should be a government delegate on the board of directors. The delegate, in addition to the normal rights of his position, has a power of veto on many policy issues, particularly those relating to finance and tariffs ;

- the government can, at any time, renegotiate the concessionary agreement or add further legal obligations concerning the provision of services.

The government's delegate to Telefonica is a representative of the Ministerio de Transportes, Turismo y Communicaciones (MTTC). Currently the Director General of Telecommunications is the delegate.

Telefonica is involved in equipment manufacture through its shareholdings in a large number of equipment suppliers, with which Telefonica works closely on the development of new products, through its research department.

In March 1986, the government drafted new comprehensive legislation on telecommunications that was to establish a framework in which different types of services would be provided, and to demarcate the roles of the public and private sectors. By the end of February 1987, the bill had been redrafted and was being considered by Parliament [Ley de ordenacion de las telecommunicaciones, March 1987].

The new legislation aims at opening up the whole of the terminal market to competition, as well as introducing competition into those services which are not considered to be basic.

In principle, the law distinguishes three sets of services : "bearer services", "final services", and "value-added services". Value-added services are to be opened to competition, subject to restrictions and/or exceptions, to be defined later.

Basic transport services would constitute the infrastructure for the transport of final services. Final services would include telephone, telex, and data transmission (telex will continue to be offered by the CyT).

The service distinctions are still not definitely defined and the law foresees that the clarification of whether the services will fall under the monopoly or not will be determined by DGT, once the law has been passed.

The law foresees a period of one year for each service within which boundary lines must be established. Regarding cross-subsidies between services, accounting transparency and other conditions will be required.

In the concessions for operation of transport services and final services participation of foreign capital will be limited to 25%.

According to the law, regulation of the telecommunications sector including technical specifications and type approval will in future be the responsibility of the MTTC. Thus the DGT is currently in the process of establishing a number of laboratories for type approval of terminals.

Responsibility for ensuring that equipment and systems will comply with national and EEC legislation with regard to standardisation and homologation will be shared between the Ministry of Industry and Energy and the Ministry of Transport, Tourism and Communications. The definition of areas of responsibility and the forms of co-ordination between the two ministries in this field will be decided once the law has been passed.

REGULATORY DEVELOPMENTS IN PORTUGAL

I. REGULATORY BODY

Ministry of Public Works, Transport and Communications.

Correios e Telecommunicacoes de Portugal (CTT) exercises supervisory and regulatory functions such as type approval and frequency allocation under the authority of the Ministry.

A 1981 government decree authorised the establishment of the Institute of Communications of Portugal (ICP) to take over these functions; but the ICP has not yet been established in fact [Decreto de Criacao do ICP, Lisboa, 1981].

II. TELECOMMUNICATIONS OPERATOR(S)

The Portuguese PTT (CTT) is a public company under the political authority of the Ministry [Estatutos dos CTT e dos TLP, Lisboa].

CTT provides all postal services and all telecommunications services apart from the following, which are provided under government concessions to two other carriers :

- Telefones de Lisboa e Porto (TLP) - a public company - provides telephony in Lisboa and Porto, which account for about 60% of telephone lines [id.] ;

- Companhia Portuguesa Radio Marconi (CPRM) - provides inter-continental telephone and telex services; international telegraphy apart from Spain; and inter-continental links for new services such as the data network [Companhia Portuguesa Radio Marconi, Contrato de Concessao, Lisboa, 1980].

CTT and TLP share a board, nominated by the government.

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

CTT, TLP and CPRM have a monopoly of network infrastructure and basic services. They also have a monopoly of enhanced services, except where specific exceptions have been granted to allow such organisations as banks and airlines to operate some value-added services on lines leased from CTT-TLP.

CTT, TLP and CPRM currently provide the following services :

VOICE : Public switched telephone network

DATA : Non-switched analogue leased lines
PSTN (data over the switched telephone network)
Packet Switched Data Network (TELEPAC)

TEXT : Telex network

CTT, TLP and CPRM plan to introduce shortly the following services :

VOICE : Mobile telephony (analogue, 450 MHz in 1988)

DATA : Teletex (via the PSDN) (1987/1988)
Facsimile (via the PSTN) (1987)

TEXT : Videotex (1987)
Radiopaging (1988)
MHS (1988)

VIDEO : Videoconferencing (1988)

There is currently, no cable-TV in Portugal.

Terminal equipment supply, installation and maintenance at the end of 1986 is described in the following table :

Supplier	CTT-TLP Monopoly	CTT-TLP and Private Firms	Private Firms
1st telephone instrument	X		
Subsequent telephone instruments		X	
PBXs		X	
Modems <= 2400 baud		X	
Modems > 2400 baud		X	
Telex terminals	X		
Facsimile terminals			X

CTT-TLP has a monopoly over the first telephone set, but the supply of further telephones is open, as is the supply of PBXs and other equipment.

IV. CURRENT NATIONAL TRENDS AND DISCUSSIONS ON REGULATORY ISSUES

Two commissions have been appointed by the government. They are :

A. A commission to prepare proposals for a new law on telecommunications. A report was presented to the Secretary of State in the last quarter of 1986.

B. A commission on the reorganisation of the telecommunications sector. Expects to report to the Secretary of State in the first half of 1987.

In the context of the deliberations of these commissions, regulatory measures currently under consideration include :

1. Separation of posts from telecommunications.

2. Separation of regulatory and entrepreneurial functions. Regulatory and homologation functions could be transferred from CTT to the Institute of Communications of Portugal, once this body has been established [op. cit]

3. Possibility of concessions for enhanced services. At present, the telecommunications basic law prescribes state monopoly for many areas of service. A new telecommunications law could allow the following options :

AREA	OPTIONS
Network	PTT monopoly
Basic Services	PTT monopoly
Enhanced Services	PTT monopoly Private monopoly franchise Private competitive franchises
Terminal Equipment	Competition between PTT and private sectors

4. Reorganisation of telecommunications responsibilities. An approach based on the establishment of a holding comprised of smaller bodies, with specific responsibilities for basic telecommunications network and service provision, is being considered.

5. Private participation in CTT-TLP. Option of allowing a degree of private (but not foreign) participation in the reorganised domestic carrier is being envisaged, but is largely dependent on the approval of a new regulation law.

Points 1, 2 and 3 above seem to enjoy support from most quarters in Portugal; though it should be noted that the main trade union in CTT is opposed to points 1 and 3.

On point 3, there is, furthermore concern from actual and potential users and providers of enhanced services, that a clear boundary should be drawn between basic (monopoly) and enhanced (competitive) services, to enable users and providers to plan future use and provision of services with clarity as to what they will and will not be permitted to provide or use.

No consensus has yet emerged around point 5.

In the general context of re-regulation at national and Community level, there is concern that procurement should only be opened up to international tender in a way that does not threaten the viability of the local industry, and after other major European countries have done so.

REGULATORY DEVELOPMENTS IN THE UK

I. REGULATORY BODY

Primary regulatory authority lies with the Department of Trade and Industry (DTI), which is responsible for drafting legislation and for issuing licences for the operation of telecommunications systems. However, a range of regulatory and advisory powers are vested in the Office of Telecommunications (OFTEL), which is an independent body directly responsible to Parliament.

[British Telecommunications Acts 1981 and 1984].

II. TELECOMMUNICATIONS OPERATOR(S)

Following the privatisation in 1984 of British Telecom (the former monopoly telecommunications carrier), 14 organisations are now licensed as Public Telecommunications Operators (PTOs) :

- British Telecommunications plc (BT), which is a company with 51% private ownership, 49% government ownership * ;
- Mercury Communications Limited (Mercury), privately owned ;

Both these companies are licensed to run nation-wide fixed networks.

- RACAL Vodafone)
- Telecoms Securicor Cellular Radio Ltd (Cellnet))

) only for mobile cellular radio telephone systems

- City of Kingston Upon Hull: a fixed network only for its own area
- 9 cable operators, full range of telecommunication services and cable TV in their franchise areas.

* (It is UK government policy to sell its residual shareholdings in privatised companies. In the case of BT, undertakings were given in 1984 when the 51% was sold that there would be no further sales before April 1988).

[Licence granted by The Secretary of State for Trade and Industry to British Telecommunications under Section 7 of the Telecommunications Act 1984]

[Licence granted by The Secretary of State for Trade and Industry to Mercury Communications Limited under Section 7 of the telecommunications Act 1984]

[Licence granted by The Secretary of State for Trade and Industry to Racal - Vodafone Limited under Section 7 of the Telecommunications Act 1984]

[Licence granted by the Secretary of State for Trade and Industry to Telecoms Securicor Cellular Radio Ltd (Cellnet) under Section 7 of the Telecommunicatons Act 1984]

[Licence granted by the Secretary of State for Trade and Industry to Kingston upon Hull City Council under Section 7 of the Telecommunications Act 1984]

III. THE CURRENT SITUATION WITH REGARD TO EQUIPMENT AND SERVICES

Most telecommunications services are provided in competition by BT and Mercury. BT is likely to be the only carrier offering country-wide residential, basic telecommunications services for the foreseeable future, but Mercury now provides services in most of the main business centres and in areas where it can do so cost effectively, and is starting to operate a national digital switched network with interconnection with the BT network. It also competes with BT on those international routes to which it is able to obtain access - a limited number at present. A number of other service providers supply mobile radio and radio paging services on a competitive basis, and telecommunication services and cable TV are provided by the cable operators.

Major services available in the UK are as follows :

VOICE :	Public switched telephone network (BT and Mercury) Mobile telephone network (cellular radio) (Telecoms Securicor Cellular Radio Ltd (cellnet) and Racal Vodafone)
DATA :	Data transmission services over the PSTN Non-switched leased lines (analogue and digital) Packet switched network
TEXT :	Telex network (BT and Mercury) Teletex A number of electronic mail services, the largest of which is one run by BT Facsimile (BT) Videotex (BT, Prestel)
VIDEO :	BT offers two videoconferencing services. Cable : a number of cable TV networks are operated by private companies, mainly using coaxial networks.
RADIO-PAGING:	BT and several other private operators

The UK has by far the largest number of 'value-added' services of any of the European countries (see below).

With regard to terminal equipment supply, there has been no monopoly since 1984 and any equipment other than pay phones (for the time being), provided it has been approved, can be bought from private suppliers. Oftel is now responsible for approval. It relies upon evaluation carried out by the British Approvals Board for Telecommunications (BABT), an independent private sector body, and to a diminishing extent by BT.

IV. CURRENT NATIONAL TRENDS AND DISCUSSION ON REGULATORY ISSUES

A significant degree of liberalisation has taken place since the Telecommunications Act of 1981. This has entailed some re-regulation which has affected not only the terminal market but has also brought about major changes in the conditions for the use of the network in the UK.

Public Networks

As a result of the Telecommunications Act of 1981 the telecommunications operations of the Post Office were split off into a separate organisation, British Telecom, and the power to license networks was given directly to the Government, thus paving the way for competition in network services. BT only held a consultative role with respect to the licensing of telecommunications operators, although it had limited powers to grant licences under a general authority issued by the Secretary of State.

The Act was followed three years later by the Telecommunications Act of 1984 which served to increase the range of liberalisation in the UK. This Act changed BT's status from that of a public to a private company, removed BT's exclusive privilege to run telecommunications systems and required BT to operate under a licence, which set out its rights and obligations [British Telecom Licence, op.cit.]. The terms of the BT licence state, amongst others, that :

- universal service is obligatory ;
- tariff increases for a basket of basic services are regulated (consumer price index minus 3 percent) ;
- BT is obliged to provide interconnection for licensed systems ;
- no undue price discrimination is allowed ;
- OFTEL has the power to prevent cross-subsidisation of BT equipment supply and network operations.

A similar licence was granted to Mercury Communications. Both companies were placed in a new category of telecommunications operator which was created, known as Public Telecommunications Operator (PTO - a telecommunications operator providing public services which enjoys a privileged position in return for accepting a specific series of obligations). The government made it clear that it was not intending to license any further PTOs which could provide basic fixed network services before 1990 at the earliest, in order to limit the amount of competition while Mercury established its infrastructure and while BT adapted to the new competitive climate. There is thus now a duopoly operating in the provision of national public networks in the UK.

Other PTOS comprise the two operators of public cellular radio telephone networks, and cable companies offering local network services including in some cases voice telephony in conjunction with Mercury or BT.

Under the Act of 1984, OFTEL was created as an independant regulatory body for overseeing the sector.

Private networks

With regard to private networks (that is networks made up from lines leased from the PTO's), following the 1981 Act the government announced that it intended to issue a licence to permit the provision of 'value added' services. It stated that the provision of simple resale of excess capacity on leased lines would be prohibited until at least July 1989. (Simple resale service has a legal definition - not all forms of resale are precluded). In practice, Value Added Network Services (VANS) can be provided over the public network as well as over private networks.

A licence for VANS operation was issued in 1982 under the 1981 Telecommunications Act [General Licence under Section 15 (1) for telecommunications systems used in providing value added network services, October 1982]. It remains the current VANS licence at the time of writing, although a new licence was due to be published in early 1987 (see below) . The licence permits any person, including the Public Telecommunications Operators to run what is known as an 'applicable system' which provides 'value added' telecommunications services. In order to satisfy this 'value added' term, the messages conveyed must fulfil one or more of the following criteria : they must be stored; or the code, content, format or protocol of the messages must be acted on significantly; or they must be multi-addressed. These criteria are used to differentiate 'value-added' services from 'basic' services (with minor exceptions - for example where the messages passed relate solely to the licensee.)

The licence requires that where a connection is made between a VANS network and a public network, the apparatus within the VANS network must be 'approved' and the connection between the VANS network and any other network can only be made by a Public Telecommunications Operator. For international traffic, the VANS system must only be used to pass messages to or from persons outside the UK over leased lines where those messages relate only to the affairs of the person on whose sole behalf the circuit has been leased. To date some 180 service providers have registered under this licence, although there are effectively only a limited number of VANS networks operating on a national basis.

The UK government has found the distinction between 'basic' and 'value added' services extremely difficult to maintain, with the result that the area has been under continual review. In 1985 a consultative document proposing a new category of 'Managed Data Network Services' was issued in an attempt to allow basic conveyance (with no 'added value') for data messages. However the new distinctions proved to be difficult to define and the Government was persuaded that a simple and more comprehensive licensing regime was required. Accordingly, a revised licence has been issued in February 1987 [Draft class Licence for Value Added and Data Network Services, Department of Trade and Industry, July 1986 ; final version released February 1987]. It covers two different types of operations. Firstly, there are telecommunications operators who provide value added or data services for profit. In this case, either value added services or simple conveyance of data services can be provided. Secondly, there are telecommunications networks run to support a non-telecommunications business activity. In this case 'basic' services can also be run under the terms of the licence (i.e. voice and telex services) provided the operator does not charge for these services.

Within the VADS licence there are a number of conditions that apply to Major Service Providers, that is to say, operators having a total turnover in excess of £50 million per year or a telecommunications business turnover in excess of £1 million per year. These include a prohibition on predatory pricing, unfair cross-subsidisation of services provided to users outside the operator's group, and so on. Major Service Providers also have to register with Oftel and pay a licence fee. In addition, they have to provide access arrangements in compliance with OSI standards. Over international leased lines VANS may be provided, as may basic data services where these are provided within closed user groups. International VADS may be provided within closed user groups which have a common business interest in an area other than the provision of telecommunications services.

The draft Class Licence gives no general definition of "value-added service" or "basic conveyance".

Under the VADs Class Licence, overseas providers will implicitly be required to operate their licensed service from a UK site, although there is provision for special bilateral arrangements between the UK and foreign PTTs.

In-house private networks have also been the subject of a new licensing regime, quite apart form the VANS/VADS issue. Prior to 1984 private networks were controlled by BT. They are now controlled by the companies or organisations which operate them. A licence is now required to allow the operation of private in-house networks whether or not connected to the public switched network [Branch Systems General Licence (BSGL), 1984].

In order to overcome a number of deficiencies in the licence and to bring it more into line with the proposed new VADS licence. The UK Government has recently issued a revised Branch Systems General Licence. The major change involves the relaxation of the conditions which relate to the conveyance of traffic which has arrived from, or is destined for, the PSTN within a private network. Where networks can meet certain technical requirements related to speech call quality it is proposed that they should now be permitted to carry PSTN traffic without restriction within their own network. The licence also changes the classification of equipment deemed to be call routing apparatus, clarifying the permitted use of international leased lines.

