

SEPTMBER 1987
XIII/350 (87) - EN



COMMISSION
OF THE
EUROPEAN COMMUNITIES

1987

OFFICIAL DOCUMENTS
COMMUNITY
TELECOMMUNICATIONS
POLICY

OFFICIAL DOCUMENTS ON THE COMMUNITY TELECOMMUNICATIONS POLICY

- COM(84)277** 18.05.84 p. 005 COMMUNICATION FROM THE COMMISSION TO THE COUNCIL ON TELECOMMUNICATIONS
Progress Report on the Thinking and Work done in the field and initial Proposals for an Action Programme.
- O.J. L298/49** 16.11.84 p. 071 COUNCIL RECOMMENDATION OF 12 NOVEMBER 1984 concerning the implementation of harmonization in the field of telecommunications. (84/549/EEC)
- O.J. L298/51** 16.11.84 p. 073 COUNCIL RECOMMENDATION OF 12 NOVEMBER 1984 concerning the first phase of opening up access to public telecommunications contracts. (84/550/EEC)
- 11477/84 EXT 1** 07.01.85 p. 075 EXTRACT FROM THE DRAFT MINUTES OF THE 979TH MEETING OF THE COUNCIL HELD IN BRUSSELS ON MONDAY 7TH DECEMBER 1984
Subject : Telecommunications
("Communication from Mr Davignon to the Council on telecommunications" of 3.12.1984).
- O.J. L210/24** 07.08.85 p. 077 COUNCIL DECISION OF 25 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)
- COM(85)230** 25.06.85 p. 081 PROPOSAL FOR A COUNCIL DIRECTIVE on standardization in the field of information technology and telecommunications

PROPOSAL FOR A COUNCIL DIRECTIVE concerning the first phase of the establishment of the mutual recognition of type approval for telecommunications terminal equipment.
- O.J. L217/21** 05.08.86 p. 163 COUNCIL DIRECTIVE OF 24 JULY 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment. (86/361/EEC)

O.J. L36/31	07.02.87	p. 169	COUNCIL DECISION OF 22 DECEMBER 1986 on standardization in the field of information technology and telecommunications. (87/95/EEC)
COM(85)836	20.01.86	p. 177	PROPOSAL FOR A COUNCIL REGULATION (EEC) instituting a Community programme for the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services (STAR programme).
COM(86) 1	22.01.86	p. 207	PROPOSAL FOR A COUNCIL DIRECTIVE on the adoption of common technical specifications of the MAC/packet family of standards for direct satellite television broadcasting.
O.J. L305/1	31.10.86	p. 231	COUNCIL REGULATION (EEC) n° 3300/86 OF 27 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).
O.J. L311/28	06.11.86	p. 237	COUNCIL DIRECTIVE OF 3 NOVEMBER 1986 on the adoption of common technical specifications of the MAC/packet family of standards for direct satellite television broadcasting. (86/529/EEC)
COM(86)205	20.05.86	p. 239	PROPOSAL FOR A COUNCIL RECOMMENDATION on the Coordinated Introduction of the Integrated Services Digital Network (ISDN) in the European Community.
O.J. L382/36	31.12.86	p. 275	COUNCIL RECOMMENDATION OF 22 DECEMBER 1986 on the coordinated introduction of the Integrated Services Digital Network (ISDN) in the European Community. (86/659/EEC)
COM(86)325	05.06.86	p. 281	COMMUNICATION FROM THE COMMISSION TO THE COUNCIL on European Telecommunications Policy
COM(86)547	29.10.86	p. 305	PROPOSAL FOR A COUNCIL REGULATION on a Community action in the field of telecommunications technologies - RACE

- COM(86)662 01.12.86 p. 371 COMMUNICATION FROM THE COMMISSION TO THE COUNCIL on Trade Electronic Data Interchange Systems
- PROPOSAL FOR A COUNCIL REGULATION introducing the preparatory phase of a Community programme on trade electronic data interchange systems (TEDIS)
- COM(87)35 09.02.87 p. 409 PROPOSAL FOR A COUNCIL RECOMMENDATION on the coordinated introduction of public pan-European digital mobile communications in the European Community
- PROPOSAL FOR A COUNCIL DIRECTIVE on the frequency bands to be made available for the coordinated introduction of public pan-European digital mobile communications in the European Community
- O.J. L196/81 17.7.87 p. 461 COUNCIL RECOMMENDATION OF 25 JUNE 1987 on the coordinated introduction of public pan-European cellular digital landbased mobile communications in the Community. (87/371/EEC)
- COUNCIL DIRECTIVE OF 25 JUNE 1987 on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land based mobile communications in the community. (87/372/EEC)

This list does not include communications and decisions regarding the videoconference project for governmental applications nor those relating to the INSIS and CADDIA programmes.



COMMISSION OF THE EUROPEAN COMMUNITIES

COM(84) 277 final

Brussels, 18th May 1984

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL ON TELECOMMUNICATIONS

Progress Report on the Thinking and Work done
in the field
and initial Proposals for an Action Programme

COM(84) 277 final



CONTENTS

	<u>Page</u>
Preamble	2
Introduction	3
I. <u>ECONOMIC IMPORTANCE OF THE SECTOR</u>	3
A. Telecommunications already plays a major role in the economies of Member States (§ 2 and 3)	3
B. This role will increase (§ 4 to 6)	4
C. The economic and social impact will be considerable (§ 7 to 10)	5
II. <u>THE STATUS OF THE COMMUNITY'S TELECOMMUNICATION INDUSTRY AND INFRASTRUCTURE</u>	7
A. It is a sector where situation seems still satisfactory (§ 11-12)	7
B. The evolution taking place shows weaknesses and disturbing vulnerabilities that give cause for alarm (§ 13 to 15)	8
C. European industry does not work under favourable conditions (§ 16 to 18)	9
III. <u>THE PARTICULAR SITUATION OF CARRIERS IN THIS CONTEXT</u> (§ 19 to 21)	11
IV. <u>OBJECTIVES AND STRATEGY OF THE PROPOSED ACTION PROGRAMME</u> (§ 22 to 27)	12
V. <u>DESCRIPTION OF PROPOSED ACTION IN THE FRAMEWORK OF THE COMMUNITY PROGRAMME</u>	14
A. <u>Creation and stimulation of a Community wide market for telecommunications</u>	14
a) Terminals market (§ 28-29)	14
b) Network components (§ 30-31)	15

B.	<u>Reducing the strategic uncertainties</u>	16
-	Creation of a common study and consultation framework (§ 33)	17
-	Establishment of joint infrastructures (§ 34 to 36)	17
C.	<u>Improving basic technology skills (§ 37)</u>	18
D.	<u>Aid for modernization and strengthening of networks in the least favoured Community regions (§ 38 to 40)</u>	18
VI.	<u>CONCLUSIONS</u>	20

P R E A M B L E

The Commission has sent to the Council two communications on telecommunications. At the meeting of Ministers for Industry on November 4, 1983 the Council agreed that the Commission would call together a Senior Officials Group (SOGT), which would work closely with Ministers for Industry with a view to determining - in conjunction with the industrial circles concerned and with the PTT authorities - the basis for proposing an action programme for the balanced development of the telecommunications sector.

This Group met six times between November 24, 1983 and March 13, 1984. Thanks to its cooperation and the highly constructive attitude prevailing throughout its discussions, the Commission was able to assess the degree of consensus on the arrangements for implementing the six action lines proposed, and the following communication sets out its proposals to the Council.

1. In earlier communications, the Commission has demonstrated the increasing importance of telecommunications to the economic development of the Community.
The stakes involved and the challenges with which Europe is confronted in this sector are considerable. The capacity to meet these challenges, and to cope in a timely manner with the opportunities born out of the development of telecommunications, is outside the capability of national operators on their own.

If the European countries are divided, their weaknesses will increase and the gap between them and the United States and Japan will widen irredeemably, as was the case in data processing ten years ago. If Europe takes concerted action on both economic and technological fronts, it is capable of exploiting its assets and potential to the best effect in facing up to this challenge.

I. ECONOMIC IMPORTANCE OF THE SECTOR

- A. Telecommunications already plays a major role in the economies of Member States.
2. The direct economic importance of the sector can be gauged both by the contribution it makes to the GDP (some 2% in the Community) and the amount of investment it requires (approximately 0.7% of Community GDP, i.e. over 16 000 million ECU in 1981).

The importance of the telecommunication sector (both equipment and services) is comparable to that of the largest industrial sectors, such as aerospace, electricity generation or the electronics industry.

Furthermore, telecommunications equipment accounts for a substantial proportion of the production of the electronics industry in the majority of the Member states (12% in France, 17% in Italy and nearly 20% in Belgium).

3. The indirect impact of telecommunications is no less significant. The multiplier effect of telecommunications investments is one of the highest, equivalent to that of the building and civil engineering industry : 1 million ECU invested today in telecommunications infrastructures brings about a total increase in activity of 1.5 million ECU. Telecommunications constitutes the essential vector for information flows and new services which help to create industrial and commercial activities. It also represents a large market for electronics and data-processing components.

B. This role will increase

4. New technologies will fulfil a pump-priming role in the evolutionary process that is taking place. Such technologies are at work not only in telecommunications terminals, but also in the components sphere.

These technologies are, in particular:

- digitization, which makes it possible to process much more sophisticated data ;
- the use of optical fibres, which makes it possible to transmit information at considerably higher rates and at much lower cost ;
- the integration of micro-electronics components and software
- the development of cable and satellite links.

These technological advances, which will sooner or later render current techniques obsolete, will bring about a decisive improvement in the way in which the human voice, writing and images are processed, and will make it possible to make the interactive use of communication networks more widespread.

5. The resulting convergence of telecommunications, data processing and audio-visual media will alter the nature of telecommunications and considerably widen the range of services proposed.

These technological innovations will initially make it possible to improve and generalize the existing services, which use extent networks : the telephone, telex, teletex and low-speed data transmission. However, they will above all lead to the creation of new telecommunications infrastructure¹, especially in the commercial sector, and the development of entirely new services :

- "second-generation" services, which presuppose the improvement of the existing infrastructures with digital data transmission. Demand for this category of services is already making itself felt. Such demand comes from business users and concerns electronic mail, text processing (including electronic storage and retrieval), high-resolution videotex, teleconferencing, etc. Demand for services of this type, which accounts for some 3% of today's traffic, should grow considerably by the end of the decade in order to reach 10% of traffic around 1993 ;

¹ The term "generation" used here does not imply that there is any break in the sequence of generations : the transition from one generation to another will take place through the gradual emergence of new types of networks and services that will coexist (and sometimes be superimposed on the networks and services of the preceding generation).

- "third generation" or broadband services (person-to-person video communications incorporating text, voice and pictures), the introduction of which will require new telecommunications infrastructures (cables and/or satellites). Some of these services are being offered to business or residential users under experimental programmes designed to test their impact and feasibility (the Biarritz, Bigfon and Milton Keynes Projects). The demand for third-generation services will not really make itself felt until the beginning of the next decade and will initially stem from businesses, before gradually spreading to homes, where such services will fulfil various functions (education and leisure, working from home, household management, the safety of appliances, day-to-day medical supervision, etc.).

6. In the last few years, demand for telecommunications, both equipment and services, has seen especially vigorous growth, as evinced by the 1% growth rate in GNP being matched by a 7% rise in Europe's demand for telecommunications.

The annual growth rate of this demand could be further boosted through the development and diffusion of new services. From now on, the strength of demand for second generation services (and ultimately third generation services) relies on a speedy and appropriate response (in terms of the cost of both equipment and services to users, not to mention the availability and quality of the services) by Community carriers and telecommunications equipment manufacturers. Without this response, they will lack the wider perspective necessary to develop the market, as was the case with sectors that emerged a few years ago, such as office automation and computer-aided manufacturing; these have seen significant growth since then, mainly to the greater profit of suppliers from outside the Community.

- C. The economic and social impact will be considerable

7. The progressive dissemination of new services will make it possible to improve substantially the management of businesses, to increase productivity and to reinforce the competitiveness of the economy as a whole.

The introduction of new communications and management and data-processing systems will exert a considerable impact on the productivity of the information services sector, whose activities account for 55% of added value and occupy 62% of the Community workforce.

The automation of office work, the acceleration of decision-making processes, rapid access to information (making it possible, for example, to improve stock management), and the possibility of offering customers a more sophisticated service, sometimes in return for their cooperation (at electronic cash dispensers, for example) are all examples of applications which generate both increased profits and substantial savings for businesses. The total net benefit for business using these new services could be five times greater than the costs generated by introducing them.

8. The telecommunications market will grow quickly, since demand will relate to all of the following :

- infrastructures, which will be necessary in order to satisfy the needs for extending first-generation services (at a cost of 20-30 billion ECU over 10 years if the Community is to catch up on the level of residential and business penetration attained in the United States or Sweden), and to prepare for the introduction of second- and third-generation services (digital switching, cabling, ground networks, optical fibres and satellite communications);
- terminals (telephone receivers, automated office equipment, VDUs fitted with keyboards, etc);
- services, which will undoubtedly constitute the sector with the highest added value, in view of the amount of investment required in software.

The equipment market, which currently amounts to some USD 50.000 million, should thus represent by 1990 some USD 100.000 million at current prices, whereas the forecast for investment throughout the world in the eighties devoted to the installation of new networks and services is something over USD 150.000 million.

Of these figures, Europe's share should amount to 20-25% of the world total. At the same time, the growth of capital expenditure and of the income generated by network operation will, by 1990, make telecommunications the Community's largest economic sector, overtaking the motor industry. On the whole, the contribution of telecommunications to Community GDP should rise from 2% to 7% between now and the year 2000.

9. The social impact represented by these fundamental changes is initially reflected in terms of new indirect jobs created by the development of services and the design, manufacture and installation of equipment and infrastructures. To these jobs should be added the number of jobs saved or maintained as a result of the increased competitiveness of firms that are threatened today. The net employment balance of these transformations is obviously difficult to assess. It will nevertheless depend on the following factors :

- the ability of Community operators (telecommunications firms and network carriers) to respond to demand ;
- the adjustment of education and training to the new requirements for qualifications ;
- the impact on employment of the increased productivity brought about by the introduction of new services.

10. Telecommunications therefore emerge as a strategic sector for the Community. It constitutes a special tool for reviving the economy and protecting employment in the Community via productive investment thanks to their high multiplier effect and stimulus to demand. At the same time, the development of telecommunications represents a key factor in economic and social change, in view of the increasing impact it will have on :

- the fabric of European culture (organization of information networks, the content and nature of educational or leisure applications, etc);
- the territorial location of activities and the restoration of the balance between regions thanks to greater freedom of location and the prospects held out by working from home with the aid of telematic equipment.

The expansion of telecommunications represents a quantum leap that will wreak a qualitative change on the type of services available to businesses and individuals, and transform the means of production, the pattern of consumption and lifestyles. Europe must stake its all on a Community response to these developments.

II. THE STATUS OF THE COMMUNITY'S TELECOMMUNICATION INDUSTRY AND INFRASTRUCTURE

- A. Telecommunications is one information technology sector where the overall situation seems most favourable.

11. The Community still dominates its internal market in the telecommunications field. A total of a dozen European firms satisfy most of the requirements of a market which, taken as a whole, accounts for approximately 20% of the world market.

Whereas imports account for only 15% of production, Community firms succeed in exporting 30% of their production, thus achieving a trade surplus of 1.7 billion ECU in 1982.

All the same, a number of factors render this situation more fragile in the medium and long-term, especially the semi-conductor deficit. This weakness could hamper the EEC's commercial prospects in the "systems" sector. Moreover, as far as products from traditional technologies are concerned, the EEC is vulnerable because of the advent of competition from newly industrialised countries in its traditional markets.

12. During the seventies, the technological performance of the telecommunications sector in Europe was remarkable. It is in the countries of the Community that time-switching systems were developed and then put into service in the networks. This was a crucial step towards digital networks. Moreover, Community operators (both industrialists and carriers) lead the field in the development of broadband networks.

B. The evolution taking place shows weaknesses and disturbing vulnerabilities that give cause for alarm

13. The EEC market is compartmentalized and more limited therefore. The proportion of homes in which the telephone has been installed is considerably lower (25-40%) than that of countries whose cultural standard is comparable (Switzerland, Sweden, Japan and the United States). This situation aggravates the handicap of national telecommunications carriers in the EEC, since the latter collect less revenue in proportion to GDP than their American or Japanese counterparts and a considerable proportion of their resources will have to be devoted during the coming decade to making up for lost ground in the installation of first-generation services to the detriment of the promotion of new ones. The gap between the Community and the world leaders is liable to widen:

- data transmission accounts for only 3% of traffic in Europe, as compared with 5% in the United States;
- above all, the growth of the equipment market appears likely, on the basis of current trends, to be appreciably slower in Europe (+ 5% per year) than in the rest of the world or the United States (+ 8%). Lastly, the Community market, which represents 18-20% of the world market, exists only in embryonic form because of its fragmentation into ten national markets.

14. The Community's position is particularly vulnerable in the field of the basic technologies which determine the development of networks and services, i.e. micro-electronics and data-processing equipment. The EEC imports most (83%) of the micro-electronic components which will be used increasingly in telecommunications equipment (they already account on average for 7% of the cost equipment).

Innovation in services and in supporting systems and networks is increasingly reliant on performance in advanced integrated circuits.

Although the majority of European firms are present in the field of the critical technologies necessary for the development of the second and third-generation telecommunications services, none of them is in the position of having realized world-wide technological leadership in any of those technologies.

15. The Community is confronted with two major investment difficulties:

- recovering R&D expenses will become increasingly difficult to guarantee; this will adversely affect the development of new products, and their price;
- Europe is lagging behind as far as investment in equipment and infrastructure are concerned.

The cost of investment in R&D will be increasingly difficult to recoup as a result of:

- the amount of expenditure to be allocated (the cost of developing a new generation of digital switching systems lies between 500 and 1 000 million ECU);
- the shortening of the innovation cycle;
- increasingly rapid obsolescence of equipment;
- the impossibility at the present time of manufacturing products on a large enough scale, due to the lack of an adequate internal market. The minimum market volume required to recoup the R&D and engineering costs associated with the development and production of new equipment and systems varies, according to the case in point, between 5% and 10% of the world market, which is greater than the size of any national market within the EEC.

Investment in telecommunications equipment is markedly lower in Europe than in the countries which are our main competitors. Admittedly, the effort devoted to the PTT infrastructure is comparable with what is made in the United States or in Japan. But the total expenditure allocated to infrastructure is distributed differently between purchases of equipment and the staff expenditure needed to put the infrastructure into service. The multiplier effect of infrastructure expenditure on the equipment market is higher in the United States and Japan than in Europe, as witness the volume of per capita equipment purchases (USD 32 in the EEC, as compared with USD 46 in Japan and USD 80 in the United States).

- C. Furthermore, European industry is hardly going to be working under favourable conditions.
- 16. The fragmentation of markets is aggravated by national standardization and type-approval policies relating both to specific PTT equipment and apparatus that is liable to be connected at some time to the telecommunication networks.

The lack of consultation and of an overall standards policy taking into account the technological continuum of telecommunications, data processing and audio-visual media emphasizes the internal walling-off of the markets and leads to the independent development of incompatible equipment and to narrow markets that fall below the economic optimum.

The recent adoption in the ten Member States of three different standards for mobile communications, in which the market is limited but will probably expand rapidly, illustrates the difficulties and challenges involved in a harmonized standards policy.

- 17. Lastly, one of the major weaknesses of the Community resides in the multiplier effect of the uncertainty stemming from lack of consultation at European levels between telecommunications carriers and industrialists, on the future development of telecommunications. Even though long-time contacts exist

between national administrations, through the medium of UIT and CEPT, these bodies are primarily concerned with sorting out technical difficulties arising from international transmission of traditional services, such as telephone and telex.

The "objective" uncertainties in each Member State surrounding the choice of technologies (which ones will prove to be the most efficient and the most profitable in terms of operations?) and national demand (which products? in which sectors? when?) are compounded by uncertainties associated with inadequate knowledge of the strategies of agents acting in the other Member States, since the latter can, by the decisions they take, affect the forecasting environment and throw into doubt technological or commercial choices made too early.

The lack of common viewpoints concerning the strategies of the economic operators, market potential and the ways of stimulating demand in a coordinated fashion reduces the scope of forecasts and increases the risk inherent in any national development option that is not followed by other countries or partners, because of the narrowness of the national markets.

18. Europe's main competitors are not standing still and have taken action which bears witness to their resolve to establish their technological and commercial leadership in the telecommunications field, in order to dominate the world market.

Europe is faced firstly, as far as the United States are concerned, with the challenge presented by the deregulation that is taking place on the other side of the Atlantic. The FCC's decision breaking AT&T's virtual monopoly in the operation of networks and the supply of equipment has opened up the American telecommunications market to broad competition and has led American firms to seek to extend their market outside the United States.

Japan's current and medium-term strategy is geared more to technologies (integrated circuits) and equipment (in particular the consumer audio-visual sector). However, the decisions taken by the MITI and NTT, as illustrated in particular by the INS (Information Network System) project, reflect the desire to make an integrated services network available as quickly as possible at national level, NTT devoted 70% of its investments in 1982 to this end.

III. The particular situation of carriers in this context

19. It shows two characteristics :

In the first place, telecommunications have to comply with the obligations applicable to public services, and telecommunications services are provided in nine Member States by a state monopoly. In all the Member States, the carriers (whether public or private) strongly influence the development of the industry (hardware and software manufacturers) and the behaviour of the users of the services (businesses and individuals).

They exert this influence on two levels :

- as customers of the industry, since the market for switching and transmission equipment and certain terminals is dominated by carrier procurements, which account for 70-90% of the total;
- as network carriers, since they stipulate :
 - . network configurations and performance;
 - . the conditions under which access to the network is obtained;
 - . the standards applicable;
 - . costs.

20. Secondly, the telecommunications sector (both services and networks) is undergoing rapid and far-reaching change and will

- require major investments in R&D (some 20% of annual turnover) and in infrastructure;
- these investments involve technologies that are still being developed and that
- generate products whose life and investment payback time is generally much shorter than before.

21. Carriers are therefore faced with a twin challenge :

- their investment requirements are increasing, whereas their traditional management structure and constraints arising from their public service role, or resulting from general economic policy, (tariff structure, equal access to services for users and price supervision by the authorities) are adversely affecting their revenue and limiting their capacity to plough back profits or raise loans;
- they have to take greater commercial and technological risks. Since we are dealing with new products, the state of the market and the receptiveness of demand are largely unknown factors when decisions are taken to launch a product; such decisions have lead times of between two and five years.

The simultaneous growth of the financial needs and of the risks will not have the counterpart of substantial benefits for the carriers.

Furthermore, the benefits deriving from the introduction of new services or of a new system will be shared very unevenly between carriers, users and industrialists. In the case of second-generation services, the thrust will benefit chiefly suppliers of terminals that are not specifically dedicated to telecommunications. Studies conducted in France or in the United Kingdom appear to demonstrate that the introduction of new services will be of considerable benefit to users (see point 7). Taken as a whole, the new services will have a greater overall economic impact on industrial activities and services in general than on the revenue of the telecommunications sector, since 80-85% of the latter will continue to come from the telephone traffic in 1990.

IV. Objectives and strategy of the proposed action programme.

22. The above analysis has set out the key factors affecting the future of telecommunications, namely :

- compartmentalized markets,
- the scale of investment necessary, the difficulty of funding it and of assuring an economic return,
- Europe's enfeebled technological grasp on this area
- strategic uncertainties

This state of affair is contrary to the interests of users, companies and carriers in this sector; they have to confront the following problems :

- The risk of lagging behind in the introduction of networks and services;
- the fact that it is difficult for the European industry to benefit from the advantages deriving from large scale production, which correspondingly hampers its capacity to invest, conduct research and manufacture competitive products;
- the uncertainty surrounding the strategies to be promoted and the chances of technical and commercial success, even though investment choices and decisions to develop products and services cannot be postponed.

23. The Community risks being unable to take full advantage of the opportunities made available by developments in telecommunications and by acceleration in two associated areas

- the telematics markets
- the market for wide band services and networks

Current estimates are that the multiplier of infrastructure expenditure (on advanced second and third generation networks up to 1995) will be of the order of 1 to 10 ; and that this total investment (infrastructure and terminals) will in turn generate a burst of economic activity equal to twice the sum invested in equipment.

Thus, prolonging the present state of technological weakness and political uncertainty means that Europe has a lot to lose as compared with Japan and the U.S.

At this point, Europe's more sluggish growth rate in telecommunications (5% against 8% in the U.S. or Japan) means a potential loss of 500 millions ECUs per annum. This figure does not take into account the costs of the resulting loss of competitive edge to the Community's economy; this is difficult to assess, but will be caused by tardier take-up by European businesses of new telecommunications networks and services.

24. Will Europe, with its industrial and technological resources, be capable of stimulating demand and coping with the social and cultural impact of the proliferation of networks and the dissimination of new products and services ? or will it allow its market to be dominated by non-European firms and products, through failure to identify what is at stake and anticipate European and world demand at a sufficiently early stage ?
- The Member States, acting alone, are no longer able to take up these challenges and master the crucial problems posed by the development of telecommunications.
- Europe's potential resides in its ability to use the Community framework and instruments.
- In view of the transformations that lie ahead, it nevertheless has little time to preserve the favourable positions it currently holds and to endeavour to penetrate new world markets.

Rapid decision are necessary and require aims and proposals for action at Community level, in order to overcome these handicaps and to take full advantage of developments in telecommunications

25. It is in the light of these inherent problems that, in September 1983, the Commission presented a communication describing certain lines of action and approached the Council, which agreed to set up a group of senior officials from the Member States. Discussions within this Group proceeded at a steady pace (six meetings since the end of November) and proved highly constructive. In the light of these discussions, the Commission proposes that the outline set out in its communication of 29 September 1983 and approved by the Senior Officials Group provide the broad lines for an initial Community action programme.

26. This action programme must attain three objectives :

- 1) placing at the disposal of users, as quickly as possible and at the lowest cost, the equipment and services they require in order to ensure that they are sufficiently competitive;
- 2) stimulating European production of telecommunications equipment and services in order to create a climate in which the Community industry can maintain its strong position on the European market and stay in first place among world exporters;
- 3) allowing carriers to take up the technological and industrial challenges with which they will be faced.

27. These objectives can be achieved by Community initiatives to overcome the handicaps which beset the Community :

- compartmentalized market which stunt supply and demand;
- the uncertainty of carriers and companies over what development strategies to put in hand;
- weakness in the fundamental technologies of telecommunications;
- backwardness of less favoured areas in respect of networks, equipment, and advanced telecommunications services.

Detailed elaboration of the different categories of action that make up this Community programme forms the annex to this document. Principle elements of the plan of action are outlined below.

V. DESCRIPTION OF PROPOSED ACTION IN THE FRAMEWORK OF THE COMMUNITY PROGRAMME

The actions proposed are intended to overcome, through Community intervention and with regard to the rules of the Treaty (especially the competition rules), the 4 major handicaps (see §27 above) which inhibit the development of telecommunications, and hinder the Community in taking full advantage of the opportunities offered by this development.

A. Creation and stimulation of a Community wide market for telecommunications.

a) Terminals market

28. If the Community is to become more competitive, it must have a common terminals market, expanded to cover its entire area. The existence of such a market will promote the development of new services in that it will be easier for user to select the equipment best suited to their requirements, at the most favourable rates.

Furthermore, producers will benefit from a larger internal market since inherent economies of scale will then permit them to distribute their products both within the Community's internal market and abroad.

In turn, the dynamism of this market will stimulate the demand for new services, which in itself is likely to encourage operators to transform their networks more rapidly, thereby creating a snowball effect.

29. Broadening of the terminals market involves two complementary types of action concerning:

- standards,
- approval procedures.

With regard to standards, suitable procedures should be adopted with a view to ensuring the uniform application throughout the Community of either international standards or those most widely acknowledged at world level.

As far as approval is concerned, the eventual aim should be to achieve mutual recognition by network operators of the approval certificates issued in respect of this terminal equipment. This should not, however, rule out the possibility there being in future some form of Community approval for certain types of new equipment. This last objective can only be achieved in stages (see annex §34 and note⁽¹⁾ below).

In addition, it is proposed that operators purchasing terminals, either for their own use or that of users, should open their invitations to tender to all Member States of the Community.

b) Network components

30. Any broadening of the market in this equipment to Community scale can be achieved only very gradually, given certain inflexible technological and institutional factors, as shown for example in the adoption of 9 different switching systems within the Community.

The market must, however, be opened up in order to allow carriers greater choice of equipment at the lowest possible cost. At the same time, if all Community carriers are able to deal with a gradually expanded market, an increasing convergence of technological options will result and risks be reduced.

(1) The Commission intends proposing that the Council adopt an updated version of the Recommendation concerning the implementation of harmonisation in the field of telecommunications (COM(80) 422).

Producers will benefit from the size of the market and be encouraged to seek cooperation on the basis of complementarity, a factor that is likely to produce improved structures (together with a certain degree of specialisation). The user should reap the benefit of this market enlargement policy (i.e. the reduced cost of services and the increasingly uniform conditions of network use).

31. In view of the present state of affairs, characterized by nationally compartmentalized markets, type approval procedures, R&D efforts, standards and network development strategies, the Commission considers that the opening-up of national markets will only be achieved gradually. The first step towards this can be taken immediately, namely asking network carriers to extend initiatives to tender to all Member States of the Community for a minimum percentage to be determined by the value of their annual procurement (for example 10%) of network components. With the assistance of an advisory liaison group, the Commission would supervise implementation of these measures. It will shortly be presenting a suitable proposal, based on the text of the draft Recommendation concerning the first phase of opening-up of public telecommunications markets (COM(80) 422) and on the results of the Council's discussions of the draft (see Council Document ECO 55 ref. 10538 of 29 October 1982). The existing compartmentalization should break down gradually under the combined effects of demand for services, evolution of networks and increasing realization of the significance of the Community-wide dimension; therefore the Commission considers that the Community's aim should be nothing less than the total opening-up of markets for the new network components, especially third generation types. However this aim can only be achieved gradually, depending on variables such as equipment types, schedules and geographical locations involved. The Commission proposes to gear the speed of this process to the implementation of the action programme.
- B. Reducing the uncertainties (of carriers and manufacturers) concerning the development strategies to be put in hand.
32. Three types of action can contribute to this aim:
- the broadening of the market and a Community policy on standards, which will reduce commercial risks by causing easier amortization of R&D costs and by lowering unit prices (economies of scale)
This action is described above, in A, (§ 28 to § 31);
 - the creation of a common study and consultation framework;
 - the establishment of joint telecommunications infrastructure projects.

33. The creation of a common (study and consultation) framework for the development of services and networks (action line I of the annex) should enable the Community :

- to establish common long-term objectives for the development of telecommunications,
- to define the intermediate stages and to identify problems that should be solved in order to attain these objectives,
- and to analyse measures likely to help solve these problems at the various decision-making levels (industry, carriers, individual states, Community).

The effort to achieve converging strategies and approaches in this field should benefit industry by giving it greater confidence as regards its forecasts and investments. Users would also be in a better position to plan their investments (especially if the study and consultation also embrace aspects such as price-fixing and price structures). By pooling their best skills to exploit and stimulate the most favourable developments, carriers would be able to minimise their uncertainties and the risk of making mistakes, whilst synergy would be effected by the simultaneous implementing of jointly chosen options.

In order for this type of joint study and consultation on the development of telecommunications in the Community to be successful, the Commission proposes the creation of a multidisciplinary analysis and forward study group, consisting of technologists, economists and decision-makers.

34. Establishment of joint telecommunications infrastructure projects (action line IV of the annex)

Another means of bringing together the interests of users, producers and carriers would be to carry out transnational projects, at pilot level or on a large scale. Their mobilising effect would be beneficial as far as the implementation of new technologies, market expansion and industrial competitiveness are concerned. A group of consultants, closely connected with network operators, is currently considering the general concept of such projects and the full results of their study will be made available in June of this year.

35. Such projects of common interest will provide a suitable opportunity for implementing joint solutions to technical problems and will lead to increased standardisation. They should also permit cooperation between European companies thus contributing to market expansion. Lastly, they will allow choices concerning technology to be made on a joint basis. Three projects can already be put forward :

- the establishment of broadband pilot network to provide advanced communications services (video-conference, videophony, data transmission) to policy-makers in the Member States and those in the Community institutions. The Commission has initiated a feasibility study, as requested by the Council at its meeting of 28 February 1984. Project design, Community-level consultations and implementation will form part of the extended INSIS programme, with all the benefits of the experience acquired under that heading;

- two other projects, with results in the longer term, should be launched :

one involves the setting-up of second-generation transnational cellular radio-telephony services, the other, the establishment of main trans-Community lines for integrated service broadband networks.

The Commission proposes to begin feasibility studies for both projects immediately. The results could be examined by the analysis and forward studies group, whose creation is proposed in §33 above.

36. In order to carry out these common interest projects and mobilize the investments required to set up the infrastructures, the Commission proposes that the EIB make use of both its own funds and those of the NCI.

C. Improving basic technology skills (action line II of the annex)

37. For the reasons stated above (see § 14 and 15) and in order to allow optimum use of limited resources, whilst reducing the time required to master a technology, the Commission considers it necessary to implement Community R&D activities, in addition to those performed under the ESPRIT programme.

The Commission has already begun consultations with a view to determining the R&D sectors likely to benefit most from this Community level activities and from exploitation of results. During the second half of 1984, the Commission will present a proposal concerning an R&D programme in the field of telecommunications². Moreover, the creation of transnational infrastructure projects described in §34 and 35 above will enable

- easier identification of what upstream research is needed
- to have a fixed applications area for these Community-scale R&D efforts whose effectiveness will thus be improved.