In addition to the BSGL and VADS licences, individual licences for the operation of networks that would not otherwise comply with one of the existing licences are available. The main criteria is that licences will be granted except where the main predictable effect of the licence would be the diversion of revenue from the Public Telecommunications Operators. For example a Temporary Licence has been granted to Reuters Ltd to run certain telecommunications systems.

Terminal Equipment

The de-regulation process has had a significant effect on supply of the terminal market. Following the 1981 Act, the almost complete monopoly on the supply of customer premises equipment which BT once held has been gradually relaxed, so that essentially all equipment, with the exception of payphones (for the time being), may now be purchased from private suppliers.

Future liberalisation

The UK Government has announced that it does not intend to permit the provision of simple resale services before July 1989. It also announced that it did not intend to licence operators other than BT and Mercury to run national public networks until November 1990 at the earliest. The position will then be reviewed.

REGULATORY DEVELOPMENTS IN THE USA AND JAPAN

REGULATORY DEVELOPMENTS IN THE US

The "de-regulation" process of US telecommunications over the last 25 years has been one of the dominating influences on the world's telecommunications market.

In 1986, an EC fact finding mission reported on the current state of developments in the United States [Report on the Fact-Finding Mission to the United States, June 16-27, 1986, Commission of the European Communities]. While this mission investigated a wide range of topics, including existing barriers to European manufacturers on the US market, hereunder only regulatory developments are presented.

I HISTORY

Major steps in the development of US telecommunications have been :

1934 : Communications Act. Creation of the Federal Communications Commission (FCC) as the main regulatory agency. The Act determines the legal framework of telecommunications in the United States to this date.

1956 : Consent Decree, United States v. Western Electric Company, District Court of New Jersey. Following an initial intervention by the Department of Justice, under the Sherman Anti-Trust Act, AT&T was limited to regulated services (mainly the telephone). Its manufacturing subsidiary (Western Electric) was now to work only for the Bell System, a susidiary of AT&T operating over 90% of the American network.

1959 : Above 890 decision, Report and Order 27 FCC 359. The FCC allowed the construction of private networks using micro-wave radio.

1968 : Carterfone, 13 FCC 2d 420. The FCC ruled that the Bell system should, in principle, allow equipment not produced by AT&T to be connected to its networks.

1971 : Specialised Common Carrier Decision, First Report and Order, 29 FCC 2d 870. A general licence was granted to specialised common carriers, which allowed them to offer switched telecommunications services, connected directly to the existing network of local telephone exchanges, and a large number of such carriers were formed. This was the first step towards developing competition within the network.

1971 : Computer Inquiry I, Final Decision and Order 29 FCC 2d 261. After a five year investigation on the increasing interdependence of information and telecommunications technologies, the FCC decided that the integrated office automation systems market should become subject to competition. AT&T, as the regulated operator, was to be allowed to supply these types of services only through a subsidiary separate from its regulated activities.

1976 : Equipment Registration Programme, Interstate and Foreign Message Toll Telephone, First Report and Order, 56 FCC 2d 593. The FCC develops procedures to facilitate the opening up of markets for terminals (simplified certification procedures for terminal equipment).

1980 : Computer Inquiry II, Final Decision 77 FCC 2d 384. In the light of the convergence between information technology and telecommunications, the FCC updates its 1971 decision. It abandons the earlier distinction between telecommunications and computer services and introduces one between "basic services " and "enhanced services". It deregulates terminal equipment but allows AT&T to enter deregulated markets through an independent subsidiary : "AT&T Information Systems". The separation requirements are known as "structural safeguards".

1982 : Modified Final Judgement (MFJ), United States v. AT&T, District Court for the District of Columbia. Orders the splitting off of the Bell system regional networks which then represented 77% of the US$150 bn of AT&T's capital assets and approximately 50% of its revenue. The new AT&T keeps the long-distance services of the Bell System (under the name "AT&T Communications") and of Western Electric and Bell Laboratories (under the name "AT&T Technologies"). The long-distance network is opened to competition whereas the regional networks remain regulated.

1984 : AT&T Divestiture. On 1 January 1984. AT&T divests itself of 22 Bell Operating Companies (BOCs). These 22 companies then form themselves into the present structure of 7 Regional Holding Companies (RHCs). These RHCs are often referred to by the old name of "BOCs".

The MFJ also imposed restrictions on the business lines that both the divested AT&T and the newly formed RHCs could enter. Thus, AT&T was prevented from providing electronic publishing services (for a period of 7 years) while the RHCs were prevented from providing inter-exchange services, from offering information services and from manufacturing telecommunications equipment.

Generally, the MFJ imposed "structural separation requirements" for provision by BOCs or AT&T of competitive "enhanced" services (these services were to be offered through separate subsidiaries).

The MFJ also imposed a requirement on the BOC's to provide "equal access" arrangements to all long distance carriers.

Subsequent to the MFJ, a large number of exceptions ("waivers") to the imposed restrictions were conceded by the District Court of Columbia on a case-by-case basis, in order to allow for practical requirements.

The instability of the regulatory regime thus demonstrated finally led to the FCC's Computer Inquiry III, provisionally concluded in July 1986 [Third Computer Inquiry, Report and Order, FCC 86 252]. Computer III replaced the concepts of "structural safeguards" and "separation requirements" by "non-structural safeguards" in order to allow the BOCs to offer of integrated services. For this purpose it introduced the concepts of Comparably Efficient Interconnection (CEI) and Open Network Architecture (ONA). (See below).

In February 1987, the Department of Justice filed with the District Court of Columbia its first triennial report and recommendations on the MFJ which recomended further lifting of restrictions on AT&T and the BOCs.

At this stage, the regulatory situation in the US seems therefore to be in a state of flux and still not stabilised.

II CURRENT SITUATION

Regulatory bodies

Federal Communications Commission : The main regulatory body remains the Federal Communications Commission (FCC). The FCC was created by the Communications Act which gave the FCC regulatory power over all interstate and international ("foreign") communications by "wire or radio". In practice, the FCC regulatory authority is split into three parts dealing with common carriers, broadcasting and cable TV.

The Communications Act directs the FCC to exercise its regulatory authority over interstate (within the US) and foreign telecommunications :

> "so as to make available, so far as possible, to all the people of the United States a rapid, efficient, nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, (and) for the purpose of promoting the safety of life and property ..."

The FCC adds to these objectives the goal of "universal service" derived from the broad wording of the Act.

The role of the FCC has been fundamental in nearly every telecommunications regulation decision in the US and it continues to regulate all interstate and international communications. It also has great influence over intra-state developments within the US.

The FCC continues to regulate AT&T.

State Regulatory Agencies : The individual Bell Operating Companies of the seven Regional Holding Companies are subject to the regulatory authority of the state utility commissions which are responsible for intra-state communication. The BOCs continue to be strictly regulated.

Congress : Congress holds the ultimate authority of legislation. It created the FCC and can control (or at least influence) the decisions of the FCC through the imposition of new legislation, through the influence of congress committees and through control of the FCC budget.

Federal Courts : Decisions made by the FCC can be appealed against in the Federal Courts. The court will review an FCC decision based on firstly deciding whether it has operated within its authority and secondly whether it has fairly considered the evidence presented before it.

Since the AT&T divestiture, a special role is played by the District Court of Columbia.

Justice Department and District Court of Columbia : The Justice Department has substantially influenced developments by its anti-trust suits against AT&T and the consent decrees entered in settlement of the anti-trust suits.

The 1982 settlement (MFJ) has made the District Court of Columbia one of the most important factors. The Court continues to oversee the implementation of the MFJ and therefore exercises a continuing strong regulatory influence.

Federal Agencies : A number of Federal Agencies are closely involved in telecommunications policy formulation, in particular regarding trade questions and international relations. This concerns notably the United States Trade Representative (USTR) and the National Telecommunications and Information Administration (NTIA) in the Department of Commerce, and the Department of State respectively.

2. Telecommunications Operators

The present situation of telecommunications supply in the US can be summed up as follows :

Local basic services	-	no competition ; subject to strict regulation by the State Utility Commissions. Bell Operating Companies
Long distance basic services	-	competition permitted ; "dominant carriers" (as determined by the FCC) remain subject to strict regulation under the Communications Act. OCCs (Other Common Carriers) are only lightly regulated ("forebearance" by the FCC) AT&T remains the dominant long distance carrier, followed by MCI and GTE-Sprint (OCCs).
Long distance enhanced services	-	unregulated ; full resale of capacity including voice permitted. Several hundred resellers existing.

Local enhanced services	- competition permitted ; BOCs will now be allowed to enter this field under the CEI and later, ONA arrangements (Computer III).

The US represents a market size which is more than 5 times larger than any of the individual European countries. Bell Operating Companies (RHCs) are of comparable size with the largest of the European Telecommunications Administrations.

3. Increase of resources for standardisation

The restructuring of the US telecommunications services market has taken place on the basis of the original Bell System which ensured US-wide network integrity according to specifications set by the Bell Laboratories, part of the fully vertically integrated AT&T (Bell Laboratories - Western Electric - Bell System).

The gradual break-up of the system since 1971 (Specialised Common Carrier Decision, op.cit.) and particularly after AT&T divestiture led to a number of disruptions of services, but still largely benefited from the basic homogeneity of the Bell System and AT&T technologies.

Subsequent to the difficulties experienced after divestiture (in particular during 1984), there is now a clear trend to strengthen co-operation between the BOCs, AT&T and industry on standardisation. The BOCs have created BELLCORE on a shared basis and with a total staff of 8,000 highly qualified experts (see Fact-Finding, op.cit.) for work on standards and technological development (total annual budget of 920 million US$). At the same time, the intra-US co-ordination structure for preparation of standards has been substantially strenghtened (Bellcore - Exchange Carrier Standards Association, ECSA - T1 Committee - ANSI). The approach has been very pro-active, with participation from all industry and carriers.

The US input to international standardisation bodies has been substantially stepped up. The input to CCITT (see ANNEX 5) is now tightly co-ordinated by the Department of State, taking into account technical, regulatory, and political objectives.

4. Service definition problems

The US is exposed to the same technological change as Europe, i.e., the convergence of telecommunications and computer technology. The instability and re-definition of service boundary lines therefore is a dominating theme of US deregulation to this date. In the US, boundary lines have been the subject of three rulings by the FCC (Computer I, Computer II and Computer III, see above).

The current distinction by the FCC is still based on Computer II (as is the MFJ), though substantial problems of service definition remain unsolved.

Under Computer II, the FCC currently distinguishes between two classes of communications services - namely basic and enhanced.

Basic communication is defined as :

a pure transmission capability over a communication path that is virtually transparent to customer-supplied information.

Enhanced communication includes any service beyond basic communications ; its definition is :

a service which employs computer processing applications
- to perform protocol conversion,
- to provide the subscriber with additional, different, or restructured information, or
- involving subscriber interaction with stored information.

Protocol conversion, the effect of which is merely to facilitate subscriber information transfer, is currently being reassessed under Computer III in the Supplemental Notice of Proposed Rulemaking (adopted May 15, 1986).

Basic local exchange services are currently the most highly regulated area in the US, with the local telephone company holding a near monopoly on the provision of services within each area, and competition only being allowed for services that cross geographic boundaries, i.e., traffic which flows from one so called Local Access Transport Area, or LATA, to another.

For enhanced services, one effect of the Computer III decision is to force the BOCs to provide Comparably Efficient Interconnection (CEI) under which the operating companies will have to offer their basic transmission facilities to allow fair competition amongst all enhanced service providers.

5. Effects on tariffs

According to the FCC, de-regulation of telecommunications services within the US has driven tariffs closer to costs.

One of the results of this has been to cause tariffs for local service to rise (in real terms) while the more profitable long distance and international service tariffs have fallen.

The FCC has imposed some direct controls on the process of shifting of costs from long distance to local by the imposition of "access charges".

The rise of local tariffs is under close scrutiny by the Congress and subject to approval by the State Utility Commissions. Dominant carriers (e.g. AT&T) must file tariffs with the FCC.

According to public statements by the FCC, competition on long-distance basic services has led to a price decline of approximately 30 per cent since the beginning of 1984. Local rates, with the exception of 1984, have generally increased no faster than inflation. However, according to statements by FCC representatives, in Washington DC the last set of telephone rate increases ranged from 25 to 50 per cent.

6. Interconnection issues

The interconnection arrangements in the US for voice telephony have undergone substantial changes over the last few years, following de-regulation by the FCC and the AT&T divestiture.

Initially, the OCCs interconnected their long distance networks with the existing monopoly local telephone networks on a customer basis - i.e., they were connected to subscriber-line terminations on the local exchanges.

Problems with this arrangement were in particular,

- the need for the customer to enter a large number of digits (typically about twenty-two) to make a single call, and often to do so in two different formats (decadic pulses and DTMF);

- the lack of automatic identification of the calling subscriber to the OCC (needed for billing purposes) requiring the subscriber to enter an authority code (with the consequent risk of fraud);

- a technical problem of providing an automatic signal indicating the time at which the called subscriber answered the call; and

- a significant probability of an overall call encountering high levels of transmission loss leading to subjectively unacceptable performance.

Under the MFJ, an "Equal Access" plan was adopted. The Equal Access Plan required that the BOCs provide "non discriminating" access on all their local exchanges for all long distance carriers by September 1986 (and to a proportion of their exchanges by earlier dates).

This equal access provided for customer chosen digits. Typically the customer would dial 10XXX to access their chosen long distance carrier. At the same time, answer supervision and automatic called number identification would be provided to the OCCs.

7. International repercussions

The de-regulation process in the United States has had a profound influence on countries outside the US (see main part of Green Paper).

Firstly, the FCC now allows enhanced service providers to own and use satellite systems and to own and use submarine cable capacity (either through the provision of private cables such as the proposed private transatlantic cable PTAT-1 or through the purchase of indefeasible right of users (IRU's) in existing cables).

Secondly it permits (and in many ways encourages) enhanced service providers offering international services to become Recognised Private Operating Agencies (RPOA's).

Thirdly, the FCC takes a more aggressive stance towards international services (see Regulatory Policies and International Telecommunications, Notice of Inquiry and Proposed Rulemaking, FCC 86-563, 30th January 1987). FCC and the Justice Department seem to encourage new US entries into the international scene (OCCs, RHCs, private satellite operators).

III COMPUTER III / COMPARABLY EFFICIENT INTERCONNECTION (CEI) / OPEN NETWORK ARCHITECTURE (ONA)

1. Computer III / FCC objectives for the enhanced services market

In spite of continuing classification problems, due to the trends towards integration of services and the resulting blurring of boundary lines, the FCC maintained the Computer II classification (basic / enhanced) under Computer III.

While leaving a number of definition issues unresolved, Computer III concentrates on two objectives :

- lifting "structural safeguards" and restrictions from the RHCs and AT&T, in order to allow them integrated services offerings combining basic and enhanced services, with a view to the introduction of ISDN ;
- defining the conditions under which the regulated carriers should offer the network infrastructure to competitive enhanced service providers.

2. Comparably Efficient Interconnection (CEI)

Computer Inquiry III seeks to replace structural separation by specific requirements for "fair access" by competitors to the basic communications facilities of dominant carriers, which may now offer enhanced services directly.

Structural separation was introduced to counter concern about potential anti-competitive conduct by the dominant carrier, with control over "bottle-neck" local exchange facilities needed by potential competitors.

According to Computer III, the Comparably Efficient Interconnection (CEI) element of Computer III has the twin goals of preventing discrimination and promoting efficiency. It requires carriers to spell out the basic service functions they will offer specifically to support directly competing enhanced communications providers. For the longer term, this commitment is required to take the more general form of an infrastructure for enhanced communications networking - known as Open Network Architecture.

2.1. Principles of CEI

CEI seeks to extend the "internal" advantages of the dominant carriers to all enhanced service providers. Thus carriers' enhanced service operations will be free to exploit their basic facilities by locating enhanced functions at switching sites, or employing "trunk-side" interfaces, etc - provided that comparable facilities are made available to other enhanced communications providers.

The Comparably Efficient Interconnection offered need not be identical, but must be functionally equal and similarly priced. Specifically, the FCC requires that basic service functions utilised by a carrier-provided enhanced service are equally available to others - on an unbundled basis (i.e. individually tariffed), with technical specifications, functional capabilities, quality, and other characteristics (such as installation times and maintenance response) showing no systematic difference from those provided to the carrier's enhanced service.

According to Computer III, examples of the basic service elements anticipated include supervisory signalling, transmission, switching, billing, and network management ; as part of a CEI offering a carrier must make available standardised hardware and software interfaces to support the relevant functions, together with related technical information and specifications.

2.2. Related Competitive Safeguards

Since Computer Inquiry III is eliminating corporate structural safeguards (separation requirements, i.e. operation via subsidiaries) previously placed on the enhanced communications operations of the dominant carrier organisations, the FCC have specified additional business practice safeguards to accompany the CEI requirements to provide fair access to basic services. The areas addressed are the reporting of non-discriminatory performance, the maintenance of separate accounts for enhanced services (with no cross-subsidy from "monopoly" services), the publication of information on changes in network services, and equal access to customer information arising from the basic carrier network.

Carriers will be required to file quarterly reports with the FCC comparing the service/performance levels provided to their own enhanced service operations with those provided to enhanced service competitors (and their end-customers).

The CEI concept has not had, up to now, tangible effects. AT&T had not filed any CEI plan. By March 1987, only one BOC (Bell South) had filed a CEI plan. A CEI plan is required for each enhanced service to be offered.

3. Open Network Architecture (ONA)

3.1. ONA objectives according to Computer III

The initial CEI requirements of Computer III call for the filing of CEI plans specific to each proposed new enhanced service offering by a dominant carrier (BOC or AT&T).

In the longer term, the FCC envisages the extension of CEI facilities into a network service infrastructure for enhanced services generally - the Open Network Architecture (ONA). Approval of a carrier's ONA plan would obviate the need for repeated CEI approvals of individual enhanced services.

According to Computer III, an Open Network Architecture should reflect the overall design of a carrier's basic network facilities and services to permit all users of the basic network (including the enhanced service operations of the carrier and competitors) to interconnect to specific network functions and interfaces on an unbundled and "equal access" basis. ONA thus should involve a technological implementation which opens service to all vendors and end-users in a manner which makes discrimination by the carrier impossible - and thus is "self-regulating".

ONA must offer "reasonably equivalent" access to competitive enhanced service providers. The FCC has indicated that although it does not wish to restrict technical implementations of ONA, it needs to be satisfied that the general CEI requirements are met. Accordingly it proposes to view more favourably those designs which utilise the same interconnection facilities for the carrier's enhanced service operations as for other enhanced service providers - since the equal functionality and anti-discrimination aspects of such a configuration are more easily evaluated. An ONA design that permits a carrier to integrate its enhanced services within basic service software or hardware, while others' services interconnect in a different manner, must demonstrate nevertheless that CEI requirements are satisfied.

An implementation of ONA is required to provide Basic Service Elements (on a publicly available, unbundled tariff basis) including an initial set of key Basic Service Elements (a range of call control and network supervision primitives as well as connection and transmission functions) that can be used in a wide variety of enhanced services - regardless of whether the carrier's current enhanced service offerings rely on such elements. Any basic element which is incorporated in a carrier's enhanced offering must be provided publicly, and the carrier's enhanced services operations must obtain basic services under the applicable tariffed terms and rates.

3.2. ONA Planning

The Computer III ruling requires the dominant carriers (seven BOCs and AT&T) to file Open Network Architecture Plans with the FCC by February 1988.

These plans must demonstrate compliance with CEI and ONA principles and list the initial set of Basic Service Elements to be offered ; the ONA facilities must be introduced within one year of the plan's approval.

Subsequently the carrier will not be required to file a service-specific CEI plan prior to any new enhanced service, and will be free from structurally separate subsidiary conditions in providing enhanced services.

However, for any enhanced service which is based on underlying services different from those explained in the approved plan, a carrier must obtain FCC approval for an amendment to the ONA plan to be filed at least 90 days prior to offering the new service.

If any carrier fails to file an ONA plan by February 1988 the FCC intends not to consider any further interim CEI plans from that carrier, effectively suspending its ability to introduce new enhanced services.

It should be noted here that AT&T has clearly stated that it has no intention to file an ONA plan, and has filed a petition for reconsideration with FCC. If the petition is not accepted, AT&T will prefer to provide enhanced services through separate subsidiaries.

IV RECENT DEVELOPMENTS

Since January 1987, two further important developments have taken place which could substantially influence future US and international telecommunications development.

In February 1987, the Department of Justice submitted its first triennial report on the implementation of the MFJ (op.cit.). In the report, the Justice Department proposes to the District Court of Columbia, to lift all essential restrictions imposed on the BOCs by the MFJ. This concerns in particular the provision of information services, inter-exchange (long-distance) traffic and manufacturing of equipment.

Thus, the report largely accepts the conclusions of a major study undertaken for the Department of Justice and made public in the beginning of 1987, which identified the requirement of integrated service offerings (vertical service integration) as a major essential for future telecommunications development [1987 Report on Competition in the Telephone Industry, The Geodesic Network, US Department of Justice, Antitrust Division, January 1987]. The report argues that therefore the BOCs should be allowed to offer the full range of services.

If the proposals by the Justice Department are accepted by the Court, this will be a major turning-point in US concepts of telecommunication regulation.

At the same time, the FCC has adopted a Notice of Inquiry and Proposed Rulemaking to examing the interrelationship of the FCC's regulatory policies with the policies of foreign governments [Regulatory Policies and International Telecommunications, 30th January 1987, op.cit.]

The Notice would establish the US regulatory environment as a virtual bench mark for evaluating the regulatory policies of other countries and for determining the "openness" of foreign markets. For this purpose, the Notice proposes a substantial increase of regulatory control by the FCC on the activities of foreign service providers and manufacturers.

In conclusion, at the beginning of 1987 it seems that US regulatory policies in telecommunications are undergoing substantial change. The trend seems to be moving away from regulation based on service definitions and separation requirements towards allowing the dominant carriers (BOCs and AT&T) freedom for a broad range of activities, in exchange for the definition of clear access conditions under which they will make their facilities and services available to competitors. At the same time, US regulators seem to becoming more and more concerned with international aspects.

REGULATORY DEVELOPMENTS IN JAPAN

I HISTORY

Since the early 1950s, domestic telecommunications services in Japan have been provided by the Nippon Telegraph and Telephone Corporation ("NTT"), whilst all of the international services were provided by Kokusai Denshin Denwa Company Ltd ("KDD").

NTT was established in 1952 as a public corporation and KDD was formed in 1953 as a private company.

Between them, these two companies took over most of the responsibilities previously assumed by the Ministry of Communications. The remaining responsibilities were then combined with postal functions into a new Ministry entitled the Ministry of Posts and Telecommunications ("MPT").

With technological developments taking place, there was increasing pressure to introduce a relaxation of the monopoly held by NTT and KDD in their respective fields of operation. Thus in 1971, the MPT proposed a variety of amendments to the existing law [The Public Telecommunications Law] that would permit the telephone network to accommodate new business services, e.g. VANS operations. Previously, the provision of third party services was a function reserved for the monopoly operators.

II. THE NEW TELECOMMUNICATIONS LAWS

In 1985, Japan started to deregulate its telecommunications industry.

Two new laws were introduced which were planned to bring about a process of de-regulation and liberalisation within the Japanese telecommunications industry, the results of which it was hoped will last at least to the end of the century [The Telecommunications Business Law and the Nippon Denshin Denwa Kabushiki Kaisha Law ("NTT Law")]. The laws however, also leave considerable room for manoeuvre in the future.

The changes occuring are, in some ways, similar to those occuring in the USA and UK. These changes have the overall objectives of reducing the cost of communications and stimulating the development of new telecommunications and information services.

There are two major aims of these laws :

- to introduce competition into the domestic and international telecommunications markets in the provision of both services and facilities ; and
- to transform the dominant domestic operator (NTT) from a state owned monopoly to a privately owned competitive company.

The two new laws came into effect on 1 April 1985.

The new laws have :

- authorised a liberalised use of telecommunications facilities ;
- ended the domestic telecommunications monopoly of NTT ;
- caused the restructuring of NTT as a private corporation prepared to participate in a competitive marketplace ; and
- allowed the possibility of allowing competition with KDD in the international marketplace.

In the light of the Computer II definition problems in the US, the Japanese government has attempted to avoid the US "basic" versus "enhanced" distinction of Computer II which it saw as unworkable. Instead they opted for a "facilities providers" versus "service providers" distinction.

These two classifications are described as follows.

1. Type I operators

   Type I operators are regulated operators who own and operate their own transmission facilities. Type I operators remain subject to prior approval by the MPT.

Type I applications are judged by the MPT to ensure :

- it will conform to the demands of the area being served ;
- it will not result in over capacity in any particular area ;
- that the business plan proposed is both "reliable and feasible" ;
- that the operator is both technically and financially qualified ; and
- that it is "appropriate for the sound development of telecommunications in general".

Both NTT and KDD are established by the new law as type I operators.

In the meantime, the MPT has authorised 5 additional new facility based competitors.

Three of these new Type I operators plan terrestrial networks (one using microwave transmission, the second, optical fibre laid along the roads and the third, optical fibre alongside the railway lines), whilst the other two intend to build networks based on satellite technology.

2. International Type I operators

Whilst KDD remains as the dominant international telecommunications operator, the MPT is likely to issue a second licence for international operations. At present there are two bidders for this licence :

- a consortium (called ITJ) of the largest Japanese trading houses (Mitsubishi, Mitsui and Sumitomo) and others (and assisted by KDD itself) ; and
- a consortium (entitled KDTK) consisting principally of Cable and Wireless and C Itoh, but also including Toyota Motors, Pacific Telesis, Fujitsu, NEC and a number of others, with assistance from the international arm of NTT.

In order to ensure that the dominant operators do not unfairly use their position to influence other parts of the market, the MPT issued guidelines in August 1986 restricting the involvement of NTT in international ventures to less than 10% capital share (and similarly KDD's involvement in national ventures).

3. Type II operators

Type II operators are all other telecommunications operators and are less regulated. In effect these are operators providing enhanced (or value added) services who do not own their own transmission facilities.

The Telecommunications Business Law does not restrict Type II services to non-voice only, but there may be a de-facto limitation to data services. There are restrictions on the use of NTT circuits for voice resale (although other Type I operators can lease NTT circuits to serve places not served directly by their own transmission capabilities). It is not yet evident whether the MPT will ease these restrictions on resale.

Under the 1985 law, Type II operators are divided into unregulated (small scale) "General" Type II providers and more regulated "Special" (large scale) Type II providers.

However, since the introduction of the new law, the MPT has more or less disregarded the division between the "Special" and the "General" categorisation. In fact the MPT has so expanded the scope of the unregulated General Type II category that there would now seem to be little need for new entrants to register under the Special Type II category.

In order to be classified as a "Special" Type II operator, an operator must satisfy four criteria as follows :

- the operator must serve all the customers who request service ("Universal service") ;
- there must be no preference or discrimination between customers ;
- the operator must publish his tariffs ; and

- the service must be accessed through the public telephone network.

Furthermore, any operator with more than 500 exchange lines must be classified as a Special Type II operator (although there is no limit to the number of customers who can be served through these 500 lines).

Regarding tariffs, General Type I operators have considerable freedom in the tariffs they charge, Special Type I operators do not have this freedom.

There are at present over 200 Type II operators providing a wide variety of different services.

III. ROLE OF THE MPT

As well as licensing Category I operators, the MPT also has a number of general supervisory powers over type I and Special type II operators, including :

- being able to specify a date by which a particular Type I operator must commence the provision of services ;
- a requirement to approve the technical standards of a Type I operator before the commencement of services (this includes general technical standards as well as security and interconnection standards) ;
- approval of changes to the services offered by a Type I or Special Type II operator ; and
- approval of Type I operator tariffs (these are assessed to ensure that they are cost based, although it is not entirely clear exactly what this means in practice).

Great influence is however exerted on the MPT by the Ministry of International Trade and Industry (MITI) which represents user and the government trade policy interests.

IV. RESULTS OF THE NEW LAWS

Difficulties have been encountered in maintaining the scheme due to problems in maintaining a clear distinction between Type I and Type II licences.

Type I carriers are pressing to be allowed to offer type II services without being bound by the regulations of a Type I carrier e.g. having to obtain prior tariff approval. In particular, NTT wishes to offer Type II services through a subsidiary which means that new regulations will be required to prevent cross-subsidisation.

A further blurring of the distinction between Type I and Type II services may arise because Type II services are likely to be subclassified into voice and data services in order to allow NTT to retain its tariff restrictions on resale of voice services. Hence, Type II entities will not be allowed to offer voice store and forward systems utilising NTT leased lines, although voice mailbox services may well be allowed to utilise public switched network services.

Thirdly, the absence of clear service-related distinctions beween type II activities e.g. between "resale of pure transmission", "protocol conversion services", and "hybrid service" is likely to complicate greatly any effort to apply Japanese domestic regulatory categories to Japanese international services.

Fourthly, if the restrictions on voice resale are removed, then the effect of the necessary tariff changes for NTT services would cause price reductions on domestic services, thereby possibly jeopardising the plans of the new Type I operators.

V. EFFECT OF THE NEW LAWS ON NTT

Initially, under the new law, the whole of NTT was owned by the Government. However the intent of the Government is to sell up to two thirds of NTT.

NTT has largely accepted that the changes are inevitable and has started to adapt to the new regulatory environment.

To assist in this process NTT has set up a number of separate subsidiaries to provide all services other than the basic switched telecommunications services.

One of the major problems to be faced by NTT is that of tariffs, and introduction of a system of cost allocation that will allow it to adopt a tariff structure fairly reflecting the cost of provision of the various services. Under the new law, the arrangements for overseeing the tariffs of NTT has changed from the Diet (the Parliament) to MPT.

A review of the restructuring of NTT is expected to take place in 1988.

APPENDIX 2
1st June 1987

SATELLITE SERVICES IN EUROPE

- THE CURRENT SITUATION AND THE WAY AHEAD -

1. SATELLITE COMMUNICATIONS SYSTEMS COVERING EUROPE

1.1. The EUTELSAT system

In 1970, a special European ministerial conference resolved that the European Space Research Organisation (ESRO), later to become the European Space Agency (ESA), should widen its scope to include space telecommunications programmes. As a consequence, the European Communications Satellite (ECS) programme was initiated, for the development by 1980 of a system to provide the European Telecommunications Administrations with satellite links to route international telephone traffic within Europe, and the European Broadcasting Union (EBU) with the means to expand its EUROVISION system of TV programme exchange.

In 1977, the European Telecommunications Satellite Organisation (EUTELSAT) was created by agreements between 17 PTT Administrations or Recognised Private Operating Agencies (RPOAs) of the European Conference of Postal and Telecommunications Administrations (CEPT). EUTELSAT was created in its definitive form in 1982, out of an intergovernmental conference held in Paris. It is governed by two international agreements, namely the "Convention" which commits the participating states to create, manage, and develop EUTELSAT, and the "Operating Agreement" which establishes the rules for the technical management of the system.

The main purpose of EUTELSAT is to design, develop, construct, establish, operate and maintain the space segment of the European telecommunications satellite system. The EUTELSAT space segment is intended mainly for the provision of international public telecommunications services in Europe. In addition, the EUTELSAT space segment can be used for telecommunications services to satisfy the domestic requirements of the EUTELSAT member states. At present, 26 European countries are members of EUTELSAT, each holding an investment share based on its use of the system.

The EC Member States, Signatories to EUTELSAT and their respective shareholdings are shown in **Figure 3.** From **Figure 3**, it can be seen that the total shareholding of the European EC Member States and non-Member States is 79.9% and 20.1% respectively.