D. Aid for modernisation and strengthening of networks in the least favoured Community regions (action line V of the annex)

38. The density of telecommunications network and its performance, in terms of cost availability and access to more or less "sophisticated" services, differ very much from one region to another within the Community. Network modernization and reinforcement in the least favoured EEC regions will contribute to :

- a stimulation of their economic development,
- correcting their disadvantaged status,
- allow them to take advantage more quickly of the benefits from 2nd and 3rd generation services (see §5 above).

²The estimate of a Community contribution to such a programme could amount roughly +/- 25 MECUs per year during 5 years.

39. Implementation of this objective implies at the outset, overcoming the investment problem. This problem is one that will loom large in the next decades as the infrastructure and networks required to launch the new services are installed.

In some cases, it will be necessary, for economic reasons, to anticipate the demand for new services at the risk of increasing the serious financial difficulties already experienced by operators. A judicious use of the Community financial instruments (EIB), NCI, ERDF) should make it possible to bridge the gap between the investments required immediately and the longer-term returns anticipated as demand gradually increases.

This general problem is growing increasingly acute in the Community's least well-developed regions.

40. The Commission proposes that the level of financing provided by the Community's financial instruments with respect to the development of telecommunications infrastructure in such regions remains the same as over the past three years, i.e. 720 million ECU. Furthermore, it proposes that the supported projects be designed to exploit as far as possible the potential of the new telecommunications technologies and combined with projects of common interest, the objectives and content of which are described in §34 to 36 above.

VI CONCLUSIONS

The Commission requests the Council:

1. To approve the implementation of a Community programme, aimed at creating a consolidated European telecommunications territory, which would give both carriers and industry the benefits and added dimension of working on the Community-wide scale, and would put at users' disposal the services essential to promote competitiveness, through :

- creation and stimulation of a Community-wide telecommunications market,
- reducing the strategic uncertainties,
- mastery of technologies necessary to the development of telecommunications,
- helping to modernize and strengthen networks in the least favoured regions of the Community.

2. To approve immediately the following measures relating to :

2.1. the creation and stimulation of a Community-wide market for telecommunications

2.1.1. Broadening the terminals market

A. as regards standards

to instruct the Commission, assisted by an advisory liaison group :

- (a) to identify the requirements specific to the Community as regards standardization in telecommunications;
- (b) to adopt a Community standardization programme in the field of telecommunications. This programme would cover both the preparation of "refined" international standards and the formulation of interim or provisional standards.

It would define :

- the common priorities;
- a timetable and a schedule to be complied with;
- the procedures for cooperation with the CEPT;
- a procedure for monitoring, evaluating and updating the work.
An initial Community programme should be established before the end of 1984.

B. as regards type approvals

- a) to request the operators of networks under the conditions referred to in this communication (see §21-23 of the Annex to this Communication) to take whatever measures are necessary with a view to progressively achieving mutual recognition of type approvals of terminal equipment connected to the networks (in certain cases such approvals may be delivered at Community

level), the first stage to consist of mutual recognition of test results to ensure conformity of this equipment with standards, such tests to be carried out by approved national laboratories; the first results should be achieved before July 1985.

- b) to instruct the Commission to request the CEPT to perform whatever technical work is needed to attain this objective and to negotiate with that body in respect of the procedures for carrying out such work.

2.1.2. Progressive broadening of those parts of the equipment markets which are dominated by carrier procurement

- (a) as regards the terminals used by the carriers or placed by them at the disposal of users, in particular the new terminals for computerized telecommunications, to request the operators to extend their invitations to tender to all member states of the Community;

This opening up of markets should be effective from 1984 and proceed in parallel with the setting up of common standards and type approval procedures

- (b) as regards the other categories of equipment, to initiate an experimental phase during which the carriers would be called upon to extend their invitations to tender to all member states of the Community in respect of a minimum percentage to be determined (for example 10%) of the value of their annual procurement of these types of equipments. In parallel with progressive application of the overall programme outlined in the present proposal, carriers would increasingly open up their markets. For equipment of new networks (especially wideband networks), the Commission considers that the goal should be nothing less than a complete opening up of markets.

- (c) to instruct the Commission, assisted by an advisory liaison group, to ensure that these measures are implemented and to supervise the application thereof.

4. to reduce the strategic uncertainties by setting up a multidisciplinary group for analysis and forward study, under the conditions set out in detail in action line I of the Annex to this communication, which will conduct analyses and discussions and coordinate work on the setting up of new services and new telecommunications networks in the Community over the next 20 years.

The work of that group would initially cover three topics :

- the development of new services through the rapid setting-up of integrated-service digital networks (narrow-band ISDNs);
- the introduction of cellular radiotelephony services;
- the development of video communications and the introduction of transnational broad-band networks.

A report on the results of work on the first topic should be available before 31 December 1984 to be followed by a second report on the two other topics before 30 June 1985.

3. to stress the importance it attaches to the least favoured regions of the Community being able, through appropriate use of the Community instruments, to improve their telecommunications infrastructure and to participate in adequate measure in Community projects.
4. to renew the mandate of the Senior Officials Group, instructing it to assist the Commission in the implementation of the decisions referred to in points 2 and 3 above and in performing the work referred to in point 5.
5. to take note that :
 - (a) the Commission will shortly put forward new proposals relating to harmonization in the field of telecommunications and to an initial phase of calling for tenders in the telecommunications sector on the basis of draft recommendations I and III set out in document COM(80) 422 final, forwarded to the Council in September 1980, and of the results of the Council discussions on those recommendations;
 - (b) the Commission, in consultation with the parties concerned, will conduct studies for the purpose of defining the research sectors which are suitable for cooperation at Community level and of recommending the procedures for such cooperation, with the aim of placing a proposal before the Council during the second half of 1984.
 - (c) The Commission will pursue the idea of setting up a Community programme to further telecommunications development in the least favoured regions of the Community, within a revived ERDF framework.
 - (d) the Commission will follow up the feasibility study of the videocommunications broadband network between political authorities. Its first results are already available.

¹Cf. Council Document ECO 55 Ref. 10538/82, 29th October 1982.

A N N E X

ACTION PROGRAMME
IN THE FIELD
OF
TELECOMMUNICATIONS

1. INTRODUCTION

The programme contained in this annex details the 6 action lines prepared by the Commission in its communication of September 1983, namely :

- 1) establishment of medium and long term objectives at Community level ;
- 2) definition and implementation of an R&D programme ;
- 3) broadening of the terminals market and development of Community solidarity towards the outside world ;
- 4) joint development of transnational parts of the future telecommunications infrastructure within the Community ;
- 5) intensive use of modern telecommunication techniques for the advancement and development of infrastructure in the least favoured regions of the Community;
- 6) progressive broadening of those parts of telecommunications equipment markets which are dominated by carrier procurement.

Some categories of action have already been developed into precise proposals, while others (action line II and V for instance) must still be subject to additional study.

ACTION LINE I :

SETTING MEDIUM- AND LONG-TERM OBJECTIVES AT COMMUNITY LEVEL

2. The emergence of new communication services and the expansion of networks over the next 20 years are bound to give rise to many problems (technological choices, standards to be used, equipment to be developed, financing of investment, etc.) but will also create vast opportunities for technological and industrial development.

A Community approach to these problems must help find optimum solutions. Similarly, it will be easier to take advantage of the economic prospects opening up if industry can be informed as rapidly as possible of coordinated decisions taken in a joint planning framework.

Consequently, the Commission proposes the setting-up of a pluridisciplinary group to analyse, study jointly and reach coordinated conclusions on the development of telecommunications in the Community.

This group, made up of technical people, economists and decision-makers, would analyse the interplay between technical options, the services offered and the networks, the resultant economic, industrial and institutional issues and prospects and finally the way in which the various developments are likely to interact in the short, medium and long term.

This concerted forward analysis should make it possible :

- to identify and define the problems of various kinds to be solved in order to ensure that the new services and networks can develop under optimum conditions, especially from the viewpoint of the market, the technologies involved, industrial competitiveness and investment ;
- to define measures likely to overcome these problems at different decision-making levels (companies, administrations, national governments, the Community).

As far as the Community is concerned, the work of this group should help to define activities in which the Community dimension and the resources offered by the EEC Treaty would be useful or even essential factors.¹

3. Analyses performed by the Commission and confirmed by the SOGT² demonstrate that, in view of the increasingly well-established convergence of telecommunications, computing and audiovisual techniques and the fast development of new services resulting from the combined action of this convergence and the emergence of new technologies, each Member State is at present assessing - against the background of its own economic and social framework - the potential evolution of telecommunications at national, European and worldwide level.

¹ These facilities are numerous and varied :
- implementation of cooperative research programmes (see line II);
- legislative measures concerning the market ;
- launching of promotional projects (see line IV);
- use of the Community financial instruments (see line V), in particular where the least favoured regions in the Community are faced with specific difficulties ;
- definition and harmonized implementation of international standards (see line III);

²Senior Officials Group in Telecommunications.

4. Current market fragmentation, scattered development efforts (notably R&D) and the lack of coordination in this field not only have adverse effects on Community's technological and industrial development, but are also likely to hamper the emergence and deployment of new services that can greatly improve the competitiveness of companies and generate new markets and fresh employment opportunities.
 5. Although during the past decades, telecommunications services featured little diversity and progressed comparatively slowly, disparities between countries could be tolerated easily, the same is not true today. With the establishment of worldwide markets and economic relationships and the explosion of new services, homogeneous and modern telecommunications systems throughout the world have become a key prerequisite for the development of the economy.
6. The Commission therefore considers it necessary that a forward analysis should be conducted at Community level to investigate possible development scenarios for services and networks. The analysis should concentrate on :
- a) interplays between technical options, the services offered, types of networks and users and, at a higher level, the related economic, industrial and institutional issues ;
 - b) the way in which the various development scenarios interact in the short-, medium- and long-term time scales ;
 - c) ways and means of ensuring that economic activity in the Community will obtain the largest possible return from those developments.
7. Synergy between demand for new services and the dynamics of infrastructure changes create three main lines of developments :

- narrow-band ISDN ;³

³ ISDN = Integrated Services Digital Network.

- business communications ;⁴
- consumer videocommunications.

8. The first line (ISDN) corresponds to the evolution of public networks to meet the growing demand for narrow-band IT services (text and data at low bit rates) from professional users and small business.
9. The business communication line is of immediate concern. There is, indeed, in this sector made up of medium to large companies, public bodies and administrations, a convergence in the nature of demand for new telecommunications and IT services stemming from internal needs.

By its very nature, this line is characterized by a strong interplay between computing and office automation : it therefore generates a strong pull on the IT industry at large.

In addition, although only 2 to 3 % of main telephone lines are involved, business communications are potentially the leading edge in several areas, e.g. for multi-service technologies evolving from private communication infrastructure, or for interpersonal videocommunications and for videoconferences. (It should be pointed out here that business communications already have a sufficient impact on transmission capabilities to be a major incentive to the development of long-haul optical links and dedicated satellites for data communications).

⁴This includes :

- voice and data services of narrow band ISDN type,
- wide-band services for large businesses and administrations using in a judicious manner satellite and terrestrial systems and also mobile communications systems.

10. It is, however, the third line of development that is the most likely to trigger a radical move by public networks towards broadband throughout consumer interactive videocommunication. In actual fact, the emergence of the person-to-person video phone, which implies two key changes, the use of broadband switching and a large traffic demand, is unlikely to come about for another ten years. This period is necessary both to bring the new generation of exchanges up to the industrial stage and to allow the development of a significant and viable demand.

Meanwhile, from 1985-1990 on, a first phase of this development is expected to lead to networks able to support interactive television and designed so as to form, in the long term, the local infrastructure for broadband networks.

Compared to the first two lines, consumer videocommunications will obviously require a high level of investment resulting from the very nature of the services and the laying down of new infrastructures which can make little or no use of equipment now in service.

11. The issues at stake, commercial opportunities and operational arrangements for these three lines have yet to be studied in detail. The impact on markets of the concerted and fairly rapid development of all or some of these lines, the optimisation of these measures by implementing them from the outset in a Community context and the drive that could result from the launching of European projects have yet to be assessed.
12. The Commission has initiated a forward study on advanced telecommunication structures and services in the Community. This study is intended to provide material for the study on the development of Community telecommunications, and its results will be available by June 1984.
13. The Group for Analysis and Forward Study, which the Commission proposes, should (its general terms of reference are outlined at the start of this chapter) initially tackle three main themes :

- theme 1 : the development of new services through the rapid launching of narrowband ISDN at European level so as to ensure transnational compatible working for users. The problems caused by the earliest possible establishment of digital connectivity on a Community scale should be examined immediately ;

 - theme 2 : the establishment of transnational cellular radiotelephony services of the first and second generations ;

 - theme 3 : a study of the development of videocommunications (business videocommunications, interactive television, picture phones, consumer video communications) and the establishment of transnational broadband networks.
14. In its work, the Group for Analysis and Foreward Study should take into consideration the result of the work and studies carried out by the Commission and the CEPT on these various subjects.

The results of its work will be given in reports which should also set out proposals for action and be available as follows :

- for theme 1 : by 31 December 1984
- for themes 2 and 3 : as soon as possible, but at all events by 30 June 1985.

ACTION LINE II :

DEFINITION AND IMPLEMENTATION OF

COMMON ACTION ON RESEARCH AND DEVELOPMENT

15. The Commission is now holding consultations to determine the research and development fields where work made in the Community and utilization of results could be done more efficiently and at lower cost through Community cooperation.

Once these fields have been identified and analysed, the most suitable cooperation arrangements will have to be determined, bearing in mind the ESPRIT programme which, although it is not specifically geared to the development of telecommunications, supports basic projects that could be useful in that field.

The Commission will present a proposal on a R&D programme for telecommunications during the second half of 1984.

16. Although R&D expenditure on telecommunications in the Community is difficult to evaluate¹, it can nevertheless be estimated that 1500 to 2000 million ECU are spent yearly on R&D in telecommunications, averaging about 17% of the total sales of telecommunications

¹ The main reasons for this difficulty are as follows :

- differences in methods of assistance from one country to another;
- the strategic importance which the companies accord to them;
- differing definitions of what should be included under the heading telecommunications R&D in view of the interrelations existing between telecommunications and basic technologies developed in other sectors (computing, electronics).

equipment by manufacturers. This matches the Japanese figure but is lower than that of the United States.

17. This high level of expenditure seems unlikely to fall in the years ahead.

On the contrary, increasing investment will be necessary to remain or become competitive in leading-edge technologies. One of the main problems for the Community is therefore to obtain maximum benefit from financial resources that will remain modest in comparison with requirements in fields (new technologies) where work in common would allow to save money, to master technologies in a shorter time, and to have a beneficial effect on competitiveness and market.

18. Implementation of this line of action will require the gradual definition of :

- a) a Community view of the main features of future broadband multi-service networks (see line I) ;
- b) common understanding of the relationship between R&D on the one hand and standards and industrial capability on the other ;
- c) the guidelines for a Community R&D programme specific to telecommunications, the launching of which would be justified on economic grounds and for reasons of lead times and optimum exploitation of results.

19. The Commission is now organizing a number of talks with the various parties concerned - PTT research centres and industry - in order to identify fields in which a Community cooperative research effort for telecommunications would be justified alongside the research conducted at national level and within the Community framework (i.e. ESPRIT). The Community effort required could take different forms depending on the type of R&D activity involved.

20. Four types of possible action in this field have been identified and are now being investigated :

- a) exchange of information and coordination, as in the case of the projects undertaken in the COST¹ framework (concerted actions) ;
- b) support for precompetitive research of the ESPRIT type (cost sharing actions) ;
- c) technological feasibility demonstration projects, addressing the field between development and production ;
- d) Demonstration prospects, showing full scale tests and covering R&D and engineering requirements involved in the realisation of infrastructure prospects in leading edge technologies (see Action Line IV).

21. In the definition of a telecommunication R&D programme, there is a need to establish clearly the relationship with the ESPRIT programme, which, although not specifically geared to telecommunications, nevertheless has four research areas of great interest for the development of that industry :

¹ The COST programme covers a limited number of projects in the telecommunications field, the most significant being :

- COST Project 202 bis : research on broadband local networks (switching, network architecture, transmission);
- COST Project 208 : optical fibre communication systems ;
- COST Project 211 bis : coding of video signals.

Some half dozen other COST Projects are also in progress on topics such as phased antennae and signal propagation through the atmosphere.

- in the field of microelectronics, priority is given to silicon technologies (bipolar MOS) which are of great importance for telecommunications. Although some activities relate to III-V materials and opto-electronics, the planned effort in this field is small. It will have to be determined whether the opto-electronics resources assigned to the development of telecommunications should be increased within the ESPRIT programme or outside it ;

- the chapter on office automation in the ESPRIT programme specifically refers to ISDN concepts and local area networks and covers office communication systems and workstations. Here, coordination with the telecommunications R&D projects on broadband systems (networks and terminals) is essential, but the scope of the ESPRIT programme on office systems would have to be excessively widened if it were to include all network and terminal developments. It would be better to give consideration to a new programme specifically concerned with broadband telecommunication networks and to coordinate the developments under Esprit's office systems section with the work in the new programme.

- The sections in Esprit concerned with software technology and advanced information processing are directed at general objectives (software production methods and expert systems). Consequently the results of the Esprit programme could be useful in the development of software for specific telecommunications applications. As these developments would be linked either to the micro- and opto-electronics aspects of the telecommunications programme or to the broadband aspects, they should be tackled under those two headings, every effort being made to put the Esprit results to optimum use. In addition, however, it might prove useful to include in Esprit the study of software or dataprocessing concepts needed in particular for telecommunications applications.

22. On the basis of its talks, the Commission will submit specific proposals in the second half of 1984.

23. As regards the financial assistance, the activities discussed above could involve :

- a modest use of budget resources which would be devoted mainly to precompetitive cooperative research projects and demonstration projects on equipment ;

- more extensive use of the Community's financial instruments to finance pilot and infrastructure projects.

ACTION LINE III :

COMMUNITY ACTION AIMED AT OPENING UP

THE TERMINALS MARKET AND DEVELOPING COMMUNITY

SOLIDARITY TOWARDS THE WORLD AT LARGE

24. The Commission proposes expanding the market for terminal equipment connected to networks by progressively bringing into effect a procedure for the mutual recognition of type approval granted by carriers in respect of this equipment.¹ The first stage would be the mutual recognition by carriers of the results of tests carried out in approved laboratories to verify the conformity of terminal equipment with standards.

The Community would define the equipment to be given priority for this procedure and would monitor its application, while the necessary technical work would be entrusted to the CEPT. Discussions between the Commission and the CEPT should continue with a view to establishing the precise details of this arrangement.

The Commission also intends to propose that the Council adopt an updated version of recommendation COM(80) 422 on harmonization in the field of telecommunications.

An advisory liaison committee consisting of experts from the Member States should be set up to ensure that the procedures established for attaining the desired goals are properly applied.

¹ Such type of approval could in some cases be granted at Community level.

25. The expansion of European markets for terminals² and private installations, which are mainly geared to business communications, merits priority because of :

- the strategic importance of these markets ;
- the future impact on Community industry that this liberalization measure would have.

26. The proposed action covers apparatus which, in some Member States, is allowed to be supplied to the end user by private suppliers but which, in others, must be supplied exclusively by the carriers. However, it is not intended under this action line to cover apparatus - such as network terminating equipment - which, throughout the Community, is regarded as part of public carriers networks. That is the province of action line IV.

The Commission's proposals under this action line do not call into question the different supply responsibilities prevailing in the Member States. However, if the Community market for terminal apparatus is to be effectively opened up, measures must be taken which apply both to apparatus supplied under PTT monopolies and privately supplied apparatus.

This establishes an important link between action lines III and VI.

² The word "terminal" is understood here to include all apparatus which sends or receives communications over a telecommunication system (including simple and complex telephones, PABXs, data terminals, telex terminals and facsimile apparatus). It also covers apparatus, such as certain modems, used to convert or process communications into a form suitable for transmission or reception via a telecommunication system.

27. In all Member States, before it can be connected to communications network, terminal equipment (the number and diversity of which are steadily increasing with the introduction of computing techniques) is subject to compulsory type-approval procedures (sometimes combined with requirements in the form of mere recommendations) which are imposed by carriers, mainly on grounds of security and the proper functioning of the networks.

Where the equipment is to be supplied in quantity, these procedures include examination of the results of tests to verify conformity with national interface standard imposed by carriers.³

These tests are carried out in national laboratories approved by the carriers.

Obviously, then, the enlargement of terminal markets at Community level will be greatly eased by the mutual recognition of type approval granted by carriers and, at all events, the mutual recognition of the results of tests to verify conformity with standards (which in turn implies the harmonized use of identical standards).

28. The terminal apparatus referred to here may be subdivided into two categories on the basis of its inherent characteristics and its situation with regard to standards and type-approval procedures :

³ National type-approval procedures may include verification of quality control during manufacture and may also necessitate preconnection testing or the inspection of individual installations.

- a) New apparatus, mainly equipment which links to a public carrier network via a digital interface or equipment for connection to new broadband services. This category includes types of apparatus (sophisticated IT terminals) which will support and determine the future development of telecommunications in the Community.

For apparatus in this category, the aim is to harmonize standards and to arrive at mutual recognition of the results of tests to verify conformity with these standards and mutual recognition of type approval granted by carriers, where appropriate at Community level.

- b) Existing apparatus, mainly apparatus which links to a public carrier network through an analogue interface. This type makes up a major part of the terminal apparatus market today and therefore should not be neglected in the effort to open up the market.

For apparatus in this category, and especially for those which are already linked to a digital network, every effort should be made to achieve all the aims for category (a) apparatus, but full harmonization of standards could prove impracticable because of built-in differences between national carriers' networks.

Instead the Commission proposes that test methods should at least be aligned, so as to permit national authorities to grant type approval on the basis of tests conducted in accredited test laboratories, the results of which would be recognized on a reciprocal basis by carriers anywhere in the Community.

29. The proposed action programme has a section specific to each type of apparatus and another section common to both types.

30. Category (a) apparatus.

- a) Where an international standard already exists, action under the programme should be aimed at narrowing down the options and alternatives offered by the international standard so as to produce a common version for use in all Member States. Where this is different from the version already implemented in one or more Member States, transitional arrangements will be needed, based on the mutual acceptance of test results along the lines proposed for category (b) apparatus.

- b) Where an international standard has not yet been agreed the Community should adopt an intercept strategy. It should monitor relevant international work that has already been carried out and, when the content of the international standard can reliably be foreseen, implement a common European version of the draft international standard throughout the Community in agreement with the national carriers' operational and commercial plans. This strategy would minimize the risk of market fragmentation resulting from the implementation of different versions of the international standard within the Community and would exert pressure on other countries to adopt the same version of the standard, thus increasing the opportunities for Community exports.

31. Category (b) Apparatus

- a) An essential pre-condition for the target proposed by the Commission is the publication throughout the Community of the national standards for the apparatus included in the programme.⁴

⁴ The Commission will generally apply the prescriptions of directive 83/189, which sets up an information procedure between member states, in the field of standards and technical regulations.

- b) Should harmonization of standards prove possible, the target and procedures will be the same as for category (a) apparatus. Otherwise, once the standards are all available, an attempt must be made to convert these standards into clear testing routines so that any competent laboratory can undertake the necessary test work. Some minor amendments to the national standards may be possible at this stage, to simplify the work. However, the task is a difficult one, and may not prove possible for all kinds of category (b) apparatus.
- c) Transparent procedures must be developed for making type-approval applications, submitting test reports, carrying out quality-control verification (if required) and other similar matters.

32. Action common to both categories of apparatus

- a) Generally speaking, it is important to draw a clear distinction between mandatory requirements, which must be met before type approval can be granted, and recommendations. The technical problems of opening up markets will be simplified if mandatory requirements can be kept to a minimum. This in turn will be made easier if suppliers can easily obtain, on a voluntary basis, certification of compliance with the advisory parts of harmonized (or even unharmonized) standards. The Commission proposes that this question be examined by the advisory liaison group described in Point 11.
- b) The establishment of procedures for the accreditation of test laboratories will be an important part of the work under action line III. Careful account must be taken of the obligations of national approval authorities under their national law, and bureaucratic procedures must be kept to the minimum necessary.

33. The proposed procedure and arrangements for implementation are described below :

34. Definition of priorities

The proposed targets can only be achieved through a series of steps, and will be achieved more easily for some kinds of terminal apparatus than for others. A programme of priorities must be worked out, including a target timetable, according to the type of apparatus concerned and the sequence of steps to be taken. These priorities and the timetable must take account of the priorities of users, the Community telecommunications industry and national carriers, as well as the intrinsic difficulty in each case. An advisory liaison group⁵ consisting of national experts should assist the Commission in defining priorities.

The Commission considers that the initial priorities selected should include some technically straightforward cases so that action line III can achieve its first practical results at an early stage. This will not only make it possible to maintain the momentum of the programme and increase confidence in Community action, but also enable early experience to be gained and used later in the programme. Certain apparatus for connection to circuits leased from carriers for private use might be chosen as an early priority.

⁵ This group could also be given the task of assisting the Commission in monitoring the implementation of action line VI.

- 3 . The work referred to in Points 7, 8 and 9 is highly technical and must therefore be carried out in a suitable framework. It is closely related to work being undertaken by technical organizations specializing in telecommunications, in particular the CEPT and the CCITT.

To avoid any duplication in a field which already requires a great deal of work by experts whose number is limited, the Commission proposes that the Community should invite the CEPT to undertake the technical work identified above on its behalf. The Commission notes that, since the meeting of Directors-General of Telecommunications Administrations on January 19, 1984, the CEPT has taken steps to speed up the work of the CCH on mutual recognition of test results and type approvals. This coincidence and the initial discussions that have taken place hold out promise that an arrangement can be found between the Community and the CEPT whereby the latter would carry out the technical work referred to above, possibly with some Community aid, in accordance with priorities and conditions in particular deadlines set by the Commission after consulting the advisory liaison group.

36. The Commission will closely monitor the execution of the programme entrusted to the CEPT and will take suitable steps to ensure that it is completed by the agreed deadlines, with the assistance of the advisory liaison group. Should difficulties hold up the technical work carried out by the CEPT under the programme entrusted to it, the Commission would seek a solution in consultation with the other interested parties and refer to the Council any differences arising between the Member States.

More generally, it will consult the advisory liaison group on the implementation of this action line and, where necessary, will consult through appropriate channels other interested parties such as Community manufacturers of telecommunications equipment and certain users (for example the members of the INSIS Users Committee).

37. Member States' administrations account for less than half of the membership of the CEPT, most of the other members being the administrations of EFTA countries. These countries constitute a significant market in their own right. The Commission considers that it would be advantageous to the Community if the targets of action line III were also pursued by the other CEPT countries. Moreover, the necessary unity of the Community internal market should be watchfully preserved.

The Commission also underlines that the Community will have to define a common point of view (based on art.113 of the Treaty), as to the impact on its relations, particularly towards GATT and OECD, under the condition that this approach meets the obligations which the Community and the Member States have subscribed to, by approving the Code on technical obstacles to trade.

38. Following the consensus in the Senior Officials's Group on Telecommunications, the Commission will also consider resubmitting an appropriately amended version of the recommendation concerning the "implementation of harmonization in the field of telecommunications" (ref.COM (80) 422)⁶.

⁶ This recommendation stipulates that the telecommunications administrations of the Member States should:

- a) consult each other before they introduce any new service, with a view to establishing common guidelines;
- b) ensure that new services are introduced on the basis of a common harmonized approach, so that the services offered are compatible;
- c) from onwards, order digital transmission and switching systems for ISDNs consisting of harmonized equipment.

ACTION LINE IV :

COMMON DEVELOPMENT OF THE TRANSNATIONAL PART OF

THE FUTURE TELECOMMUNICATIONS INFRASTRUCTURE

IN THE COMMUNITY

39. Cooperation between European companies, the broadening of certain markets, joint solutions to technical problems (especially standards) and common technological choices will be much more likely to succeed if they are given practical effect as part of major catalytic projects launched on a Community-wide scale.

At the occasion of the Council meeting of 28 February 1984, the Ministers for Research asked the Commission to conduct, in consultation with the circles concerned, a feasibility study on the establishment of a broadband network providing communications services for decision-making centres in the Member States and the European institutions. This project is to be considered in conjunction with some of the projects launched or planned under the INSIS (Inter-institutional Information System) programme.

In the longer term, the Commission feels that two other projects should be envisaged :

- the setting-up of transnational cellular radiotelephony services of the second generation ;
- the establishment of large transcommunity axes for broadband integrated services networks.

The Commission will undertake, in coordination with the Group for Analysis and Forward Study, the preliminary feasibility studies related to the two projects.

40. The action recommended in the area of transnational infrastructure at European level is to tackle four fronts, with the following objectives :

- a) to speed up the availability of voice and data services of the narrow-band ISDN type at European level so as to ensure transnational compatible working for users. This requires digital connectability to be established as quickly as possible on a Community-wide scale ;
- b) to promote the coordinated development of broadband business services for large enterprises and administrations through judicious use of satellite and land systems, based in particular on optical fibres ;
- c) to set up mobile communications systems that can provide the most advanced services throughout the Community ;
- d) to prepare for the creation of a European optical fibre-based broadband integrated communications network for providing multi-purpose videocommunications services.

41. The Commission has underlined in this context the potential value of launching joint projects of Community interest geared to the development of new services with a high technological content. The multiplying effect of such projects should have beneficial repercussions on the exploitation of new technologies, the broadening of markets and industrial competitiveness. The approach to be adopted by these projects is still being examined by a group of consultants close to network operators : the full results of this analysis will be available by June 1984.
42. Meanwhile, at the request of the Ministers of Research, the Commission has undertaken a feasibility study on a project concerning a European advanced communications network including videocommunications services intended in particular, to improve communication between government decision-making centres and the EEC institutions.
43. In addition, it is the Commission's opinion that it could be useful to initiate two other projects in the medium term, one aimed at setting up transnational cellular radiotelephony services and the other oriented towards the establishment in the Community, in the longer term, of large transnational axes for broadband ISDNs.
44. The Commission considers it useful to start studying the procedures for launching a project whereby second-generation transnational cellular radiotelephony services could be set up in the medium term. The harmonious development of industrial society increasingly depends on the mobility of individuals, whose movements are closely associated with the efficiency of economic and social life. This greater mobility makes it all the more necessary to ensure that the communication function - all too often interrupted by travel - is maintained.

Mobile communications systems, by their very nature, call for compatible designs which enable users to communicate irrespective of their location. The current situation in Europe is unsatisfactory since three incompatible standards are or will be used in the EEC. Community action therefore appears necessary to avoid a repetition of this situation when the next generation of mobile communications comes into existence.

Recent technological progress now makes it possible to consider much more attractive solutions for meeting new needs in this field. Cellular radiotelephony systems, in particular, hold out new prospects for providing communications services which allow a high degree of mobility.

The project envisaged should take account of the fact that if these new services are introduced in a sufficiently coordinated manner and in specific harmonization conditions, they should be able to offer mobility inside the Community both within and outside the frontiers of individual Member States.

The project envisaged should therefore be aimed at the following objectives :

- a) providing mobile radiotelephony links with the various fixed and mobile services throughout the Community. This will require end-to-end compatibility and a degree of synchronization in starting up such services ;
- b) guaranteeing a cross-border service integrity, when the mobile moves outside national frontiers.
- c) ensuring that these links are digitized so as to allow data to be transmitted and enable the system to be developed to incorporate new services in the future.

During an initial phase, the technical and economic feasibility of such a project should be examined in the light of studies conducted by the Commission and work carried out by the CEPT, on the one hand, and by the Group for Analysis and Forward Study, the setting-up of which is proposed in the context of action line I, on the other hand.

45. In the field of the general development towards the integrated broadband networks of the end of this century, a choice will quickly have to be made between :

- relying exclusively on national developments and concepts which, although useful at the R&D and pilot project stage, may well lack from the outset the advantage of market scale, thus slowing down the introduction of the networks and leading to international link-ups between national networks which are suboptimal ; or
- setting up in common, from the skeleton broadband structure between Member States, anticipating national developments. Such a transnational network would work in the Community as an integrating concept, promoting common standards and providing the necessary market scale, while leaving the necessary degree of flexibility for national developments specific to different national situations and regulatory concepts.

The latter choice would involve :

- agreeing on a framework for the international development of advanced high-speed business communication services in the Community, with initial use of satellite services to allow market development, in cooperation with leading-edge users ;

- creating a future-oriented optical fibre broadband structure for international communications in the Community which would have to bear the bulk of international traffic, as soon as the new broadband services take off on a large scale ;
 - subsequently considering the most appropriate forms of Community participation in such a project, both with regard to existing organisations in this field, such as Eutelsat, and with regard to the "development groupings" which may spring up between Member States or network operators.
46. The Community's financial instruments could, each within their specific field, play an important role in creating synergies between national sub-programmes and supporting projects of common European interest.

ACTION LINE V :

MAKING FULL USE OF MODERN TELECOMMUNICATIONS TECHNOLOGIES FOR

PROMOTING THE COMMUNITY'S LEAST-FAVOURED REGIONS AND

DEVELOPING THEIR INFRASTRUCTURE

47. The Commission emphasizes the importance of telecommunications for the development of the Community's least-favoured regions and points out that in the past three years the Community's financial instruments (ERDF, EIB and NIC) have contributed an average of some 720 million ECU to telecommunications infrastructure projects in these regions. The Commission proposes that :

-the Community policies, with full respect to their own aims, undertake all efforts to ensure that the resources provided by the Community financial instruments for telecommunications infrastructure in the Community's least favoured regions be increased in the years ahead ;

- the projects supported be aimed at exploiting to the greatest extent the potential of the new telecommunications technologies ;

- such projects be appropriately combined with the projects of common interest envisaged under action line IV ;

- the Group for Analysis and Forward Study proposed in action line I devote special attention to the regional development aspects.