Figure 3

A. SHAREHOLDING OF EUROPEAN ECONOMIC COMMUNITY MEMBER STATES

ORGANISATION	INTELSAT		EUTELSAT		INMARSAT	
MEMBER STATE	SIGNATORY	INVEST-MENT SHARE (%)	SIGNATORY	INVEST-MENT SHARE (%)	SIGNATORY	INVEST-MENT SHARE (%)
BELGIUM	REGIE DES TELEGRAPHES ET TELEPHONES	0.745	REGIE DES TELEGRAPHES ET TELEPHONES	4.905	REGIE DES TELEGRAPHES ET TELEPHONES	0.341
DENMARK	GENERALDIREKTORATET FOR POST-OG TELEGRAFVAESNET	0.384	GENERALDIREKTORATET FOR POST-OG TELEGRAFVAESNET	3.270	POST AND TELEGRAPH ADMINISTRATION	2.469
FRANCE	GOVERNMENT OF FRANCE	5.642	GOVERNMENT OF FRANCE	16.351	DIRECTION GENERALE DES TELECOMMUNICATIONS	1.672
GERMANY F.R.	BUNDESMINISTERIUM FUR DAS POST UND FERNMELDEWESEN	4.098	BUNDESMINISTERIUM FUR DAS POST UND FERNMELDEWESEN	10.788	BUNDESMINISTERIUM FUR DAS POST UND FERNMELDEWESEN	1.685
GREECE	HELLENIC TELECOMMUNICATIONS ORGANISATION (OTE)	0.813	HELLENIC TELECOMMUNICATIONS ORGANISATION (OTE)	3.180	HELLENIC TELECOMMUNICATIONS ORGANISATION	1.672
IRELAND	THE IRISH TELE-COMMUNICATIONS BOARD	0.133	THE IRISH TELECOM-MUNICATIONS BOARD	0.219	-	-
ITALY	SOCIETA TELESPAZIO	2.148	TELESPAZIO	11.446	TELESPAZIO	1.944
LUXEMBOURG	GOVERNMENT OF LUXEMBOURG	0.050	GOVERNMENT OF LUXEMBOURG	0.219		-
NETHERLANDS	GOVERNMENT OF THE NETHERLANDS	1.128	GOVERNMENT OF THE NETHERLANDS	5.454	NEDERLANDSE PTT ADMINISTRATIE	2.277
PORTUGAL	COMPANHIA PORTUGUESA RADIO MARCONI	0.682	COMPANHIA PORTUGUESA RADIO MARCONI	3.051	COMPANHIA PORTUGUESA RADIO MARCONI	0.107
SPAIN	COMPANIA TELEFONICA NACIONAL DE ESPANA	1.962	COMPANIA TELEFONICA NACIONAL DE ESPANA	4.626	COMPANIA TELEFONICA NACIONAL DE ESPANA	1.167
UNITED KINGDOM	BRITISH TELECOMMUNI-CATIONS plc	13.068	BRITISH TELECOMMU-NICATIONS plc	16.351	BRITISH TELECOMMU-NICATIONS plc	14.555 14.555
TOTAL MEMBER STATES INVESTMENT SHARE (%)		**25.210**		**79.860**		**27.889**

In 1979, an arrangement was signed between EUTELSAT and ESA which stipulated that ESA is responsible for the procurement, launch and in-orbit maintenance of the ECS system which provides the space segment capacity of EUTELSAT.

The first ECS satellite, now renamed EUTELSAT I-F1 was launched in June 1983. In 1985, the EUTELSAT space segment was extended to cover the operation of the international space segment of the French TELECOM 1 satellite for business users.

1.1.1. Review of EUTELSAT services

The services offered by the EUTELSAT system are telephony, television, and business communications.

a) **Telephony**

In each EUTELSAT member state, international transit centres in the public switches network are connected to an earth station in the EUTELSAT network so that part of the intra-European international telephone traffic can be sent by satellite.

b) **Television**

EUTELSAT is leasing two transponders of the EUTELSAT 1-F2 satellite to EBU to carry television programmes within the Eurovision network. In addition, EUTELSAT leases space segment capacity to a number of EUTELSAT member states for the transmission of TV programmes to cable-TV networks.

c) **Business Communications**

The EUTELSAT 1-F2 satellite launched in 1984 provides space segment capacity for digital circuits via the Satellite Multiservice System (SMS) transponder. Such circuits can be used for a wider range of intra-European international business service such as data transmission, video-conferencing, etc. Transmission capacity for business services is also offered via the French TELECOM 1 system which has been made available to EUTELSAT under an agreement between EUTELSAT and the French PTT Administration.

A user is connected to the SMS system either via a Community aerial serving a given business area or via a dedicated aerial linked directly to the user's equipment. The SMS earth stations have dish diameters of 3.5 or 5 m and are provided by the national Telecommunications Administrations or RPOAs.

Tariffs for the use of the SMS system are fixed in each country by the appropriate national telecommunications authorities.

1.2. The INTELSAT system

The International Telecommunications Satellite Organisation (INTELSAT) was created in 1964 with the signature by 11 international entities of the "interim" agreements for the establishment of a global commercial satellite system.

INTELSAT was established in a "definite" form in 1973 with the entering into force of two international agreements namely, the "Agreement relating to the International Telecommunications Satellite Organisation" concluded by governments (the Parties) and the "Operating Agreement relating to the International Telecommunications Satellite Organisation" concluded among governments or their designated telecommunications entities (the Signatories). The final text of these two separate but related agreements are referred to collectively as the "Definitive Agreements" and separately as the "Agreement" and the "Operating Agreement" respectively.

Each member of INTELSAT holds an investment share based on its use of the system. The revenues of the system are derived from utilisation charges and after deduction of the operating costs, are distributed to members in proportion to their investment share.

The states which are Signatories to INTELSAT and their respective shareholdings are shown in **Figure 3**. From **Figure 3**, it can be seen that the shareholding of EC Member and other European States is 25.2% and 3.6% respectively. For comparison, the USA shareholding is 22.5% compared to a total Western European shareholding of 28.8%.

INTELSAT's main objective is the provision, on a commercial basis, of the space segment required for international public telecommunications services of high quality and reliability, to be available on a non-discriminatory basis to all areas of the world. The INTELSAT space segment, established to meet the prime objective, may also be made available for other domestic public telecommunications services on a non-discriminatory basis, to the extent that the ability of INTELSAT to achieve its prime objective is not impaired.

1.2.1. Review of INTELSAT services

The services offered by INTELSAT can be divided into two categories, namely, conventional services and new services.

INTELSAT's conventional services provide international telecommunications capacity to telecommunications authorities which in turn sell this capacity in the form of telephone calls, data and telex circuits, telegram facilities and satellite television channels. These conventional services are provided using large gateway aerials.

INTELSAT's new services have been introduced mainly to increase the utilisation of the available INTELSAT space segment and to meet the emerging market demand for new telecommunications services. The two most important services in the context of satellite telecommunications in Europe are the INTELSAT Business Service (IBS) and the INTELNET services.

a) **The Intelsat Business Services (IBS)**

The IBS are high quality digital global services which integrate services such as telex, voice, facsimile, data and video teleconferencing without distinction between specific service applications. IBS allows the utilisation of small and medium size aerials on or close to the end-user location(s), thus minimising the dependence on the terrestrial switched networks. IBS can also be used by Signatories for international applications or for dedicated domestic needs.

The IBS is offered globally using C and Ku band transmissions. The earth stations used to access the service are standard INTELSAT earth stations with dish diameters of 3.5 m to 8 m in the Ku band and 5 m to 30 m in the C band.

As the IBS provides for earth stations located at customer premises, depending on the national regulatory environment, these earth stations can be owned and operated by the customer.

b) **The INTELNET services**

INTELNET are data distribution and gathering services. Whereas IBS integrates without distinction voice, data, video and image, INTELNET is restricted to data distribution (INTELNET I) and data collection (INTELNET II).

INTELNET is presently used mainly as a data broadcast service in which the uplink is provided by one or more large INTELSAT standard stations (11 m or 30 m) in the C or Ku band and the reception is provided by small dish aerials, the so-called "microterminals" (0.6-0.8 m). The service is provided by assigning predetermined satellite bandwith and power in the various INTELSAT coverage areas.

1.3. The INMARSAT system

In 1975, the Inter-Governmental Maritime Consultative Organisation (IMCO), a United Nations agency based in London, recognising the need for a global satellite system for maritime communications, convened an international conference which adopted the INMARSAT Convention and Operating Agreement.

Twenty-six countries signed the founding Convention which states that the purpose of INMARSAT is "to make provision for space segment necessary for improving maritime communications, efficiency and management of ships, maritime public correspondence services and radio-termination capabilities" (Article 3(1) - Purpose).

The INMARSAT Convention, like the INTELSAT Convention, contains a "no significant economic harm" provision which ensures a virtual INMARSAT monopoly in the provision of space segment capacity for commercial maritime communications (Article 8 - Other Space Segments).

The INMARSAT Organisation was formally established in 1979 with headquarters in London. Like INTELSAT and EUTELSAT, INMARSAT is financed by its signatories, each signatory contributing capital proportional to its estimated use of the space segment. INMARSAT is a non profit organisation using its revenues to cover operating costs and capital repayments and to provide a defined return. Forty-five countries are now members of INMARSAT including the USA and USSR.

The EC Member States, Western European non-Member States and the USA Signatories to INMARSAT, together with their respective shareholdings are shown in **Figure 3**. From **Figure 3**, it can be seen that the shareholdings of EC Member States and Western European non-Member States are 27.9% and 12.7% respectively. For comparison, the shareholding of the USA is 30.7% compared to a total Western European shareholding of 40.6%.

1.3.1. Review of INMARSAT services

The INMARSAT system consists of three main components, namely the space segment, the coast earth stations and the ship earth stations.

The space segment consists of two dedicated maritime communications satellites (MARECS A and B leased from ESA) and four special units called "Maritime Communications Subsystems" (MCS), carried by four INTELSAT V satellites and leased from INTELSAT. The INMARSAT system covers all three ocean regions, with one operational and one spare satellite/MCS payload in each ocean region. Each MARECS satellite can support about 60 voice channels. Each MCS leased from INTELSAT can support 30 voice channels.

The Coast Earth Stations (CES) provide the interface between the space segment and the national and international telecommunications networks. The CES consists of a high-powered parabolic dish of 11m - 13m in diameter, plus the associated electronics. The coast earth stations are normally owned by INMARSAT signatories.

The Ship Earth Stations (SES) are installed on individual ships and are owned and operated by the INMARSAT users. The SES consists of a parabolic dish aerial of about 0.9 - 1.2m in diameter, protected by a radome and actively stabilised to keep pointing at the satellite. As of Spring 1987, about 5,000 users were equipped with INMARSAT ship earth stations.

1.3.1.1. Present Services

The philosophy behind the present INMARSAT telecommunications services is to extend the land based public telecommunications services to all areas of maritime activity. The main INMARSAT services are telephony, telex, and data.

Fully automatic dialling for telephony is normally available from ship-to-shore and ship-to-ship. The international operator is normally needed for a subscriber to place a shore-to-ship call.

A fully automatic telex service from, to and between ships can be transmitted over the telephone links with data rates of up to 2.4 Kbit/s. Special circuits are planned which will provide speeds of up to 56 Kbits/s.

1.3.1.2. Future services

The leases of the present INMARSAT space segment will expire between 1989 and 1991 and during this time the second generation INMARSAT satellites will be introduced. In April 1985, INMARSAT signed a contract with an international consortium led by British Aerospace to supply 3 INMARSAT II spacecraft with an option for 5 more. The contract for 3 spacecraft is worth about $ 150 million.

British Aerospace is the prime contractor for this contract but a substantial amount of the work will be carried out by Hughes Aircraft, the provider of the specialised communications payload. Other sub-contractors include NEC, Matra and Fokker. Each INMARSAT II satellite carries four transponders which could provide up to 400 two-way voice channels.

The second generation INMARSAT satellites will operate in the full maritime satellite bands (1530-1544 MHz / 1626.5-1645.5 MHz), the distress bands (1544-1545 MHz / 1645.5-1646.5 MHz) and 2 MHz in the lower part of the aeronautical bands (1545-1559 MHz / 1646.5-1660.5 MHz).

With the availability of extra frequencies, INMARSAT is anxious to introduce new services which can utilise the extra capacity. The main new services planned using the INMARSAT system are aeronautical communications and possibly land-mobile communications. These new services will be excluded from the "no significant economic harm" provision in Article 8 of the INMARSAT Convention.

1.3.1.3. Aeronautical services

There are some similarities in the service requirements for maritime and aeronautical satellite communications. Recognising these similarities, the 1971 World Administrative Radio Conference allocated adjacent frequency bands for maritime and aeronautical mobile satellite services. Subsequently, INMARSAT included 2 MHz of aeronautical mobile satellite band in the INMARSAT II satellite specifications (1645-1546 MHz and 1646.5-1647.5 MHz for satellite to earth and earth-satellite directions). INMARSAT plans to use the extra bandwith to provide aeronautical services. The proposed INMARSAT aeronautical services are voice services using high gain aircraft earth stations and data services. The data services would include navigation data, meteorological data and telex.

Several INMARSAT Signatories have announced their intention to build earth stations, to provide the interface between the aircraft and their public telecommunications networks.

1.3.1.4. Land mobile services

For land-mobile communications, INMARSAT is proposing the use of a small satellite terminal called "Standard-C" which has been developed for use by small vessels such as fishing and supply boats and private yachts.

Standard-C is a digital, message-based communicatons system which can interconnect with the international telex, teletex and packet switched data networks, at an information rate of 600 bit/s.

2. REGULATORY ENVIRONMENT

2.1. Regulatory elements of satellite systems

From the regulatory point of view, the ITU and the national governments divide satellite systems into three distinct parts, namely the :

- uplink,
- satellite or space segment,
- downlink.

2.1.1. The uplink

The uplink is always considered a fixed point-to-point service, and in general it is linked to the right to transmit a radio signal. In all countries the legal right to transmit a radio signal is held by the state, although in most countries the government derogates this right. In the European Community, terrestrial and mobile transmissions are derogated to public authorities and RPOAs. For satellite transmission, the derogation process has not been extensive. In Europe, exclusive rights are normally held by the Telecommunications Administrations. Even in the United States the FCC allows only COMSAT to provide international satellite uplinks. In the United Kingdom only British Telecom and Mercury are allowed to "operate" a satellite link.

2.1.2. The space segment

The satellite, also known as the space segment, is the least regulated segment of the three segments of a satellite system. The geostationary satellite orbit has a finite capacity; it is therefore a resource which has to be used with care. Satellite systems operating in the same frequencies can interfere with each other if the spacing between satellites is not adequate and the sidelobes of the transmitting stations are not controlled. The ITU is the forum where provisions for regulating the use of the geostationary orbit are agreed.

The availablity of space segment capacity in Europe is governed mainly by the following factors :

1) the exclusive right of the EUTELSAT/INTELSAT signatories of the respective Operating Agreements to purchase and resell EUTELSAT/INTELSAT space segment capacity.

2) the virtually exclusive rights of EUTELSAT and INTELSAT to provide space segment capacity "to meet the requirements of international public telecommunications services" within their respective services as specified by Articles XVI and XIV of their respective Operating Agreements.

3) the ability of the European Telecommunications Administration and RPOA signatories of EUTELSAT and INTELSAT to utilise the space segment capacity of these organisations to fulfil their market objectives in Europe.

2.1.3. The downlink

The downlink is specified in terms of services such as a fixed service, a broadcasting service, a mobile service etc. Briefly, the fixed satellite service provides bidirectional telecommunicatons signals to known, specified fixed points. The broadcast satellite service provides unidirectional signals which are broadcast and are directly received by the public at many unknown points. Mobile satellite services provide signals to receivers on the move. In most European countries the downlink is not strictly regulated. For example, in France and the United Kingdom, an easily obtainable licence permits the reception of particular satellite services. In Sweden and Spain, anyone can instal and operate receive only earth stations (ROES) for the reception of satellite transmissions.

Regulation of the uplink has given the Telecommunications Administrations and the RPOAs exclusive rights over the provision of earth station facilities to access the space segment.

2.2. Regulatory situation regarding satellite communications in Europe

An overview of the regulatory environment of suppliers of space segment capacity and operators of international satellite services in the European Community is given in **Figure 4.** Below, the detailed situation in each Member State is reviewed.

2.2.1. **Belgium**

All transmit/receive and receive only earth stations operating to telecommunications satellites are owned and operated by RTT on an exclusive basis. Receive only stations for the reception of entertainment television from DBS satellites can be owned and operated by individuals and organisations. RTT presently envisages no change of the current position in the foreseeable future.

In Belgium, space segment capacity is only available from RTT being the signatory to INTELSAT, EUTELSAT and INMARSAT.

2.2.2. **Denmark**

Danish law prohibits the unauthorised reception of telecommunications signals. A licence could be issued for users to install and operate satellite earth terminals on their premises, but as this is against present P&T policy which regards satellite communications as part of the P&T network, such a licence is not likely to be granted.

As a signatory to INTELSAT and EUTELSAT, the Danish P&T controls the availability of space segment capacity for telecommunications purposes in Denmark.

2.2.3. **France**

Exclusive rights for installation and operation of transmit/receive and receive only earth stations for telecommunications are granted to the PTT. For entertainment television reception individuals and organisations can apply for a licence to install a TV aerial for the reception of entertainment television.