- creating a future-oriented optical fibre broadband structure for international communications in the Community which would have to bear the bulk of international traffic, as soon as the new broadband services take off on a large scale ;
 - subsequently considering the most appropriate forms of Community participation in such a project, both with regard to existing organisations in this field, such as Eutelsat, and with regard to the "development groupings" which may spring up between Member States or network operators.
46. The Community's financial instruments could, each within their specific field, play an important role in creating synergies between national sub-programmes and supporting projects of common European interest.

ACTION LINE V :

MAKING FULL USE OF MODERN TELECOMMUNICATIONS TECHNOLOGIES FOR

PROMOTING THE COMMUNITY'S LEAST-FAVOURED REGIONS AND

DEVELOPING THEIR INFRASTRUCTURE

47. The Commission emphasizes the importance of telecommunications for the development of the Community's least-favoured regions and points out that in the past three years the Community's financial instruments (ERDF, EIB and NIC) have contributed an average of some 720 million ECU to telecommunications infrastructure projects in these regions. The Commission proposes that :

- the Community policies, with full respect to their own aims, undertake all efforts to ensure that the resources provided by the Community financial instruments for telecommunications infrastructure in the Community's least favoured regions be increased in the years ahead ;
- the projects supported be aimed at exploiting to the greatest extent the potential of the new telecommunications technologies ;
- such projects be appropriately combined with the projects of common interest envisaged under action line IV ;
- the Group for Analysis and Forward Study proposed in action line I devote special attention to the regional development aspects.

48. The vital importance of telecommunications for the development of the Community's least favoured regions is widely recognized : this field therefore emerges as an essential area of involvement for the Community's financial instruments, for which maximum effectiveness must be sought.
49. The resources devoted in recent years by these instruments to supporting telecommunications investments in such regions are already substantial :
- during the 1981-83 period, their involvement amounted to an average of some 720 million ECU a year, of which approximately 70% was provided by the lending instruments (mainly the EIB and the NIC) and 30% by the budgetary instruments (the ERDF). This amount corresponds to approximately 5% of total investments by telecommunications carriers in the Community.
50. The Commission stresses the major contribution such investments can make to attaining the objectives of the Community telecommunications policy (offering modern telecommunications services to users with a view to stimulating economic development and maintaining the competitiveness of the sector). They also constitute a powerful tool for helping the economic development of the Member States to converge in the long run. The Commission accordingly proposes that these interventions be increased in this field.
51. In order to ensure that these investments, carried out using the Community financial instruments, bring maximum benefit for the economy of the regions concerned, the Commission proposes that :
- they be geared to the future, i.e. seek to exploit to the greatest possible extent the potential of the new telecommunications technologies ;

- they be appropriately combined with projects of common European interest, as envisaged under action line IV.

52. In view of the foregoing, the Commission proposes that the Group for Analysis and Forward Study mentioned in action line I devote special attention to the needs of regional development during its proceedings. It will carry on the further studies which are necessary to define this action line in detail.

ACTION LINE VI :

THE PROGRESSIVE BROADENING OF THOSE SECTORS OF

THE COMMUNITY COMMUNICATIONS EQUIPMENT MARKETS

THAT ARE DOMINATED BY CARRIER PROCUREMENT

53. For the reason set out earlier, particularly in those parts of action line III which are devoted to measures aimed at broadening the market in terminals, the Commission proposes that contracts concluded by carriers for the purchase of equipment which is intended either to form and integral part of public networks or to be connected to the latter be gradually opened up to all Member States of the entire Community.

This broadening of the market would be achieved :

- a) in the case of terminals used by carriers or placed by them at the disposal of users (particularly the new telematics terminals) by extending invitations to tender for such equipment to all member states of the Community ;

b) as regards the other categories of equipment, by requiring carriers during an experimental phase, to extend their invitations to tender to all the Community Member States in respect of a minimum proportion to be determined (e.g. 10%) of the value of their annual orders of such types of equipment. In parallel with progressive application of the overall programme outlined in the present proposal, carriers would increasingly open up their markets. For equipment of new networks (especially wideband networks), the Commission considers that the goal should be nothing less than a complete opening of markets. Carriers would be invited to report regularly to the Commission on the steps they have taken to implement this policy.

The Commission, assisted by an advisory liaison group,¹ would monitor the effective implementation of these measures, report to the Council on the subject at the end of a two-year period at the latest and, propose at that stage additional measures aimed at gradually broadening the market.

With a view to introducing these measures in detail, the Commission will submit soon :

- an appropriate proposal based on the text of the project of recommendation concerning " a first phase of the opening-up of public telecommunications markets"(COM(80)422);

¹ This group could be the same as the one described in action line III.

- and on the results of the Council decisions on this project (cf. doc Council ECO 55 ref. 10538 of 29-10-1982).

54. Total investment by network carriers was estimated at 18 000 million ECU in 1983, of which 9 000-10 000 million ECU were devoted to the purchase of equipment intended either to be incorporated in public networks or to be connected thereto.

This market, which account for 75-90% of telecommunications equipment purchases in the Community, is fragmented into national markets that are effectively closed-off in the majority of the Member States.

55. The telecommunications revolution which is taking place may make it impossible for industrialists to recoup their expenditure (in particular their development costs) if this market situation continues. If they are to do so, they will very quickly need a broader base, in order to take advantage of economies of scale, sustain the rapid tempo that is essential for innovation, while shortening investment payback times, and cope with increasing competition on export markets.
56. The public telecommunications markets cover a range of products whose incorporation in networks subjects the carriers to constraints of a different type, which have repercussions on the methods of procurement.

These products can be classified into four main categories :

- a) consumer terminals (in particular basic telephone receivers);
- b) business terminals (modems, terminals, telex equipment, etc);
- c) transmission systems (using cables, optical fibres and microwave links);
- d) switching systems (electromechanical, space or time switching).

57. The procurement policy pursued by carriers must take account of the objective constraints imposed by the co-existence of different products within the same network ; the components of a network must :

- a) be compatible with one another as regards their basic functions, such as interconnectability. These problems are solved, as far as international telecommunications are concerned, by the CCITT recommendations ;
- b) mesh with the method of operation of the network under consideration;
- c) be able to be covered by pre-existing maintenance schemes and arrangements under favourable economic conditions.

58. Irrespective of the industrial policy standpoint, the dialectic of the diversification of public telecommunications procurements must therefore give due regard to objective arguments springing from technical, economic and organizational considerations.
59. It will be possible to open up the markets for consumer and business terminals to Community competition when the technical specifications concerning connection to networks have been harmonized sufficiently to ensure compatibility between receivers and public automatic switching units in a "standardized" area covering a major proportion of public procurements made by the carriers in the Community. The procedures proposed in action line III, whereby the results of tests to verify conformity with standards and type approval would be recognized on a reciprocal basis, should make it possible to satisfy this requirement.
60. Transmission systems

With the transmission function, we leave the realm of "single-cell" products and enter that of systems, which are by definition composed of a number of sub-systems.

If we look at complete long-haul transmission systems, including the transmission medium in the case of cable systems, it can be concluded that the technical obstacles standing in the way of diversified procurement for a given telecommunications network are relatively small.

It is technically possible in the short term to open up the markets at this product level.

Nevertheless, setting up a complete system - even if only partly equipped - is a major project, which places a limit on the number of such systems and may therefore make it difficult to open up the markets completely.

It would therefore be desirable to extend the opening-up of the markets to the procurement of sub-systems, which are by nature much more numerous than the complete transmissions systems of which they form part. At technical and functional level, thanks in particular to work carried out by international standardization organizations such as the CEPT and the CCITT, this appears in theory to be practicable : especially in modular sub-systems multiplex. For the sub-systems which make up on line equipment, the interdependence between sub-systems themselves and between sub-systems and support systems does not appear to be sufficient on existing systems to permit them to be separated.

In the medium term, by contrast, the effective interchangeability between modular sub-systems which make up the transmission systems must be an objective to be obtained within the Community, especially for fibre optics systems.

This objective could be attained provided that a body of common standards based on the CCITT standards can succeed in making functional sub-systems, including line equipment, effectively interchangeable.

61. Switching systems

The situation in this area is complex, not only because the amount of turnover at stake, but also and especially as a result of the industrial standing of European manufacturers, their strategy, Europe's position with respect to the United States and Japan and the difficulties involved in developing future systems. The Member States realized at a very early stage the importance of electronics and computer technologies in the future generations of switching systems. After the era of space switching in the sixties, R&D has been directed towards time-switching systems. Firms became involved without fully realizing the difficulties to be overcome in order to master the electronics, produce the necessary complex software and train the staff. There are nine switching systems in the Community ; when it is borne in mind that the development of a switching system for between 5 000 and 30 000 lines, for a given network, costs some 150-300 million ECU, it comes as no surprise that firms are not sure of being able to recoup their development costs. It has become all the more difficult to do so, because, in the countries in which one or more systems have been developed, the market has been reserved for industrialists whose development effort had been supported at national level.

If these circumstances continue, it appears hardly likely that the situation could quickly be changed so that a smaller number of switching systems would be available on a unified Community market and development costs could be recouped.

The solution must therefore be sought as part of a gradual process, which would rely on the development of switching for broadband networks and would involve deliberate re-shaping of the industrial structure, in particular through cooperation between manufacturers for the development of the future generation of switching systems.

62 The considerations set out in the foregoing lead to the conclusion that only a gradual process is likely to enable the market for telecommunications equipment procured by network carriers to be broadened.

The Commission proposes that this gradual expansion of the market be attained :

- a) in the case of consumer and business terminals purchased by carriers (particularly new telematics terminals), by asking the carriers to extend their invitations to tender for such equipment to all member states of the Community ;

- b) for any other category of equipment and in view of the present state of the affairs, characterized by nationally compartmentalized markets, R&D efforts, procedures of type approval, standards and network development strategies, the Commission considers that the opening-up of national markets will only be achieved gradually.

The first step towards this can be taken immediately, namely asking network carriers to extend their invitations to tender to all the Community Member States in respect of a minimum proportion to be determined (for example 10%) of the value of their annual orders of network components.

The existing compartmentalization should break down gradually under the combined effects of demand for services, evolution of networks and increasing realization of the significance of the Community-wide dimension; therefore the Commission considers that the Community's aim should be nothing less than the total opening up of markets for the new network components, especially third generation types.

However this aim can only be achieved gradually, depending on variables such as equipment types, schedules and geographical locations involved. The Commission proposes to gear the speed of this process to the implementation of the action programme.

63. Carriers would be invited to report regularly to the Commission on the measures they have taken to implement this policy. The Commission, assisted by an advisory liaison group, which could be the same as the one mentioned in action line III, would monitor the effective application of these measures, report to the Council on the subject at the end of a two-year period and, at the latest, propose at that stage additional measures aimed at gradually broadening the market.

With a view to introducing these measures, the Commission intends to submit to the Council a new version, amended along the lines set out in the foregoing, of its proposal for a recommendation concerning the first phase of the opening-up of public telecommunications markets (COM(80)422¹)

¹ this recommendation broadly provides that :

- for at least 10% of the total value of their annual equipment purchases, national carriers should call for tenders from firms established in other Member States ;
- for their purchases of "new telematic terminals", network carriers should call for tenders in other Member States ;
- a liaison group should be established to oversee and guarantee implementation of these plans.

II

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL RECOMMENDATION

of 12 November 1984

concerning the implementation of harmonization in the field of telecommunications

(84/549/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee⁽²⁾,

Whereas there is a need to use the full potential of telecommunications in order to assure the economic development of the Community;

Whereas in this context it is essential to achieve, amongst others, the following two objectives:

- the creation of a range of harmonized telematic⁽³⁾ services offering users throughout Europe the chance to communicate efficiently and economically,
- the creation of a dynamic Community market for telecommunications equipment;

Whereas the introduction of the new integrated services digital networks (ISDNs), and of new broad-

band communication services, of special use notably to business users, by all telecommunications administrations and private operating agencies recognized by the Community and offering telecommunications services, hereinafter referred to as the 'telecommunications administrations', offers a prime opportunity for the harmonization that is essential to achieve these objectives;

Whereas it is necessary to support the Community telecommunications administrations in the implementation of the urgent harmonization programmes established by the European Conference of Postal and Telecommunications Administrations (CEPT), the European Committee for Standardization (CEN)/the European Committee for Electrotechnical Standardization (Cenelec), the International Telegraph and Telephone Consultative Committee (CCITT) and the International Organization for Standardization (ISO) and to assist them in ensuring that the necessary resources, particularly of skilled manpower, are available to them,

HEREBY RECOMMENDS:

that the Governments of the Member States ensure that:

— the telecommunications administrations:

1. consult each other, preferably in the framework of CEPT, before they introduce any new service, notably between Member States, with a view to establishing common guidelines so that the necessary innovation takes place under conditions compatible with harmonization;

⁽¹⁾ O.J. No C 144, 15. 6. 1981, p. 71.

⁽²⁾ O.J. No C 138, 9. 6. 1981, p. 26.

⁽³⁾ The word 'telematic' applies to all those services, systems, apparatus and products which are based on the combined use of electronic techniques of information, i.e. digital processing and transmission. The word 'telematic' is a generic term and does not of course refer to any particular commercial product under that name.

2. ensure that all new services that are introduced from 1985 onwards are introduced on the basis of a common harmonized approach, notably with regard to services between Member States, so that compatible services are offered throughout Europe, taking into account the progress of work in CEPT, CEN/Cenelec, CCITT and ISO;
3. from 1986 onwards, when they order digital transmission and switching systems that are designed for progressive integration of services,

do so taking full account of recognized standards in the Community,

- the Commission is regularly informed of the progress of work, which it will examine periodically with the Senior Officials Group on Telecommunications set up by the Council on 4 November 1983.

COUNCIL RECOMMENDATION

of 12 November 1984

concerning the first phase of opening up access to public telecommunications contracts

(84/550/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament ⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee ⁽²⁾,

Having regard to the communication from the Commission to the Council on telecommunications of 18 May 1984,

Having regard to the growing importance of telecommunications for the economic development of the Community,

Whereas, with a view to attaining the basic Treaty objective of creating a common market, the Council Declaration of December 1976 invited the Commission to propose measures whereby supply contracts awarded by the bodies in Member States responsible for telecommunications services can become subject to effective competition at Community level, on a reciprocal basis;

Whereas at the present stage of development it seems appropriate to differentiate between terminal apparatus on the one hand and switching and transmission apparatus forming part of the public networks on the other hand;

Whereas the Commission and the Member States have taken steps to develop a common market for telecommunications equipment, in particular by contributing to the elimination of barriers to trade, by means of measures that should lead progressively to the definition of common type-approval specifications for terminal apparatus and mutual recognition by administrations of type approvals for such apparatus;

Whereas the harmonization programme now being undertaken by the telecommunications administrations within the framework of the European Confe-

rence of Postal and Telecommunications Administrations (CEPT) should open up increasing possibilities for cross-frontier procurement during the 1980s;

Whereas for the purposes of this recommendation:

- 'telecommunications administrations' means the administrations and recognized private operating agencies recognized by the Community and offering telecommunications services,
- 'terminal apparatus' means apparatus connected to the extremities of a public telecommunications network to send, process or receive information,
- 'conventional terminals' means telephone apparatus for main telephone sets, private automatic exchanges (PABX) for conventional telephony, ordinary teleprinters and modems,
- 'new telematic terminals' means terminal apparatus other than conventional terminals,
- 'switching and transmission apparatus' means any apparatus other than terminal apparatus that is purchased by telecommunications administrations for use in their networks;

Whereas the purpose of this recommendation is to develop a common market for telecommunications equipment; whereas it therefore aims to offer telecommunications administrations a wider choice and to meet the absolute necessity to establish or consolidate a European industrial potential in the technologies concerned;

Whereas it is therefore to the Community's advantage that the telecommunications administrations should, in the course of an experimental phase, gradually contribute to the creation of this common market by inviting tenders, in the other Community countries on a non-discriminatory basis for at least a minimum proportion of their supply contracts,

HEREBY RECOMMENDS:

- that the Governments of the Member States ensure that the telecommunications administrations provide opportunities for undertakings established in the other Community countries, following their usual procedures and on a non-discriminatory basis, to tender for:

⁽¹⁾ OJ No C 144, 15. 6. 1981, p. 71.

⁽²⁾ OJ No C 138, 9. 6. 1981, p. 26.

1. all new telematic terminals and all conventional terminals for which there are common type-approval specifications;
 2. their contracts for switching and transmission apparatus and conventional terminal apparatus for which there are no common type-approval specifications for at least 10 % in value of their annual orders,
- that the Governments of the Member States report to the Commission at the end of each six-month period, starting at the end of 1984, on the measures taken by the telecommunications administrations to implement this policy, their practical effects, the problems encountered and any further action needed. These data will be examined by the Commission with the Senior Officials Group on Telecommunications set up by the Council on 4 November 1983.
-

E X T R A C T

from the

D R A F T

M I N U T E S

**of the 979th meeting of the Council
held in Brussels on Monday 17 December 1984**

**Subject : telecommunications ("Communication from Mr Davignon to the
Council on telecommunications" of 3.12.1984)**

Telecommunications ("Communication from Mr Davignon to the Council on telecommunications" of 3.12.1984)

The Council welcomed the Commission communication summarizing progress so far in the field of telecommunications and suggesting guidelines for the continuation of this work.

The Council agreed that work in this field should continue on the basis of the following principal objectives:

- (a) the creation of a Community market for telecommunication equipment and terminals via:
 - a standardization policy aimed at the effective implementation in the Community of common standards derived from international standards;
 - the progressive application of procedures for the mutual recognition of type approval for terminals;
- (b) improving the development of advanced telecommunication services and networks:
 - (i) by opening discussions, based on the available studies, on:
 - the implementation of infrastructure projects of common interest;
 - launching a development programme for the technology required in the long term for the implementation of future wide-band networks;
 - (ii) by defining and progressively setting up a video-communications system to link the various political authorities in the Community;
- (c) improved access for less-favoured regions of the Community, through the appropriate use of Community financial instruments, to the benefit of the development of advanced services and networks;
- (d) co-ordination of negotiating positions within the international organizations dealing with telecommunications, based on discussions carried out jointly with the Working Party of Senior Officials on Telecommunications.

II

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL DECISION

of 25 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)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee⁽²⁾,

Whereas the Community has as its task, by establishing a common market and progressively approximating the economic policies of Member States *inter alia* to promote throughout the Community a harmonious development of economic activities and closer relations between the Member States;

Whereas the Heads of State or of Government, meeting in Stuttgart, Athens, Fontainebleau and Brussels, emphasized the importance of telecommunications as a major source for economic growth and social development;

Whereas the European Parliament, in its assessment of the situation and development of telecommunications, stressed the key role of telecommunications for the future political, social and economic development of the Community;

Whereas on 17 December 1984 the Council agreed on the main elements of a Community telecommunica-

tions policy, including the objective of developing advanced telecommunications services and networks by actions at Community level;

Whereas, with the emergence of new services and the progressive convergence of telecommunications, data processing and entertainment, the evolution may develop towards a Europe-wide integrated broadband network (integrated broadband communications, IBC) capable of supporting a wide range of customers and service providers;

Whereas developments in telecommunications will benefit the international competitiveness of the European economies in general and of the telecommunications industries in particular;

Whereas, in response to the requirement of using fully the economic and market potential of telecommunications, the Commission has submitted a programme of action which has been recognized as a base for further work by the Council;

Whereas R & D can make a major contribution, notably by facilitating the evolution towards future integrated broadband communications in terms of transnational connections, and also at regional and local levels;

Whereas the Council approved, in its resolution of 25 July 1983⁽³⁾, the principle of framework programmes for Community research, development and demonstra-

⁽¹⁾ OJ No C 175, 15. 7. 1985.

⁽²⁾ OJ No C 188, 29. 7. 1985, p. 16.

⁽³⁾ OJ No C 208, 4. 8. 1983, p. 1.

tion, the scientific and technical objectives for the period 1984 to 1987, and in particular the importance given to the goal of promoting industrial competitiveness;

Whereas the Council, on 4 June 1985, recognized the importance of the rapid establishment of a definition phase for the RACE programme (R & D programme in Advanced Telecommunications Technologies for Europe) in order to prepare a general European framework for the development of advanced systems of communications for the future and to promote technical and industrial cooperation;

Whereas the constitution or consolidation of a specifically European industrial potential in the technologies concerned is an urgent necessity; whereas the beneficiaries must be network operators, research establishments, undertakings, including small and medium-sized enterprises, and other bodies in the Community which are best suited to attain these objectives;

Whereas it will not be possible to define and examine a Community R & D programme in this sector until the definition phase produces the relevant conclusions;

Whereas the Treaty has not provided the specific powers necessary for the adoption of this Decision;

Whereas the Scientific and Technical Research Committee (Crest) has expressed its opinion,

HAS DECIDED AS FOLLOWS:

Article 1

1. A definition phase for a Community action in the field of telecommunications technologies as described in the Annex is hereby adopted for a maximum period of 18 months beginning on 1 July 1985.
2. The activity is designed essentially to define precise objectives and to develop the approach to technological cooperation at Community level in concertation with public and private actions in the field of telecommunications technologies undertaken at national and international levels.

Article 2

1. The definition phase shall consist of two parts. Part I shall comprise analytical work required for the formulation of a reference model for integrated broadband communications (IBC) to be carried out by appropriate organizations, groups and other bodies and including, where required, contract work.

Part II shall comprise technology evaluation and exploration projects carried out by means of contracts, as required to clarify technology options and establish techno-economic feasibility of the reference model.

The contracts shall be concluded with network operators, research establishments, undertakings, including small and medium-sized enterprises, and other bodies established in the Community, hereinafter referred to as 'partners'. The work shall be carried out in the Community.

2. The projects of Part II shall be executed by means of shared cost contracts. The contractors shall bear a substantial proportion of the costs, normally at least 50 % of the total expenditure on any project.

In exceptional cases as specified in Article 6 (3), different conditions from those laid down in this paragraph may be adopted in accordance with the procedure in Article 7.

3. The activity will take account of requirements regarding the development of standards and common functional specifications to serve the interests of European industry, users and telecommunications operators in this field.

Article 3

1. Where contracts are required for the implementation of Part I, they shall be awarded by restricted tendering procedure.
2. The contracts for Part II shall be awarded by open tendering procedure and involve the participation of at least two independent industrial partners not all established in the same Member State. The open invitation to tender shall be published in the *Official Journal of the European Communities*.

Article 4

1. The Community shall contribute to the performance of the action within the limits of the appropriations entered to this end in the general budget of the European Communities.
2. The amount of the appropriations estimated necessary for the Community's contribution to Part I shall be calculated on the basis of Article 2 (1), and charged to the relevant part of the general budget of the European Communities.

The funds estimated necessary for Part II amount to 14 million ECU, including expenditure on a staff of 12, and will be used in accordance with the procedure laid down in Article 6 (3).

Article 5

The Commission shall ensure that the definition phase is properly performed and establish the appropriate implementation measures.

Article 6

1. The Commission shall be assisted in the performance of the task referred to in Article 5 by a Committee. The Committee, consisting of two representatives of each Member State, shall be set up by the Commission on the basis of nomination by the Member States.

Members of the Committee may be assisted by experts or advisers depending on the nature of the issues under consideration.

The Committee shall be chaired by a Commission representative.

The proceedings of the Committee shall be confidential. The Committee shall adopt its own rules of procedure. The secretarial services shall be provided by the Commission.

2. The Commission may consult the Committee on any matter falling within the scope of this Decision. In addition, the Commission shall inform the Committee regularly in advance, of projects falling below the thresholds referred to in paragraph 3, fourth and fifth indents.

3. The Commission shall consult the Committee, in accordance with the procedure laid down in Article 7, on:

- the work to be undertaken in Part II; such consultation will have to be completed within a maximum period of three months following this Decision,
- any departure from the general conditions laid down in Articles 2 and 3,
- the evaluation of work undertaken in respect of Part I, by appropriate organizations, groups and other bodies,
- the contracts which may be necessary for the implementation of Part I, as well as the resultant Community financial contribution when the contracts require a Community contribution exceeding 100 000 ECU,
- the assessment of the proposed projects relating to Part II and the proposed level of cost-sharing referred to in Article 2 (2) as well as the Community's financial contribution to their execution when these projects require a Community contribution exceeding 400 000 ECU.

Article 7

1. Where the procedure laid down in this Article is to be followed, the chairman shall refer the matter to

the Committee, either on his own initiative or at the request of one of its members.

2. The Commission representative shall submit to the Committee a proposal for the measures to be taken. The Committee shall deliver its opinion on the proposal within a period that may be decided by the chairman in the light of the urgency of the matter and which shall normally be one month and shall in no case exceed two months. The opinion shall be adopted by a qualified majority. Within the Committee, the votes of the Member States shall be weighted in accordance with Article 148 (2) of the Treaty. The chairman shall not vote.

3. The Commission shall implement the measures where its proposals are in accordance with the opinion of the Committee. Where the proposal is not in accordance with the opinion, or where no such opinion is issued, the Commission may submit to the Council a proposal in the form of a draft Decision. The Council shall act by a qualified majority.

If the Council has not acted within a period which shall normally be one month and shall in no case exceed two months from the date on which the matter was referred to it:

- the Commission proposal shall be deemed to be rejected if it concerns matters falling under the second and third indents of Article 6 (3)
- the Commission may take a decision corresponding to its proposal if it concerns matters falling under the fourth and fifth indents of Article 6 (3).

Article 8

With regard to the concertation activities provided for in Article 1 (2), the Member States and the Commission shall exchange all appropriate information to which they have access and which they are free to disclose concerning activities in the areas covered by this Decision, whether or not planned or carried out under their authority.

Information shall be exchanged according to a procedure to be defined by the Commission after consulting the Committee, and will be treated as confidential at the supplier's request.

Done at Brussels, 25 July 1985.

For the Council

The President

J. POOS

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(85) 230 final

Brussels, 25 June 1985

Proposal for a
COUNCIL DIRECTIVE

on standardization in the field of information technology
and telecommunications

Proposal for a
COUNCIL DIRECTIVE

concerning the first phase of the establishment of the mutual
recognition of type approval for telecommunications
terminal equipment

(submitted to the Council by the Commission)

**PRESENTATION OF THE
TWO DRAFT PROPOSALS FOR DIRECTIVES CONCERNING
STANDARDIZATION FOR INFORMATION TECHNOLOGY
AND TELECOMMUNICATIONS
AND THE MUTUAL RECOGNITION OF CONFORMANCE TESTS
FOR TELECOMMUNICATIONS TERMINAL EQUIPMENT**

I. ESSENCE OF THE PROBLEM

Standardization policy has always played an important role in the organization of the European Economic Community and particularly in the creation of a true internal market.

During the past year, the necessity of promoting a real standardization policy in the new technologies, and in particular in information technology and telecommunications, has become increasingly imperative.

Yet the stakes placed on standardization in these areas go far beyond the technical problems of drawing up standards: the importance of the issue relates to the objectives to be met, notably as regards the establishment of the internal European market, keeping up competition and competitiveness while providing support for European industry, and making optimum use of concurrent research and development programmes.

The importance of this policy has been well understood by the Ministers of Industry who, at the Council meetings of 18 May 1984, 16 July 1984 and 17 December 1984, have approved the direction of such a policy.

This importance also justifies the pragmatic approach and the common discipline required which characterize the two draft Directives proposed by the Commission to the Council.

- Their pragmatic character is based on the use of existing instruments, the necessity to confront a new situation and on a staged approach.
- The necessary common discipline ensures that the proposed measures and procedures are applied in a coherent and efficient manner at all decision-making levels in the Member States.

For these reasons, a directive is required as the appropriate legal instrument.

The proposed approach takes into account the current situation in information technology and telecommunications, particularly as regards the character and responsibilities of the bodies working on the definition of technical specifications in these sectors, without calling into question the principle of reference to standards adopted by the Council on 7 May 1985. Furthermore, the need to ensure terminal interoperability will point the way to detailed common technical specifications for manufacturing.

EFFECT OF THE NEW DIMENSION

Standardizers can no longer rely on codifying decades of 'best practice' to produce their standards. It is not enough for advanced technologies to reflect the state-of-the-art; one has to reach forward to a definition of systems architectures and the timely elaboration of the complex and precise technical specifications which are indispensable to guide the engineers responsible for organising communication between systems. If, through a lack of determination, these technical specifications are not available in time and with the desired quality and precision, the official standard can no longer succeed and the de facto standard takes over imposing constraints which are much more heavily resented.

Whenever standardization work corresponds to clearly expressed needs, it must be undertaken with greater determination on the basis of procedures and structures which are better adapted to the new tasks with well defined and identified objectives.

USE OF EXISTING TOOLS

The approach selected uses existing mechanisms to the maximum.

The information procedure laid down in the Directive 83/89/EEC is used where it concerns standards. Only in its application to technical regulations has it been reinforced in order to ensure:

- a) information at an early stage. If the prevention of barriers is to be considered the basic objective, it is evident that the conditions necessary for a common agreement are better at the early stage of the work which is to be undertaken in common;

¹ Technical harmonization and standards : a new approach
COM(85)19 final of 31.1.1985

- b) the application of the status quo to promote the preparation of common technical specifications and avoid duplication, at the national level, of the work undertaken in the European framework.

The Directive 77/62/EEC cannot provide an adequate basis to ensure the implementation of standards in public contracts because it excludes telecommunications from its field of application and the activity of Member States in this area cannot be limited to those tenders covered by this Directive.

THE NEED FOR SYNERGY IN THE APPROACH

The issue of standardization is a common, dominant factor in all aspects of information technology and telecommunications. This arises from the remarkable break-through in digitalization, i.e., abandoning analogue in favour of digital signals, usually transmitted as binary codes. This is no longer limited to computing but has penetrated office automation, manufacturing, the new digitalised networks and the telematic services and terminals.

The interdependence of information technology and telecommunications and the extensive overlaps between them, are reflected by common areas of standardization which it would be mistaken to treat separately.

This interdependence must also be reflected in adequate and effective coordination between the committees concerned by these directives, including the committee concerned by directive 83/189.

THE STANDARD IS BECOMING THE BASIS OF THE COMMUNICATION PROCESS

Modern communications depend on respect for conventions which allows them to develop satisfactorily.

Non-communication for certain new services (TELETEX, VIDEOTEX, cellular radiotelephony, etc.) arises when standardization has not really played its role, and penalises exchanges at the Community and international levels. Community programmes, such as CADDIA and INSIS, constantly confront such obstacles and one begins to measure the cost of the lack of standardization.

THE EASE OF IMPLEMENTING STANDARDS IS A CONDITON OF THEIR CREDIBILITY

The credibility of international standardization suffers from the difficulties experienced by those who want to implement standards to ensure the most current exchanges of information. Using international standards has often been complicated by the lack of means to verify conformance of products to these standards. The draft Directives have taken into account some aspects which contribute to a better application of standards or common technical specifications and ensure the verification of conformance.

II. OBJECTIVES OF THE TWO DRAFT DIRECTIVES

The two draft Directives, taken together, have the following main objectives :

- 1) to instigate satisfactory procedures for establishing, by technically specialized organisations, standards (for information technology) and common technical specifications (for telecommunications) whose priority has been recognized by the Community through appropriate procedures and allowing a harmonized implementation of international standardization in the Community framework ;
- 2) to ensure that the regulatory mechanisms which concern exchange of data and the interoperability of systems in information technology and telecommunications are subject to procedures which complete those of Directive 83/189/EEC, and that the work achieved at Community level is not duplicated and/or impeded by work undertaken in parallel at the national level ;
- 3) to see to it that European standards in information technology and common specifications in telecommunications serve as references in public purchasing by the Community institutions and the Member States ;
- 4) to set up progressively a procedure for the mutual recognition of tests for telecommunications equipment made by laboratories approved in the Member States, on the basis of common specifications adopted at Community level.

*
* *

Complementary measures of a technical and organisational nature should be taken, which will facilitate their application and will reinforce their implementation.

In particular, it concerns :

- the application of new concepts such as functional standards and development of experimental standards ;
- to encourage and assist European organisms responsible for publishing standards and/or common technical specifications to improve their organization and accelerate their work ;
- to establish ways of improving and harmonizing test procedures and conformance certification of products to standards ;
- to improve the methods and infrastructure for the realisation of tests.

C O N C L U S I O N S

The two draft directives form a coherent set of measures and an effective contribution along the guidelines adopted by the Council on 16 July 1984.

In each of the areas concerned, the two directives lay the basis for organising the definition of the standards and the common technical specifications necessary for the realisation of the Community market and the encouragement of a more competitive European industry in a pragmatic manner which takes account of the particular aspects of each area.

C O N T E N T S**A. SUMMARY****B. EXPLANATORY MEMORANDUM****INTRODUCTION**

**I - THE IMPORTANCE OF STANDARDIZATION IN THE FIELD OF
INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS**

II - THE OBJECTIVES

III - THE PRELIMINARY WORK

IV - PRESENTATION OF THE DRAFT DIRECTIVE

CONCLUSION

**C. TEXT OF THE DRAFT COUNCIL DIRECTIVE RELATING TO
STANDARDIZATION IN THE FIELD OF INFORMATION
TECHNOLOGY AND TELECOMMUNICATIONS**

**D. ANNEX : Standardization measures in the field of
information technology and telecommunications.**

A - S U M M A R Y

The draft Council Directive relating to standardization in the field of information technology and telecommunications follows the traditional approach to standardization problems in the Community context and at the same time makes allowance for the specific aspects of information technology and telecommunications.

The growing importance of standards in this field, and in particular the role they play in ensuring the exchange of information on the basis of agreed conventions and the compatible working of systems processing and communicating that information, provides ample justification for the Community to step up the activities already under way and to supplement them by more precise action including :

- alignment with international standardization,
- the performance of technical work to be entrusted to the competent technical bodies as the need emerges and following consultation with a Standing Committee,
- due consideration given to standardization when drawing up technical rules,
- the stricter application of standards to which reference should be made in public procurement orders.

B. EXPLANATORY MEMORANDUM**I N T R O D U C T I O N**

In the context of the implementation of a Community information technology and telecommunications strategy, the question of standards was found to be a vital factor for :

- the establishment of a Community information technology market,¹
- the establishment in the information technology sector of better coordinated industrial strategies between Community companies,
- the success of the work undertaken under the ESPRIT programme,
- the implementation of a European telecommunications policy.²

The implementation of a Community-wide coordinated strategy is essential because of the special role played by information technology and telecommunications standardization and its urgency for the future of IT in the Community.

¹ Council meetings (Internal Market) on 26 October and 25 November 1983 and 8 March 1984.

² Communication for the Commission to the Council on Telecommunications. Lines of action - COM(83)573 final of 29 September 1983.
Communication from the Commission to the Council on Telecommunications. Progress report on the thinking and work done in the field and initial proposals for an action programme - COM(84)277 final of 18 May 1984.
Conclusions of the Industry Council of 17 December 1984.
Conclusions of the European Council of 29 and 30 March 1985.

**I - THE IMPORTANCE OF STANDARDIZATION IN THE FIELD OF
INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS**

1. The role of standards in this field

Standardization has a very direct impact on the operation of computerized equipment, systems and networks.

In the early days of computers, computer centres were operated in comparative isolation, and a few conventions were sufficient for the exchange of punch cards, magnetic tapes and programmes written in high-level programming languages.

The first decisive development took place in the early 1970s when data bases started to be more widely used and terminals, communicating on the basis of more precise conventions, were required. This development was intensified with the widespread introduction of growing numbers of mini- and microcomputers that can theoretically use a wide range of programmes ; in actual fact, it is difficult to use software written for one machine on hardware made by a different manufacturer.

More recently, with the advent of public data transmission networks, it has become possible to interconnect a wide range of equipment performing a varied range of functions, examples being the systems installed or planned in banks, travel agencies, business and industry (advanced office systems, computer-integrated manufacturing).

The needs of users and manufacturers are now expressed in terms of interoperability and the capacity of systems and equipment to communicate and cooperate with each other.

2. Economic repercussions of the absence of a Community policy

The general aim of standardization in information technology and telecommunications, as in other economic sectors, is to remove technical barriers that impede the establishment of an harmonized internal market and distort competition by creating captive markets.

The situation is, however, more serious in the field of information technology and telecommunications than in other economic sectors.

The delay in tackling standardization and the large number of de facto standards (manufacturers' specifications) which are neither public nor stable have encouraged the establishment of captive markets, not just for a few products but for the whole information technology and telecommunications field because of the trend towards the setting-up of computerized systems and networks.

Because the cost of software is increasing in relation to that of hardware, independent manufacturers are tending to tailor their products to the equipment having the largest market shares.

A Community information technology and telecommunications standardization policy must therefore help to :

- create a market and support the development of these technologies while at the same time removing barriers to the functioning of the market ;
- bring about more efficient exchanges of information which are essential to the proper functioning of economic life ;

- save individual users and companies pointless conversion costs owing to incompatibility.

3. The specific nature of information technology and telecommunications standards

The nature of the standards and the standardization process in the field of information technology and telecommunications stand out as a very special field by virtue of three characteristics :

First of all the standards are particularly complex because they have to be sufficiently detailed to guarantee data communication and in some cases the interoperability of systems. This complexity increases with the sophistication of the hardware and software. It calls for extreme precision if the requirements of the various levels of interaction of the systems are to be met.

The information, whether it consists of the actual data or instructions concerning their processing, transmission or presentation, is expressed in the form of groups of sequences consisting of noughts and ones.

They are interpreted according to codes and their exchange requires interfaces or protocols which are conventions that are often also expressed and coded in binary form.

Because of the density of this information, its high throughput rate and the way in which it is presented, it is becoming more and more difficult to come to grips with it.

Data processing standards are a closed book to users, unlike the situation in other sectors where a standard is accepted and understood by users who can implement it immediately without prior research, as in loading a film in a camera or fitting a tyre to a wheel made by a different manufacturer.

The digitization of networks and the development of specifications for terminals required to equip new computerized telecommunications services will result in the same degree of complexity in future in the telecommunications sector.

Secondly, information technology and telecommunications standardization is of great urgency for both technological and economic reasons. Because of the speed and nature of technological development it is essential to reach the required degree of precision in standards very rapidly, otherwise texts arising from standardization work will be obsolete before they are produced, especially when different provisional solutions have had to be adopted by manufacturers. The standard is then outdated and no longer offers the stability that users are entitled to expect of it. Economically, many firms will be unable to survive in this industry if they have to continue to operate and compete in the market on the basis of proprietary company standards and captive software systems.

Finally, the information technology and telecommunications standardization activities must be carried out in the context of international standardization.

This approach ensures :

- that standardized products can be distributed on the world market ;

- that the technical capacity is available to cope with the gradual amalgamation of data-processing and telecommunications standards as required by the convergence of systems with the development of IT networks.

The international OSI (Open Systems Interconnection) standard now being prepared in the International Standardization Organisation (ISO) provides the theoretical basis for a set of standards common to both systems, even though telecommunication has a standardization body of its own in the CCITT.

II - THE OBJECTIVES

1. Helping to establish a genuine Community information technology and telecommunications market.

The rapid implementation of a Community-wide coordinated strategy for standards is essential in view of the urgency and importance of this issue for the future of information technology and telecommunications in the Community.

The adoption of common standards is vital to :

- the establishment of a more transparent and competitive Community information technology and telecommunications market,
- the ability of Community industry to gain maximum advantage from the Community dimension and to satisfy the pressure of demand for fast-developing products and systems that are more and more frequently interconnected.

2. Improving conditions of competition

The Community market is today divided between the customers of the different firms. Such a commercial and industrial strategy requires that firms obtain a large enough market share, either on the basis of their own products or on the basis of licensing or subcontracting agreements enabling them to supply all the products and services required.

Very few companies in the Community are in this position and not one of them is of European origin.

Until such time as the work on the OSI model achieves operational results, there will be a risk of de facto standards and architecture gradually becoming established in order to meet market requirements.

3. The efficiency of information exchanges in the Community

Information exchanges are increasingly dependent on conventions established between data-processing systems connected by networks. Standardization provides an essential basis for these exchanges and their efficiency is directly dependent upon it. It must, however, be effected in such a way that IT standards and common technical specifications which apply to the telecommunications sector contribute to the efficiency of these exchanges throughout the Community.

4. Taking user requirements into account

Users are faced with incompatibility problems that can only be solved by costly conversions and that reduce the reliability of their systems. User requirements, especially as regards the compatible working of systems, must be taken into account so that they can assemble their equipment as a function of the work profiles required.

III - THE PRELIMINARY WORK

In recent years the Commission has already begun preliminary work on standardization in the field of information technology.

The vital role played by standardization in the implementation of a Community strategy has emerged very clearly in recent months and as a result the Commission proposes that standardization activities be stepped up by bringing them under a wider and more vigorous policy.

In May 1984 the Commission departments submitted to the Council (Industry) proposed guidelines³ for the implementation of the measures necessary for the drawing up of a joint action programme. Once these guidelines were confirmed the Commission called several meetings of the Senior Officials Group for Information Technology Standardization and consulted it with a view to continuing its examination of the problems raised by the definition of a common standardization policy.

³ SEC(84) 796 of 15 May 1984 - Commission Working Paper

As a result of this examination it :

- (a) emphasized the urgent need for action in this field ;
- (b) confirmed the value of making use of the expertise of the European standards institutions, which were asked to state how they could organize themselves to tackle problems specific to IT standardization ;
- (c) recognized that the commitment of the joint organization CEN/CENELEC and the proposed adaptations to structures and procedures submitted at the meeting of 25 July 1984 satisfied the necessary conditions for tackling the specific field of information technology ;
- (d) took into consideration the growing importance of the common areas corresponding to technical overlaps between information technology and telecommunications and confirmed that the association of CEPT with the work of CEN/CENELEC would strengthen the coherence of the standardization effort;
- (e) determined priorities for the establishment of the first work programme ;
- (f) realized the need to establish conformance testing facilities.

With the availability of all these data which, thanks to the efforts of the standards institutions and the representatives of the administrations, were assembled in a relatively short time, it is now possible to define proposals for the implementation of a strategy in this field.

IV - PRESENTATION OF THE DRAFT DIRECTIVE

Standardization problems have always been one of the Community's main concerns since its establishment and in past years satisfactory solutions have been found in various sectors.

In tackling the problem of information technology and telecommunications, the Community is far from devoid of resources, since it already has a firmly based tradition in the field of standardization and, in addition to the experience it has already gained, the existing instruments can be used in order to attain the desired results more rapidly.

The draft directive takes this situation into account when proposing :

- alignment on international standardization,
- the use of existing directives,
- the allocation of responsibilities on the basis of the roles traditionally played by the Commission, the Standing Committee consisting of Member States' representatives and the standards institutions responsible for the technical work.

In order to benefit from this tradition, however, adjustments must be made in the light of the aspects specific to this sector.

1. Definition and performance of the necessary activities

The activities to be carried out are essentially designed to ensure harmonized application of international standardization within the Community. They are not intended to compete with work going on in international bodies, but aim to increase the efficiency and encourage the alignment of this work and to fill the gaps which often prevent the direct use of international standards and recommendations for the most common exchanges of information.

In pursuing these objectives a number of activities must be properly coordinated.

1.1 Taking requirements into account

Standardization work is generally undertaken as a result of requirements expressed by manufacturers, users and other interested parties. The harmonized application of standards must satisfy requirements that govern the choice of priorities and this means that at a later stage it is necessary to verify that the standards produced have properly satisfied these requirements.

1.2 Carrying out the technical work

The technical work necessary to restore the credibility of international standards is in principle assigned to the European standards institutions and the CEPT in accordance with the now traditional procedures in European standardization which have already proved their worth in practical application.

It must be made clear that the work to be carried out forms a chain in which each link is of importance, for example :

1.4 The list of projects

The list of projects attached to the draft directive was drawn up in order to :

- (a) provide a more detailed description of the projects planned for the initial period;
- (b) allow a periodic review which, after the Standing Committee has been consulted, will take into account any developments in requirements and the rapid changes that are typical of information technology and telecommunications;
- (c) ensure greater management flexibility by enabling budget estimates to be geared to the type and volume of the projects, the financing arrangements which are ill-suited to the more rigid definition of a multiannual plan.

2. The best use of standardization within the regulatory framework

Numerous technical specifications are drawn up in the course of the regulatory activities of the Member States and often produce incompatibilities that seriously handicap any attempt at harmonization. Such harmonization has little chance of succeeding in the Community or in the wider international framework as it comes at too late a stage and the investment already made drastically compromises the chances of any alignment proposals succeeding.

The proposals made are not designed to restrict the regulatory power of the Member States but to ensure that, instead of hampering standardization, their regulatory activities become an effective way of promoting it.

It has been found that many technical rules specify aspects that could easily be covered by existing standardization if reference were made to the number of the standard and to the test method described in a standard on testing. The failure to refer to the standard and the current practice of redefining in each and every case aspects that could more easily and more correctly be described by the standard necessarily encourage the fragmentation of the market and deprive the Community of one of the most effective ways of applying international standards.

Where European standards institutions or the CEPT have been given standardization briefs, these should be taken into account in the drafting of technical rules. Clearly the standardization work is jeopardized if the experts responsible for it know that regulations in the process of formulation prejudice the outcome of the convergence process that is necessary to carry out their task.

The case of technical specifications that could be covered by standardization work carried out rapidly represents a change in comparison to the existing directives.

The need to act at this early stage has already been mentioned with reference to information technology and is adequate justification for the proposals that strengthen the machinery set up by Article 7 and 8 of Directive 83/189/EEC. Notification of a draft technical rule comes at a stage when several months of work have already been devoted to its drafting and since manufacturers have often made a start in the design of products in line with the preliminary draft the conditions for alignment are far from ideal. It is therefore proposed that at the preliminary stage, i.e., when there is an intention to draw up technical rules, an opportunity should be provided to see whether the technical work cannot be carried out jointly and to take advantage of Community solidarity at a

time when it has the best prospects of succeeding. This kind of reasoning is particularly valid in the telecommunications sector, since the digitization of networks results in convergence being achieved in the early stages, and experience has shown that it is very difficult to make corrections once large investments have been made in the infrastructure. It should be noted that in the event of failure the application of Directive 83/189/EEC is still valid and that at a later stage the notification of the draft technical rule remains applicable.

3. The use of standards in public procurement

The application of standards in public procurement is an inseparable part of the proposed approach and is justified by a dual relationship :

- (a) the preparation of specifications referring to standards allows genuinely competitive tendering and the lack of standards that can be directly used for this purpose is a serious obstacle to the opening-up of the market ;
- (b) the use of standards for public procurement helps to promote them and many users outside the public sector readily follow the example given once they know that these standards are in common use.

When computers were used in isolation the application of standards could more easily be confined to the problems of managing a computer centre and was essentially a matter for technicians. The information technology boom has radically changed this situation and computer systems are now used for exchanges of information essential to the functioning of a modern society. It must be possible to carry out such

exchanges on the basis of officially standardized conventions that are independent of the choice of supplier as was the case earlier with the Morse or teleprinter codes.

At present the technical specifications used in tender documents for most official contracts rarely mention international standardization (or its national equivalent) but refer to manufacturers' specifications although these references do not have a status ensuring everyone of free access or merely pay lip service to compatibility with existing systems.

This situation is particularly worrying in view of the fact that many information systems financed from public funds are set up to provide information to a very wide public and the specifications for such systems affect the ordering of terminals, for which it is impossible to refer to international standards.

Directive 77/62/EEC⁴ applicable to data processing since 1981, does not provide an adequate basis as far as standardization is concerned.

- It merely states in Article 7 that technical specifications may make reference to standards.
- The number of contracts for IT published in the Official Journal of the European Communities is extremely low.
- The implementation of standards should not be linked to the minimum financial value for which the Directive is applicable, as it is relevant to all equipment.
- It does not cover the telecommunications sector which means that the application of European standards and common technical specifications can be promoted without difficulty.

⁴ OJ No. 31 of 15 January 1977.

It is therefore proposed that the use of international standards should be applicable in public procurement orders.

The application of standardization in this context naturally calls for a progressive approach :

- the standards that can currently be used for this purpose are not yet very numerous if only because there is a desperate shortage of conformance testing facilities and these are essential for harmonized implementation ;
- the standards applicable on a priority basis are those governing exchanges in open mode, in particular through public networks, and applying to only one part of the information technology complex.
- the common technical specifications required in the telecommunications sector have a particular bearing on future computerized telecommunications services, i.e., on the digitization of networks and on the new generations of terminals.

CONCLUSION

The problems raised by IT standardization do not call into question international standardization but directly concern the possibility of easy implementation of these standards to solve practical problems.

Applications requiring exchanges of information in open mode, for which international standardization is obviously ideal, are increasingly numerous and make the case for a minimum of conventions, inevitable in any organized society, based on international standards. The Commission's proposals are designed to ensure that activities relevant to this objective are henceforth better coordinated by the Member States in the Community.

Proposal for a
COUNCIL DIRECTIVE
on standardization in the field of information technology
and telecommunications

(submitted to the Council by the Commission)

PROPOSAL FOR A
COUNCIL DIRECTIVE
ON STANDARDIZATION IN THE FIELD OF INFORMATION
TECHNOLOGY AND TELECOMMUNICATIONS

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Articles 100 and 213 thereof,

Having regard to the proposal from the Commission,

Having regard to the Opinion of the European Parliament¹,

Having regard to the Opinion of the Economic and Social Committee²,

1 OJ No. ,
2 OJ No. ,

Whereas the standards applicable in the field of information technology and the activities necessary for their preparation are of a special nature and involve the following :

- the complexity of the technical specifications and the precision required to ensure the exchange of data and the compatible operation of systems ;
- the need to ensure rapid publication of standards so that undue delays do not result in the early obsolescence of texts that have been overtaken by the speed of technological change ;
- the need to ensure the application of international standards on a basis which will guarantee their credibility from the standpoint of practical implementation ;
- the economic importance of the role played by standardization in contributing to the creation of a Community market in this field ;

Whereas Council Directive 83/189/EEC¹ enables the Commission, the Member States and the standards institutions to be informed of the intentions of standards institutions to draw up or to amend a standard, and whereas under the terms of that Directive the Commission may establish terms of reference for work on standardization of common interest to be undertaken jointly and at an early stage ;

¹ OJ No. L 109, 26.4.1983, p. 8

Whereas that Directive must be expanded so that in the field of information technology and telecommunications the Commission and the Member States are informed, from the very beginning, of the drafting of technical rules and whereas the standstill procedure which is applicable to them must be modified to enable the competent technical organizations to draw up common technical specifications or European standards ;

Whereas the telecommunications sector is of economic importance both from the point of view of industrial activity in this sector and by reason of its contribution to the efficient exchange of information throughout the Community and in the light of the conclusions of the Council of 17 December 1984 on a Community telecommunications policy ;

Whereas the increasing amount of technical overlap between the different fields of standardization, particularly in the case of information technology and telecommunications, is such as to justify close cooperation between standardization bodies, which should collaborate in order to deal with these matters of common interest ;

Whereas the agreements recently concluded by the Commission

within the framework of the Memorandum of Understanding signed with the European Conference of Postal and Telecommunications Administrations (CEPT),

- and in the context of the general guidelines agreed with the joint European standardization organization CEN/CENELEC

now make it possible to assign responsibility for the drafting of common standards and technical specifications particular to those two fields to those specialized technical organizations, without prejudice to any further procedures that may need to be set up ;

Whereas application of the Council Directive on the initial stage of implementation of the mutual recognition of type approval for telecommunications terminal equipment¹ will necessitate the planning of work on the drawing-up of common technical specifications in the telecommunications sector ;

Whereas the field of public sector procurement constitutes a particularly suitable area for the application of standards and technical rules and whereas Council Directive 77/62/EEC² needs to be supplemented so as to reinforce the reference made to standardization ;

Whereas a Standing Committee, composed of representatives appointed by the Member States, should be set up to help the Commission to draw up guidelines and to define priorities in respect of the proposed activities ;

1 Directive proposed on the same date.

2 O.J. No L 13, 15.1.1977, p.1

HAS ADOPTED THIS DIRECTIVE :

Article One

For the purposes of this Directive :

- 1) "technical specification" means a specification contained in a document which lays down the characteristics required of a product, such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards terminology, symbols, testing and test methods, packaging, marking or labelling ;
- 2) "common technical specification" means a technical specification which has been drafted with a view to uniform application in all the Member States of the Community ;
- 3) "standard" means a technical specification approved by a recognized standards body for repeated or continuous application, compliance with which is not compulsory ;
- 4) "test standard" means a standard concerned exclusively with test methods, sometimes supplemented by other provisions relating to the test in question and covering such matters as sampling, the use of statistical methods and the test sequence ;
- 5) "international standard" means a standard adopted by a recognized international standards body ;
- 6) "European standard" means a standard which has been approved pursuant to the statutes of the standards bodies with which the Community has concluded agreements ;

- 7) "development standard" means a standard with a satisfactory degree of stability, proposed by the standards bodies with which the Community has concluded agreements and which has been tried out in practice before being formally adopted as a European standard;
- 8) "functional standard" means a standard that has been drawn up for the purpose of fulfilling a more complex function such as is required in order to ensure systems interoperability, that is generally obtained by linking together several reference standards which have already been adopted, and that has been approved pursuant to the statutes of the standards bodies with which the Community has concluded agreements ;
- 9) "harmonization document" means a document approved as such pursuant to the statutes of the standards bodies with which the Community has concluded agreements ;
- 10) "technical regulation" means the technical specifications, including the relevant administrative provisions, the observance of which is compulsory, de jure or de facto, in the case of marketing or use in a Member State or a major part thereof, except those laid down by local authorities ;
- 11) "certification of conformity" means the activity whereby the conformity of a product or service to given standards or other technical specifications is certified by means of a certificate or mark of conformity ;
- 12) "information technology" means the systems, equipment, components and software required to ensure the transmission, processing and storage of information in all centres of human activity (home, office, factory, etc.) whose application generally requires the use of electronics or similar technology.

Article 2

In the field of the standardization of information technology and telecommunications, and particularly that part of it which is concerned with the preparation and application of standards and common technical specifications pursuant to the procedures laid down in Articles 4, 5 and 6, the following measures shall be implemented at Community level :

1. regular, at least annual, determination on the basis of international standards, draft international standards or equivalent documents of priority standardization requirements with a view to the preparation of work programmes and the commissioning of such European standards and common technical specifications as may be deemed necessary to ensure the exchange of information and systems interoperability ;
2. on the basis of international standardization activities :
 - a) the clarification and supplementing of existing international standards and recommendations so as to ensure that the quality of their definition guarantees the precision required by users for the exchange of information and systems interoperability, having recourse, if necessary, to the drafting of functional standards ;
 - b) direct action to ensure the preparation of technical specifications which may form the basis of European standards in the absence of international standards, or when such action is justified by excessive delays ;

- c) measures to facilitate the application of the standards and common technical specifications, in particular by means of:
- the verification of the conformity of products and services to the standards and common technical specifications, preferably on the basis of test standards;
 - the certification of conformity to standards and common specifications in accordance with properly harmonized procedures ;
 - the organization of demonstrations of ways in which standards are being developed so as to ensure credibility ;
- d) promotion of the application of standards and common technical specifications relating to information technology and telecommunications in public sector procurement.

The specific objectives and the activities proposed are detailed in the Annex. That Annex may be revised by the Commission following consultation of the Committee referred to in Article 6 ; it shall be updated at least once every three years.

Article 3

1. When technical regulations are being drawn up in the fields covered by this Directive, the Member States shall refer to European standards and common technical specifications when they relate, even partly, to the technical specifications necessary for the establishment of those technical regulations.
2. The Member States shall refrain from drafting technical regulations in the fields covered by this Directive when the technical specifications correspond to aspects covered either by the

tasks or approved standardization programmes entrusted to the European standards institutions or by the work entrusted to the specialized technical bodies in the telecommunications sector with a view to drawing up common technical specifications.

3. If no European standard or common technical specification exists and if the European standards institutions or the specialized technical bodies in the telecommunications sector are not working on one, the Member States shall communicate to the Commission their decision to commence work on the drafting of technical rules, if necessary in the form of programmes, in the sectors which make up the field covered by this Directive with a view to ensuring the necessary exchange of information and systems inter-operability and which correspond to the priorities laid down by the Commission after consultation of the Committee provided for in Article 6.

The Commission shall inform the other Member States without delay and invite them to state whether they wish to see a European standard or a document resulting in common technical specifications prepared.

Within three months of being notified of the intentions of a Member State, and after consulting the Committee provided for in Article 6, the Commission may assign the task to the European standards institutions or ask the specialized technical bodies in the telecommunications sector to undertake the work of drafting common technical specifications.

4. If, at the end of the period laid down for the tasks assigned to the standards institutions or for the drafting of common technical specifications, the technical specifications requested have not been prepared

or

if, at the end of the three-month period referred to in the third subparagraph of paragraph 3, no decision has been taken on whether to assign the task of preparing European standards or common technical specifications to the European standards institutions or to the specialized technical bodies in the telecommunications sector

the Member State will be free to prepare the technical rules referred to in paragraphs 2 and 3 in accordance with the obligations laid down in Directive 83/189/EEC.

Article 4

The Commission, taking into account the information procedure laid down in Directive 83/189/EEC and in consultation with the Committees referred to in Article 6, shall determine the priority needs of the Community in the fields covered by this Directive on the question of standards and common technical specifications and the verification of conformity with the standards or common technical specifications. It shall draw up programmes in line with these needs with a view to assigning the technical work to the competent technical organizations in accordance with the following procedures :

- a) In the information technology sector covered by the European standards institutions, the Commission, after consulting the Committee provided for in Article 6, shall entrust the technical work to these organizations requesting them, if necessary, to draw up corresponding European standards.

- b) In the telecommunications sector, the Commission after consulting the Committees provided for in Article 6, shall request the specialized technical bodies in the telecommunications sector to draw up common technical specifications within an agreed period in accordance with the procedure laid down in Article 5 of Directive¹.....
- c) In the field common to information technology and to telecommunications, the Commission, after consulting the Committees provided for in Article 6, shall request the European standards institutions and the specialized technical bodies in the telecommunications sector to submit to it within a period of three months a joint proposal for the organization of the work which will take into account :
- the level of convergence to be ensured,
 - the participation of experts from associated sectors,
 - a definition of the framework in which the work will be carried out.

After receiving this proposal, the Commission shall entrust the work to be carried out to these organizations in accordance with the procedures described in points a) and b) as a function of the need to draw up either European standards or common technical specifications.

Article 5

The Commission shall ensure that the standards, the harmonization documents and the common technical specifications defined in this way are applied in the case of all Community projects and

¹ Directive proposed on the same date.

programmes, including public procurement orders financed from the Community budget.

Member States shall take all necessary steps to ensure that reference to European standards, harmonization documents and common technical specifications is made in public procurement orders relating to information technology and telecommunications and that those standards or common technical specifications are used as the basis for the exchange of information of public interest.

Application of this Article shall take account of the need for the continuity of operation of existing systems and their extension during the transitional period required for their adaptation to technical progress.

These provisions amend the application of Article 7 of Directive 77/62/CEE to public supply contracts in respect of information technology equipment.

Article 6

A Standing Committee with the task of assisting the Commission in attaining the objectives and conducting the activities laid down by this Directive, composed of representatives appointed by the Member States, who may be assisted by experts or advisers, is hereby established under the Chairmanship of a representative of the Commission.

The Commission shall consult the Committee on the definition of general guidelines, the analysis of requirements, the determination of Community priorities, the drawing up of programmes, the verification of conformity with standards and with common technical specifications and other subjects connected with standardization in the field of information technology, telecommunications and fields in which they overlap.

The Commission shall coordinate the activities of this Committee with those of Committees existing in related sectors - where necessary on the basis of joint meetings - particularly in areas of technical overlap.

Article 7

1. The Committee shall meet at least twice a year.
2. The Committee shall draw up its own rules of procedure.
3. The activities of the Committee and the information submitted to it shall be confidential. Nevertheless, subject to the necessary precautions, the Committee and the national authorities may seek the expert advice of natural or legal persons in the private sector.

Article 8

Every two years the Commission shall submit a progress report to the European Parliament and the Council on standardization activities in the information technology sector. This report shall refer to the implementing arrangements adopted within the Community, the results obtained, the application of those results in public procurement contracts, and, in particular, their practical significance for certification.

Article 9

Member States shall take the measures necessary to comply with this Directive by¹ at the latest and shall forthwith inform the Commission thereof.

Article 10

This Directive is addressed to the Member States.

¹ Three months after the adoption of the Directive.

ANNEX (1)**STANDARDIZATION MEASURES IN THE FIELD OF
INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS****1. A I M S**

- a) to contribute to the integration of the internal Community market in the information technology and telecommunications sector ;
- b) to improve competitive conditions by enabling manufacturers to ensure the compatibility of their equipment on the basis of precisely defined international standards or common technical specifications to which unrestricted access is guaranteed ;
- c) to facilitate the exchange of information throughout the Community, by reducing the obstacles created by incompatibilities arising from the absence of standards or their lack of precision ;

- (5) This annex reproduces some of the technical content of sections 1.1 and 1.2 (Standardization policy and public procurement) of the Annex to Council Decision 84/559/EEC in respect of general measures in the field of data processing (OJ No. L 308, 27.11.84).

- d) to ensure that user requirements are taken into account by giving users greater freedom to assemble their systems in a manner guaranteeing an adequate degree of operating compatibility and, consequently improved performance at a lower cost ;
- e) to promote the application of standards and common technical specifications in the public procurement sectors.

2. DESCRIPTION OF MEASURES AND ACTIVITIES TO BE UNDERTAKEN

2.1 PREPARATION OF WORK PROGRAMMES AND DEFINITION OF PRIORITIES

The drawing up of work programmes and assignment of priorities takes account of Community requirements and the economic impact of these activities from the standpoint of both users and producers. The tasks to be performed at this level include, in particular :

- 2.1.1 operations designed to gather detailed information on the basis of national and international programmes, presentation of that information in a form which facilitates comparative analysis and preparation of the summaries required for the work of the Committee ;
- 2.1.2 the dissemination of that information, the examination of requirements and the consultation of interested parties ;
- 2.1.3 synchronization of the work programmes with international standardization activities ;

2.1.4 the management of work programmes, preparation of specific tasks and contracts, drawing-up of timetables and monitoring of their implementation and the transposition of European standards into national standards ;

2.1.5 the preparation of reports describing the execution of the activities and the practical results of their implementation.

2.2 THE EXECUTION OF STANDARDIZATION ACTIVITIES IN THE FIELD OF INFORMATION TECHNOLOGY

Execution of the work programmes necessitates the implementation of a series of activities, responsibility for which is generally entrusted to CEN/CENELEC and to the CEPT and which correspond to the different stages of activity that must be completed in order to ensure the credibility of standards.

These activities include :

2.2.1 the refinement of international standards in an effort to remove the ambiguities and options that distort the function of standards designed to guarantee the exchange of information and the compatible operation of systems ;

2.2.2 the drafting of development standards in cases justified by the excessive delays of international standardization procedures, or of standards required in the Community context in the absence of international standards ;

2.2.3 the definition of the conditions to be fulfilled in order to claim complete conformity to a standard ;

2.2.4 the development of sufficiently detailed operating standards or specifications to ensure the compatible working of systems which operate on the basis of standards ;

2.2.5 the management of public enquiry procedures ; the formal adoption of standards and monitoring of their transposition into national standards ;

2.2.6 the preparation of test standards and the organization of procedures and structures to enable test laboratories to check conformity to those standards on a properly harmonized basis.

2.3 ACTIVITIES AFFECTING THE TELECOMMUNICATIONS SECTOR

The standardization measures which concern the telecommunications sector include two types of activity :

- the drafting of common technical specifications applicable to telecommunications networks which, in certain cases, are indispensable as a basis for the information technology standards which depend on these networks for the long-distance exchange of information. This work comes under the harmonization activities carried out in the telecommunications sector ;
- the work to be carried out in the field common to information technology and to telecommunications requires increased cooperation between the competent technical bodies. It should raise the degree of convergence so that the standards and common technical specifications can be applied in as many ways as possible and in a harmonized manner.

2.4 COMPLEMENTARY MEASURES

This part of the programme covers measures taken in direct support of the above-mentioned activities and includes

2.4.1 specific metrological activities relating to :

- test and validation instruments,
- formal description techniques,
- recourse to references, particularly in the case of applications requiring the use of functional standards based on a number of standards in combination ;

2.4.2 the provision of guidance manuals for the final user ;

2.4.3 the organization of demonstrations in respect of the operating compatibility achieved as a result of the application of a standard. The main aim of this action will be to make the test and metrological instruments defined in 2.4.1 available for use in different projects and to ensure that development standards are experimented with ;

2.4.4 the creation of a suitable structure for arrangements that go beyond the framework of industrial standardization, depend on agreements concluded in particular fields of professional activity and contribute to the efficient exchange of information (travel agency transactions, automation of money transactions, computerization of customs documents, etc.) ;

2.4.5 measures to be taken in respect of production automation, office automation and micro-computing which will affect interface standardization in particular ;

2.4.6 studies and projects relating specifically to standardization in the field of information technology.

3. MEASURES RELATING TO THE APPLICATION OF STANDARDS IN THE PUBLIC PROCUREMENT SECTOR

3.1 Determination of the most efficient methods of ensuring the rapid application in the public procurement sector of the standards and technical specifications drawn up in the context of the above-mentioned activities.

3.2 Examination of the effects in the public procurement sector of the complete application of the relevant Community rules, involving in particular :

- a comparison of the progress made by the European industry in the light of the measures taken by the Member States in connection with public procurement in the data-processing field ;
- collection of the necessary statistics ;
- promotion of equal conditions of access to Community public procurement contracts for undertakings within the framework of Council Directive 77/62/EEC of 21 December 1976 coordinating procedures for the award of public supply contracts.

- 3.3 Coordination of national measures in respect of general systems evaluation and, in conjunction with national research centres in the data-processing field, the adoption of principles with a view to the definition of evaluation criteria.
- 3.4 Examination of the possibility of establishing a number of principles to be applied in evaluating proposals.
- 3.5 Examination of the possibility of establishing common principles for the definition of specifications.
- 3.6 Coordination of the exchange of technical experience between national bodies responsible for public procurement and the promotion of such exchange through coordination of the activities of the national research centres in the data-processing field.
- 3.7 Identification of topics likely to lead to the development of projects of common interest to public procurement agencies.

FINANCIAL RECORD**1. Budget heading**

7717 Standardization : Information and Telecommunications Technologies

2. Legal Basis

- Article 100
- Conclusions of the Council meeting on standardization of 16 July, 1984
- Council Directive 83/189/EEC of 28 March, 1983, laying down a procedure for the provision of information in the field of technical standards and regulations (OJ L.109 of 26.4.83)
- Council Directive on standardization in the field of information technology (draft under preparation)

3. Proposed classification as obligatory/non-obligatory spending

Non-obligatory spending

4. Description and justification

The project proposed consists of standardization work specific to information technology and covering some areas of overlap between information technology and telecommunications. The relevant technical bodies (e.g. : CEN/CENELEC and CEPT) will be responsible for the work, with a view to defining European standards (EN) derived from international standards or, in the absence of such international standardization, defining the required standards in the Community context.

These actions also include the work required to allow users to apply these standards, notably in the area of public procurement, i.e. detailed definition, user-guides to implementation, conformity testing and certification.

4.1 Objectives

These actions aim at the definition of the necessary standards for information exchange and interoperability between heterogeneous systems, i.e. essentially at the interfaces for both hardware and software.