Figure 4

REGULATORY ENVIRONMENT, ACCESS TO SPACE SEGMENT CAPACITY AND OPERATORS OF INTERNATIONAL SATELLLITE SERVICES IN THE EUROPEAN COMMUNITY

MEMBER STATE	UPLINK		SPACE SEGMENT	DOWNLINK	
	REGULATORY ENVIRON-MENT	OPERATORS UPLINK	ACCESS TO SPACE SEGMENT (1)	REGULATORY ENVIRON-MENT	OPERATORS DOWNLINK
BELGIUM	RTT exclusive provision	RTT	RTT exclusive provision	RTT	RTT
DENMARK	P&T exclusive provision	P&T	P&T exclusive provision	P&T	P&T
FRANCE	PTT exclusive(2) provision	PTT	PTT	PTT exclusive(7) provision	PTT
GERMANY	DBP exclusive provision	DBP	DBP	DBP exclusive provision	DBP
GREECE	OTE exclusive provision	OTE	OTE	OTE exclusive(8) provision	OTE
IRELAND	TE exclusive(3) provision	TE	TE	TE exclusive(8) provision	TE
ITALY	TELESPAZIO exclusive provision	TELESPAZIO	TELESPAZIO	TELESPAZIO exclusive provision	TELESPAZIO
LUXEMBOURG	P&T exclusive(4) provision	P&T	P&T	P&T exclusive(4) provision	P&T
NETHERLANDS	PTT exclusive provision	PTT	PTT	PTT exclusive(8) provision	PTT
PORTUGAL	liberal; need licence from CPRM	CPRM & others licensed by CPRM	CPRM (5)	liberal;need licence from CPRM	CPRM
SPAIN	TELEFONICA exclusive provision	TELEFONICA	TELEFONICA	liberal (9)	TELEFONICA
UNITED KINGDOM	BTI MERCURY exclusive provision	BTI MERCURY	BTI MERCURY (6) exclusive provision	BTI MERCURY (10)	BTI MERCURY

NOTES: (1) Exclusive rights to purchase and resell space segment capacity (EUTELSAT, INTELSAT, INMARSAT Agreements)
(2) Licences may be issued for private up-links
(3) Government is considering private satellite operations
(4) Private operation permitted in limited cases
(5) CPRM is prepared to apply for space segment capacity on behalf of third parties
(6) MERCURY can supply space segment only as an agent for BTI
(7) Operation of receive-only earth stations for the reception of data is expected to be allowed in the near future via a licensing procedure
(8) Policy regarding receive-only earth stations under review
(9) Own-use reception of satellite data permitted
(10) Operation of receive-only earth stations for data and private down-links may soon be permitted

The ownership and operation of earth stations for the reception of entertainment television is now allowed in Ireland, after a large number of users purchased and installed such stations without the permission of the Ministry of Communications.

As a signatory to EUTELSAT and INTELSAT, Telecom Eireann is the only organisation in the Republic of Ireland permitted to purchase space segment capacity from these organisations.

In conclusion, Telecom Eireann, a state owned company, has exclusive rights for the provision of network services in Ireland. The availability of space segment capacity for national and international communications is controlled by Telecom Eireann being a signatory to INTELSAT and EUTELSAT.

There is no clear policy regarding the ownership and operation of transmit/receive and reveive only earth stations for telecommunications although it seems that individuals and organisations will be allowed to own and operate ROES for data reception.

2.2.7. **Italy**

Telespazio provides satellite telecommunications services, leasing channel capacity to intercontinental carriers such as Italcable and foreign companies via its earth stations.

Telespazio is the sole Italian signatory to INTELSAT and EUTELSAT and, as such, it controls the availability of the space segment capacity from these organisations in Italy. The Telespazio exclusive rights in satellite communications ensure that only Telespazio can operate satellite uplinks and downlinks and the associated earth station facilities in Italy.

2.2.8. Luxembourg

The operation of transit/receive and receive only earth stations is the exclusive right of the P&T. Space segment capacity for international telecommunications can only be purchased from EUTELSAT and INTELSAT by the P&T which is a signatory to both organisations.

2.2.9. Netherlands

Transmit/receive and receive only earth stations are not considered by the PTT as peripheral equipment, but as part of the telecommunications infrastructure. As the policy of the PTT is to own and operate all telecommunications infrastructure, private organisations and individuals are not allowed to own and operate transmit/receive and receive only earth stations. The PTT's exclusive rights over the ownership and operation of receive only earth stations are under review. It is expected that the PTT will agree to install receive only earth stations at customers premises, but these stations will be owned and operated by the PTT.

The PTT represents the Government as a signatory to INTELSAT, EUTELSAT, and INMARSAT and, as such, it controls the availability of space segment capacity in the Netherlands.

2.2.10 Portugal

The Companhia Portuguesa Radio Marconi (CPRM) is a signatory to both INTELSAT and EUTELSAT and operates the earth station facilities in Portugal. CTT leases satellite and submarine cable links from CPRM.

For the reception of entertainment televison, CPRM provides licences free of charge, for users to receive satellite entertainment television, provided the aerials to be used conform to a minimum technical standard. For the reception of satellite data, the same procedure applies as for satellite entertainment television. CPRM is prepared to obtain space segment capacity and the necessary uplink licence from EUTELSAT

As satellite communication services are provided by DBP via an extensive network of earth stations, it is unlikely that a licence would be granted by the Ministry. DBP, as the sole signatory from the Federal Republic to INTELSAT and EUTELSAT, controls the availability of space segment capacity in its territory.

2.2.5. Greece

Under the terms of the statute governing earth stations for telecommunications are provided and operated by OTE.

OTE views with concern the unauthorised installation and use of earth stations for the reception of entertainment television and discussions are being held with the Ministry of Communications to formulate a policy regarding the ownership and installation of receive only earth stations.

It is possible that satellite data distribution systems not connected to the public telephone network could be exempted from the exclusive provision by OTE, in the same way that the local mobile telephone systems are exempted at present.

OTE as a signatory to INTELSAT and EUTELSAT controls the availability of space segment capacity from these organisations in Greece.

2.2.6. Ireland

There is no clear policy regarding the ownership and operation of satellite earth stations in the Republic of Ireland. Telecom Eireann held a number of meetings with the Ministry of Communications regarding receive only aerials but no firm policy has emerged as yet. Customers can apply to the Ministry of Communications to own and operate earth stations. Telecom Eireann indicated that it will look sympathetically on applications by individuals/organisations to own and operate receive only earth stations for the reception of data.

The licence is granted free of charge, as a matter of course provided the aerial conforms to PTT specified technical standards.

For data reception, a regulation is being drafted which will allow individuals and organisations to receive data using their own receive only earth stations by the granting of a licence. It is not as yet decided whether a tax has to be paid for the transmission of the data, the reception of the data or both.

Regarding the space segment, only the PTT can purchase space capacity from EUTELSAT and INTELSAT for international communications. In 1979 the French Government approved the development of the Telecom 1 satellite-communications system. The system entered service in 1984 with the placing of the first Telecom communications satellite in geostationary orbit. The Telecom 1 system is the first domestic satellite communication system providing digital services in metropolitan France and the overseas departments.

Access to Telecom 1 is possible via stations available in France under a one year lease and maintenance contract or by the day for non-equipped sites from the PTT.

In conclusion, the regulatory environment in France is such that only the French PTT is permitted to operate transmit/receive and receive only earth stations for telecommunications. A bill is being drafted which will permit the reception of data using receive only earth stations by obtaining a suitable licence. Space segment capacity from INTELSAT, EUTELSAT and Telecom 1 is only accessible by the PTT.

2.2.4. **Germany**

Satellite communications uplinks and downlinks and their associated earthstations cannot be installed and operated without a licence from the Ministry of Posts and Telecommunications.

on behalf of a user. The user can then install and operate a transmit/receive earth station in consultation with CPRM, to operate a satellite telecommunications link.

In conclusion, Portugal has a liberal regulatory environment regarding satellite communications. A user can apply for space segment capacity from CPRM and a licence to operate his own earth station facilities which is granted provided that the equipment meets the necessary technical standards.

2.2.11 Spain

Telefonica is the sole operator of transmit earth station facilities. As a signatory to INTELSAT and EUTELSAT, Telefonica controls the availability of space segment capacity in Spain.

The regulatory environment in Spain permits the reception of satellite signals by individuals/organisations provided that onward transmission of the information to individuals/organisations other than the host receiver does not take place. Transmit earth stations can only be operated by Telefonica. The availability of space segment capacity is controlled by Telefonica.

2.2.12 United Kingdom

In 1983, the Information Minister, in a ministerial statement, made this point : "The Government will keep in ..... consideration ways of introducing new specialised services by satellite". In a Ministerial statement in July 1984, observers believe that the Minister expanded this point by referring to the "provision of significant facilities which are not normally available from, or complement the facilities provided by public telecommunications operators in the UK".

Encouraged by the above statements, a number of organisations applied to the DTI to "offer specialised business services by satellite", without success. Therefore, it is concluded that the DTI's interpretation of the 1984 Telecommunications Act and the Ministerial Statements is that only British Telecom and Mercury are permitted to operate transmitting earth stations, irrespective of dish size.

The same applies to receive only earth stations (ROES) for data reception, although it is expected that this restriction could be soon removed by DTI, thus paving the way for the private ownership and operation of ROES for entertainment television, by obtaining a SMATV licence from the DTI. Because of the practical difficulty of handling the licensing of the increasingly large number of TVROs, the Government may soon allow small dish television reception without a licence.

Regarding the space segment, only British Telecom and Mercury can purchase capacity from EUTELSAT and INTELSAT. Besides the British Telecom share in the UNISAT project, neither of the two operators seems to be interested in building their own satellite system. A number of organisations which have expressed an interest in operating European satellite systems are not being encouraged.

In conclusion, the regulatory environment in the United Kingdom is such that only British Telecom and Mercury are permitted to operate transmit/receive and receive-only earth stations. This situation will be reviewed in 1990 although it is expected that DTI may soon allow the private ownership and operation of ROES for data reception. In addition, only British Telecom and Mercury can purchase space segment capacity from INTELSAT and EUTELSAT for national and international communications.

2.3 The regulation of satellite services in the United States

The United States has, for a long period of time, adopted a policy of deregulation of satellite services. However, within the US, the Federal Communications Commission (FCC) has not particularly viewed satellites as something special but has applied the same regulatory policy to satellites as it has to other parts of the telecommunications market.

In 1970, the FCC made its first satellite ruling when it authorised the private ownership and operation of satellites to provide domestic services. As a direct result of this ruling, in 1974, the Western Telegraph Company became the first private owner of a satellite in the USA.

In 1979, the FCC removed the need for licensing receive only satellite stations. This decision, coupled with the fact that simple resale is permitted in the USA, has spurred the market for small receive only earth stations used to receive TV services for domestic use or for Cable TV distribution. It has also allowed the business use of so called VSAT equipment (microterminals - Very Small Aperture Terminals, see Table 4) for which a very large market has been predicted by some market analysts.

Finally, the most recent decision of significance in this area was in 1982 when DBS (Direct Broadcasting by Satellite) service was authorised.

The success of the policy of "open skies" in the USA can be judged from the need (in 1983) to reduce orbital spacing for domestic satellites and from the number of applications to provide domestic services (for example in 1985, the FCC authorised 23 domestic fixed satellites).

3. FUTURE SATELLITE COMMUNICATIONS SYSTEMS COVERING EUROPE

A number of satellite communications systems are being planned or implemented in Europe at present. These are summarised in **Figure 5.** EUTELSAT is developing its second generation satellites (EUTELSAT-II) which could require an investment of about $400 million. In April 1986, EUTELSAT signed a contract with AEROSPATIALE worth $225 million for three EUTELSAT-II satellites for delivery in mid-1989; options were placed for a further 5 satellites.

The EUTELSAT-II system is designed to provide business services, telephony and TV programme distribution to cable networks and small dish aerials in Europe.

In parallel, a number of European countries support the development by their respective industries and the utilisation of national communications satellites systems, such as the French Telecom I, Germany's DFS-Kopernikus and Italy's Italsat.

In addition, a number of private companies in Europe are trying to enter the satellite communications market. In the United States, several companies have applied to provide transatlantic satellite links to Europe.

There are at least four applicants in the United States wishing to provide telecommunications services between the United States and Europe, namely PanAmSat, Orion, Finansat and International Satellite. These applications have been strongly opposed by INTELSAT on the basis that the proposed systems will inflict significant economic harm upon INTELSAT and would have a considerable impact on INTELSAT user charges for international telephone and telegraph services.

In Europe, there are three groups implementing or planning private communications and television broadcasting satellite systems, the Société Européenne des Satellites (SES) and Atlantic Satellites Ltd; these are in addition to the purely DBS vehicles TDF-1, TV-SAT and BSB (France, Germany and U.K. respectively).

Figure 5

NEW SATELLITE FACILITIES PLANNED IN EUROPE

SATELLITE	RESPONSIBLE ORGANISATION	LAUNCH DATE	MAIN CHARACTERISTICS AND CAPABILITIES
Telecom-1	DGT (F)	1984	Videolinks & corporate communications
Kopernikus	Deutsche Bundespost (D)	1988	Telephone, data, video conferencing & TV distribution - operational mid 1988
Italsat	Telespazio (I)	1989	DBS & telecommunications capabilities
Tele-X	Swedish Space Corporation	1988	DBS capability & new data & video services for business community in Denmark, Finland, Norway & Sweden
Olympus	ESA	1987	DBS channels, business services
I - F4, F5 II - F1, etc	Eutelsat	1987/ 1988 1989	Business services, telephony & TV distribution
TV-SAT	BMFT/Deutsche Bundespost (D)	1987	TV broadcasting in Germany
TDF - 1	CNES/TDF (F)	1988	TV broadcasting in France
BSB	British Satellite Broadcast (UK)	1989/ 1990	TV broadcasting in the UK
Astra	Société Européenne des Satellites (L)	1988	TV services
Atlantic	Atlantic Satellites	1989	DBS channels in Ireland; eventually transatlantic communications

The SES system is planning to broadcast pan-European television using its ASTRA medium power satellites. The first ASTRA satellite is currently scheduled for launch in February 1988. The project is supported by the Luxembourg Government. Luxembourg has filed with the International Frequency Registration Board (IFRB) to obtain three orbital positions and appropriate frequencies with a footprint covering Europe. A number of large European commercial interests have invested in the SES parent company, including Thames Television, the largest UK commercial TV company. EUTELSAT is invoking Article XVI of its Convention for co-ordination of the ASTRA system, by claiming that the SES will cause EUTELSAT significant economic harm.

The Atlantic Satellite Ltd, a private company based in Ireland, with major US investment, is proposing to provide DBS televison service to the Irish and UK markets and private fixed satellite services in Europe, and possibly between Europe and the USA. Dishes as small as 0.3-0.45 m can be used in the UK to receive the Atlantic Satellite DBS transmissions. The fixed satellite services payload is designed to be used for private business communications using small dish aerials and VSATs.

In conclusion, a number of private companies, some backed by powerful investment interests, are challenging the exclusive rights of INTELSAT and EUTELSAT in the provision of space segment capacity for television and specialised satellite services.

4. SATELLITE SERVICES SUITABLE FOR THE EUROPEAN GEOGRAPHY AND TELECOMMUNICATIONS ENVIRONMENT

European geography, with relatively small distances between major centres of population, is not a natural candidate for the extensive application of satellite communications. In the post-war years, the European Telecommunications Administrations have installed a comprehensive terrestrial communications network. In addition, the Administrations are modernising and extending their network using digital technology. These developments may make utilisation of satellite for trunk communications uneconomical both nationally and internationally in Europe.

The main advantages of satellite over the present narrow band analogue terrestrial networks, namely wide band-width and wide coverage, make satellites particularly suitable for :

- multipoint data distribution and collection;
- wideband services such as videoconferencing;
- low data rate communications with mobiles.

Multipoint data distribution and collection at data rates below 64 kbit/s can be achieved effectively using a central medium size hub-station ($\pm$ 10 m diameter dish and very small aperture terminals (VSATs) with dish diameters of about one metre and costing less than ECU 5,000.

The rapid digitisation of the European terrestrial network and the availability of ISDN service in most European centres of population by 1990 makes satellite usage for wideband services both selective and temporary. Satellite wideband services can be introduced to areas with a need for such services, in advance of the introduction of wideband ISDN services.

The market for mobile communications is growing fast in Europe. A pan-European cellular digital mobile communications system will be introduced in 1991 to end the present incompatibility of the national systems. Satellites, together with terrestrial systems, could provide pan-European slow data rate communications (up to 4.8 kbit/s) for mobiles, in advance of the introduction of the pan-European mobile system.