They are also designed to encourage :

- the establishment of a Community market for information technology and network terminals
- the implementation of more convergent industrial strategies between Community enterprises
- greater efficiency in the information exchange essential to successful business management and the reduction of the overheads paid by users due to incompatible systems
- the application of standards under public sector purchasing

4.2 Administration

TF-III (Standardization and Type Approval Unit)

5. Type of expenditure and method of calculation**5.1 Type of expenditure**

Contracts, commissioning of standards, provision of experts' services, etc...

5.2 Method of calculation

- organisation of consultations/meetings
- standardization contracts (on the basis of order forms corresponding to detailed commissions or programmes - average cost estimated at ECU 120,000 per contract)
- establishment of conformity testing procedures ; promoting conformity testing centres and organising demonstrations of interoperability based on the application of standards (contracts drawn up with testing centres following calls for proposal)
- auxiliary and temporary staff
- drafting of technical specifications with a view to public sector purchasing (studies and contracts in the framework of the activities of the PPSC Committee, public sector purchasing/data-processing)
- data-processing equipment
- publication and dissemination of information

6. Financial implications of the project in respect of appropriations for expenditure

6.1. Table for commitments and payments

	<u>Commitments (MioEcu)</u>		<u>Payments (MioEcu)</u>			
		1985	1986	1987	1988	1989
1986	5.0	-	2.5	2.5	1.0	-
1987	7.0	-	-	3.0	2.0	2.0
1988	0	-	-	-	3.5	4.5
1989	0	-	-	-	-	3.5
1985	0.0	3.0	1.0	-	-	-

(Appropriations entered under chapter 100)

6.2 Share of Community financing (X) in the overall cost of the project

Community financing to cover 100% of the work required by the Community.

7. Remarks

The work is prepared after consultation with the Senior Officials Group for Information Technology Standardization (SOGITS). It takes into account the state of progress of international standardization and the needs of the Community in this area. The work undertaken in this context replaces the standardization programme covered by the multi-annual data-processing programme 1979-1983. During the transition period (end of 1984 and 1985), initial work will be financed under budget heading 7702 (Council Decision of 22 November 1984 : 84/559/EEC).

8. Financial implications in respect of staffing and running costs

8.1 Staff required full-time

1974 - 2 A7/6 - 2 B - 3 C

8.2 - 8.3 - 8.4 Necessary appropriations

See 6.7.

Proposal for a
COUNCIL DIRECTIVE
concerning the first phase of the establishment of the mutual
recognition of type approval for telecommunications
terminal equipment

(submitted to the Council by the Commission)

CONTENTS**A. SUMMARY****B. EXPLANATORY MEMORANDUM**

- I) INTRODUCTION
- II) THE AIM OF THE PROPOSED DIRECTIVE
- III) THE APPROACH ADOPTED
- IV) THE CHOICE OF TYPES OF TERMINALS TO BE GIVEN PRIORITY
- V) DRAWING-UP OF COMMON TECHNICAL SPECIFICATIONS
- VI) ADOPTION OF COMMON SPECIFICATIONS FOR CONFORMITY TESTS
- VII) APPROVAL OF TEST LABORATORIES
- VIII) THE USE OF COMMON CONFORMITY TEST SPECIFICATIONS FOR THE MUTUAL RECOGNITION OF THE RESULTS OF CONFORMITY TESTS
- IX) THE USE OF COMMON CONFORMITY TEST SPECIFICATIONS IN PUBLIC PROCUREMENT CONTRACTS
- X) CONCLUSIONS

C. DRAFT PROPOSAL FOR A COUNCIL DIRECTIVE CONCERNING THE FIRST PHASE OF THE ESTABLISHMENT OF THE MUTUAL RECOGNITION OF TYPE APPROVAL FOR TELECOMMUNICATIONS TERMINAL EQUIPMENT

A. SUMMARY

In accordance with one of the objectives approved by the Council of Ministers on 17 December 1984, the Commission is proposing a Directive concerning the first stage of the establishment of the mutual recognition of type approval for telecommunications terminal equipment. This first stage consists of the mutual recognition of the results of conformity tests on terminal equipment carried out by approved laboratories on the basis of a common conformity test specification. This Directive will help to establish a European telecommunications area that will contribute towards the harmonious development of the Community's economic activities; it has two objectives :

- to ensure that telecommunications terminals can exchange information and allow interworking;
- to ensure that tests to verify conformity with a common technical specification are carried out only once to obtain type approval in the ten Member States (type approval at this stage still being granted by the competent authority in each Member State).

The proposed Directive endeavours to cover all the operations necessary to attain the abovementioned objectives, i.e. :

- (a) The choice of types of terminals to be given priority.
- (b) The drawing up of common technical specifications for conformity tests on these terminals.
- (c) The adoption of these specifications.

- (d) The approval of test laboratories.
- (e) The use of common conformity test specifications for recognition of the results of conformity tests on terminals.
- (f) The use of common conformity test specifications in public procurement contracts.

B. EXPLANATORY MEMORANDUM**I) INTRODUCTION :**

In the conclusions of its meeting of 17 December 1984, the Council approved, on the basis of a communication from the Commission, the main objectives of a Community telecommunications policy. These were :

- (a) the creation of a Community market for telecommunications terminals and equipment;
- (b) improving the development of advanced telecommunication services and networks;
- (c) improved access for the less-favoured regions of the Community, through the appropriate use of Community financial instruments, to the benefits of the development of advanced services and networks;
- (d) coordination of negotiating positions within the international organizations dealing with telecommunications, based on discussions held jointly with the Senior Officials Group for Telecommunications.

The draft Directive presented to the Council today concerns the first objective which the Council agreed to attain by :

- a standardization policy aimed at the effective implementation in the Community of common standards derived from international standards;

- the progressive application of procedures for the mutual recognition of type approval for terminals.

II) THE AIM OF THE PROPOSED DIRECTIVE

The proposed Directive proposes the implementation of a first stage towards the mutual recognition of type approval for terminals, i.e. the mutual recognition of the results of conformity tests on terminals carried out by approved laboratories. At present type approval for a telecommunications terminal - i.e. authorization to connect it to the telecommunications network - is given in each Member State on the basis of the results of tests to verify conformity with a national technical specification, and in most cases these tests are carried out by a national laboratory. This situation has two major disadvantages :

- (a) If the various national technical specifications are not identical for a terminal providing a given service - and this is generally the case - terminals given type approval in two different States cannot generally communicate with each other.
- (b) With the present system, the industrialist who wants to market a terminal in the ten countries of the Community has to practically recommence the tests 10 times in order to obtain type approval, which causes delays and considerable expense.

The system proposed in the Directive has two objectives:

- to ensure that telecommunications terminals can exchange information and allow interworking;
- to ensure that the tests to verify conformity with a technical specification are carried out only once to obtain type approval in all the Member States (type approval at this stage still being granted by the competent authority in each Member State).

III) THE APPROACH ADOPTED :

To obtain these results it is necessary to have a common base : this will be provided by a procedure for the drawing-up of common technical specifications. There are three essential requirements to be covered in the field of telecommunication terminals :

- user safety
- network safety
- interworking of terminals.

Safety requirements for the user are already covered by the "Low Voltage" directive (1). As they concern essential requirements constituting network security and interworking of terminals, it is necessary to define them to include an important quantity of detailed technical specifications of construction for each type of terminal. The fact that previous specifications were elaborated in organizations which did not have the statute of a recognized standard organization makes it impossible at the present time to adopt the approach of reference to standards.

The common base ensuring interworking of terminals and allowing recognition by all Member States of conformity tests carried out by approved laboratory in any one of them is the common conformity test specification.

Owing to the fact that this specification is drawn up by bodies which do not have the status of recognized standards institutions, a procedure for the adoption of the common specifications has to be provided. To bring about a situation in which conformity tests on a given terminal are carried out only once in the Community, it is necessary to introduce mutual recognition of conformity tests carried out by approved laboratories. This Directive establishes the chain of activities ranging from international standardization to the mutual recognition of conformity tests.

(1) ref. 73/23/EEC of 19 February 1973

The Commission took the view that a Directive was the most suitable way of establishing this procedure. Although the proposed activities are deployed pragmatically on the basis of existing organizations and procedures, this does not alter the fact that for practical application a minimum of common discipline is necessary and this discipline must be accepted at all levels in the bodies having responsibilities in the field of telecommunications. The Directive is an instrument enabling common provisions to be incorporated in the laws of each Member State, thereby allowing flexibility in the attainment of the different operational levels concerned. The proposed Directive endeavours to cover all the operations necessary to attain the objectives. These are:

- (a) The choice of types of terminals to be given priority.
- (b) The drawing-up of common technical specifications for conformity tests on these terminals.
- (c) The adoption of these specifications.
- (d) The approval of test laboratories.
- (e) The use of common conformity test specifications for recognition of the results of conformity tests on terminals.
- (f) The use of common conformity test specifications in public procurement contracts.

For implementation of the Directive the Commission will be assisted by a Committee consisting of the Senior Officials Group for Telecommunications set up by the Council on 4 November 1983.

IV) THE CHOICE OF TYPES OF TERMINALS TO BE GIVEN PRIORITY :

The first thing is to choose the types of terminals to be given priority for the establishment of common technical specifications which will serve as a basis for the mutual recognition of conformity tests.

The Commission can provide guidance by means of its own studies, on the basis of criteria relating to the development of services, the market, the situation of competitors, etc. It will also consult the circles concerned (carriers, industry, users). On that basis, and in consultation with the Committee, which can give the views of the circles concerned in the Member States, it will draw up a list of priority terminals and of the standards and technical specifications needed to define these terminals. This list will be updated every year and is accompanied by a timetable.

V) DRAWING-UP OF COMMON TECHNICAL SPECIFICATIONS :

The drawing-up of technical specifications for terminals that can be used by all network carriers in the Community so as to ensure interworking of terminals is a complex technical operation that has to be carried out by competent experts in specialized technical organizations. The organization is selected by the Commission in consultation with the Committee. In actual fact the work has already started on the basis of an initial list of technical specifications and priority terminals adopted by the Commission in consultation with the Senior Officials Group for Telecommunications. The work has been entrusted to the CEPT under a Memorandum of Understanding signed between the Commission and the

CEPT in July 1984.

The CEPT has introduced the Commission's priorities into its work programme and has to draw up common technical specifications for these terminals. The work is to be based on the technical specifications recommended at international level (by the CCITT, ISO, IEC, etc). These specifications often leave options open, are sometimes incomplete and generally do not stipulate the conformity tests. Consequently the CEPT must eliminate the ambiguities, add the missing characteristics and specify in precise terms the tests to be carried out in order to verify that the terminals conform to a specification. As the Directive aims at the mutual recognition of conformity tests, the Commission is asking the CEPT to give priority to drawing up common specifications for conformity tests on terminals. In addition to the common test core, these specifications may include the definition of any tests justified by national network peculiarities in each Member State. These additional provisions would gradually have to be discarded as the national networks become more homogeneous following the implementation of new services.

To carry out this work close coordination has to be established between the CEPT and CEN-CENELEC, to which the Commission has given a similar brief for information technology. Since there are areas that are common to both information technology and telecommunications, it is important to ensure harmonization of the work done by the two organizations. For this purpose the CEPT and CEN-CENELEC have already set up a common Steering Committee. In addition joint meetings will be organized whenever necessary between the two committees that will assist the Commission in its work in these two fields.

VII) ADOPTION OF COMMON SPECIFICATIONS FOR CONFORMITY TESTS :

As the CEPT does not have the status of a recognized standards institution, a procedure for adoption of the common specifications is necessary. The Directive proposes this procedure. It makes provision for the Commission to submit to the Committee proposals for common conformity test specifications based on the work of the CEPT. The Committee will deliver an opinion by a qualified majority on the suitability of these common specifications to serve as a basis for mutual recognition. When the Committee's opinion is favourable, the Commission will adopt the common specifications and publish them in the Official Journal. When it is unfavourable, there is a procedure for submitting the matter to the Council.

In its work the Committee may be assisted by a technical committee.

After adoption, the common technical specifications for conformity tests on a terminal have to be used by the approved laboratories in carrying out these tests.

VIII) APPROVAL OF TEST LABORATORIES :

To ensure that the results of tests to verify the conformity of a terminal with a given specification, carried out by a laboratory in a Member State, can be recognized in another Member State and serve as a base for terminal type approval, a climate of confidence must be established between all those concerned : national laboratories and national authorities empowered to grant type approval

The Member States are responsible for appointing the "approved laboratories" that will carry out the tests on

the basis of the common specifications. They must first verify that these laboratories meet criteria of competence and reliability established by specialized bodies : ISO guides 25 and 40 already exist in this field.

Confidence can be built up by the holding of seminars and the organization of reciprocal visits by members of the laboratories.

Community resources can be used to equip these laboratories so as to harmonize the level of performance.

The period prior to the entry into force of the Directive could be used to identify approved national laboratories and to carry out confidence building operations.

A special effort should be made to ensure that there is not too great a difference in the costs of conformity tests from one laboratory to another.

VIII) THE USE OF COMMON CONFORMITY TEST SPECIFICATIONS FOR THE MUTUAL RECOGNITION OF THE RESULTS OF CONFORMITY TESTS

It is above all in this phase that there must be a minimum of Community discipline in order to attain the purposes of the Directive.

The common conformity test specifications must be used by the approved laboratories as a basis for testing the terminals submitted to them. The certificate of conformity issued after these tests, provided the results have been satisfactory, must be recognized by the national authorities responsible for type approval as a basis for granting type approval.

There is a safeguard clause which allows a Member State not to recognize a certificate of conformity issued for

a terminal if it has good reason to believe that this terminal does not meet one or more of the essential requirements mentioned in section III. Because of the wide variety of situations that may occur it is difficult to define more precisely the circumstances in which the safeguard clause may be invoked. However, the obligation on the Member State using the safeguard clause to inform the Commission and the other Member States, stating the reasons for its decision, and the procedure that follows this notification should prevent any abuse of this facility.

The Member States must also recognize certificates of conformity with their national standards issued by approved laboratories in other Member States in respect of terminals for which there are no common technical conformity test specifications.

7x) THE USE OF COMMON CONFORMITY TEST SPECIFICATIONS IN PUBLIC PROCUREMENT CONTRACTS :

The introduction into public procurement contracts of references to common conformity test specifications, where the contracts are for terminals covered by such specifications, is a highly effective way of promoting these specifications and has a knock-on effect on the private sector. It is in any case only natural that the administrations of the Member States should show a sense of common purpose in pursuing the objectives laid down by the Council with the aim of establishing a vast internal market, to which the use of common specifications and standards in this field will make a great contribution.

X) CONCLUSIONS :

The attached proposal organizes the first stage towards the mutual recognition of type approval as requested by the Council of Ministers on 17 December 1984. In the two years following the adoption of this Directive, the Commission will make a proposal on the following stage.

The Council is therefore requested to adopt the attached proposal for a Directive.

**PROPOSAL FOR A
COUNCIL DIRECTIVE
ON THE INITIAL STAGE OF IMPLEMENTATION OF THE
MUTUAL RECOGNITION OF TYPE APPROVAL FOR
TELECOMMUNICATIONS TERMINAL EQUIPMENT**

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament (1),

Having regard to the opinion of the Economic and Social Committee (2),

(1)

(2)

Whereas the mutual recognition of type approval for telecommunications terminal equipment features in the Communication from the Commission to the Council on Telecommunications of 18 May 1984, in the recommendations of 12 November 1984 concerning the implementation of harmonization in the field of telecommunications and the first phase of opening up access to public telecommunications contracts, and in the conclusions of the Council meeting of 17 December 1984 concerning a Community telecommunications policy;

Whereas the market in telecommunications terminal equipment and use of the full potential of the new telecommunications services are of considerable importance for the economic development of the Community;

Whereas it is absolutely essential to establish or consolidate a European industrial potential in the technologies concerned;

Whereas it is highly desirable to make rapid progress towards establishing a common market in this sector, in particular in order to offer the industry an improved base for its operations and to facilitate the adoption of a joint position with respect to non-member countries;

Whereas the mutual recognition of type approval for terminal equipment constitutes a major step towards the establishment of a common market in this sector;

Whereas, since situations differ and technical and administrative constraints exist in the Member States, progress towards this objective should be made in stages; whereas, in particular, the mutual recognition of type

approval for terminal equipment produced in quantity should be preceded by an interim stage during which there is mutual recognition of conformity tests on such equipment;

Whereas such an approach should be based on the definition of common technical specifications founded on international standards and specifications and on the harmonization of general technical requirements for testing, measuring and approval procedures in the areas of information technology and telecommunications;

Whereas a general standardization programme is being implemented in the information technology and telecommunications sector;

Whereas Council Directive X/X/EEC of on standardization in the field of information technology and telecommunications⁽¹⁾ provides a general framework for the drawing-up of standards or common technical specifications within which the work on telecommunications, because of its specific nature, should be organized more precisely and more fully with a view to the mutual recognition of the results of conformity tests on terminals;

(1) Directive proposed on the same date.

Whereas the Council Directives 73/23/EEC (1) of February 19th, 1973 on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits and 83/189/EEC (2) of March 28th, 1983 laying down a procedure for the provision of information in the field of technical standards and regulations are applicable in particular to information technology and telecommunications;

Whereas the Memorandum of Understanding between the European Conference of Postal and Telecommunications Administrations (CEPT) and the Commission concerning standards and type-approval for telecommunications equipment and the general guidelines agreed with the common European standardization organization CEN-CENELEC henceforth make it possible to entrust specialized technical harmonization work to those bodies;

Whereas it is necessary to set up a Committee with the task of assisting the Commission in implementing this Directive and in progressively establishing the mutual recognition of type approval for terminal equipment;

HAS ADOPTED THIS DIRECTIVE :

(1) OJ No L 77, 26.3.1973, p. 29.

(2) OJ No L 109, 26.4.1983, p. 8.

Article 1

The mutual recognition of type-approval for telecommunications terminal equipment produced in quantity shall be established by stages. Its first stage, which is the mutual recognition of the results of conformity tests on terminal equipment, shall be attained in accordance with the provisions of this Directive.

Article 2

For the purposes of this Directive :

1. "telecommunications administrations" means the administrations or private operating agencies recognized in the Community and offering public telecommunications services;
2. "terminal equipment" means equipment directly or indirectly connected to the extremities of a public telecommunications network to send, process or receive information;
3. "technical specification" means a specification contained in a document which lays down the characteristics required of a product such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards terminology, symbols, testing and test methods, packaging, marking and labelling;
4. "international technical specification in telecommunications" means the technical specification of

all or some characteristics of a product, recommended by such organizations as CCITT or CEPT;

5. "common technical specification" means a technical specification which has been drafted with a view to uniform application in all the Member States of the Community;
6. "standard" means a technical specification approved by a recognized standards body for repeated or continuous application, compliance with which is not compulsory;
7. "international standard" means a standard adopted by a recognized international standards body;
8. "approved testing laboratory" means a laboratory the conformity of which with the accreditation criteria established by specialized bodies [see in particular ISO guides 25 and 40] has been verified by the appropriate Member State and which is approved by that Member State to conduct conformity tests on terminal equipment;
9. "certificate of conformity" means the document certifying that a product or service conforms to given standards or other technical specifications;
10. "type approval of terminal equipment" means the authorization delivered by the competent authority of a Member State to connect to a public network terminal equipment which has been recognized, on completion of tests carried out by approved laboratories, as being in conformity with a type-approval specification;

Article 3

The Commission shall :

- (1) draw up each year, after consulting the Committee referred to in Article 4 and with due regard to the general programme of standardization in the information technology sector, a list of international standards and international technical specifications in telecommunications to be harmonized and a list of terminal equipment for which common conformity test specifications or possibly common type approval specifications should be drafted as a matter of priority; it shall also draw up a timetable for this work;
- (2) request a specialized organization, selected after consulting the Committee referred to in Article 4, to carry out, within the specified time limits, the technical work needed to arrive at the common conformity test specifications and common type approval specifications identified in the list of priorities referred to in point 1 above; the common type approval specification constituting the common conformity test specification shall be drafted as a matter of priority;
- (3) adopt by the procedure set out in Article 5 the proposals for common conformity test specifications and common type approval specifications, and publish them in the Official Journal; this publication shall include without modification the requirements made necessary in a given Member State by historical network peculiarities or established provisions concerning the use of radio frequencies;

- (4) after consulting the Committee referred to in Article 4, establish the measures necessary to facilitate the implementation of this Directive; those measures may, in particular, concern the period of time allowed for the execution of the additional tests mentioned in Article 7(1).

Article 4

1. In the accomplishment of the tasks referred to in Article 3, the Commission shall be assisted by a Committee, which for the purposes of this Directive shall be the Senior Officials Group on Telecommunications. The members of the Committee may be assisted by experts or advisers, according to the nature of the question under discussion and the Committee shall be chaired by a Commission representative.

2. The Commission may consult the Committee on any matter falling within the scope of this Directive.

The Commission shall consult the Committee on:

(a) the broad objectives and the future needs of the telecommunications standardization policy,

(b) problems raised by the approval of testing laboratories,

(c) the adoption of proposals for common conformity test specifications and common type approval specifications under the conditions laid down in Article 5.

3. The Committee shall adopt its own rules of procedure.

4. The secretariat of the Committee shall be provided by the Commission.

Article 5

The procedure for the adoption of the common conformity test specifications or common type approval specifications shall be as follows :

- (1) the Commission shall submit to the Committee the proposal for a common conformity test specification or a common type approval specification drawn up on the basis of the work referred to in Article 3(2). The Committee shall deliver its opinion on that proposal within two months, adopting the opinion by a qualified majority. The votes of Member States within the Committee shall be weighted in accordance with Article 148(2) of the Treaty; the chairman shall not vote;

- (2) where the proposal is in accordance with the Committee's opinion as thus expressed, the Commission shall adopt the provisions submitted therein;
- (3) where the proposal is not in accordance with the opinion of the Committee, or in the absence of any opinion, the Commission shall forthwith submit the proposal to the Council in the form of a draft decision. The Council shall act by a qualified majority.

If, within two months from the date on which the matter was referred to it, the Council has not acted, the proposed measures shall be adopted by the Commission.

Article 6

- 1. Each Member State shall inform the Commission of the authority or authorities competent in its territory to issue type-approval for terminal equipment. The Commission shall publish a list of these authorities in the Official Journal.
- 2. Each Member State shall send the Commission a list of the laboratories which it has approved for the purpose of verifying the conformity of terminal equipment with the common conformity test specifications and shall regularly submit a report on the activities of these laboratories in the field covered by this Directive. Such lists and reports shall be transmitted to the Committee for information.
- 3. The common conformity test specifications shall be used by the approved laboratories for the conformity tests on the terminal equipment concerned. If a Member State considers it necessary, it may request that the part of the

conformity tests relating to historical network peculiarities or established national provisions concerning the use of radio frequencies be carried out by a laboratory under its jurisdiction.

4. The certificate of conformity with a common type approval or conformity test specification, accompanied by test data, issued by the competent authority on the basis of tests carried out by an approved laboratory, shall be recognized in each Member State for type approval of the relevant terminal equipment by the competent type approval authority. The certificate of conformity must be accompanied by the data obtained from the measurements performed during the conformity tests, all the information necessary for precise identification of the terminal equipment on which the tests were made, and the precise indication of the common conformity test specification, or part thereof, used for the tests.
5. The authorities empowered in the Member States to issue type approval for telecommunications terminals shall recognize for the purposes of type approval the certificates of conformity with their own national standards issued by approved laboratories in other Member States where there are no common specifications for such terminals.
6. The Governments of the Member States shall ensure that the administrations make reference to any existing common conformity test specifications and common type approval specifications when they purchase terminal equipment normally covered by such specifications.

7. The Member States shall consult within the Committee referred to in Article 4, so as to bring about the progressive alignment of the costs for carrying out the same series of conformity tests in all the approved laboratories.

Article 7

1. Where a Member State establishes, on the basis of an examination of the common conformity test specification and the test results, that terminal equipment, tests on which have been carried out by an approved laboratory in another Member State, does not meet one or more of the essential requirements referred to in Article 2(12), it may, before granting type approval, request within a reasonable period tests additional to those already carried out. It shall immediately inform the Commission and the other Member States thereof, stating the reasons for its decision.
2. When the finding referred to in paragraph 1 concerns the electrical safety for users of a terminal falling within the scope of Directive 73/23/EEC, the measures to be taken by a Member State shall comply with the procedure in Article 9 thereof.
3. The Member State shall inform the Commission and the other Member States of the results of the additional tests. If those results are such that the Member State regards them as unsatisfactory, the Commission shall decide within six weeks, after consulting the Committee, whether to endorse the safeguard measures taken by the Member State or whether to uphold the certificate of conformity, or whether, with the agreement of the party seeking type

approval, to request that a second set of additional tests be carried out in an approved laboratory in a third Member State before the final decision. If the results of the additional tests indicate that the safeguard measures should be maintained, the party requesting type approval shall bear their costs. If the results of the additional tests indicate that the safeguard measures should not be maintained, the Member State, or its authority empowered to give type approval if so specified by that State, shall bear the costs.

4. If the Commission considers that modifications to the common type-approval specifications are necessary, these modifications shall be made in accordance with Article 3(2) and (3). In this event, the Member State which has taken safeguard measures may retain them until such modifications have entered into force.
5. When a Member State finds that terminal equipment which has already been approved is a danger to the national network, its services or its users, it may take safeguard measures by suspending type approval, but shall immediately initiate the procedure set out in paragraphs 1 and 2.

Article 8

The Commission shall draw up detailed rules for the implementation, during a second stage of the mutual recognition of type-approval for terminal equipment, and shall submit a proposal to the Council within a period of two years following the adoption of this Directive.

Article 9

This Directive shall not prejudice the application of Directive 83/189/EEC.

Article 10

1. Member States shall bring into force the measures necessary to comply with this Directive by and shall forthwith inform the Commission thereof.

2. Member States shall ensure that the Commission is informed of the main provisions of national law which they adopt in the field governed by this Directive.

Article 11

This Directive is addressed to the Member States.

Done at Brussels, 20 June 1985

For the Council
The President

FINANCIAL OUTLINE**1. Budget line**

7700 (formerly line 7730 of the 1985 budget) : Actions concerning conformity of telecommunications terminals and preparatory actions in this area.

2. Legal basis

Article 100.

Communications to the Council : COM(83) 329, COM(83) 573, COM(84) 277, Council recommendations of 12.11.84, conclusions approved by the Council on the basis of a Communication from Mr. Davignon, 17.12.84.

- Council directive on the first phase of the establishment of the mutual recognition of type approval for telecommunications terminal equipment (in preparation).

3. Classification

Non-obligatory spending (Art. 235).

Description

This action aims at the establishment of a common market for telecommunications terminals, through the definition and application of common standards and of common conformity specifications allowing mutual recognition of conformity tests for terminals. The method consists of supporting the work of bodies such as the CEPT, for the production of common standards and specifications, and of establishing a procedure to make the use of these specifications obligatory. Network operators are directly concerned by this action, which has very strong industrial impact, its justification lies in the necessity of giving the industry a broad base for its markets and of establishing coherent networks and services in the Community.

5. Cost and methods of calculation

The credits involved partly concern budget line 7700. They will be required to cover a contribution to the work done by the CEPT, under the terms of an agreement with the Commission reached in July 1984, for the production of common standards and specifications, as well as committee and working group meetings. These services rendered over

the next few years can be estimated at about 50 man-years of expert services annually and four meetings per year of a committee with 20 members.

6. Financial implication for intervention credits

6.1. Timetable for commitments and payments

Each year from 1986 onwards.

Commitments : ECU 5 million.

Payments : ECU 2.5 million, the rest the following year.

6.2. Share of Community financing in total cost of action

Although it is difficult to be precise, the Community's financial contribution should not amount to more than 30 % of the resources invested by the PTIs and industry in this work.

6.3. Methods of financing during current year

The initiation of this action in 1985 will be financed from line 7700 of the 1985 budget.

7. Financial implication for staff costs and running expenses

Staff required exclusively for this action :

2 A5/4; 2 A7/6; 1 B as from 1.7.85.

COUNCIL DIRECTIVE

of 24 July 1986

on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment

(86/361/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee⁽²⁾,

Whereas the mutual recognition of type approval for telecommunications terminal equipment features in the Commission communication to the Council of 18 May 1984 on telecommunications, in the Council recommendations of 12 November 1984 concerning the implementation of harmonization in the field of telecommunications and the first phase of opening up access to public telecommunications contracts, and in the Council conclusions of 17 December 1984 concerning a Community telecommunications policy;

Whereas the market in telecommunications terminal equipment and use of the full potential of the new telecommunications services are of considerable importance for the economic development of the Community;

Whereas it is absolutely essential to establish or consolidate a specifically European industrial potential in the technologies concerned;

Whereas it is highly desirable to make rapid progress towards establishing a common market in this sector, in particular in order to offer the industry an improved base for its operations and to facilitate the adoption of a joint position with respect to third countries;

Whereas the mutual recognition of type approval for telecommunications terminal equipment constitutes a major step towards the creation of an open and unified market for such equipment;

Whereas, since situations differ and technical and administrative constraints exist in the Member States, progress towards this objective should be made in stages;

Whereas in particular the mutual recognition of conformity tests on mass-produced terminal equipment should

constitute an initial stage of the mutual recognition of type approval for such equipment;

Whereas such an approach must be based on the definition of common technical specifications based on international standards and specifications and on the harmonization of general technical requirements for testing, measuring and approval procedures in the areas of telecommunications and information technology;

Whereas a general standardization programme is being implemented in the field of information technology in compliance with the Standards Code of the General Agreement on Tariffs and Trade (GATT);

Whereas there is a need for a more comprehensive framework to be drawn up in preparation for a second stage which would create an open and unified market in telecommunications terminal equipment, bearing in mind that for telecommunications this has to include both the free movement of equipment and unimpeded connection to networks, in accordance with the harmonized requirements;

Whereas Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits⁽³⁾ and Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations⁽⁴⁾ are applicable, *inter alia*, to the fields of telecommunications and information technology;

Whereas the Memorandum of Understanding between the European Conference of Postal and Telecommunications Administrations (CEPT) and the Commission concerning standards and type approval for telecommunications equipment and the general guidelines agreed with the Joint European Standards Institution CEN-CENELEC henceforth make it possible to entrust specialized technical harmonization work to those bodies;

Whereas the mechanism introduced by certain CEPT administrations, including those of the Community Member States, under the agreement drawn up at Copenhagen on 15 November 1985, incorporates a formal adoption procedure and an undertaking to implement certain CEPT recommendations, which are then designated as 'NETS' (Normes européennes de télécommunications);

⁽¹⁾ OJ No C 36, 17. 2. 1986, p. 55.

⁽²⁾ OJ No C 303, 25. 11. 1985, p. 2.

⁽³⁾ OJ No L 77, 26. 3. 1973, p. 29.

⁽⁴⁾ OJ No L 109, 26. 4. 1983, p. 8.

Whereas it is necessary to set up a Committee, with the task of assisting the Commission in implementing this Directive and in progressively implementing the mutual recognition of type approval for terminal equipment,

HAS ADOPTED THIS DIRECTIVE:

Article 1

The Member States shall implement the mutual recognition of the results of tests of conformity with common conformity specifications for mass-produced telecommunications terminal equipment in accordance with the detailed rules set out in this Directive.

Article 2

For the purposes of this Directive:

1. 'telecommunications administrations' means the administrations or private operating agencies recognized in the Community and providing public telecommunications services;
2. 'terminal equipment' means equipment directly or indirectly connected to the termination of a public telecommunications network to send, process or receive information;
3. 'technical specification' means a specification contained in a document which lays down the characteristics required of a product such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards terminology, symbols, testing and test methods, packaging, marking and labelling;
4. 'international technical specification in telecommunications' means the technical specification of all or some characteristics of a product, recommended by such organizations as the Comité international télégraphique et téléphonique (CCITT) or the CEPT;
5. 'common technical specification' means a technical specification drawn up with a view to uniform application in all Member States of the Community;
6. 'standard' means a technical specification adopted by a recognized standards body for repeated or continuous application, compliance with which is not compulsory;
7. 'international standard' means a standard adopted by a recognized international standards body;
8. 'approved testing laboratory' means a laboratory the conformity of which with the accreditation system established by the CEPT in close cooperation with specialized organizations and any relevant national accreditation organizations has been verified, with particular reference to the relevant ISO guides, by the appropriate Member State or a body recognized as competent by that State and which is approved by that Member State or body recognized as competent for conducting conformity tests on terminal equipment;
9. 'certificate of conformity' means the document certifying that a product or service conforms to given standards or technical specifications;
10. 'type approval of terminal equipment' means the confirmation delivered by the competent authority of a Member State that a particular terminal equipment type is authorized or recognized as suitable to be connected to a particular public telecommunications network;
11. 'conformity specification' means a document giving a precise and full description of the technical characteristics of the relevant terminal equipment (such as safety, technical parameters, functions and procedures and service requirements) together with a precise definition of the tests and test methods enabling the conformity of the terminal equipment with the prescribed technical characteristics to be verified;
12. 'type approval specification' means a specification setting out the full and precise requirements that must be satisfied by terminal equipment to be granted type approval. It includes the conformity specification and also administrative requirements and, where appropriate, requirements concerning quality control operations to be carried out during the manufacture of the equipment;
13. 'common conformity specification' means a conformity specification used in all the Community Member States by the authority competent for testing the conformity of terminal equipment. It also includes, where appropriate, requirements made necessary in a given State by historical network peculiarities or established national provisions concerning the use of radio frequencies;
14. 'common type approval specification' means a type approval specification which is used in all the Community Member States by all the authorities empowered to grant type approval for terminal equipment. It includes the common conformity specification and also administrative requirements and, where appropriate, requirements concerning quality control operations to be carried out during the manufacture of the equipment;
15. 'NET' (Norme européenne de télécommunications) is an approved technical specification recommendation of the CEPT or part or parts thereof which the signatories of the Memorandum of Understanding, established at the meeting of Directors-General of CEPT Administrations, in Copenhagen on 15 November 1985, adopted in accordance with the procedures set down in that Memorandum;

16. 'mutual recognition of the results of conformity tests on terminal equipment' means a situation where, when an approved laboratory or the competent authority in a Member State issues a certificate, accompanied by test data and identification details, stating that a terminal is in conformity with a common conformity specification or a part thereof, that certificate is recognized in the other Member States, so that if the terminal in question is the subject of an application for type approval in another Member State, it no longer has to be subjected to the tests for verifying conformity with that specification, or with the part of that specification concerning the tests carried out;

17. 'essential requirements' means those aspects of common conformity specifications of such importance as to necessitate compliance as a matter of legal obligation for the implementation of the mutual recognition of the results of conformity tests on terminal equipment as an integral part of the type approval procedure. These essential requirements are at present:

- user safety in so far as this requirement is not covered by Directive 73/23/EEC,
- safety of employees of public telecommunications network operators in so far as this requirement is not covered by Directive 73/23/EEC,
- protection of public telecommunications networks from harm,
- interworking of terminal equipment, in justified cases.