In addition, communication satellites could be used as a temporary aid to complement and assist the development of the terrestrial infrastructure in Europe, especially in the peripheral countries. The availability of terrestrial circuits to a user is limited by the availability of the appropriate telecommunications infrastructure and spare telecommunications capacity within this infrastructure. Assuming that space segment capacity is available, satellites can be used to supplement the present telecommunications infrastructure as follows :

- temporary telecommunications for special events, such as the Olympic Games and national disasters, where suitable terrestrial circuits are not available ;

- telecommunications for thin traffic routes, such as remote villages, until such time as the traffic builds up to justify the permanent provision of terrestrial circuits of suitable capacity ;

- diversity protection of telecommunications routes, where the terrestrial telecommunications infrastructure is limited to such an extent that route diversity can only be provided by a satellite link.

The European Administrations are aware that satellites can be deployed in Europe to complement the terrestrial networks and assist in the modernisation and extension of the terrestrial telecommunications infrastructure. Therefore the Administrations should be encouraged to use satellites more extensively to provide cost effective communications for temporary telecommunications, telecommunications to thin traffic routes and possibly for diversity protection of routes.

5 TECHNICAL AND MARKET DEVELOPMENTS IN SATELLITE COMMUNICATIONS IN EUROPE AND THE UNITED STATES

Telecommunications satellites were originally deployed in Europe to provide trunk telephony circuits via large gateway earth stations. However, experience in the international intra-European telecommunications market has shown that conventional telephony and point-to-point low speed data (up to 9.6 kbit/s), can be carried more economically by terrestrial rather than satellite circuits. Specialised Satellite Services (SSS), on the other hand, a term used to denote those services which are provided between relatively small earth stations (up to 7 m dish diameter) and which do not fall within the categories of normal international public telecommunications service and direct broadcasting, have promised to open a new potential market in Europe. Both INTELSAT and EUTELSAT responded with the provision of the IBS/INTELNET and SMS services respectively. In Europe, most Administrations have installed one or more SMS earth stations to access the EUTELSAT Satellite Multiservice System. However, the response from the market has been disappointing, the SMS transponder is hardly filled and the established SMS earth stations remain underutilised.

There are a number of reasons why the specialised satellite services have not attracted the number of customers which the Administrations anticipated. The services were introduced late and there was not sufficient marketing co-ordination between the European Administrations. Administrations which introduced the service in reasonable time, could not offer the wide international coverage necessary to gather a critical mass of customers to make the service viable.

In addition, the earth stations developed for the SMS service, although they make efficient use of the space segment capacity, are so expensive that few customers have the traffic volume to justify the installation of a SMS station on their premises. To spread the earth stations costs, the Administrations have responded by setting up community earth stations. These earth stations require the provision of local tails from the user premises to the earth station. In general, the provision of local tails has been slow and relatively expensive for users with moderate traffic volumes. Therefore, the relatively expensive ground segment, coupled with the difficulties of obtaining local tails, has further discouraged the development of the specialised satellite services in Europe.

Recently, the Administrations recognised the problem areas described above and greater co-operation between the various European Telecommunications Administrations is taking place in the marketing and provision of SMS services. Therefore it is expected that the expectations of users with medium to high traffic volumes with data rates of 64 kbit/s and above can be satisfied by the SMS and IBS/INTELSAT services offered by the Administration.

In the United States, a number of large corporate users, in an effort to obtain greater network flexibility coupled with lower operating costs and fixed long-term costs, have adopted micro-terminals (very small aperture terminals - VSAT) to set up private satellite networks.

VSAT systems operate in a star network configuration, offering unidirectional or bidirectional low data-rate (2.4-64 kbit/s) between a relatively large central hub earth station (Hub) and a large number of VSATs located at user premises.

In the United States, receive only VSATs with dish diameters of about 0.6 m have been available for a number of years. Transmit/receive VSATs with dish diameter of 1.2-1.8 m have become available more recently.

Intrinsically, VSATs have poor discrimination and besides controlling the radiated power, sophisticated modulation and coding techniques are used to reduce interference to other systems to acceptable levels. In addition, in order to maximise the use of the space segment resource, the data rates transmitted from the VSAT have to be kept as low as possible. As there are no such constraints in the transmission from the large hub station, in general, the data rates transmitted by the VSAT are much lower than the ones received (asymmetric operation).

A VSAT system usually contains a mixture of receive-only and transmit/receive terminals. In the United States, larger VSATs systems have been successfully used in the following cases :

- packet switching point-to-multipoint satellite networks to distribute databases to micro-mini computers in a large number of widely dispersed remote sites while retaining central database control. Such networks are being used by commercial database distributors such as news services, to provide news bulletins, weather reports, currency exchange rates, share prices, commodity prices, etc. Other applications include broadcasting of payroll and updating product line information to branch offices of major corporations ;

- networks operating at relatively low data rates (up to 64 kbit/s where requirements for the transmitting and the receiving data rates are unequal (asymmetric). Such networks are being used for applications such as remote database searching where the inquiry data transmission requirements are much smaller than those for the response data. Other applications include credit card transactions and electronic fund transfer at the point of sale.

VSAT networks are normally run by common carriers and satellite system operators. In general, the VSAT system operator provides the central hub station and the associated RF and baseband equipment at a central location near a major city. The customer buys or leases the required number of VSATs from the system operator and pays a monthly charge for each terminal. This monthly charge includes the cost of the terrestrial line to the hub station, the utilisation of the hub station and the cost of the space segment capacity.

It appears that the development pattern of VSAT networks in the United States is being repeated in other countries although at a slower, more measured pace. The availability of transponder capacity at attractive rates from international, regional and domestic satellite system operators is stimulating the use of VSAT networks in countries where a liberal telecommunications regulatory environment exists. For example, INTELSAT is promoting VSAT networks by offering very attractive transponder capacity lease rates for its spread spectrum INTELNET I and 1/2 rate coded INTELNET II services. In Mexico, a new low data rate broadcast service at C-band called INFOSAT has recently been introduced. In addition, a high capacity two way data service in the Ku-band will be introduced in 1988. The Australian Associated Press has set up a receive-only VSAT network covering Australia and the addition of transmit/receive VSATs is planned in the future.

In conclusion, the EUTELSAT SMS and the INTELSAT IBS services operated by the Administrations, can satisfy the demand for digital point-to-point and point-to-multipoint requirements of companies with relatively high volumes of traffic at data rates above 64 kbit/s.

A large number of companies with a requirement for point-to-multipoint broadcasting, and/or interactive data services, find the cost of the utilisation charges of the EUTELSAT SMS and INTELSAT IBS services uneconomical. These companies are looking at the VSAT networks to satisfy their requirements in a cost-effective way. The Administrations are responding by developing national VSAT services but unfortunately at a relatively slow pace. There is a demand for the establishment of pan-European VSAT systems. POLYCOM, a French company partly owned by FC&R, is setting up a VSAT system, but high space segment charges and regulatory problems outside France, make the success of the system still uncertain.

6 ADJUSTMENT OF REGULATORY CONDITIONS TO IMPROVE SATELLITE COMMUNICATIONS IN EUROPE

The INTELSAT Convention stated that anyone within the jurisdiction of a Signatory, who wishes to establish a separate system providing "international public telecommunications services", must first consult with INTELSAT's Assembly of Parties. This consultation ensures technical compatibility with INTELSAT, and avoids "significant economic harm" to the global system of INTELSAT. (Article XIV Rights and Obligation of the Members, INTELSAT Convention).

INTELSAT has grown to own over 16 satellites, carrying two thirds of the world's international telephone traffic, and virtually all transoceanic television. However, INTELSAT is being challenged by the introduction of high-capacity long distance fibre optic submarine cables, and a number of private companies planning to establish transatlantic satellite systems. The United States Government seems to treat the establishment of these private sytems favourably, considering them as an extension of its domestic policy on deregulation.

EUTELSAT, an organisation conceived to provide mainly trunk telephone circuits by satellite, is turning more and more to TV distribution to obtain revenues. However, EUTELSAT's virtual monopoly in this area may be challenged to some extent by the ASTRA direct broadcast satellite system being established by SES of Luxembourg. Both INTELSAT and EUTELSAT are looking for new business services to utilise their capacity more profitably and to face competition. INTELSAT has introduced a number of specialised satellite services using small aerials and VSATs. EUTELSAT has dedicated one transponder for the specialised satellite services which can be accessed using small SMS aerials.

The commercial pressure for separate systems to compete with both INTELSAT and EUTELSAT, will continue to grow as the move for competition at world level gains momentum. It is recognised that INTELSAT and EUTELSAT both have commercial and public service goals to fulfil. Both organisations average their charges over heavy and thin routes alike and they have no direct access to the end user market place. However, both organisations are facing competition and have to accelerate the use of advanced technology to increase their competitiveness, take an imaginative approach to the marketing of their services and continue to improve their strategies of operational and financial planning.

With the financial and technical resources that both organisations have established over many years of operations, there is no reason why they could not compete successfully with any separate systems that might be established.

In Europe, most Administrations, as the sole operators of specialised satellite services, choose to offer the EUTELSAT SMS services, rather than the INTELSAT IBS/INTELNET service for intra-European international business communications.

In order to realise the full potential of communications satellites, as a complement to the present terrestrial networks, and as an aid to the rapid development of the digital terrestrial networks, the virtual monopoly in the provision of specialised satellite services could be selectively relaxed.

In general, individuals and organisations could be permitted to own and operate low data rate (below 64 kbit/s) private closed satellite networks in Europe, irrespective of the uplink and downlink location.

In order to achieve this, a number of regulatory conditions would have to be reviewed and modified.

Tight regulation in the operation and ownership of satellite uplinks is based on the real need to minimise the interference caused by a transmitting earth station to other satellite and terrestrial systems. Earth station dish sizes are progressively reduced from the 30 metre Type A INTELSAT antennae to the less than 2 metre micro-terminal VSAT transmit/receive antennae. As the aerial size decreases, its discrimination ability rapidly decreases and its interference potential greatly increases.

Licensing procedures could be devised to ensure that uplinks do not cause unacceptable interference to other systems. For example, strict standards regarding transmit power, sidelobe performance, pointing accuracy, frequency stability and other parameters, could be applied to transmit earth stations. The CCIR already sets forth the Reference Radiation Diagram in the Recommendation 465-1 for aerials greater than 100 wavelengths in diameter, as a guideline for co-ordination calculation.

Ownership of receive only and receive/transmit earth stations, and operation of the associated uplinks and downlinks, for the transmission and reception of low-speed data (below 64 Kbit/s) could be permitted. Of course, the installations of such stations would have to satisfy the appropriate national safety and environmental protection standards. To ensure that such stations are not used to receive unauthorised signals, a registration and inspection procedure could be set up in each Member State.

The INTELSAT and EUTELSAT Agreements specify that applications for approval of earth stations to access their respective space segments, and applications for allotment of space segment capacity, may be submitted only by Signatories.

Therefore, in practice, the INTELSAT and EUTELSAT Signatories control the availability and cost of space segment capacity in their respective territories.

One simple way to ensure that the INTELSAT and EUTELSAT space segment is more widely available in Europe would be to commit Signatories to these organisations to submit applications for earth station approval and allotment of space capacity on behalf of third parties in their territory, in certain cases. This simple measure could increase the availability of space segment capacity and introduce in particular space segment capacity for the establishment of low-data rate private networks in Europe.

An additional, more complex step to ensure more flexibility in the availability of space segment capacity could be to permit other satellite systems besides EUTELSAT and INTELSAT to be established in Europe, given current developments. This matter will urgently require the working out of a common position of the Community and the Member States. In this context, a common interpretation of the "economic harm" provisions contained in Articles XIV and XVI of the INTELSAT and EUTELSAT Conventions as regards their impact on satellite communications in the Community will be required.

Micro-terminal (VSAT) systems are intrinsically low data rate asymmetric systems. Data rates from the hub station to the VSATs are normally less than 64 Kbit/s. Data rates from the VSATs to the hub stations are much lower than 64Kbit/s. The EUTELSAT SMS system is designed to operate at multiple rates of 64 Kbit/s, and therefore the VSAT market is different from the SMS market. Hence, very little migration of customers from the SMS services to the VSAT systems is envisaged.

Most major European Administrations are developing and testing VSAT networks. Therefore, they are in a good commercial position to compete with any private operator entering the VSATs market.

In addition, the early development of a low data rate market in Europe will provide a mature market in the 1990s which can be exploited by the Administrations as cheaper ISDN services are introduced in Europe.

European businesses and particularly those in the service sectors would benefit from more choice and flexibility, wider service areas and lower prices for their low-data rate communications needs. The availability of cheap and accessible pan-European communication will encourage more small and medium-sized companies to expand their operations within the Community, thus helping in the creation of a truly common market in the Community.

Finally, the overall effect of these changes on the European space industry will be positive. The European space industry would benefit from the demand for hub-stations and microterminal VSAT equipment. A number of small high technology European companies are developing competitive VSAT products and could expand their production to satisfy the demand for VSAT equipment.

In conclusion, regulatory changes should be considered to permit :

a) the private ownership and operation of receive-only terminal earth stations ;

b) the private ownership and operation of receive/transmit very small aperture (micro) terminals (VSAT) ;

c) the private ownership and operation of uplink hub earth stations in certain cases ;

d) direct access to space segment capacity in certain cases.

APPENDIX 3

THE EUROPEAN CONFERENCE OF POSTAL AND TELECOMMUNICATIONS ADMINISTRATIONS (CEPT) : MECHANISMS AND CO-OPERATION WITH THE COMMUNITY

CEPT - European Conference of Post and Telecommunications Administrations

1. Structure

CEPT was founded on 26 June 1959 in Montreux (Switzerland). It is open to all European Postal and Telecommunications Administrations. It now comprises 26 European countries : all the Member States of the European Community and of EFTA, together with amongst others Turkey and Yugoslavia.

CEPT regulations are set out in the founding Act of the Conference. Only the most essental points are laid down, in line with the desire of the organisers to retain maximum flexibility. It is stipulated in the Act that only European Postal and Telegraph Administrations belonging to member countries of the Universal Postal Union (UPU) and/or the International Telecommunications Union can be members of CEPT.

CEPT is independent of all political and economic organisations and carries out its activities along the lines laid down in the Universal Postal Convention and the International Telecommunications Convention.

Since 1969, CEPT has been a conditional member of the UPU. This status permits CEPT to participate as a single unit in the various meetings of the UPU. This conditional membership applies only to the postal activities of CEPT.

2. Objectives

The essential aim of the Conference is the development of relations between member Administrations and the harmonisation and practical improvement of their administrative services and techniques.

Its tasks are as follows :

- the accomplishment of work and development of services of common interest ;
- exchange of information and officials ;
- study of questions concerning the organisation, technical aspects and functions of services ;
- simplification and improvement of postal services and telecommunications ;
- common examination of proposals presented to the congress and conferences of the international postal and telecommunications organisations.

3. Organisation

The Plenary Assembly is the supreme body of CEPT. It deals with questions concerning the structure and management of the organisation and is competent in all questions related to posts and telecommunications, especially those elements common to both.

The Plenary Assembly meets periodically, generally every two years, for an Ordinary Session. It can also meet for an Extraordinary Session subject to the agreement of two thirds of its members.

In the course of plenary sessions, the Conference nominates the Administration to organise the following Ordinary Session. This Administration is known as the Managing Administration, and takes over the presidency and secretarial duties as of the end of the current term. It prepares the following session and guarantees the Conference's continuing work in between sessions.

Since 1 July 1985, the Danish Posts and Telegraph Administration has performed this role, and is preparing the next Plenary Assembly in 1987.

The Managing Administration is assisted in its task by a permanent secretarial staff, situated in Bern, called the Liaison Office.

Two different commissions deal with posts and telecommunications.

These organisations have special responsibility for questions concerning service provision, technical aspects and tariffs. The vast domain covered by these two commissions has given rise to the appointment of numerous committees and study groups to study specific topics.

The committees of the Telecommunications Commission are as follows :

- Co-ordination Committee for Satellite Telecommunications (CCTS) ;
- Co-ordination Committee on Harmonisation (CCH) ;
- Commercial Action Committee (CAC) ;
- Liaison Committee for Transatlantic Telecommunications (CLTA) ;

The complete organisation (committees and study groups) of the Telecommunications Commission is given in **Figure 6.**

4. Relations between CEPT and the Community

A Memorandum of understanding establishing a framework of co-operation between the Community and CEPT was signed in July 1984.

Figure 6

T
Commission «Télécommunications»
Telecommunications Commission
Président: I. Lönberg (Danemark)
Chairman: I. Lönberg (Denmark)
Vice-président: M. Toutan (France)
Vice-Chairman: M. Toutan (France)
TRAC
Comité chargé de l'application des Recommandations techniques
Technical Recommendations Application Committee
Président: J.-P. Duplan (France)
Chairman: J.-P. Duplan (France)
Vice-président: S. Temple (Royaume-Uni)
Vice-Chairman: S. Temple (United Kingdom)
CAC
Comité d'action commerciale
Commercial Action Committee
Président: J.F. Pedersen (Danemark)
Chairman: J.F. Pedersen (Denmark)
Vice-présidents: J.-C. Dewisbal (France)
M.J. Sheridan (Irlande)
Vice-Chairmen: J.-C. Dewisbal (France)
M.J. Sheridan (Ireland)
CLTA
Comité de liaison des télécommunications transatlantiques
Liaison Committee for Transatlantic Telecommunications
Président: T. Larsson (Suède)
Chairman: T. Larsson (Sweden)
Vice-présidents: A. Jefferis (Royaume-Uni)
L. Tenzi Müller (Espagne)
Vice-Chairmen: A. Jefferis (United Kingdom)
L. Tenzi Müller (Spain)
CCH
Comité de coordination de l'harmonisation
Co-ordination Committee on Harmonization
Président: O. Degliantoni (Italie)
Chairman: O. Degliantoni (Italy)
Vice-présidents: P. Kail (Allemagne R.F.)
L. Plappert (Autriche)
Vice-Chairmen: P. Kail (F.R. of Germany)
L. Plappert (Austria)
CCTS
Comité de coordination des télécommunications par satellite
Co-ordination Committee for satellite Telecommunications
Président: C. Stalfen (Suisse)
Chairman: C. Stalfen (Switzerland)
Vice-présidents: N. Knudtzon (Norvège)
J.J.M. van Moorsel (Pays-Bas)
Vice-Chairmen: N. Knudtzon (Norway)
J.J.M. van Moorsel (Netherlands)
SET
Satellites européens de télécommunications
European Telecommunications Satellites
Président: F. Rancy (France)
Chairman: F. Rancy (France)
PTC-SAT
Politique des télécommunications par satellite
Satellite Telecommunications Policy
Président: Vacant
Chairman: Vacant
GSM
Groupe spécial Mobiles
Mobile Services
Président: T. Hang (Suède)
Chairman: T. Hang (Sweden)
TE T/GT 10
Equipements terminaux
Terminal Equipment
Président: M.E. Brenton (Royaume-Uni)
Chairman: M.E. Brenton (United Kingdom)
SPS T/GT 11
Signalisation, protocoles et commutation
Signalling, Protocols and Switching
Président: L. Ackzell (Suède)
Chairman: L. Ackzell (Sweden)
TM T/GT 12
Transmission et multiplexage
Transmission and Multiplexing
Président: L. Bourgeat (France)
Chairman: L. Bourgeat (France)
NA T/GT 14
Aspects «Réseau»
Network Aspects
Président: M. Moore (Royaume-Uni)
Chairman: M. Moore (United Kingdom)
Tg T/GT 1
Exploitation et tarification des services télégraphiques et télématiques
Telegraph Operation and Tariffs
Président: R. Rodrigues (Portugal)
Chairman: R. Rodrigues (Portugal)
Tph T/GT 2
Exploitation et tarification téléphonique
Telephone Operation and Tariffs
Président: A. Nodares (Grèce)
Chairman: A. Nodares (Greece)
TTVS T/GT 4
Transmissions télévisuelles et sonores
Television and Sound Transmissions
Président: F.R. Nouhauser (Pays-Bas)
Chairman: F.R. Nouhauser (Netherlands)
PGT T/GT 5
Principes généraux de tarification
General Tariff Principles
Président: J. Grau (Espagne)
Chairman: J. Grau (Spain)
SF T/GT 7
Services et facilités
Services and facilities
Président: D. Humbold (République fédérale d'Allemagne)
Chairman: D. Humbold (Federal Republic of Germany)
SG T/GT 13
Statistiques et gestion
Statistics and Management
Président: D. Gourdalier (France)
Chairman: D. Gourdalier (France)
GRAE
Groupe d'experts «Rétablissement des arbres européennes»
Expert Group "European Resteration Group"
Président: P. Genin (France)
Chairman: P. Genin (France)
STA
Systèmes transatlantiques
Transatlantic Systems
Président: P. Godinioux (France)
Chairman: P. Godinioux (France)
R T/GT 3
Radiocommunications
Radio Communications
Président: A. Potti (Italie)
Chairman: A. Potti (Italy)
ELT T/GT 8
Etudes à long terme
Long Term Studies
Président: A. Castillo (Espagne)
Chairman: A. Castillo (Spain)

The basic idea of the agreement is that CEPT annual working programmes and the relevant decisions regarding priorities and schedules should take into account the particular requirements of the Commission, assisted by the Senior Officials Group on Telecommunications (SOG-T),

The basic aims of this co-operation are to :

- adopt a common interpretation of international standards ;
- allow the same or compatible services on an international basis ;

The following subjects have been included in the agreed programme :

a) Terminals and user interfaces, relating to the Council Directive on the mutual recognition of type approval [86/361/EEC] ;

b) ISDN (narrowband) networks and services, in line with the Council's recent Recommendation in this area [86/659/EEC] ;

c) IBC networks and services, relating to the RACE programme ;

d) Mobile Communications, in line with the Commission's proposed Recommendation and Directive ;

In line with the CEPT-Commission agreement, working programmes of CEPT regarding standardisation have been agreed since 1985 with the Commission and with EFTA, with which the CEPT has reached a similar agreement.

CEPT specifications have the status of recommendations which are not mandatory for Telecommunications Administrations or any other bodies.

The CEPT decided on request of the Commission to study the possibility of working out a "family" of specifications which could be made binding on its members. These are known as NETs (Normes Européennes des Télécommunications). To reach this goal, a Memorandum of Understanding has been prepared, to bind the signatory countries to compulsory acceptance of the specifications in particular to be used for the type approval of telecommunications terminals.

By February 1987, 15 countries had signed this memorandum, namely the 12 EEC Member States, Sweden, Finland and Norway.

This memorandum has resulted in the creation of a new body, the Technical Recommendations Application Committee (TRAC), with the task of determining a list of NETs to be worked out on a basis of unanimity, and to adopt, under a qualified majority system, the final decision to transform and publish, as a NET, the work carried out by CEPT technical groups and approved as a recommendation by the Telecommunications Commission. (see **Figure 7**).

In October, TRAC put forward the first list of potential NETs, to be prepared for June 1987.

NETs can be subdivided into three categories :

a) generally valid for all equipment (administrative, security norms, etc.)

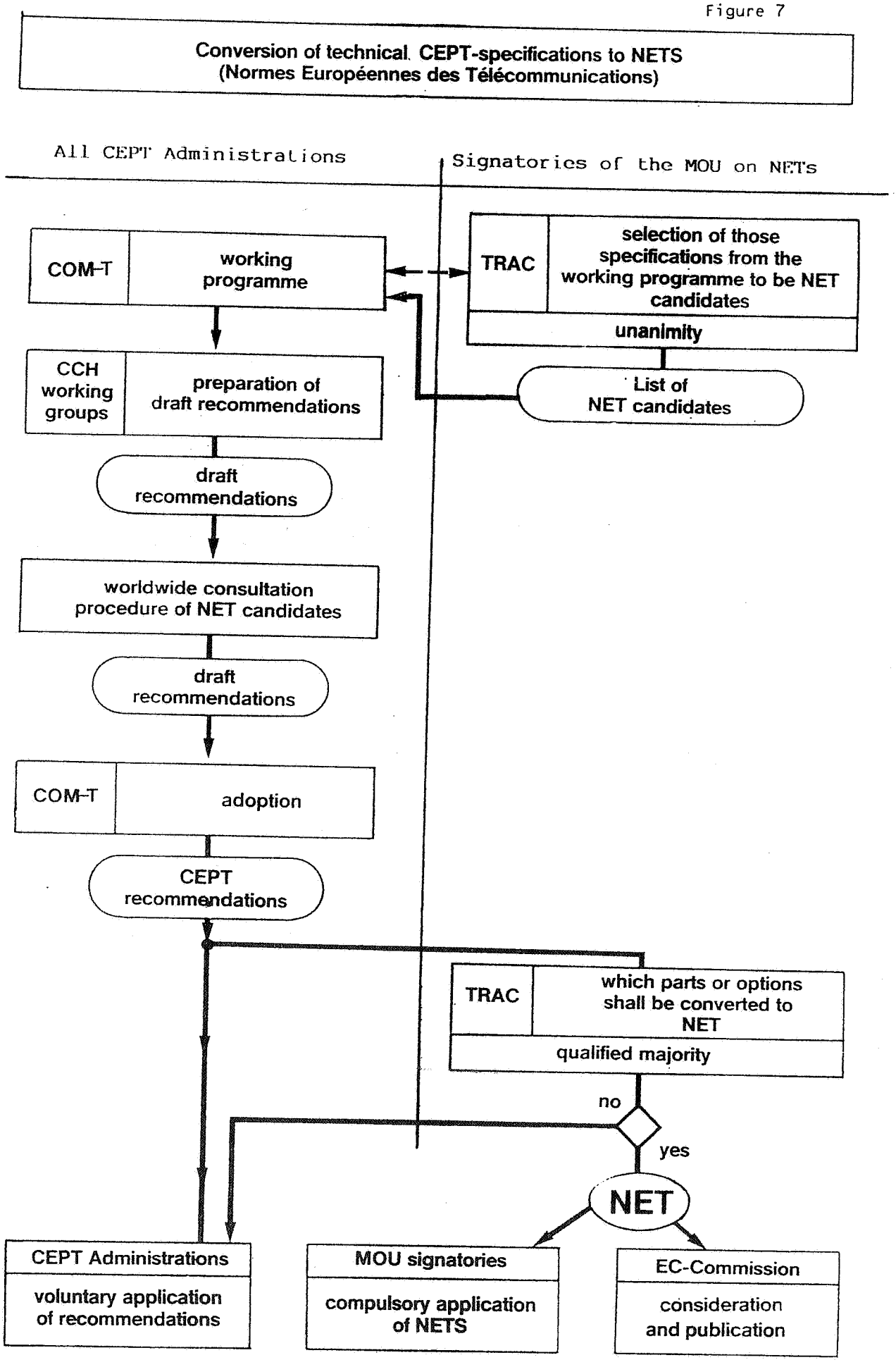
b) valid for certain types of equipment (interfaces between terminals and networks)

c) specifically valid for particular types of terminals (teletex, facsimile, etc.)

The NETs will not contain any clauses which may restrict competition. They will be subject to public debate.

In addition, an agreement has been reached between CEPT, CEN and CENELEC to avoid overlap in the work of the three bodies, which might otherwise occur given the increasingly indistinct boundary line which exists between telecommunications and information technology.

Figure 7


Conversion of technical CEPT-specifications to NETS
(Normes Européennes des Télécommunications)
All CEPT Administrations
Signatories of the MOU on NETs
COM-T
working programme
TRAC
selection of those specifications from the working programme to be NET candidates
unanimity
List of NET candidates
CCH working groups
preparation of draft recommendations
draft recommendations
worldwide consultation procedure of NET candidates
draft recommendations
COM-T
adoption
CEPT recommendations
TRAC
which parts or options shall be converted to NET
qualified majority
no
yes
NET
CEPT Administrations
voluntary application of recommendations
MOU signatories
compulsory application of NETS
EC-Commission
consideration and publication

APPENDIX 4

INTERNATIONAL TELECOMMUNICATIONS UNION (ITU) : IMPACT ON THE REGULATORY ENVIRONMENT OF THE COMMUNITY

INTERNATIONAL TELECOMMUNICATIONS UNION (ITU): Impact on the Regulatory Environment of the Community

1. Structure and objective

Telecommunications, by nature, require international co-operation. The most important body which carries out this co-operation worldwide is the International Telecommunications Union (ITU).

The ITU is an intergovernmental organisation, acting as an agency of the United Nations. The number of member countries currently stands at 159.

The basic text governing its activities is the "International Telecommunications Convention", which outlines the major purposes of the Union :

- to maintain and extend international co-operation for the improvement and rational use of telecommunications of all kinds;
- to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunication services, increasing their usefulness and making them, so far as possible, generally available to the public;
- to harmonise the actions of nations in the attainment of those ends.

Structurally, the Union comprises the following organs:

- The Plenipotentiary Conference
- The administrative conferences
- The Administrative Council
- The permanent organs of the Union, which are:
  - General Secretariat;
  - International Frequency Registration Board (IFRB);
  - International Radio Consultative Committee (CCIR);
  - International Telegraph and Telephone Consultative Committee (CCITT).

The results of the ITU's work and its bodies are laid down in three sets of documents:

- the Convention, a sort of constitution of the Union, which specifies the internal organisation and sets forth general principles governing telecommunications. It is drawn up at the Plenipotentiary Conferences.

- Administrative Regulations which supplement the Convention and are framed at World Administrative Conferences convened by the ITU. These regulations contain detailed provisions applying to telecommunications : the Telegraph Regulations, the Telephone Regulations, the Radio Regulations - and Additional Radio Regulations.

- recommendations of the International Consultative Committees which are produced by telecommunication experts and provide guidance on operational methods and techniques to use (See Section 3).

2. Organisation

The Plenipotentiary Conference, the supreme organ of the ITU is responsible for laying down the basic policy of the organisation. It is composed of delegations representing the Members of the Union and normally meets once every five years.

The Administrative Conferences, are generally convened to consider specific telecommunications matters. They are of two types :

- world administrative conferences (WATTC) and WARC)
- regional administrative conferences.

World administrative conferences are competent, in particular, to undertake partial or complete revision of the Administrative Regulations. Regional administrative conferences can only discuss specific telecommunications matters of a regional nature.

The Administrative Council of the ITU is made up of 41 Members of the Union elected by the Plenipotentiary Conference. It meets annually and is responsible for taking all steps to facilitate the implementation by the Members of the Union of the provisions of the Convention; the Administrative Regulations, the decisions of the Plenipotentiary Conference; and where appropriate, the decisions of other conferences and meetings of the Union. It ensures the efficient co-ordination of the work of the Union, particularly from the administrative and financial points of view.

The General Secretariat is directed by a Secretary-General, assisted by one Deputy Secretary-General.

The Secretary-General is responsible to the Administrative Council for the whole of the administrative and financial side of the Union's work and acts as the legal representative of the Union. The General Secretariat is responsible for the administration of the Union; the publication of administrative regulations and other ITU documents, and the implementation of technical co-operation programmes within the framework of the United Nations Development Programme (UNDP).

The International Frequency Registration Board (IFRB) is composed of five board members and assisted by a specialised secretariat. The board members act as custodians of international agreements, co-ordinating international use of the radio spectrum, to avoid incorrect utilisation by the Administrations.

The International Telephone and Telegraph Consultative Committee (CCITT) and the International Radio Consultative Committee (CCIR) study and issue recommendations on technical and operating questions relating to radio communications (CCIR) and telegraphy and telephony (CCITT). Participation in the work of the CCIs is open to all Members of the Union as well as to private telecommunication operating agencies, scientific and industrial organisations and international organisations which satisfy certain conditions.

About 50 RPOAs (Recognised Private telecommunications Operating Agencies) and 150 other commercial and academic bodies co-operate in the work of CCITT.

Each of the CCIs holds a Plenary Assembly every few years. The Plenary Assembly draws up a list of technical subjects, questions, relating to telecommunications, the study of which should lead to improvements in radio communications or in the telegraph and telephone service, particularly in international relations. These questions are then referred to a number of Study Groups composed of experts from different countries (see below).

The Study Groups draw up recommendations, which are submitted to the next Plenary Assembly. If the Assembly adopts the recommendations, they are published in what are known as the CCI Books, which are disseminated by the Union.

3. Main Implications of ITU recommendations for the Community

The present Telegraph Regulations and Telephone Regulations retain only general provisions, all questions of detail (essential nonetheless, for the efficient operation of international communications) being dealt with by CCITT recommendations. This means that the elaborated guidelines are not mandatory but they have important implications in the field of

- international standardisation
- frequency allocation
- accounting practices and principles between Telecommunications Administrations.