Article 3

The Council, acting in accordance with the rules of the Treaty on a proposal from the Commission, shall supplement as necessary the list of essential requirements and shall make them more specific where necessary for certain products.

Article 4

The Commission shall:

1. draw up each year, after consulting the Committee referred to in Article 5 and with due regard to the general programme of standardization in the information technology sector:
 - a list of international standards and international technical specifications in telecommunications to be harmonized,
 - a list of terminal equipment for which common conformity specifications should be drafted as a matter of priority, on the basis above all of the essential requirements,
 - a timetable for this work;
2. request the CEPT to draw up the common conformity specifications in the form of NETs, within the speci-

fied time limits; in so doing the latter shall, when appropriate, consult other specialized standardization organizations such as the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC).

Article 5

1. In carrying out the tasks referred to in Article 4, the Commission shall be assisted by a Committee, which shall be the Working Party of Senior Officials on Telecommunications. The members of the Committee may be assisted by experts or advisers according to the nature of the question under discussion. The Committee shall be chaired by a Commission representative.

2. Apart from the cases listed in this Directive, the Commission shall consult the Committee on:

- (a) the broad objectives and the future needs of the telecommunications standardization policy;
- (b) problems raised by the approval of testing laboratories, and in particular the accreditation system referred to in Article 2 (8) and any amendment to that system which may appear necessary;
- (c) the effect of technological progress on specification work already under way and the possible need to give a new or revised mandate to the CEPT.

At the request of its Chairman or of a Member State, the Committee may consider any question relating to the implementation of this Directive.

3. The Committee shall adopt its own rules of procedure.

4. The Secretariat of the Committee shall be provided by the Commission.

Article 6

1. For the purposes of this Directive, a 'NET' shall be regarded as the equivalent of the common conformity specification.

Reference to NETs shall be published in the *Official Journal of the European Communities*.

2. Without prejudice to the cases referred to in Article 8, the competent authorities of the Member States shall not have any further tests carried out in respect of a particular type of terminal equipment where results of tests carried out in accordance with Article 7 have given rise to the issue of a certificate of conformity with the relevant common conformity specification, the references to which are published in the *Official Journal of the European Communities*. Such certificate of conformity shall be recognized for the purposes of type approval of the terminal equipment in question.

3. The common conformity specifications shall be used in all Member States by the competent authorities for any verification demanded for type approval purposes of the relevant terminal equipment.

The procedure for exceptions referred to in Article 7 (4) may also be applied by the competent authorities of the Member States in respect to the first subparagraph.

Article 7

1. Member States shall inform the Commission of the authority or authorities competent in their territory to issue type approval for terminal equipment. The Commission shall publish a list of these authorities in the *Official Journal of the European Communities*.

2. Member States shall send the Commission a list of laboratories which they have approved, or which have been approved by bodies recognized by them as competent, for the purpose of verifying the conformity of terminal equipment with the common conformity specifications. They shall regularly submit a report on the activities of those laboratories in the field covered by this Directive. Such lists and reports shall be transmitted to the Committee referred to in Article 5 for information.

3. For the purposes of Article 6, the certificate of conformity issued by the approved laboratory which has carried out the tests must be accompanied by the data obtained from the measurements performed during the conformity tests, all the information necessary for precise identification of the terminal equipment on which the tests were made and a precise indication of the common conformity specification, or part thereof, used for the tests.

4. Member States shall ensure that telecommunications administrations use common conformity specifications when purchasing terminal equipment covered by such specifications except in the following cases :

- (a) where the equipment is to replace equipment connected to the network before the adoption of common conformity specification and is to the same technical specification as the equipment it replaces, or where, during any transition period between two systems, which is accepted as necessary and which is defined within the NET, a Member State needs to add a limited number of pieces of equipment complying with the specification of the first system. In both cases, the Commission shall be informed when such a waiver is invoked and kept informed of the number of pieces of equipment involved; this information shall be given to the Committee referred to in Article 5;
- (b) where a careful consultation of the market — i.e. including the publication of a call for declarations of

interest in the *Official Journal of the European Communities* — shows there is no offer at economically acceptable conditions for such terminal equipment complying with those common conformity specifications. In this case, on the basis of an unavoidable need, a Member State may, for a limited period of time, apply only a part of the characteristics set out in the common conformity specifications. The Member State shall inform the Commission immediately and also state what departures from the common conformity specification it intends to permit. The Commission shall consult the Committee referred to in Article 5 as a matter of urgency and may request the CEPT to revise the particular common conformity specification. In addition, the Committee shall review the situation at least every six months during the period when this waiver is applied.

In the event that a request for revision is not made to the CEPT then his waiver shall cease when another Member State presents evidence to the Committee that terminal equipment conforming to that common conformity specification has been connected to its public telecommunication networks on a normal commercial basis.

However, a Member State may have the waiver extended provided that the Commission, on the advice of the Committee referred to in Article 5, agrees that the technical and economic conditions are sufficiently different in the two Member States as to warrant such an extension.

5. The Member States shall consult within the Committee referred to in Article 5, so as to create conditions of fair competition for carrying out the same series of conformity tests in all the approved laboratories.

Article 8

1. A Member State may, after examining the common conformity specification and the test results, suspend recognition of a certificate of conformity issued for the purpose of type approval :

- (a) if it discovers shortcomings regarding the application of the common conformity specification;
- (b) if it discovers that the common conformity specification itself fails to meet the essential requirements which it is supposed to cover.

If it exercises this option, the Member State concerned shall immediately inform the Commission and the other Member States, stating the reasons for its decision.

2. Where the decision of the Member State concerns the electrical safety of users of terminal equipment, the procedures set out in Article 9 of Directive 73/23/EEC shall apply.

3. If the reasons given for the Member State's decision are as described in paragraph 1 (a), the Commission shall immediately consult the Member States concerned. If no agreement is reached without four weeks, the Commission shall seek the opinion of one of the approved laboratories notified in accordance with Article 7 which is based outside the territory of the Member States concerned. The Commission shall communicate the opinion of this laboratory to all the Member States, which may submit their comments to it within a period of one month.

After taking note of any such comments the Commission shall, if necessary, formulate appropriate recommendations or opinions.

If in preparing its opinion a laboratory consulted unavoidably incurs expenditure, which may if necessary include additional tests, the Commission will defray that expenditure on production of documentary evidence. If, however, further to an opinion a decision to suspend recognition of a certificate of conformity is not maintained, the Member State which took it shall reimburse the Commission, in accordance with the procedures for payment then negotiated with the Member State.

4. If the reasons invoked in support of the Member State's decision are as described in paragraph 1 (b), the Commission shall refer the matter to the Committee referred to in Article 5, which shall express its opinion as a matter of urgency. On the basis of that opinion the Commission shall decide whether or not to withdraw the common specification in question from the list published in the *Official Journal of the European Communities*. If it withdraws the specification, the Commission shall inform the CEPT and may entrust it with a further brief.

5. If a Member State considers that terminal equipment which has already been approved does not meet one or more of the essential requirements, it may revoke the

type approval granted and shall in that case immediately apply the procedures set out in paragraphs 1 and 2.

Article 9

The Commission shall examine the detailed rules for the second stage of the establishment of a market in telecommunications terminal equipment without internal frontiers covering, in particular, the implementation of mutual recognition of type approval for terminal equipment. To this end it shall submit proposals to the Council within a period of two years following the implementation of this Directive.

Article 10

This Directive shall not prejudice the application of Directive 83/189/EEC.

Article 11

1. Member States shall introduce the measures necessary to comply with this Directive within a period of not more than one year following adoption thereof. It shall forthwith inform the Commission thereof.

2. Member States shall ensure that the Commission is informed of the main provisions of national law which they adopt in the field governed by this Directive.

Article 12

This Directive is addressed to the Member States.

Done at Brussels, 24 July 1986.

For the Council

The President

A. CLARK

II

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL DECISION

of 22 December 1986

on standardization in the field of information technology and telecommunications

(87/95/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee⁽²⁾

Whereas the standards applicable in the field of information technology and the activities necessary for their preparation must, in particular, take account of:

- the complexity of the technical specifications and the precision required to ensure the exchange of information and data and the compatible operating of systems;
- the need to ensure rapid publication of standards so that undue delays do not result in the early obsolescence of texts that have been overtaken by the speed of technological change;
- the need to encourage the application of international standards for exchange of information and data on a basis which will establish their credibility from the standpoint of practical implementation;
- the economic importance of the role played by standardization in contributing to the creation of a Community market in this field.

Whereas Directive 83/189/EEC⁽³⁾ enables the Commission, the Member States and the standards institutions to

be informed of the intentions of standards institutions to draw up or to amend a standard, and whereas, under the terms of that Directive, the Commission may establish terms of reference for work on standardization of common interest to be undertaken jointly and at an early stage;

Whereas that Directive does not contain all the provisions necessary for the implementation of a Community policy on standardization in the field of information technology and telecommunications;

Whereas the increasing amount of technical overlap between the different fields of standardization, particularly in the case of information technology and telecommunications, is such as to justify close cooperation between standards institutions, which should collaborate in order to deal with these matters of common interest;

Whereas agreements have been recently concluded by the Commission within the framework of the Memorandum of Understanding signed with the European Conference of Postal and Telecommunications Administrations (CEPT) and in the context of the general guidelines approved with the joint standardization organization European Committee for Standardization/European Committee for Electrotechnical Standardization (CEN/CENELEC);

Whereas Directive 86/361/EEC⁽⁴⁾ sets out programmes for work on common technical specifications (corresponding to Normes Européennes de Télécommunication (NETs)) for this field by the European Conference of Postal and Telecommunications Administrations in consultation, where appropriate, with the European Committee for Standardization and the European Committee for Electrotechnical Standardization;

(1) OJ No C 30, 17. 2. 1986, p. 55.

(2) OJ No C 303, 25. 11. 1985, p. 2.

(3) OJ No L 109, 26. 4. 1983, p. 8.

(4) OJ No L 217, 5. 8. 1986, p. 21.

- Whereas the field of public procurement orders is suitably placed to encourage wider acceptance of open systems interconnection information and data exchange standards through reference to them in purchasing;

Whereas it is necessary to entrust a committee with the task of assisting the Commission in its pursuance and management of the objectives and activities laid down by the Decision,

HAS DECIDED AS FOLLOWS:

Article 1

For the purposes of this Decision:

1. '*technical specifications*' means a specification contained in a document which lays down the characteristics required of a product, such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards terminology, symbols, testing and test methods, packaging, marking or labelling;
2. '*common technical specification*' means a technical specification drawn up with a view to uniform application in all the Member States of the Community;
3. '*standard*' means a technical specification approved by a recognized standards body for repeated or continuous application, compliance with which is not compulsory;
4. '*international standard*' means a standard adopted by a recognized international standards body;
5. '*Draft International Standard (DIS)*' means a draft standard adopted by a recognized international standards body;
6. '*international technical specification in telecommunications*' means the technical specification of all or some characteristics of a product, recommended by such organizations as the Comité international télégraphique et téléphonique (CCITT) or the CEPT;
7. '*European standard*' means a standard which has been approved pursuant to the statutes of the standards bodies with which the Community has concluded agreements;
8. '*European pre-standard*' means a standard adopted under the reference (EPS) in accordance with the statutory rules of the standards bodies with which the Community has concluded agreements;
9. '*functional standard*' means a standard worked out to yield a complex function required to ensure systems interoperability and generally obtained by the linking together of several existing reference standards and adopted in accordance with the statutory rules of standards bodies;
10. '*functional specification*': the specification which defines, in the field of telecommunications, the application of one or more open system interconnection standards in support of a specific requirement for communication between information technology systems (standards recommended by such organizations as the 'Comité international télégraphique et téléphonique' (CCITT) or the CEPT);
11. '*technical regulation*' means the technical specifications, including the relevant administrative provisions, the observance of which is compulsory, *de jure* or *de facto*, in the case of marketing or use in a Member State or a major part thereof, except those laid down by local authorities;
12. '*certification of conformity*' means the activity whereby the conformity of a product or service to given standards or other technical specifications is certified by means of a certificate or mark of conformity;
13. '*information technology*' means the systems, equipment, components and software required to ensure the retrieval, processing and storage of information in all centres of human activity (home, office, factory, etc.), the application of which generally requires the use of electronics or similar technology;
14. '*public procurement orders*' means those:
 - defined in Article 1 of Directive 77/62/EEC⁽¹⁾;
 - concluded for the supply of equipment relating to information technology and telecommunications, irrespective of the sector of activity of the contracting authority;
15. '*telecommunications authorities*' means recognized authorities or private enterprises in the Community which provide public telecommunications services.

Article 2

In order to promote standardization in Europe and the preparation and application of standards in the field of information technology and functional specifications in the field of telecommunications, the following measures, subject to Article 3 (2) and Article 4, shall be implemented at Community level:

- (a) regular, at least annual, determination on the basis of international standards, draft international standards or equivalent documents, of the priority standardization requirements with a view to the preparation of work

⁽¹⁾ O.J. No L 13, 15. 1. 1977, p. 1.

programmes and the commissioning of such European standards and functional specifications as may be deemed necessary to ensure the exchange of information and data and systems interoperability;

(b) on the basis of international standardization activities :

- the European standards institutions and specialized technical bodies in the information technology and telecommunications sector shall be invited to establish European standards, European prestandards or telecommunications functional specifications having recourse, if necessary, to the drafting of functional standards, to ensure the precision required by users for exchange of information and data and systems interoperability. Such bodies shall base their work on international standards, draft international standards or international technical specifications in telecommunications. Where an international standard, draft international standard or international technical specification in telecommunications offers clear provisions allowing its uniform application, these provisions will be adopted unaltered in the European standard, European prestandard, or telecommunication functional specification. Only where such clear provisions do not exist in the international standard, draft international standard or international technical specification in telecommunications, the European standard, European prestandard, or telecommunication functional specification will be written to clarify or, where necessary, supplement the international standard, draft international standard or international technical specification in telecommunications while avoiding divergence from it;
- the same bodies shall be invited to prepare technical specifications which may form the basis of European standards or European prestandards in the absence of, or as a contribution to the production of, agreed international standards for the exchange of information and data and systems interoperability;

(c) measures to facilitate the application of the standards and functional specifications, in particular by means of coordinating Member States' activities in :

- the verification of the conformity of products and services to the standards and functional specifications on the basis of test requirements specified;
- the certification of conformity to standards and functional specifications in accordance with properly harmonized procedures.

(d) promotion of the application of standards and functional specifications relating to information technology and telecommunications in public sector orders and technical regulations.

Article 3

1. The specific objectives of the measures proposed are described in the Annex to this Decision.

2. This Decision shall cover :

- standards in the field of Information Technology as set out in Article 5
- functional specifications for the services specifically offered over public telecommunications networks for exchange of information and data between information technology systems.

3. This Decision shall not cover :

- common technical specifications for terminal equipment connected to the public telecommunications networks, which are covered by Directive 86/361/EEC
- specifications for the equipment forming any part of the telecommunications networks themselves.

Article 4

In determining requirements as regards standardization and in drawing up a work programme for standardization and the preparation of functional specifications, the Commission shall refer in particular to the information communicated to it pursuant to Directive 83/189/EEC.

The Commission, after consulting the Committee provided for in Article 7, shall entrust the technical work to the competent European standards organizations or specialised technical bodies (CFN, CENELEC and CEPT) requesting them, if necessary, to draw up corresponding European standards or functional specifications. The mandates to be given to these organizations shall be referred for agreement to the Committee provided for under Article 5 of Directive 83/189/EEC in accordance with the procedures of the said Directive. No mandate shall be issued which overlaps with any part of work programmes commenced or drawn up under Directive 86/361/EEC.

Article 5

1. Taking account of the differences between existing national procedures, Member States shall take the necessary steps to ensure that reference is made to :

- European standards and European prestandards as described in Article 2 (b);
- international standards when accepted in the country of the contracting authority;

in public procurement orders relating to information technology so that these standards are used as the basis for the exchange of information and data for systems interoperability.

2. In order to provide end-to-end compatibility, Member States shall take the necessary steps to ensure that their telecommunications administrations use functional specifications for the means of access to their public telecommunication networks for those services specifically intended for exchange of information and data between information technology systems which themselves use the standards mentioned in paragraph 1.

3. Application of this Article shall take account of special circumstances as outlined below which may justify the use of standards and specifications other than those provided for in this Decision:

— the need for operational continuity in existing systems, but only as part of clearly defined and recorded strategies for subsequent transition to international or European standards or functional specifications;

— the genuinely innovative nature of certain projects;

where the standard or functional specification in question is technically inadequate for its purpose on the grounds that it does not provide the appropriate means of achieving information and data exchange or systems interoperability, or that the means (including testing) do not exist to establish satisfactorily conformity of a product to that standard or functional specification or where, in the case of European Pre-Standards, these lack the necessary stability for application. It shall be open to other Member States to demonstrate to the Committee referred to in Article 7 that equipment conforming to the standard had been used satisfactorily, and that use of this waiver was not justified;

— where, after careful consultation of the market, it is found that important reasons related to cost-effectiveness make use of the standard or functional specification in question inappropriate. It would be open to other Member States to demonstrate to the Committee referred to in Article 7 that equipment conforming to that standard had been used satisfactorily on a normal commercial basis, and that use of this waiver was not justified.

4. In addition, Member States may require reference, on the same basis as in paragraph 1, to draft international standards.

5. Contracting authorities relying upon paragraph 3 shall record their reasons for doing so, if possible, in the initial tender documents issued in respect of the procurement, and in all cases shall record these reasons in their internal documentation and shall supply such information on request to tendering companies and to the Committee referred to in Article 7 whilst respecting

commercial confidentiality. It shall also be possible for complaints about use of derogations referred to in paragraph 3 to be made direct to the Commission.

6. The Commission shall ensure that the provisions of this Article are applied in the case of all Community projects and programmes, including public procurement orders financed from the Community budget.

7. Contracting authorities, if they consider it necessary, may apply other specifications to contracts of a value lower than 100 000 ECU, provided that these purchases will not prevent the use of the standards mentioned in paragraphs 1 and 2 in any contract of a greater value than the sum mentioned in this paragraph. The need for the derogation or the level of the threshold established in this paragraph will be reviewed within three years of the bringing into application of this Decision.

Article 6

When drafting or amending technical regulations which are covered by this Decision, Member States shall refer to the standards referred to in Article 5 whenever these meet in an appropriate fashion the required technical specifications of the regulation.

Article 7

1. An advisory committee, called the 'Senior Officials Group on standardization in the field of Information Technology' shall assist the Commission in its pursuance of the objectives and its management of the activities laid down by the Decision. It shall consist of representatives appointed by the Member States, who may call on the assistance of experts or advisers: its chairman shall be a representative of the Commission. For telecommunication issues the competent committee is the 'Senior Officials Group for Telecommunications' provided for in Article 5 of Directive 86/361/EEC.

2. The Commission shall consult the Committee when determining Community priorities, implementing measures referred to in the Annex, when dealing with matters concerning the verification of conformity to standards, monitoring the implementation of Article 5 and other matters relating to standardization in the field of information technology and telecommunications, or other fields which these overlap. It shall also consult the Committee on the report referred to in Article 8.

3. The Commission shall coordinate the activities of these Committees with the Committee provided for in Article 5 of Directive 83/189/EEC, in particular where there is a potential overlap in issuing requests to European standards institutions under this Decision and that Directive.

4. Any questions regarding the implementation of this Decision may be submitted to the Committee at the request of the Chairman or a Member State.

5. The Committee shall meet at least twice a year.

6. The Committee shall adopt its own rules of procedure.

7. The Secretariat of the Committee shall be provided by the Commission.

Article 8

Every two years the Commission shall submit a progress report to the European Parliament and the Council on standardization activities in the information technology sector. This report shall refer to the implementing arrangements adopted within the Community, the results obtained, the application of those results in public procurement contracts and national technical regulations, and, in particular, their practical significance for certification.

Article 9

This Decision shall not prejudice the application of Directive 83/189/EEC and Directive 86/361/EEC.

Article 10

This Decision shall be brought into application one year from the date of its publication in the *Official Journal of the European Communities*.

Article 11

This Decision is addressed to the Member States.

Done at Brussels, 22 December 1986.

For the Council

The President

G. SHAW

ANNEX

MEASURES FOR STANDARDIZATION IN THE FIELD OF INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS**1. Aims**

- (a) to contribute to the integration of the internal Community market in the information technology and telecommunications sector ;
- (b) to improve the international competitiveness of Community manufacturers by allowing for greater market uptake in the Community of equipment manufactured to recognized European and international standards ;
- (c) to facilitate the exchange of information throughout the Community, by reducing the obstacles created by incompatibilities arising from the absence of standards or their lack of precision ;
- (d) to ensure that user requirements are taken into account by giving users greater freedom to assemble their systems in a manner guaranteeing operating compatibility and, consequently, improved performance at a lower cost ;
- (e) to promote the application of standards and functional specifications in public sector orders.

2. Description of measures and activities to be undertaken**2.1. *Preparation of work programmes and definition of priorities***

The drawing-up of work programmes and assignment of priorities taking account of Community requirements and the economic impact of these activities from the standpoint of users, producers and telecommunications administrations. The tasks to be performed at this level may include, in particular :

- 2.1.1. gathering detailed information on the basis of national and international programmes, presentation of that information in a form which facilitates comparative analysis and preparation of the summaries required for the work of the Committee ;
- 2.1.2. The dissemination of that information, the examination of requirements and the consultation of interested parties ;
- 2.1.3. synchronization of the work programmes with international standardization activities ;
- 2.1.4. the management of work programmes ;
- 2.1.5. the preparation of reports describing the execution of the activities and the practical results of their implementation.

2.2. *The execution of standardization activities in the field of information technology*

Execution of the work programmes necessitates the implementation of a series of activities, responsibility for which is generally entrusted to CEN/CENELEC and to the CEPT and which correspond to the different stages of activity that must be completed in order to ensure the credibility of standards.

These activities include :

- 2.2.1. the refinement of international standards in an effort to remove the ambiguities and options that distort the function of standards designed to guarantee the exchange of information and the compatible operation of systems ;
- 2.2.2. the drafting of prestandards in cases justified by the excessive delays of international standardization procedures, or of standards required in the Community context in the absence of international standards ;
- 2.2.3. the definition of the conditions to be fulfilled in order to establish complete conformity to a standard ;
- 2.2.4. the preparation of test standards or test specifications included in the standards and the organization of procedures and structures to enable test laboratories to check conformity to those standards on a properly harmonized basis.

2.3. *Activities affecting the telecommunications sector*

The standardization measures which concern the telecommunications sector include two types of activity :

- the drafting of functional specifications, based on international or European standards/specifications where they exist, for the means of access to public telecommunication networks for those services specifically intended for exchange of information and data between information technology systems. This technical work comes under the harmonization activities carried out in the telecommunications section and is entrusted to CEPT following the procedures described in Directive 86/361/EEC,
- the work to be carried out in the field common to information technology and to telecommunications requires increased cooperation between the competent technical bodies (i.e. CEN/CENELEC/CEPT). It should raise the degree of convergence so that the standards and functional specifications can be applied in as many ways as possible and in a harmonized manner following the procedure described in Directive 83/189/EEC.

2.4. *Complementary measures*

This part of the programme covers the following measures :

2.4.1. specific metrological activities relating to :

- promotion of the development of test and validation instruments and formal description techniques,
- support for the case of references, particularly in the case of applications requiring the use of functional standards based on a number of standards in combination ;

2.4.2. the promotion of the preparation of manuals giving guidance on the application of standards for the final user ;

2.4.3. the promotion of demonstrations in respect of the operating compatibility achieved as a result of the application of a standard. The main aim of this action will be to make the test and metrological instruments defined in 2.4.1. available for use in different projects and to ensure that development standards are experimented with ;

2.4.4. the promotion of arrangements that go beyond the framework of industrial standardization, depend on agreements concluded in particular fields of professional activity and contribute to the efficient exchange of information (travel agency transactions, automation of money transactions, computerization of customs documents, robotics, office automation, micro-computing, etc.) ;

2.4.5. studies and projects relating specifically to standardization in the field of information technology.

3. **Measures relating to the application of standards in the public procurement sector**

Determination of the most efficient methods of ensuring the rapid application of the standards and technical specifications within the context of the present Decision while assuring appropriate linking with activities depending on Directive 77/62/EEC⁽¹⁾.

⁽¹⁾ OJ No L 13, 15. 1. 1977, p. 1.

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(85) 836 final

Brussels, 20 January 1986

Proposal for a
COUNCIL REGULATION (EEC)
instituting a Community programme for the development of certain
less-favoured regions of the Community by improving access to
advanced telecommunications services

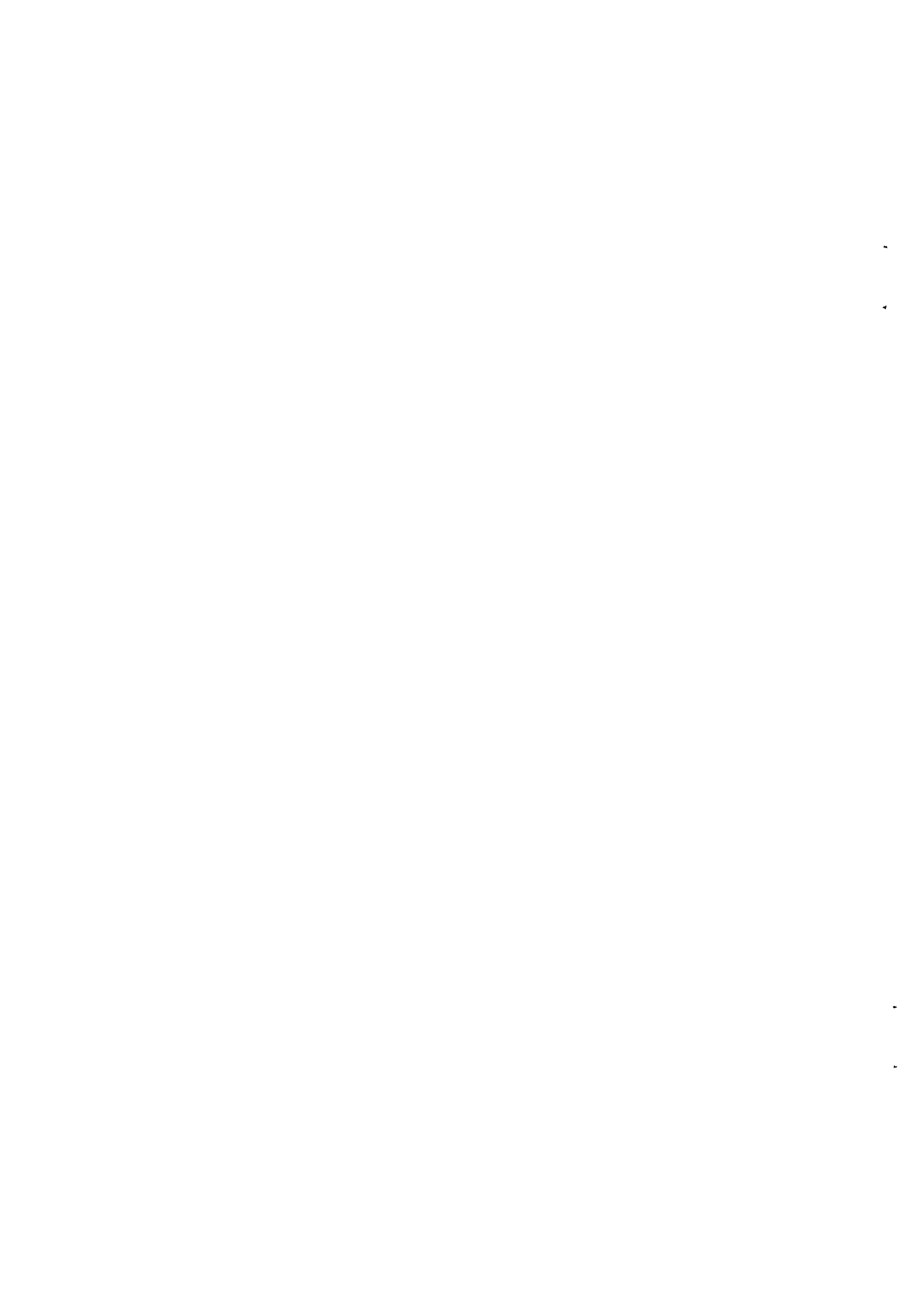
(STAR programme)

(submitted to the Council by the Commission)

COM(85) 836 final

177

1



Explanatory memorandum

1. With the entry into force in 1985 of a new Regulation governing Community regional policy and, in particular, the financial instrument for that policy, namely, the European Regional Development Fund (ERDF), the Community increased its wherewithal to deal more effectively with the many different problems it faces. Bearing in mind the major contribution that regional measures determined at Community level can make towards resolving the serious problems affecting the economic situation in certain regions, the Community has made provision for inclusion of the concept of "Community programme" in its panoply of instruments. The Community nature of such programmes resides in the fact that their main features, (including specific objectives, territorial scope, nature and terms of assistance, and the level of Community participation) are determined on a proposal from the Commission; at the same time, the purpose of the programmes is to provide a better link between the Community's regional development objectives and the objectives of other Community policies. Whereas the specific measures under the former non-quota section of the ERDF were designed primarily to mitigate the adverse effects of other Community policies, Community programmes will concentrate more on enhancing in the less-favoured regions the benefits that may result from implementation of those policies, including telecommunications policy.

 2. The prime aim of this particular programme is to foster the economic development of the least-favoured regions of the Community by improving advanced telecommunications services in line with the Community's objectives in this field.
 The detailed studies carried out recently by the Commission have shown that these regions are lagging a long way behind the rest of the Community as regards both telecommunications equipment and the level of services on offer. There is the danger that the rapid change that has been taking place in this sector for several years, notably as a result of the expansion of new information technologies will accentuate the backwardness of the least-favoured regions.¹ Since the location of new equipment and services is determined by the pattern of demand, the natural tendency is for them to be concentrated in the central regions, which are also the most dynamic in the Community. This works to the detriment of the less-developed outlying regions, where, as a result, individuals and existing businesses - and especially the basic economic fabric constituted by small and medium-sized enterprises (SMEs) - not only may be deprived of the benefits of modern telecommunications techniques but may also see
-
- ¹ See the conclusions of the Council dated 17 December 1984 and the Communication from the Commission to the Council on telecommunications (COM(84)277 final of 18 May 1984).
 - ² The regions having to contend with serious economic problems and with an inadequate level of telecommunications services are the regions of Greece and Ireland, the Mezzogiorno, Northern Ireland, Corsica and the French overseas departments, and regions in Spain and Portugal. The latter will be determined as soon as the regional aid schemes submitted by Spain and Portugal pursuant to Articles 92 and 93 of the EEC Treaty have been declared compatible with the common market under Article 92.

their economic prospects blighted, since there is no denying that the availability of advanced telecommunications services is increasingly becoming a crucial factor in the location of productive investment.

3. The Community cannot allow this to continue. The Commission takes the view that new technological developments instead of being allowed to ossify existing economic structures, must be the means whereby the less-developed regions are able to participate in the qualitative improvements that Europe is making with regard to new technologies. This approach is warranted firstly by the fact that, where advanced telecommunications services are concerned, the cost of certain operations is no longer a function of distance. And so, for the first time in a specific sector, the handicap of "higher cost" that invariably places firms producing certain goods and services in the outlying regions at a disadvantage will probably be removed. In addition, the overall economic benefit of advanced telecommunications services is often greater than is indicated by official schedules of charges, themselves a key factor in business profitability. The fact remains of course, that the demand for goods and services in less-developed regions is generally less buoyant or is slower to materialize than in the most dynamic regions. For this reason, the role of regional policy is to initiate appropriate measures aimed at fostering exploitation of this new potential and, during a transitional period, to meet the extra cost of providing the infrastructures and services in question earlier than would otherwise be the case.

4. The Community programme put forward by the Commission is to be seen in this light. In order to maximize the aforementioned advantages, the programme provides for the provision of the modern equipment necessary and for a consistent series of aid measures to boost the supply of, and the demand for, advanced services. Naturally, the bulk of the financial resources is earmarked for basic equipment. The specific nature of the Community programme consists here in financing only advanced telecommunications that reflect the guidelines laid down in the policy followed by the Community in this field. The programme differs therefore from the ERDF's other financing operations (national programmes, projects) and from the Community's other financial instruments for structural purposes which have been widely deployed in the past and will continue to finance projects involving more conventional telecommunications equipment.

Advanced telecommunications were defined by the Commission in its Communication to the Council on telecommunications, notably under Action Line V, which advocated making full use of modern telecommunications in the Community's least-favoured regions.

In accordance with the guidelines set out in that Communication, the types of basic equipment proposed in the programme relate first to the establishment of major telecommunications links in the least-favoured regions to the new advanced telecommunications networks, including, where appropriate, the broadband transnational digital network. Investment projects assisted under that heading may include land-based (or submarine) systems, notably those using optical fibres, and satellite systems. The programme then focuses on digitalization with a view to more rapid introduction of integrated-services digital networks. Pending the introduction of such networks, the programme will also be able to finance superimposed networks

permitting among other things high-speed data transmission. Lastly, the programme provides for the establishment of cellular radio infrastructures.

5. The establishment of these different infrastructures is obviously a necessary but not sufficient condition for the development of advanced telecommunications services in the least-favoured regions. If proper use is to be made of these infrastructures, it is essential that appropriate back-up measures be taken to stimulate the supply of advanced services directly accessible to the productive sector on the one hand, and to encourage the demand for such services on the other. The aim is to allow individuals and firms in the less-favoured regions to take full advantage of the services accessible to them. A whole range of corresponding measures is proposed.

Under the programme, finance will be available for the establishment and development of telecommunications service centres, notably for SMEs. Justification for such centres is provided by the economies of scale that will flow from several users sharing use of sophisticated means of telecommunication. Aid will also be available to develop "specialized information" services, these being of particular interest to economic activities at local or regional level. In this way it will be possible to feed into the networks to be established in the outlying regions the wealth of information stored in databanks at Community level. Through such a measure, the programme will contribute directly to attainment of some of the Community's policy objectives for the specialized information market.

The measures to promote demand for services include aids for SMEs that will make it easier for them to purchase the equipment (terminals, modems, etc.) they need if they are to make use of advanced telecommunications services. Such aids must be justified by preliminary expert studies demonstrating the economic importance of using such services. At the same time, technical assistance and promotional measures will have to ensure that such equipment is put to profitable use. The programme also provides for technical and economic feasibility studies of a more general nature and for the financing of preparatory work on regional or local programmes, in particular with a view to facilitating coordinated use of advanced telecommunications systems. Lastly, in view of the specific nature of a number of entirely new operations, the part-financing of demonstration measures to identify original solutions tailored to local conditions is envisaged. The experimental projects for assessing the feasibility of tele-commuting based on telecommunications services are a case in point.

6. As the programme is consistent both with the objectives of regional policy and with the Community's guidelines in the field of telecommunications, the level of Community participation will be the maximum normally permissible under the Fund Regulation. In addition, as laid down in that Regulation, the Community programme will receive priority in the management of ERDF resources.

As regards the assistance mechanism, the Community programme is consistent with the provisions of the new Fund Regulation. Joint financing by the Community is provided not on a project basis but in annual instalments. This approach facilitates multiannual programming of the measures and financing operations in which the competent

authorities at national and regional levels cooperate. Provision is also made for close consultation with the Commission, which may, where appropriate, extend to a certain amount of technical assistance. The assistance programmes are adopted by the Commission in the form of "programme agreements".

7. On the basis of the studies carried out and in the light of the guidelines laid down in the Fund Regulation, the Commission takes the view that, where this proposal is concerned, the level of Community participation should be set at 450 million ECU (excluding Spain and Portugal).

The figure is an estimate and will be confirmed when the Commission approves the assistance programmes to be drawn up by the Member States concerned in consultation with the Commission. The Community programme will cover the period 1986-90. The expected timetable for commitments is as follows :

Million ECU

Year Country	1986	1987	1988	1989	1990	TOTAL
Spain	:	:	:	:	:	(150) ¹
France	5	5	5	5	5	25
Greece	16	18	20	22	24	100
Ireland	10	10	10	12	8	50
Italy	34	46	54	58	58	250
Portugal	:	:	:	:	:	(100) ¹
United Kingdom	4	6	8	4	3	25
Total EEC 10	69	85	97	101	98	450
Total EEC 12	:	:	:	:	:	(700)

¹ Initial estimates; see note 2 page 1.

Proposal for a
COUNCIL REGULATION (EEC)
instituting a Community programme for the development
of certain less-favoured regions of the Community by improving
access to advanced telecommunications services

(STAR programme)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,

Having regard to Council Regulation (EEC) No 1787/84 of 19 June 1984 on the European Regional Development Fund,¹ and in particular Article 7(4) thereof,

Having regard to the proposal from the Commission,²

Having regard to the opinion of the European Parliament,³

Having regard to the opinion of the Economic and Social Committee,⁴

Whereas Article 7 of Regulation (EEC) No 1787/84, hereinafter referred to as the Fund Regulation, provides for participation by the Fund in Community programmes the purpose of which is to help in solving serious problems affecting the socio-economic situation in one or more regions and which are designed to provide a better link between the Community's objectives for the structural development or conversion of regions and the objectives of other Community policies;

Whereas the regions in Greece and Ireland, the Mezzogiorno, Northern Ireland, Corsica and the French overseas departments, and regions in Spain and Portugal have to contend with particularly serious economic

¹ OJ No L 169, 28.6.1984, P. 1.

²

³

⁴

problems; whereas the level of telecommunications services, especially advanced services intended for the productive sector in those regions is inadequate; whereas this shortcoming has an adverse effect not only on their socio-economic situation but also on their development prospects;

Whereas, on 29 and 30 March 1985, the European Council endorsed objectives aimed at strengthening the technological base and competitiveness of Community industry; whereas those objectives include achieving a breakthrough in telecommunications; whereas one of the lines of action adopted on 17 December 1984 by the Council of Ministers in this field is designed to ensure improved access for less-favoured regions of the Community to the benefits of the development of advanced services and networks;

Whereas fuller integration of the least-favoured regions into telecommunications networks and appropriate use by them of advanced telecommunications services are necessary if they are to narrow the economic development gap separating them from the rest of the Community; whereas such services will reduce their isolation, will allow them to participate in the Community's technological breakthrough and will foster job creation;

Whereas use of advanced telecommunications services presupposes the establishment of the necessary infrastructures such as major links for the regions to the new networks, digitalization to promote more rapid introduction of integrated-services digital networks, the laying of fibre-optic networks notably in the field of high-speed data transmission, and the establishment and development of cellular radio infrastructures compatible with the development of a Community system;

Whereas the establishment of modern telecommunications infrastructures must be accompanied by measures to promote the supply of, and the demand for, advanced services facilitating optimum use of those infrastructures; whereas such promotion includes aid for the preparation of regional or local programmes for the coordinated use of telecommunication systems, advisory and publicity measures, demonstration projects, aid to promote

the take-up of the services available (notably by small and medium-sized enterprises by making it easier for them to purchase terminals and by providing them with the requisite technical assistance), service centres, experimental tele-commuting projects and the development of regional specialized information services;

Whereas the Member States concerned have communicated the necessary information to the Commission;

Whereas, by helping the least-favoured regions to exploit the new telecommunications potential, the Community programme contributes to the furtherance of both regional development objectives and the Community's objectives in the field of telecommunications; whereas the level of Community participation must therefore be the maximum permissible under the Fund Regulation and whereas, at the same time, the programme is given priority in the management of Fund resources;

Whereas some of the regions concerned qualify for the measures laid down in Council Regulation (EEC) No 2088/85 of 23 July 1985 concerning the integrated Mediterranean programmes,⁵ which permits Community financing over and above the ceilings fixed by the provisions governing the Community's Funds;

Whereas Community assistance must be provided in the form of multiannual programmes drawn up by the Member States concerned in consultation with the Commission and whereas it is for the Commission, in adopting those programmes to ensure that the operations proposed therein are in keeping with this Regulation,

HAS ADOPTED THIS REGULATION :

⁵ OJ No L 197, 27.7.1985, p. 1.

Article 1

A Community programme within the meaning of Article 7 of the Fund Regulation that contributes to the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services is hereby established.

Article 2

The purpose of the Community programme shall be to contribute to strengthening the economic base in the regions concerned by improving the supply of advanced telecommunications services, to foster job creation and to help raise technological standards in those regions. To this end, the programme shall provide for the implementation of a series of consistent, multiannual measures establishing modern telecommunications infrastructures and promoting the supply of, and the demand for, advanced telecommunications services.

The Community programme shall thereby seek to provide a better link between the Community's objectives for the structural development of regions and the objectives of Community telecommunications policy.

Article 3

1. The Community programme shall concern regions :

- a) which face a particularly difficult economic situation compared with the Community as a whole;
- (b) which are located at the periphery of the Community or on an island;
- (c) in which the supply of telecommunications services, notably advanced services for the productive sector, is inadequate;

(d) which are normally covered by a national regional aid scheme.

2. The regions satisfying the conditions set out in paragraph 1 are :

- (a) in Spain : ...¹
- (b) in France : Corsica and the overseas departments;
- (c) in Greece : all regions, including the prefecture of Attiki;
- (d) Ireland : all regions;
- (e) in Italy : the regions and zones of the Mezzogiorno;
- (f) in Portugal : ...¹
- (g) in the United Kingdom : Northern Ireland.

Article 4

The Fund may participate, under the Community programme, in the following operations :

1. Establishment of the basic equipment needed for advanced telecommunications services in order :

- (a) to integrate the less-favoured regions into the new advanced telecommunications networks being set up across the Community, including, where appropriate, the extension of the broadband transnational digital network planned for the Community, and to provide major telecommunication links. Investments projects may include land-based (including submarine) systems, notably those using optical fibres, and satellite systems;
- (b) to encourage digitalization with a view to more rapid introduction of integrated-services digital networks for firms and consumers. Investment projects may include the digitalization of links to final users, additional work on local switches, the possible introduction of the signalling systems between switches that are

¹ The regions will be determined by the Commission once the regional State aid scheme submitted by the Member State under Articles 92 and 93 of the EEC Treaty have been declared compatible with the common market pursuant to Article 92 of the Treaty.

essential to integrated-services digital networks and, where appropriate, more rapid digitalization of transmission lines and switching centres;

- (c) to set in place, pending the introduction of integrated-services digital networks, superimposed networks essential to the provision of advanced telecommunications services, notably in the field of data transmission.

Investment projects may include establishment of the major transmission lines and provision of equipment enabling the public to use the service, and particularly the transformation of pilot schemes already financed by the Community into fully-operational systems;

- (d) to establish and develop cellular radio infrastructures compatible with the development of a Community system;

- (e) feasibility studies relating to the investment projects specified in (a) to (d).

2. Promotion of the supply of, and the demand for, advanced telecommunications services. The following operations shall be eligible under this heading :

- (a) preparation of local or regional programmes for the coordinated use of advanced telecommunications systems. This shall include technical and economic feasibility studies on the provision of new telecommunications services to users, notably small and medium-sized enterprises (SMEs) in the industrial and service sectors, including tourism; such studies shall form part of broader development strategies for specific areas, sectors or groups of firms;

- (b) measures to promote the use of advanced telecommunications services. Such measures shall include publicity and information campaigns aimed at making potential users aware of the existence and advantages of modern telecommunications services, either through conventional marketing channels or by way of seminars,

courses and briefings. Priority shall be given to measures for SMEs, including in the field of tourism and in other sectors with a high development potential;

(c) measures to demonstrate, by means of specific integrated applications, the advantages of using advanced telecommunications services. Such programmes shall include demonstration projects for SMEs, including in the field of tourism and in other sectors with a high development potential;

(d) aid to encourage individual SMEs or groups of SMEs to use advanced telecommunications services.

Such aid may take the form of :

(i) expert studies on the potential economies to be achieved through greater use of advanced telecommunications services, including computerized services available via data-transmission networks;

(ii) if the studies referred to in (i) so justify, equipment (such as terminals and modems) giving users access to advanced telecommunications services;

(e) establishment and development of telecommunications service centres, outside the main urban areas, with a view to :

i) providing user services, including advanced data-transmission and videocommunication services, notably in sparsely populated areas;

ii) providing common services for two or more SMEs;

(f) implementation of experimental tele-commuting projects;

(g) the provision of regional services using computerized telecommunications facilities in the sphere of specialized information, including information compiled at Community level and of particular interest to certain users, notably SMEs, including in the field of tourism.

Article 5

The Community programme shall be financed jointly by the Member State concerned and the Community. Assistance from the Fund, which may not exceed 55 % of the total public expenditure taken into account in the programme, shall be provided from the appropriations entered for this purpose in the general budget of the European Communities. The Community contribution shall be as follows :

1. Operations relating to the basic equipment referred to in Article 4(1) :

- (a) infrastructure investment projects financed wholly or partly by public authorities or by an equivalent body responsible for the implementation of infrastructure projects : 55 % of the total public expenditure borne by a public authority or equivalent body;
- (b) investment projects in the industrial, craft industry and service sectors : 50 % of the public expenditure resulting from the grant of investment aid;
- (c) feasibility studies : either 70 % of their cost or 50 % of the public expenditure resulting from the granting of aid in respect of them.

2. Promotion of the supply of, and the demand for, advanced telecommunications services :

- (a) studies relating to the preparation of local or regional programmes referred to in Article 4(2)(a) : 50 % of public expenditure;
- (b) measures to promote the use of advanced telecommunications services referred to in Article 4(2)(b) : aid covering 50 % of the cost of publicity and information campaigns;
- (c) demonstration measures referred to in Article 4(2)(c) : 50 % of public expenditure;

- (d) operations to encourage investment in SMEs referred to in Article 4(2)(d) :
 - (i) expert studies : either 70 % of their cost or 50 % of the public expenditure resulting from the granting of aid in respect of them;
 - (ii) equipment : 50 % of the public expenditure resulting from the grant of investment aid;
- (e) establishment and development of telecommunications services centres referred to in Article 4(2)(e) :
 - (i) operations relating to user service centres :
50 % of the public expenditure resulting from the granting of aid for equipment associated with telecommunications;
 - (ii) for operations relating to common services :
50 % of the public expenditure resulting from the granting of aid;
- (f) implementation of experimental tele-commuting projects referred to in Article 4(2)(f) :
 - (i) feasibility studies : either 70 % of their cost or 50 % of the public expenditure resulting from the granting of aid;
 - (ii) project implementation : 50 % of the public expenditure resulting from the granting of aid;
- (g) provision of regional services in the sphere of specialized information referred to in Article 4(2)(g) : aid covering part of business expenditure on the development and operation of such services . The aid shall be degressive and shall be granted for three years. It shall cover 70 % of expenditure in the first year and shall not exceed 50 % of total expenditure over the three-year period.

Article 6

1. All or part of the aid may be in the form of a capital grant or an interest subsidy.
2. The following shall be eligible for Fund assistance in respect of operations referred to in Article 5 : public authorities, local and regional authorities, other bodies, businesses or individuals.

3(a). Aid granted under the Community programme shall not be combined with aid provided for in the Fund Regulation or with other forms of Community assistance, except in the forms expressly provided for by the Council, including in Regulation (EEC) No 2088/85.

(b) In addition, the aids referred to in Article 5(2)(d), (e), (f) and (g) may not have the effect of reducing the share of expenditure met by recipient businesses to less than 20 % of total expenditure.

Article 7

The competent authorities in each of the Member States concerned shall, in consultation with the Commission, draw up within a period of six months from the entry into force of this Regulation an intervention programme satisfying the following conditions :

- it shall contain the particulars referred to in the Annex to this Regulation;
- it shall fall within the framework of the regional development programmes referred to in Article 2(3) of the Fund Regulation;
- an appropriate share of the Fund's contribution shall be earmarked for the least-favoured regions covered by the programme;
- the programme shall comprise regional or local and, where appropriate, sectoral sub-programmes depending on the operations prescribed in Article 4; the sub-programmes shall be extensive enough to warrant implementation of the promotional measures provided for in Article 4(2);
- the Fund's contribution to the promotional measures provided for in Article 4(2) may not be less than 10 % of the total contribution to the programme;
- the programme shall cover projects that are consistent with the Community's objectives regarding telecommunications and information technology standards, particularly in view of the progress made towards these objectives by the European Conference of Postal and

Telecommunications administrations (CEPT) and the European Committee for Standardisation (CEN)/European Committee for Electro-technical Standardisation (CENELEC).

Article 8

1. The duration of the programme shall be five years from the date of entry into force of this Regulation.
2. The intervention programme shall be submitted to the Commission for adoption as a programme agreement in accordance with Article 13(1) of the Fund Regulation. The Commission shall establish that the programme is compatible with Article 44 of the Fund Regulation.
3. In addition to publication of the decisions concerning the grant of Fund assistance for the programme, the programme adopted shall be published by the Commission for information purposes.

Article 9

The amount of Fund assistance may not exceed the amount laid down by the Commission when adopting the programme agreement referred to in Article 8(2).

Article 10

This Regulation shall enter into force on the day following that of its publication in the Official Journal of the European Communities.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at

For the Council

Annex

The intervention programme, broken down, where appropriate, by region and comprising the particulars listed in Article 8 of the Fund Regulation and some further particulars, shall be drawn up on the basis of the following outline :

1. General information

- (a) a concise analysis of the situation and prospects in the telecommunications field and the interrelationship between them and the socio-economic situation;
- (b) a brief description of measures adopted to meet requirements in the field of telecommunications services, indicating the bodies responsible;
- (c) the amount of expenditure incurred in previous years and that forecast for the period covered by the programme.

2. Basic equipment for the provision of advanced telecommunications services

- (a) an analysis of the situation and prospects in each of the fields mentioned in Article 4(1) and a description of the measures already adopted and, where appropriate, existing aid schemes indicating the average amount of public expenditure involved each year;
- (b) in relation to the operations referred to in Article 4(1) :
 - (i) forecasts for investment projects in new international telecommunications networks; an indication of the main telecommunication links planned; information concerning the systems to be used (land-based, satellite, etc); location of projects;
 - (ii) forecasts for investment projects in digitalization; indication of the fields involved : connections to users, local switches, signalling systems between switches, transmission lines, switching centres; details of how such work ties in with the introduction of integrated-services digital networks; location of projects;
 - (iii) forecasts for investment projects associated with the establishment of superimposed networks, notably in the field of high-speed data transmission; indication of the major transmission lines and the equipment providing the public with access to these services; location of projects;
 - (iv) forecasts for investment projects involving the establishment and development of cellular radio infrastructures; details as to the compatibility of such infrastructures with the development of a Community system; location of projects;

- (v) forecasts relating to feasibility studies;
- (vi) expected results, in quantified form, of the investments specified in i) to v), in terms of economic activity, job creation and technology transfers.

3. Promotion of the supply of, and the demand for, advanced services

- (a) an analysis of the situation and needs in these fields and a description of feasibility studies, surveys or information campaigns undertaken and of existing aid schemes for the use of advanced telecommunications services, indicating the average amount of public expenditure involved each year;
- (b) operations referred to in Article 4(2) :
 - (i) forecasts relating to the preparation of regional or local programmes for the coordinated use of advanced telecommunications systems; forecasts for feasibility studies; indication of the broader development strategies of which such studies form part;
 - (ii) forecasts relating to the promotion of the use of advanced services; details of measures; indication of the sectors concerned;
 - (iii) forecasts relating to demonstration projects; indication of the sectors concerned;
 - (iv) forecasts relating to aids for SMEs in respect of equipment and expert studies; details of aid schemes to be set up;
 - (v) forecasts relating to telecommunications service centres; location of centres; population and sectors served;
 - (vi) forecasts relating to experimental tele-commuting projects; location of projects; sectors concerned; proposed evaluation methods;
 - (vii) forecasts relating to regional specialized-information services; indication of data available including data compiled at Community level; indication of the sectors concerned;
 - (viii) expected results, in quantified form, of the various measures and operations specified in i) to vii), in terms of economic activity, job creation and technology transfers.

4. The programme as a whole

- (a) summary of objectives;
- (b) timetable;
- (c) estimates of the volume of public expenditure connected with the programme's implementation, including an annual breakdown of such expenditure for each of the operations envisaged and a clear indication of the various national and Community sources of finance;
- (d) in so far as this information has not been identified with sufficient accuracy in the regional development programme, a description of the existing or future public measures which it is intended to implement alongside the special programme;
- (e) an indication of the authorities or bodies responsible for carrying out the various parts of the programme and the coordination arrangements;
- (f) details of the Commission's involvement in the programme follow-up;
- (g) arrangements for publicizing ERDF aid, the purpose being to make potential beneficiaries and trade and industry aware of the opportunities offered by the programme and of the role played by the Community.

Financial record1. Relevant budget heading

Title V
Chapter 50
Article 505

2. Legal basis

Article 7 of Regulation (EEC) No 1787/84

3. Proposal for classification as non-compulsory expenditure4. Description of the measure

The purpose of this measure, which is in the form of a Community programme within the meaning of the ERDF Regulation is to contribute to the economic development of certain less-favoured regions of the Community by improving the supply of advanced telecommunications services, fostering job creation and helping to raise technological standards in those regions. To this end, the programme provides for the establishment of modern telecommunications infrastructures and measures to promote the supply of, and the demand for, advanced telecommunications services.

The Community programme seeks thereby to provide a better link between the Community's objectives for the structural development of regions and the objectives of Community telecommunications policy.

5. Financial implications

The total amount of the Fund's contribution is put at 450 million ECU for the period 1986-90 (excluding Spain and Portugal).

./.

6. Expected cost of the programme for the regions in France

(a) Indicative breakdown, by operation of the total allocation for the programme

Articles of Regulation	Operations	MioECU
4(1)	Basic equipment :	20.0
(a)	new advanced networks	
(b)	digitalization	
(c)	superimposed networks	
(d)	cellular radio	
(e)	feasibility studies	
4(2)	Promotion of supply of, and demand for, advanced services	5.0
	Total	25.0

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	5	5	5	5	5	25

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of commitments, the balance being settled at a later date.

./.

7. Expected cost of the programme for the regions in Greece

(a) Indicative breakdown, by operation of the total allocation for the programmes

Articles of Regulation	Operation	MioECU
4(1)	Basic equipment :	80.0
(a)	new advanced networks	40.0
(b)	digitalization	26.7
(c)	superimposed networks	6.2
(d)	cellular radio	3.1
(e)	feasibility studies	4.0
4(2)	Promotion of supply of, and demand for, advanced services	20.0
	Total	100,0

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	16	18	20	22	24	100

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of commitments, the balance being settled at a later date.

8. Expected cost of the programme for Ireland

(a) Indicative breakdown, by operation of the total allocation for the programme

Articles of Regulation	Operation	MioECU
4(1)	Basic equipment :	42.0
(a)	new advanced networks	13.6
(b)	digitalization	12.9
(c)	superimposed networks	2.2
(d)	cellular radio	11.3
(e)	feasibility studies	2.0
4(2)	Promotion of supply of, and demand for, advanced services	8.0
	Total	50.0

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	10	10	10	12	8	50

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of commitments, the balance being settled at a later date.

9. Expected cost of the programme for the regions in Italy

(a) Indicative breakdown, by operation of the total allocation for the programme

Articles of Regulation	Operation	MioECU
4(1)	Basic equipment :	212.5
(a)	new advanced networks	47.8
(b)	digitalization	133.2
(c)	superimposed networks	20.9
(d)	cellular radio	-
(e)	feasibility studies	10.6
4(2)	Promotion of supply of, and demand for, advanced services	37.5
	Total	250.0

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	34	46	54	58	58	250

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of Commitments, the balance being settled at a later date.

10. Expected cost of the programme for the regions in the United Kingdom

(a) Indicative breakdown, by operation of the total allocation for the programme

Articles of Regulation	Operation	MioECU
4(1)	Basic equipment :	21.0
(a)	new advanced networks	15.0
(b)	digitalization	-
(c)	superimposed networks	-
(d)	cellular radio	5.0
(e)	feasibility studies	1.0
4(2)	Promotion of supply of, and demand for, advanced services	4.0
	Total	25.0

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	4	6	8	4	3	25

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of commitments, the balance being settled at a later date.

./.

11. Expected cost of the programme for the regions in Spain

(a) Indicative breakdown, by operation of the total allocation for the programme

Articles of Regulation	Operation	MioECU
4(1)	Basic equipment :	:
(a)	new advanced networks	
(b)	digitalization	
(c)	superimposed networks	
(d)	cellular radio	
(e)	feasibility studies	
4(2)	Promotion of supply of, and demand for, advanced services	:
	Total	(150.0)

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	:	:	:	:	:	(150)

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of commitments, the balance being settled at a later date.

12. Expected cost of the programme for the regions in Portugal

(a) Indicative breakdown, by operation of the total allocation for the programme

Articles of Regulation	Operation	MioECU
4(1)	Basic equipment :	:
(a)	new advanced networks	
(b)	digitalization	
(c)	superimposed networks	
(d)	cellular radio	
(e)	feasibility studies	
4(2)	Promotion of supply of, and demand for, advanced services	:
	Total	(100.0)

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	:	:	:	:	:	(100)

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of commitments, the balance being settled at a later date.

./.

13. Expected total amount of Community participation
(excluding both Spain and Portugal)

(a) Indicative breakdown, by operation of the total allocation for the programme

Articles of Regulation	Operation	MioECU
4(1)	Basic equipment :	375.5
(a)	new advanced networks	
(b)	digitalization	
(c)	superimposed networks	
(d)	cellular radio	
(e)	feasibility studies	
4(2)	Promotion of supply of, and demand for, advanced services	74.5
	Total	450.0

(b) Indicative schedule for commitment appropriations

Year	1986	1987	1988	1989	1990	Total
MioECU	69	85	97	101	98	450

(c) Payment appropriations

Article 30(2) of the Fund Regulation should make it possible each year to make payments not exceeding 80 % of commitments, the balance being settled at a later date.

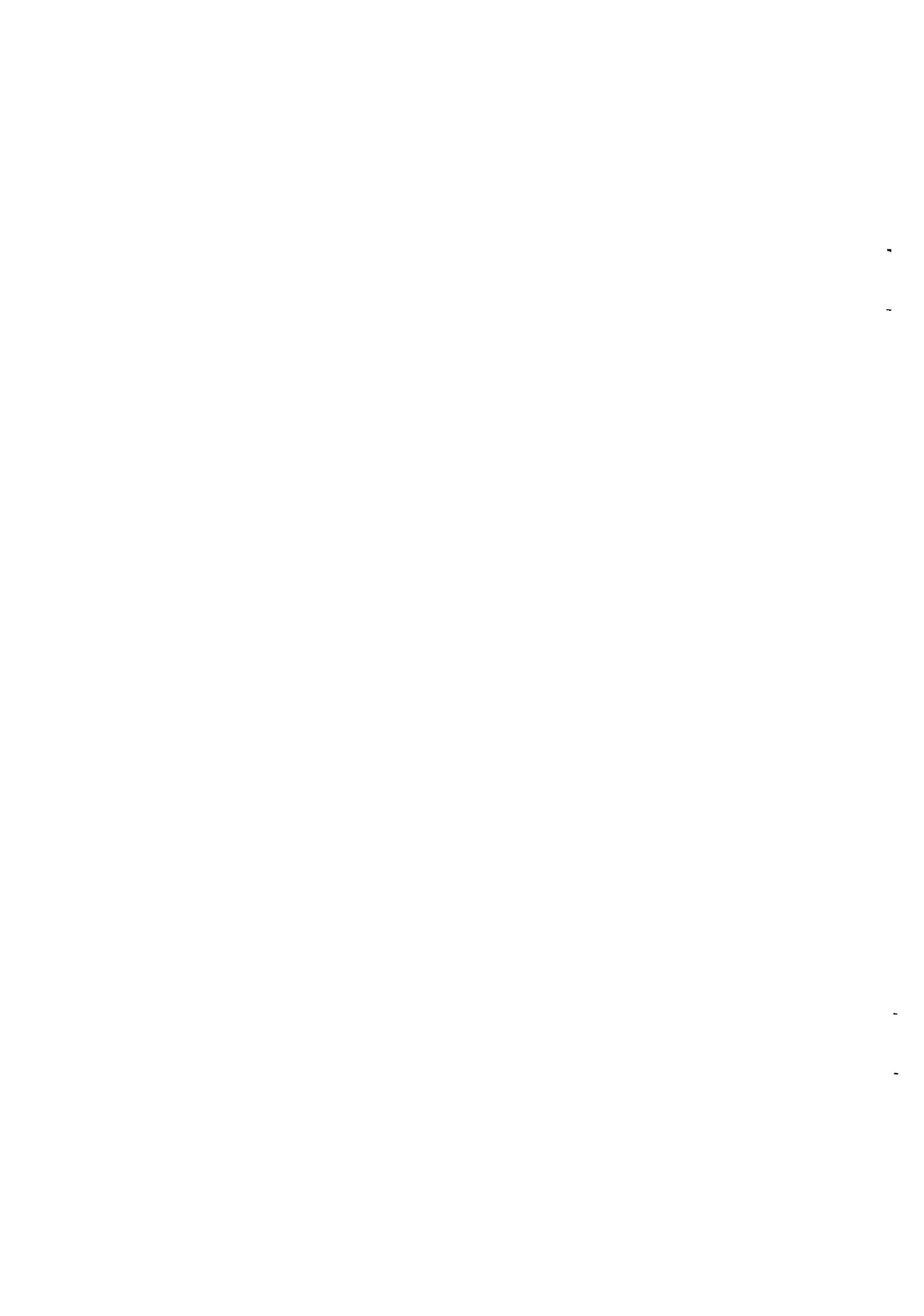
COMMISSION OF THE EUROPEAN COMMUNITIES

COM(86) 1 final

Brussels, 22 January 1986

Proposal for a
COUNCIL DIRECTIVE
on the adoption of common technical specifications of the MAC/packet
family of standards for direct satellite television broadcasting

(submitted to the Council by the Commission)



C O N T E N T S

A. SUMMARY

B. EXPLANATORY MEMORANDUM

I. INTRODUCTION

II. THE AIM OF THE PROPOSED DIRECTIVE

III. THE FAMILY OF MAC/PACKET STANDARDS

IV. CONSIDERATIONS CONCERNING THE ADOPTION AND
INTRODUCTION OF THE MAC/PACKET SYSTEMS

V. FUTURE DEVELOPMENTS

VI. CONCLUSIONS

C. Proposal for a Council Directive on the adoption of
common technical specifications of the MAC/packet
family of standards for direct satellite television
broadcasting

A. SUMMARY

Direct broadcasting from satellites to individual homes is becoming a reality within the Community, with three new transmission systems intended to commence service within the next two years. Use of the existing standards for conventional television broadcast within the Community - PAL and SECAM - is not suitable, since they are wasteful of the power available in the satellite.

Therefore, the European Broadcasting Union (EBU) and the European Consumer electronics manufacturing industry have developed a family of transmission systems which include not only systems for direct satellite broadcasting, but also retransmission into existing cable networks; there is thus a family of "MAC-packet" (MAC - multiplexed analogue components) transmission systems which vary according to the respective signal processing for picture and sound/data transmission.

Technical specifications have been identified for two specific applications of the systems, namely:

- for direct satellite television broadcasting the C-MAC/packet system and the D2-MAC/packet system with frequency modulation
- for cable distribution the D-MAC/packet system and the D2-MAC/packet system with vestigial-sideband amplitude modulation.

The three systems C-MAC, D-MAC and D2-MAC are compatible and would meet the varying service requirements amongst the Member States.

In accord with recent Resolutions of the European Parliament, and following the favourable reception by the Council of a communication from the Commission to the Council (1) on the subject of the adoption

(1) doc. CUM(85)264 final of 31st May 1985

of common standards for direct TV transmission via satellites, the Commission proposes a Directive on the adoption of the technical specifications of the family of MAC/Packet systems as unique standards in the Community for direct satellite television broadcasting.

The purpose of the Directive is to:

- direct the outstanding decisions of the Member States towards the exclusive adoption of a system of the MAC/packet family
- exclude - even during a transition period - the adoption of any amended version of existing television broadcasting systems (such as PAL or SECAM) and to avoid that different incompatible systems exist within the Community for direct satellite TV broadcasting
- establish for the relevant Community manufacturing industry a clear framework for its decisions on the equipment for direct reception of European-wide TV broadcasting programmes
- pave the way for the creation of a large open European market for direct satellite TV broadcasting equipment for the benefit of the consumers, the operators and the manufacturing industry in the Community.
- make the broadcasting of multilingual television programmes possible.

The adoption of the MAC/packet systems as a common standard in the Community is not an intermediate transitional solution. The technical concept of MAC/packet systems allows for long term evolution towards High Definition Television systems, thus responding to the requirements of operators and consumers during the coming decades.

The Directive lays down a procedure for adaptation to the technical progress, in particular to the further development of the technical specifications of the MAC/packet family.

B. EXPLANATORY MEMORANDUM

I. INTRODUCTION

1. Direct transmission of television programmes via satellites represents a significant technological step forward in TV broadcasting. It opens the way to true Pan-European television, with geographical coverage of areas larger than the territories of the individual national States in Europe. However, in order to ensure that consumers industries and broadcasters throughout the Community can fully benefit from this technical progress, it will be necessary to implement common technical solutions, and to agree on common standards.

2. The Commission has already expressed its concern on the establishment of common standards in the field of telecommunications in previous communications to the Council, for instance for the new integrated services digital networks (ISDN), videotex services and mobile cellular radio communications.

Direct satellite TV broadcasting is another area where the adoption by the Member States of common standards appears imperative.

3. The European Broadcasting Union (EUB) and the European manufacturing industry have recently developed a new transmission system together with a set of three technical standards, varying according to the different application purposes. This set of standards is called the family of MAC/Packet standards.

The EBU and manufacturing industry have firmly expressed the view, that this family of MAC/packet systems should serve as

the technical framework for the development of direct satellite television broadcasting services in Europe.

4. In proposing a directive on the family of MAC/packet systems, the Commission seeks to unify the potential market for the necessary home receivers for direct broadcast satellite systems. Current estimates for the size of this market foresee a total of approximately 10 million home receiver equipments, which implies a market value over the next 10-15 years of some 10 milliard ECU. At the same time, and in addition to equipment manufacturing industry the basic framework for planning decisions will be established for broadcasters, cable network operators and end-users.