3.1 International standardisation

Under the Nairobi Convention of 1982, CCITT and CCIR are entitled to formulate recommendations that are in effect standards.

The work done by CCITT and CCIR in the domain of international standardisation is extremely important and influential for Telecommunications Administrations, being the result of broad consensus between countries, even if the standards are not binding.

Standards are elaborated in the Working Groups which prepare a draft recommendation to be examined by the Plenary sessions; to become a CCITT/CCIR recommendation, unanimous approval is necessary.

The items actually covered by the working programme of CCITT can be extracted from the list of Study Groups which is given below:

Table 1

Table 1 - CCITT Study Groups 1985 - 1988

I	-	Definition, operation and quality of service aspects of telegraph, data transmission and telematic services (facsimile, teletex, videotex, etc)
II	-	Operation of telephone network and ISDN
III	-	General tariff principles including accounting
IV	-	Transmission maintenance of international lines, circuits and chains of circuits ; maintenance of automatic and semi-automatic networks
V	-	Protection against dangers and disturbances of electro-magnetic origin
VI	-	Outside plant
VII	-	Data communication networks
VIII	-	Terminal equipment for telematic services (facsimile, teletex, videotex, etc)
IX	-	Telegraph networks and terminal equipment
X	-	Languages and methods for telecommunications applications
XI	-	ISDN and telephone network switching and signalling
XII	-	Transmission performance of telephone networks and terminals
XV	-	Transmission systems
XVII	-	Data transmission over the telephone network
XVIII	-	Digital networks including ISDN

Amongst the large number of committees covering other fields, special mention should be made of the joint CCITT/CCIR Study Groups:

CMTT - Television and sound transmission; administered by CCIR

CMV - Definitions of symbols; administered by CCIR

CMBD - Circuit noise and availability; administered by CCITT.

In order further to develop standards in the field of telecommunications, a Joint Technical Programming Committee with the International Electrical Committee (IEC) and the International Standards Organisation (ISO) was established in 1985 : a co-operation aimed at adopting standards not in conflict with each other.

In Europe, CCITT/CCIR standards are generally reconsidered by CEPT, which either adopts them as its own standards or develops them further, mainly excluding some options or adding missing points, but never in conflict with them (see Appendix 3).

3.2. Frequency allocation

Frequency allocation for the various telecommunications services is conducted directly by the ITU in the World Administrative Radio Conferences, where the regulations and recommendations are revised.

The technical preparation of these conferences is carried out by the International Frequency Registration Board. IFRB in addition is responsible for the orderly recording of frequency assignments; and the positions assigned by countries to geostationary orbits and to furnish advice to Members with a view to the operation of the maximum practicable number of radio channels in those positions of the spectrum where harmful interference may occur and with a view to the equitable, effective and economical use of the geostationary satellite orbit.

A part of the regulations for radio communications is devoted to the subdivision of the frequency spectrum into bands to be used for different services in accordance with international agreements.

The CCIR, with reference to this allocation, studies, in particular, how to use the frequency bands optimally.

3.3. Other Recommendations

3.3.1. Accounting rates and K-factors

For most administrations, international traffic represents a major proportion of revenue and profits and this is particularly true of the major administrations.

Although there is increasing use of international services by domestic customers, the major use is by business customers and the efficiency and cost of international calls by telephone, telex, data and facsimile services is a significant feature of the cost of the business infrastructure in the Community countries.

It is necessary to distinguish between tariffs - i.e., charges raised by an administration from its individual customers - and the accounting rates which are applied by administrations in their commercial transactions with each other in regard to international traffic, including transit traffic (transit traffic is traffic from one country to another that is routed via a third country).

Tariffs and accounting rates may bear no real relationship to each other although the international regulations do in fact lay down general principles as regards this aspect.

The present position is that accounting practices and principles are controlled by relevant CCITT Recommendations.

CCITT Recommendation D.150 relates to the "New System for Accounting in International Telephony".

The Recommendation lays down alternative procedures for remunerating the destination countries from revenue collected from subscribers by the originating country.

Basically this entailed a choice between a procedure whereby the Administration of the country of origin keeps its revenue and remunerates the destination country for the facilities made available (either on the basis of a flat-rate price per circuit or on the basis of traffic units carried) and a second system whereby accounting revenue is shared between two Administrations. A similar principle is applied in relation to transit traffic. The Recommendation does include a general statement of principle that in fixing the collection charges, i.e. the tariffs to the public, there should not be too large a dissymmetry between the charges applicable in each direction in the same relation.

These Recommendations, like other CCITT Recommendations, are not binding on each country but they are given effect to the extent that countries make bilateral agreements with each other and therefore pressure from one country to observe the principles will be reflected in its bilateral arrangements with other countries.

International tariffs in Europe are based on bilateral agreements (including transit agreements). Mutually agreed accounting rates are multiplied by the Administrations by so-called K-factors, in order to arrive at the final collection charge. K-factors are applied with a wide variance. As a consequence, the charge for a telephone call from country A to country B may vary by well over 100% from the charge collected for the same call from country B to country A, as is the case for certain Member States.

More recently, at the 1984 CCITT plenary, new "Guiding Principles Governing the Apportionment of Accounting Rates in Intercontinental Telephone Relations" were discussed. They were meant to achieve greater fairness in the handling of transit traffic, e.g., "In an intercontinental telephone link, bilateral or multi-lateral agreements between the Administrations concerned should normally provide for the application of the same accounting rate in both directions of the relation regardless of the route used".

This Recommendation is still under discussion in the current Study Period (Recommendation D.155).

3.3.2. Present recommendations concerning provision of international circuits.

The general principles covering the provision of international private leased circuits are detailed in CCITT Recommendations D.1 and D.6. These describe the circumstances under which Administrations can make such circuits available, the uses to which they can (and cannot) be put and the arrangements under which these circuits may be connected to any public switched systems (e.g., the PSTN).

It should be noted that the recommendations have been created on the basic principle that all switching and transmission is the exclusive function of a single Administration in each country. This principle is quoted in the text of both D.1 and D.6.

Recommendation D.1 is entitled "General principles for the lease of international (continental and intercontinental) private telecommunications circuits".

It deals with the terms and conditions under which international telecommunications circuits are made available to a customer for his or her dedicated use under terms and conditions laid out in a lease between the customer and the Administration at each end of the circuit.

CCITT Recommendation D.6 lays down the "General principles for the provision of international telecommunications facilities to organisations formed to meet the specialised international communications needs of their members".

The recommendation is provided to cover the (exceptional) circumstances in which a specialised communications requirement cannot (yet) be met by an Administration. It allows the Administration to make circuits available for a use not authorised under Recommendation D.1 (as well as D.2 and D.3), and which cannot be met by existing public services.

The fact that the regulatory environment has changed significantly in a number of countries has led to the situation, that these recommendations are not applicable, and that Telecommunications Administrations do not apply them, in a number of cases. For this reason the World Administrative Telegraph and Telephone Conference scheduled for 1988 will deal in particular with this matter.

4. World Administrative Telegraph and Telephone Conference (WATTC - 88).

The World Administrative Telegraph and Telephone Conference scheduled for late 1988 will discuss whether and how to regulate specialised networks and enhanced services, with the aim of promoting the development of telecommunications facilities and their most efficient operation, while ensuring harmony in world-wide telecommunications.

A series of "conference preparatory" meetings is designed to draft a new set of regulations that should be approved at the WATTC.

The work is being done under the auspices of the CCITT.

The delegates are drafting a new set of rules, designed to govern international telecommunications from the early 1990s into the next century.

The expected recommendations (which should supplement the provisions of the International Telecommunication Convention) are intended to lay down the general principles for the provision and operation of international telecommunications services, recognising the right of members to regulate their own telecommunications sectors.

The WATTC - 88 conference will have a major influence on the Community's future external relations in the field of telecommunications services. Appropriate co-ordination of the Community Member States in the preparatory work is of great importance.

GLOSSARY OF TECHNICAL TERMS

GREEN BOOK GLOSSARY

BABT	-	British Approvals Board for Telecommunications
Bearer service	-	A type of telecommunication service that provides the capability for the transmission of signals between user-network interfaces [ref. (1)]
Bellcore	-	Bell Communications Research Inc.
Bell Operating Company (BOC)	-	The 22 companies that were divested from AT&T by a court order
Broadband	-	Needs transmission bit rates equal to or more than about 2 Mbit/s
CCH	-	Coordination Committe for Harmonisation (CEPT)
CCIR	-	International Radio Consultative Committee (ITU)
CCITT	-	International Telephone and Telegraph Consultative Committee (ITU)
CCTS	-	Coordination Committee for Satellite Telecommunications Services (CEPT)
CEN	-	European Committee for Standardisation
CENELEC	-	European Committee for Electrotechnical Standardisation
CEN/CENELEC	-	Joint European Standards Institution
CEPT	-	European Conference of Postal and Telecommunications Administrations (see Annex 3)
Closed user group	-	Special group of users regarding facilities numbering, changes, etc.

CLTA	-	Liaison Committee for Transatlantic Telecommunications (CEPT)
Conformity	-	Conformity of a product with given standards or technical specifications [ref. (2)]
CSDN	-	Circuit Switched Digital Network
DELTA	-	Development of European Learning by Technological Advance (EC-project)
DFS	-	Deutscher Fernmeldesatellit
Digital mobile communications	-	A concept for a pan-European public mobile communications system, based on cellular architecture, digital techniques and supporting voice and data services [ref. (3)]
down-link	-	Unidirectional portion of a communication link from a satellite down to the earth terminal (see Annex 2)
DRIVE	-	Dedicated Road and Intelligent Vehicles in Europe (EC project)
ECMA	-	European Computer Manufacturers Association
ECS	-	European Communication Satellite
ECREA	-	European Conference of Radio and Electronic Equipment Association
ECTEL	-	European Telecommunications and Professional Electronics Association (established by ECREA and EUCATEL)
ECTUA	-	European Council of Telecommunications User Associations
EDI	-	Electronic Data Interchange [ref. (4)]
ESPRIT	-	European Strategic Programme for Research and Development in Information Technology
EUCATEL	-	European Conference of Associations of Telecommunications Industries

European Standard (EN)	-	A standard which has been approved pursuant to the statutes of the standards bodies, with which the Community has concluded agreements (see Chapter VII,1) [ref. (5)]
European pre-standard (ENV)	-	A standard adopted in accordance with the statutory rules of the standards bodies, with which the Community has concluded agreements (see Chapter VII,1) [ref. (5)]
European Telecommunications Standard (NET)	-	Technical specification recommendation of CEPT, approved in accordance with a procedure set down in a MOU and to be adopted by the signatories of that MOU (see Annex 3) [ref. (2)]
EUTELSAT	-	European Telecommunication Satellite Organisation
FCC	-	US Federal Communications Commission
GAP	-	Analysis and Forecasting Group - subgroup of SOG-T
GSLB	-	CEPT Working Group "Groupe Spécial Large Bande"
IEC	-	International Electrotechnical Commission
IEEE	-	Institute of Electrical & Electronics Engineers
INMARSAT	-	International Marine Satellite (see Annex 2)
Integrated Broadband Communications (IBC)	-	Concept for Community-wide telecommunications integrating narrowband and broadband, dialogue and distributive services, taking into account the evolving ISDN [ref. (6)]
Integrated Services Digital Network (ISDN)	-	A network that provides digital connections for a wide range of telecommunications services, including voice and non-voice services, to which users have access by a limited set of standard multipurpose user-network interfaces [ref. (1)]
INTELSAT	-	International Telecommunication Satellite Organisation (see Annex 2)
ISO	-	International Standards Organisation

ITSTC	-	Information Technologies Steering Committee
ITU	-	International Telecommunications Union (see Annex 4)
K-factor	-	mutually agreed multiplier to calculate the final charges for international traffic (see Annex 4)
Local Area Network (LAN)	-	A network in a localised geographical area, providing a high bandwidth to which many nodes and terminals can be connected
MAC	-	Family of standards for enhanced TV transmission via satellite [ref. (7)]
MDNS	-	Managed Data Network Systems
MHS	-	Message Handling System
Modem	-	(Modulator-Demodulator). Devices which allow digital equipment to be connected to the analog (telephone) network
NACP	-	North Atlantic Consultative Process (established between FCC and CEPT)
Narrowband	-	Needs transmission bit rates of less than about 2 Mbit/s
NET	-	see European Telecommunications Standard
Open Network Architecture (ONA)	-	Concept promulgated by the FCC, which requires network operators to offer access to basic service elements
Open Network Provision (ONP)	-	Concept to be elaborated by the Community fixing general conditions under which the network infrastructure is provided by the Telecommunications Administrations to users and service providers (see Chapter VI, 4.2.]
Open System Interconnect (OSI)	-	the international (ISO) open architecture oriented, seven-layer concept to describe the interworking of networks and their components
PABX	-	Private Automatic Branch Exchange
Paging	-	A non speech, one-way, personal selective calling system

PSDN	-	Packet Switched Digital Network
PSTN	-	Public Switched Telephone Network
PTT	-	Postal, Telephone and Telegraph Administration
RACE	-	Research and Development Programme in Advanced Communications Technologies for Europe (see Chapter VII, 2.1.) [ref. (6.)]
ROES	-	Receive Only Earth Station
RPOA	-	Recognised Private Operating Agency
SMS	-	Satellite Multi Services (see Annex 2)
SOGITS	-	Senior Officials Group on Information Technology Standards (EC)
SOG-T	-	Senior Officials Group on Telecommunications (EC)
SPAG	-	Standards Promotion and Applications Group (European organisation of IT companies)
STAR	-	Special Telecommunications Action for Regional Development. Community programme for the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services (see Chapter VII.2.3.) [ref. (8)].
Systems Network Architecture (SNA)	-	Proprietary network standard used by IBM for interconnecting systems and networks
TEDIS	-	Community Programme on Trade Electronic Data Interchange Systems [see Chapter VII.2.5.) [ref. (4)]
Telecommunications Administrations	-	Telecommunications Administrations (PTTs) and Recognised Private Operating Agencies (RPOAs)
Teleservice	-	A type of telecommunication service that provides the complete capability, including terminal equipment functions, for communication between users according to protocols established by agreement between the service providers [ref. (1)]

TRAC	-	Technical Recommendations Application Committee (CEPT)
TVRO	-	Television Receive-Only Antenna
type approval	-	confirmation that a particular equipment is authorised or recognised as suitable to be connected to a particular public telecommunications network (see Chapter VII.1.2.) [ref. (2)]
up-link	-	unidirectional portion of a communication link from the earth terminal up to a satellite
VAN	-	Value-Added Network
Very Small Aperture Terminal (VSAT)	-	Satellite earth terminal using a small antenna with extremely focused characteristic for reception (and/or emission)
WATTC-88	-	World Administrative Telegraph and Telephone Conference (1988) - (ITU)
WARC	-	World Administrative Radio Conference (ITU)

References

(1) COUNCIL RECOMMENDATION OF 22ND DECEMBER 1986 on the co-ordinated introduction of the Integrated Services Digital Network (ISDN) in the European Community (86/659/EEC)

(2) COUNCIL DIRECTIVE OF 24TH JULY 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment (86/361/EEC)

(3) PROPOSAL FOR A COUNCIL RECOMMENDATION on the co-ordinated introduction of public pan-European digital mobile communications in the European Community
and

PROPOSAL FOR A COUNCIL DIRECTIVE on the frequency bands to be made available for the co-ordinated introduction of public pan-European digital mobile communications in the European Community (COM(87)35)

(4) PROPOSAL FOR A COUNCIL REGULATION introducing the preparatory phase of a Community programme on trade electronic data interchange systems (TEDIS), (COM(86)662)

(5) COUNCIL DECISION OF 22ND DECEMBER 1986 on standardisation in the field of information technology and telecommunications (87/95/EEC)

(6) COUNCIL DECISION OF 25TH JULY 1985 on a definition phase for a Community action in the field of telecommunications technologies - R&D programme in advanced communications technologies for Europe (RACE) (85/372/EEC)
and
PROPOSAL FOR A COUNCIL REGULATION on a Community action in the field of telecommunications technologies - RACE (COM(86)547)

(7) COUNCIL DIRECTIVE OF 3RD NOVEMBER 1986 on the adoption of common technical specifications of the MAC/packet family of standards for direct satellite television broadcasting (86/529/EEC)

(8) COUNCIL REGULATION (EEC) n 3300/86 OF 27TH OCTOBER 1986 instituting a Community programme for the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services (STAR programme) (86/3300/EEC)