II. THE AIM OF THE PROPOSED DIRECTIVE

1. In its communication to the Council of 31st May 1985 (doc. COM(85)264 final) the Commission expressed the view that the transmission systems of the MAC/packet family are particularly suitable under the conditions prevailing in Europe, and that decisions on its adoption should now be taken without delay, considering that the launch of the first European direct broadcasting satellites will take place in 1986.

Some Member States have meanwhile taken the decision to adopt one or the other system of the MAC/packet family and other Member States are likely to follow suit.

In conformity with the views expressed by the European Parliament and considering the position of the European manufacturing industry, the Commission feels the need to submit to the Council a proposal for a Directive with the following objectives:

- directing the outstanding decisions of other Member States towards the exclusive adoption of a system of the MAC/packet family
- excluding - even during a transition period - the adoption of any amended version of existing television broadcasting systems (such as PAL and SECAM) and to avoid that incompatible systems continue to exist within the Community for the purpose of direct satellite TV broadcasting
- establishing for the manufacturing industry in the Community a definite framework for decisions concerning the development of technologies and manufacturing of equipment allowing the direct reception of all European TV broadcasting programmes.
- paving the way for the creation of a large open European market for direct satellite TV broadcasting equipment for the benefit of the consumers, the operators and the manufacturing industry in the Community.
- making it possible for European broadcasters to envisage the production and broadcasting of multilingual television programmes.

III. THE FAMILY OF MAC/PACKETS STANDARDS

1. The present progress of microelectronic technology has made it possible to develop new television transmission systems with considerably improved quality of picture and sound transmission and reception, adequate for direct satellite broadcasting.

A set of new TV systems called the MAC/packet family has been developed and proposed by the EBU and the European equipment manufacturers. Originally, a transmission system only for direct satellite broadcasting on the up- and downward path was conceived, but other additional requirements were soon taken into consideration, in particular the applicability to terrestrial broadcasting and distribution networks for cable TV.

2. The essential advantage of the MAC technical procedure is the provision of a significantly enhanced quality of the transmission and reproduction of pictures and sound through a special processing of picture and sound information, making use of technological advances in microprocessors and memories designed for new signal processing techniques.

The same degree of quality cannot be reached in satellite transmission systems using the existing procedures (PAL, SECA,, NTSC), which are not well suited for direct satellite transmission.

3. The digital sound signals or data can be modulated and encoded in different ways corresponding to the respective transmission media to be used (satellite path or cable). The European MAC proposal provides at present for three sound/data transmission systems forming a coherent family of three compatible systems:

- C-MAC/packet
- D-MAC/packet
- D2-MAC/packet

It should be noted that the MAC part for picture transmission is identical in all of the three systems.

The C-MAC/packet system was the first of the three systems and was developed in EBU. It is conceived and optimized for use in direct satellite television broadcasting in the 12 GHz band with a satellite channel bandwidth of 27 MHz.

The system offers transmission of high-quality pictures together with up to eight high-fidelity sound channels.

This characteristic of the C-MAC/packet system is of particular interest in the European context, since the same TV programme can be transmitted simultaneously throughout Europe in different languages.

However, due to the large bandwidth required by the C-MAC system, the satellite programmes cannot be retransmitted in existing cable networks.

Such re-transmission has been made possible with the D-MAC/packet system, a modification of the C-MAC system, which can be used on cable networks with a minimum channel spacing of 10,5 MHz.

However, in most of the present cable distribution networks the channel spacing is still lower, about 7 or 8 MHz. In this case another sound/data multiplexing and encoding procedure is used, which is referred to as the D2-MAC/packet system, developed by the manufacturing industry. It is compatible with C-MAC/packet and suitable for lower bandwidth cable distribution systems with a minimum channel spacing of 7 MHz. The adaptation to the bandwidth of cable transmission implies a reduction of the transmission capacity to 4 sound/data channels whilst the same high picture quality of C-MAC is retained. Transition from C-MAC satellite transmission to D2-MAC cable distribution transmission is feasible.

4. At a joint conference of EBU with technical experts of the European Association of Consumer Electronics Manufacturers (EACEM) earlier this year, agreement was reached that the family of compatible MAC/packet standards achieve the service requirements of both the direct satellite broadcasting and the cable TV distribution in the different national contexts as well as the economic demands of the markets. Moreover the MAC/packet systems family is characterized by a great flexibility as regards telematic applications.

The three systems would be used according to their specific technical characteristics:

- for direct satellite broadcasting the C-MAC/packet system recommended by EBU and the D2-MAC/packet system with frequency modulation recommended by the manufacturers.
- for cable distribution the D-MAC/packet system and the D2-MAC/packet system with vestigial-sideband amplitude modulation.

5. The EBU and the manufacturers, firmly propose that the C-D-D2-MAC/packet systems should serve as the unique technical framework for the development of direct satellite television broadcasting services in Europe.

Moreover it is at present the only available set of standards in Europe which could now commonly be adopted throughout the Community as the European solution.

IV. CONSIDERATIONS CONCERNING THE ADOPTION AND INTRODUCTION OF THE
MAC/PACKET SYSTEMS

1. The introduction of the proposed family of MAC/packet systems will have to respond to a number of requirements:

- opening up of the new C- or D2-MAC/system to those users wanting immediate access to direct satellite TV broadcasting
- progressive transition from the present TV systems existing in the Member States for terrestrial broadcasting and cable distribution towards the family of MAC/packet systems
- rapid development by manufacturing industry of universal bi- or multi-standard C-D-D2-MAC microelectronic circuits and TV receivers, which could be manufactured for a large Community market
- possibility for consumers to continue to use during an adequate transition period existing TV equipment for receiving the present PAL or SECAM broadcasting as well as direct satellite broadcasting
- possibility to continue to use during an adequate transition period existing video-recording apparatus
- possibility for future technical enhancement of the new system.

These objectives can for the time being only be reached by the proposed family of MAC/packets systems.

2. Following the introduction of the MAC/packet system, the users in these countries will have different options:

- TV spectators wanting to make direct full use of all advantages of the MAC system will have to acquire a multi-standard TV-set of the new generation designed for the C- and D2-MAC systems. It will allow them to receive TV programmes directly from the satellite via their own antenna or through a cable distribution system which will transmit MAC signals and in particular D2-MAC signals in the cable networks which will support the system;
- customers wanting to continue to use further their existing TV set will have the possibility to receive MAC signals by means of a decoder to be connected to their TV set or following transposition of MAC signals into PAL or SECAM standards by the cable network operators and retransmission over their network. In the latter case, however, the customer will not obtain the MAC quality, but he will be able to receive with his existing TV set one or more satellite TV programmes in addition to the conventional terrestrial PAL or SECAM transmissions.

This introduction strategy will allow for the customers a smooth transition from the present terrestrial PAL or SECAM emissions to the future satellite TV broadcasting whilst leaving to them the choice to acquire TV sets of the new generation when these TV sets will be available on the market at a reasonable price.

3. The introduction of the family of MAC/packet standards must not be considered as an intermediate transitional solution. The technical concept of these systems is such that it allows for a long term evolution and thus to respond to the requirement of the TV operators and the demands of the consumers during the coming decades.

4. A rapid decision by the Community Member States to adopt the MAC/packet family together with a flexible introduction strategy will establish for the manufacturing industry of TV equipment and components, as well as for the broadcasters, the cable network operators and the customers, the basic framework for their own planning decisions.

Considering the relatively short time span until the launch in 1986 of initial direct broadcasting satellites systems with regular satellite operation in 1987, it is in particular industry which needs clear policy decisions for planning the development and manufacturing of the micro-chips for TV sets working to the new MAC/packet standards.

5. An inherent characteristic of the family of MAC/packet systems is its evolutionary capabilities which allow further technical developments on the basis of the present concept, above all towards High Definition television systems.

However, technical progress achieved through further development work carried out in this area in the various Member States or elsewhere, should not lead again to divergent and possibly incompatible technical solutions.

Measures must therefore be taken so that adaptation of the technical specifications of the MAC/packet systems family to technical progress or the introduction of new technical solutions will be implemented according to procedures which allow common technical specifications to be retained and incompatible solutions avoided.

V. FUTURE DEVELOPMENTS

1. With respect to the existing PAL and SECAM IV transmission technique, the three MAC/packet systems represent a considerable step towards improvement in the quality of colour television broadcasting. Although maintaining the conventional number of 625 lines per picture, the advanced MAC/packet technique results in a clearly enhanced picture quality, together with a higher sound transmission quality and facilities for data transmission.

Further technical development of the presently proposed family of MAC/packet systems is feasible and under way. The flexibility of the multiplexing technique of MAC/packet provides possibilities for further extended characteristics, in particular concerning the picture transmission. Reduction of sound/data transmission capacity in an enhanced C-MAC or D2-MAC system allows a special additional picture signal treatment, which results in pictures with a wider aspect ratio of about 5:3 and improved definition.

The picture quality of this enhanced C-MAC, which is compatible with the original C-MAC and its conventional 4:3 aspect ratio as broadcast over DBS transmission channels, approaches that of High Definition television systems to a degree which is adequate for all practical screen sizes and viewing distances under the usual domestic conditions.

In addition, the flexibility built in the MAC-packet format should allow for adaptations, which could lead to more advanced High Definition TV systems than the presently contemplated MAC/packets enhancement or systems with 1125 lines and 60 Hz frame frequency.

VI. CONCLUSIONS

The foregoing considerations explain the context and the reasons which advocate in favour of the adoption of the family of MAC/packet systems as unique common standards for direct satellite television broadcasting in Europe.

The current MAC/packet technical specifications, as developed and proposed by the European Broadcasting Union and the European manufacturing industry are particularly suitable in the European framework and directly applicable for satellite TV broadcasting as well as for retransmission of satellite programmes in cable distribution networks.

The capability of simultaneous transmission of several sound channels per each high quality video channel opens up new possibilities for truly pan-European, multilingual television programmes.

Their adoption as common standard will create the true European dimension for the future satellite TV broadcasting and for the market of the European manufacturing industry in this area.

The attached proposal for a Directive concerning the adoption of common technical specifications relevant to the family of MAC/packet systems for direct satellite television broadcasting is thus in agreement with the measures proposed by the European Parliament in its Resolutions of 12 March 1982 and 28 October 1983 and by the Commission in its communication to the Council of 14 June 1984 on "Television without frontiers".

Considering the favourable reception which the Council of Ministers of Industry and Telecommunications on 3 June 1985 in Luxembourg has given to the communication from the Commission on the subject of

common adoption of the MAC/packet specifications in the Community, the Commission proposes to the Council to adopt the attached proposal for a Directive.

Brussels, 4.12.1985

PROPOSAL FOR A
COUNCIL DIRECTIVE
ON THE ADOPTION OF COMMON TECHNICAL SPECIFICATIONS OF
THE MAC/PACKET FAMILY OF STANDARDS FOR
DIRECT SATELLITE TELEVISION BROADCASTING

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament (1),

Having regard to the opinion of the Economic and Social Committee (2),

(1)

(2)

Whereas for the purposes of this Directive direct broadcasting by satellite means a broadcasting satellite service as defined in the Radio Regulations of the International Telecommunications Union using channels assigned to Member States in the 11.7 to 12.5 GHz band at the World Broadcasting Satellite Administrative Radio Conference (Geneva 1977) and intended for display on 625 lines domestic TV receivers;

Whereas, in the near future, satellites for direct television broadcasting will be placed in orbit by several European countries and subsequently new television sets corresponding to public needs will be introduced by the manufacturers,

and the use of common technical specifications for direct satellite broadcasting of television programmes and possibly for their redistribution by cable becomes a pressing need in order to attain the objectives set out hereafter;

Whereas the implementation of common technical specifications simplifies the broadcasting of television programmes in all countries of the Community and makes a significant contribution to European unification and to the development of a true European identity;

Whereas the technical capability to transmit simultaneously on several sound channels opens the way to truly pan-European multilingual television programmes;

Whereas the implementation of common technical specifications leads to the creation of a large unified market, on which products will be freely exchanged without any technical barriers, which will be of great economic benefit for the European consumer electronics industry as regards its competitiveness;

Whereas it is indispensable that a guarantee be given to manufacturers and broadcasters in respect of their investments and supplies, by the application of such common technical standards at Community level;

Whereas the European Broadcasting Union (EBU) and the European manufacturers of the relevant branch represented by their associations have perfected and published technical specifications forming part of the MAC/packet family for the direct television broadcasting and the redistribution of programmes by cable;

Whereas the MAC/packet family includes:

- for direct satellite broadcasting: the system C-MAC/packet and the system D2-MAC/packet with frequency modulation
- for cable distribution: the system D-MAC/packet and the system D2-MAC/packet with vestigial-sideband amplitude modulation;

Whereas it has been recognized by the European Broadcasting Union (EBU) and the European manufacturers of the relevant branch represented by their associations that the technical specifications forming part of the MAC/packet family and especially the versions C-MAC, D-MAC and D2-MAC are compatible;

Whereas these specifications would make it possible to meet the service requirements in the different national contexts and the economic demands of the market;

Whereas technical progress is liable to require adaptation of the technical specifications defined in the framework of this Directive and of those which will be defined subsequently in the field of direct television broadcasting by satellite;

Whereas it is advisable, in order to facilitate the implementation of the measures necessary for this purpose, to provide for a procedure for adaptation to technical progress by means of close cooperation between the Member States and the Commission within the framework of a committee;

Whereas the adoption at Community level of common technical specifications for direct satellite broadcasting of television programmes and their redistribution by cable corresponds to the measures recommended by the European Parliament in its Resolution of 12 March 1982, and by the Commission in its Communication to the Council of 14 June 1984, referred to as the "Green paper", concerning television without frontiers;

Whereas the Industry-Telecommunications Council meeting in Luxembourg on 3 June 1985 took a favourable view of the Communication of the Commission to the Council recommending the implementation of common technical specifications of the MAC/packet family,

HAS ADOPTED THIS DIRECTIVE:

Article 1

1. Member States shall use the systems forming part of the MAC/packet family; the list of the respective technical specifications established by the European Broadcasting Union (EBU) and the European manufacturers of the relevant branch represented by their associations is shown in the Annex, with an indication of the reference numbers and the dates of publication.
2. For the direct broadcasting by satellite of television programmes Member States shall exclusively use the C-MAC/packet system or the D2-MAC/packet system with frequency modulation.
3. For possible redistribution by cable of these programmes Member States shall use the D-MAC/packet system or the D2-MAC/-packet system with vertical-sideband amplitude modulation or, failing that, the systems already in use at the date on which this Directive is implemented, as mentioned in Article 5.
4. Member States shall select the system or systems of the MAC/packet family which is or are more appropriate to the present or future structure of their broadcasting or cable distribution networks and shall inform the Commission of their option.

Article 2

The amendments necessary to adapt Annex I in line with technical progress, drawn up by competent international organizations, shall be made in accordance with the procedure laid down in article 4.

Article 3

1. A committee on the adaptation to technical progress of the technical specifications related to the direct television transmission by satellite and the redistribution of programmes by cable (hereinafter called "the Committee") is hereby set up. It shall consist of representatives of the Member States with a representative of the Commission as chairman.
2. The Committee shall adopt its own rules of procedure.

Article 4

1. Where the procedure laid down in this Article is to be followed, matters shall be referred to the Committee by its chairman, either on his own initiative or at the request of the representative of a Member State.
2. The representative of the Commission shall submit to the Committee a draft of the measures to be adopted. The Committee shall deliver its opinion on the draft within a period which shall not exceed two months. Opinions shall be

I

(Acts whose publication is obligatory)

COUNCIL REGULATION (EEC) No 3300/86

of 27 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)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,

Having regard to Council Regulation (EEC) No 1787/84 of 19 June 1984 on the European Regional Development Fund⁽¹⁾, and in particular Article 7 (4) thereof,

Having regard to the proposal from the Commission⁽²⁾,

Having regard to the opinion of the European Parliament⁽³⁾,

Having regard to the opinion of the Economic and Social Committee⁽⁴⁾,

Whereas Article 7 of Regulation (EEC) No 1787/84, hereinafter referred to as the 'Fund Regulation', provides for participation by the Fund in Community programmes the purpose of which is to help in solving serious problems affecting the socio-economic situation in one or more regions and which are designed to provide a better link between the Community's objectives for the structural development or conversion of regions and the objectives of other Community policies;

Whereas Ireland, the Mezzogiorno, Northern Ireland, Corsica and the French overseas departments, the regions in Greece and in Portugal and certain regions in Spain have to contend with particularly serious economic problems; whereas the level of telecommunications services, especially of advanced services intended for the productive sector in those regions, is inadequate and whereas this shortcoming has an adverse effect on both their socio-economic situation and their development prospects;

Whereas on 29 and 30 March 1985 the European Council endorsed objectives aimed at strengthening the technological base and competitiveness of Community industry; whereas those objectives include 'achieving a break through in telecommunications'; whereas one of the lines of action adopted on 17 December 1984 by the Council in this field is designed to ensure 'improved access for less-favoured regions of the Community to the benefits of the development of advanced services and networks';

Whereas fuller integration of the least-favoured regions into telecommunications networks and appropriate use by them of advanced telecommunications services are necessary if they are to reduce the extent to which they lag behind in terms of economic development, since such services will reduce their isolation, will allow them to participate in the Community's technological breakthrough and will foster job creation;

Whereas use of advanced telecommunications services presupposes the establishment of the necessary infrastructures such as major links for the regions of the new networks, digitalization to promote more rapid introduction of integrated-services digital networks, the creation of additional capacities essential to the provision of advanced services notably in the field of high-speed data transmission, and the establishment and development of cellular radio infrastructures in a way compatible with the coordinated introduction of a future pan-European radio-telephony cellular digital system;

Whereas the establishment of modern telecommunications infrastructures must be accompanied by measures to promote the supply of, and the demand for, advanced services facilitating optimum use of those infrastructures; whereas such promotion includes aid for the preparation of regional or local programmes for the coordinated use of telecommunication systems, advisory and publicity measures, demonstration projects, aid for small and medium-sized enterprises in order to encourage them to use advanced systems and to promote their activities in the telecommunications fields, service centres, experimental tele-commuting projects and the development of regional specialized information services;

(1) OJ No L 169, 28. 6. 1984, p. 1.

(2) OJ No C 147, 14. 6. 1986, p. 4 and

OJ No C 194, 1. 8. 1986, p. 7.

(3) OJ No C 176, 14. 7. 1986, p. 189.

(4) OJ No C 263, 20. 10. 1986, p. 35.

Whereas the Member States concerned have communicated the necessary information to the Commission;

Whereas, by helping the least-favoured regions to exploit the new telecommunications potential, the Community programme contributes to the furtherance of both regional development objectives and the Community's objectives in the field of telecommunications; whereas the level of Community participation must, therefore, be the maximum permissible under the Fund Regulation and whereas, at the same time, the programme is given priority in the management of Fund resources;

Whereas Council Regulation (EEC) No 2615/80⁽¹⁾, as amended by Regulation (EEC) No 214/84⁽²⁾, and Regulation (EEC) No 215/84⁽³⁾ instituting specific Community measures contributing to the development of certain regions in the context of Community enlargement permit the financing of certain measures in the telecommunications field and whereas aid granted under those Regulations should not be combined with aid granted under this Community programme;

Whereas Community assistance must be provided in the form of multiannual programmes drawn up by the competent authorities in the Member States concerned; whereas, in order to ensure sound financial management of the Fund, Member States will need to transmit such assistance programmes to the Commission within a specific period following the entry into force of the Community programme; whereas it is for the Commission, in adopting those programmes, to ensure that the operations proposed therein are in keeping with this Regulation,

HAS ADOPTED THIS REGULATION:

Article 1

A Community programme within the meaning of Article 7 of the Fund Regulation is hereby established in order to contribute to the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services.

Article 2

The purpose of the Community programme shall be to contribute to strengthening the economic base in the regions concerned, to foster job creation and to help raise technological standards in those regions, by improving the supply of advanced telecommunications services and by integrating those regions into large telecommunications networks. To that end, the programme shall provide for the implementation in all the regions defined in

Article 3, and in the light of socio-economic needs, regional potential and long-term regional telecommunications requirements of a series of consistent, multiannual measures establishing modern telecommunications infrastructures and promoting the supply of, and the demand for, advanced telecommunications services.

The Community programme shall thereby seek to provide a better link between the Community's objectives for the structural development of regions and the objectives of Community telecommunications policy.

Article 3

1. The Community programme shall concern regions satisfying all the following conditions simultaneously:

- (a) a particularly difficult economic situation compared with the Community as a whole;
- (b) peripheral or insular geographical location;
- (c) inadequate supply of telecommunications services, notably advanced services for the productive sector;
- (d) as a general rule, eligibility under a national regional aid scheme.

2. The regions satisfying the conditions set out in paragraph 1 are:

- (a) in Spain:
 - the regions eligible for the national regional aid scheme as they will be determined by the Commission pursuant to Article 92 of the Treaty;
- (b) in France:
 - Corsica and the overseas departments;
- (c) in Greece:
 - all regions, except the nomos of Attica;
- (d) Ireland;
- (e) in Italy:
 - the regions and zones of the Mezzogiorno;
- (f) in Portugal:
 - all regions, except the Lisbon area;
- (g) in the United Kingdom:
 - Northern Ireland.

3. Exceptionally, the Community programme shall also apply to:

- the nomos of Attica and the Lisbon area in the case of operations provided for in Article 4,
- the autonomous community of Madrid, except the municipality of Madrid, in the case of both operations provided for in Article 4 (1)(a) and (c) and the feasibility studies relating to such operations pursuant to Article 4 (1) (f),

in so far as such operations are technically necessary for the consistency, continuity and full implementation of the Star programme as a whole.

⁽¹⁾ OJ No L 271, 15. 10. 1980, p. 1.

⁽²⁾ OJ No L 27, 31. 1. 1984, p. 1.

⁽³⁾ OJ No L 27, 31. 1. 1984, p. 5.

Article 4

The Fund may participate, under the Community programme, in the following operations:

1. Establishment of the basic equipment needed for advanced telecommunications services in order:

- (a) to integrate the less-favoured regions into the new advanced telecommunications networks being set up across the Community and to provide major telecommunication links. Investment projects may include land-based (including submarine) systems, notably those using optical fibres, and satellite systems;
- (b) to encourage digitalization with a view to more rapid introduction of integrated-services digital networks for firms and consumers.

Investment projects may include:

- introduction of signalling systems between switches essential for integrated-services digital networks,
- digitalization of transmission lines and switching centres, including installation of digital switches and additional work on local switches for the digitalization of links to final users,
- digitalization of links to final users,

with a view to carrying out the operations prior to the introduction of integrated-services digital networks:

- (c) to set in place and develop, pending the introduction of integrated-services digital networks, additional capacity essential to provision of advanced telecommunications services, notably in the field of data transmission. Investment projects may include establishment of the transmission lines and provision of equipment enabling the public to use the service, such as the establishment and development of packet switching networks, data bases and videotex access points, including the transformation of pilot schemes already financed by the Community into fully-operational systems;
- (d) to establish and develop cellular radio infrastructures in a way compatible with the coordinated introduction of a future pan-European radio-telephony cellular digital system;
- (e) to establish and develop laboratories to check and measure telecommunications material;

- (f) to carry out feasibility studies relating to the investment projects specified in (a) to (e).

2. Promotion of the supply of, and the demand for, advanced telecommunications services. The following operations shall be eligible under this heading:

- (a) preparation of local or regional programmes for the coordinated use of advanced telecommunications systems. This shall include technical and economic feasibility studies on the provision of new telecommunications services to users, notably small and medium-sized enterprises (SME) in the industrial and service sectors, including tourism; such studies shall take account of socio-economic development prospects and plans for the territories concerned;
- (b) measures to promote the use of advanced telecommunications services. Such measures shall include publicity and information campaigns aimed at making potential users aware of the existence and advantages of modern telecommunications services, either through conventional marketing channels or by way of seminars, courses and briefings. Priority shall be given to measures for SME, including those involved in the field of tourism and in other sectors with a high development potential;
- (c) measures to demonstrate, by means of specific integrated applications, the advantages of using advanced telecommunications services. Such measures shall include demonstration projects for SME, including those involved in the field of tourism and in other sectors with a high development potential;
- (d) aid to encourage individual SME or groups of SME to use advanced telecommunications services and to promote the introduction of new activities or the adaptation of existing activities in the field of telecommunications.

Such aid may take the form of:

- (i) expert studies on the potential economies to be achieved through greater use of advanced telecommunications services, including computerized services available via data-transmission networks;
- (ii) if the studies referred to in (i) so justify, equipment (such as terminals, modems, videotex servers and teletext message systems) giving users access to advanced telecommunications services;
- (iii) investment in new undertakings or to facilitate the adaptation of existing undertakings to market potential in the field of telecommunications goods and services.

- (e) establishment and development of telecommunications service centres, except in those of the main urban areas where such centres arise spontaneously, with a view to:
- (i) providing user services, in particular advanced data-transmission, videotex and videocommunication services, even in sparsely populated areas;
 - (ii) providing common services for two or more SME;
- (f) implementation of experimental distance working projects;
- (g) the provision of regional services using computerized telecommunications facilities in the sphere of specialized information, including information managed at Community level and of particular interest to certain users, notably SME, including those involved in the field of tourism.
- Article 5*
1. The Community programme shall be financed jointly by the Member State concerned and the Community. Assistance from the Fund, which may not exceed 55 % of the total public expenditure taken into account in the programme, shall be provided from the appropriations entered for this purpose in the general budget of the European Communities. The Community contribution shall be as follows:
- (1) Operations relating to the basic equipment referred to in Article 4 (1):
- (a) infrastructure investment projects, the cost of which is borne wholly or partly by public authorities or by any other body responsible, in the same way as a public authority, for the implementation of infrastructure projects: 55 % of the total cost borne by the public authorities or other comparable body;
 - (b) investment projects in the industrial, craft industry and service sectors: 50 % of the public expenditure resulting from the grant of investment aid;
 - (c) feasibility studies: either 70 % of their cost or 50 % of the public expenditure resulting from the granting of aid in respect of them.
- (2) Promotion of the supply of, and the demand for, advanced telecommunications services:
- (a) studies relating to the presentation of local or regional programmes referred to in Article 4 (2) (a): 50 % of public expenditure;
 - (b) measures to promote the use of advanced telecommunications services referred to in Article 4 (2) (b): aid covering 50 % of the cost of publicity and information campaigns;
 - (c) demonstration measures referred to in Article 4 (2) (c): 50 % of public expenditure;
 - (d) aid for SME referred to in Article 4 (2) (d):
 - (i) expert studies: either 70 % of their cost or 50 % of the public expenditure resulting from the granting of aid in respect of them;
 - (ii) equipment: 50 % of the public expenditure resulting from the grant of investment aid;
 - (iii) in the case of investment in industrial and telecommunications service activities: 50 % of the public expenditure arising from the granting of investment aid under the national regional aid scheme;
 - (e) establishment and development of telecommunications services centres referred to in Article 4 (2) (e):
 - (i) operations relating to user service centres:
 - 50 % of the public expenditure resulting from the granting of aid for equipment associated with telecommunications;
 - (ii) operations relating to common services:
 - 50 % of the public expenditure resulting from the granting of aid;
 - (f) implementation of experimental distance working projects referred to in Article 4 (2) (f):
 - (i) feasibility studies: either 70 % of their cost or 50 % of the public expenditure resulting from the granting of aid;
 - (ii) project implementation: 50 % of the public expenditure resulting from the granting of aid;
 - (g) provision of regional services in the sphere of specialized information referred to in Article 4 (2) (g): aid covering part of business expenditure on the development and operation of such services. The aid shall be degressive and shall be granted for three years. It shall cover 70 % of expenditure in the first year and shall not exceed 50 % of total expenditure over the three-year period.

2. As regards the Portuguese regions, the rates of the Fund's contribution provided for in paragraph 1 shall be increased until 31 December 1990 by 20 points, with a maximum rate of 70 %.

3. A Member State may request lower rates of contribution from the Fund than those provided for in paragraphs 1 and 2.

Article 6

1. All or part of the aid may be in the form of a capital grant or an interest subsidy

2. The following shall be eligible for Fund assistance in respect of operations referred to in Article 5: public authorities, local and regional authorities, other bodies, businesses, cooperatives or individuals.

3. (a) Aid granted under the Community programme shall not be combined with aid granted elsewhere in the Fund Regulation or in Regulations (EEC) No 2615/80 or (EEC) No 215/84.

(b) In addition, the aid referred to in Article 5 (1) point 2 (d), (e), (f) and (g) may not have the effect of reducing the share of expenditure met by recipient businesses to less than 20 % of total expenditure.

Article 7

All the operations referred to in Article 4 shall also satisfy the following:

— the Fund's contribution to the promotional measures provided for in Article 4 (2) may not be less than 15 % of the total contribution to the programme; the contribution from the Fund to the feasibility studies

referred to in Article 4 (2) (a) may not exceed 5 % of the total contribution to the programme; the contribution from the Fund to the production aid referred to in Article 4 (2) (d) (iii) may not exceed 5 % of the total contribution to the programme,

— the programme shall cover projects which are consistent with the Community's objectives regarding telecommunications and information technology standards, particularly in view of the progress made towards these objectives by the European Conference of Postal and Telecommunications Administrations (CEPT) and the European Committee for Standardization (CEN)/European Committee for Electrotechnical Standardization (Cenelec).

Article 8

1. The duration of the programme shall be five years from the date of entry into force of this Regulation.

2. The intervention programme shall be submitted to the Commission within six months of the entry into force of this Regulation: in exceptional circumstances the Commission may extend that period by one month.

Article 9

The amount of Fund assistance may not exceed the amount laid down by the Commission when adopting the programme agreement referred to in Article 13 (1) of the Fund Regulation.

Article 10

This Regulation shall enter into force on the day following its publication in the *Official Journal of the European Communities*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Luxembourg, 27 October 1986.

For the Council

The President

G. HOWE

COUNCIL DIRECTIVE

of 3 November 1986

on the adoption of common technical specifications of the MAC/packet family of standards for direct satellite television broadcasting

(86/529/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the European Parliament ⁽²⁾,

Having regard to the opinion of the Economic and Social Committee ⁽³⁾,

Whereas, in the near future, satellites for direct television broadcasting will be brought into service by several European countries and subsequently new television sets corresponding to public needs will be introduced by the manufacturers;

Whereas the use of common technical specifications for direct satellite broadcasting of television programmes and possibly for their redistribution by cable is necessary in order to attain the objectives set out hereafter;

Whereas the implementation of common technical specifications simplifies the broadcasting of television programmes in all countries of the Community and makes a significant contribution to European unification and to the development of a true European identity;

Whereas the technical capability to transmit simultaneously on several sound channels opens the way to truly pan-European multilingual television programmes;

Whereas the implementation of common technical specifications leads to the creation of a large unified market, on which products will be freely exchanged without any technical barriers, which will be of great economic benefit for the European consumer electronics industry as regards its competitiveness;

Whereas it is indispensable that a guarantee be given to manufacturers and operators in respect of their investments and supplies, by the application of common technical standards at Community level,

Whereas the European Broadcasting Union (EBU) and the European manufacturers of the relevant branch represented by their associations have perfected and published

technical specifications forming part of the MAC/packet family for the direct television broadcasting and the redistribution of programmes by cable; whereas these specifications have been confirmed at international level by the International Radio Consultative Committee (CCIR);

Whereas the MAC/packet family now includes:

- for direct satellite broadcasting: the system C-MAC/packet and the system D2-MAC/packet with frequency modulation,
- for cable distribution: the system D-MAC/packet and the system D2-MAC/packet;

Whereas these systems are very largely compatible with each other on the operational level;

Whereas these systems make it possible to meet the service and economic requirements in the different national contexts;

Whereas, in view of the foreseeable technical progress in this sector, account should now be taken of any subsequent developments of the existing systems and provision made for an eventual review of this Directive,

HAS ADOPTED THIS DIRECTIVE:

Article 1

For direct operational satellite television broadcasting, and subsequent redistribution by cable, Member States shall take all measures by law or administrative action to ensure the use of only the following systems:

- in the case of direct broadcasting by satellite of television programmes, the MAC/packet systems referred to in the first indent and note 2 of recommendation AE/650 of the CCIR entitled *Television standard for satellite broadcasting in the channels defined by WARC BS-77 and RARC SAT-83*, approved at the 16th plenary assembly at Dubrovnik, May 1986 (i.e. the C-MAC/packet system or the D2-MAC/packet system),
- in the case of redistribution by cable of these programmes, the MAC cable system corresponding to the satellite broadcasting system should be preferred. However, television redistribution by cable may continue to use existing techniques, conversion from the MAC/packet system used for the satellite broadcast link being made at the receiver terminal incorporated in the cable network.

⁽¹⁾ OJ No C 59, 14. 3. 1986, p. 3.

⁽²⁾ Opinion delivered on 22 October 1986 (not yet published in the Official Journal).

⁽³⁾ OJ No C 182, 28. 7. 1986, p. 4.

— any systems which evolve from those MAC/packet systems referred to in the first and second indent, which are subsequently defined by the European standardization bodies and/or the competent international bodies and which are operationally compatible with them.

Member States shall select the system or systems of the MAC/packet family which is or are more appropriate to the present or future structure of their direct broadcasting by satellite or cable distribution networks and shall inform the Commission of their selection.

Article 2

For the purposes of this Directive, direct broadcasting by satellite means a broadcasting satellite service as defined in the Radio Regulations of the International Telecommunications Union, i.e. using channels assigned to Member States in the 11,7 to 12,5 GHz band at the World Broadcasting Satellite Administrative Radio Conference

(Geneva 1977) and intended for display on 625 lines domestic TV receivers.

Article 3

This Directive shall apply until 31 December 1991 at the latest. The Commission is invited to submit to the Council, in advance of that date, proposals for measures to be adopted for the replacement of this Directive.

Article 4

This Directive is addressed to the Member States.

Done at Brussels, 3 November 1986.

For the Council

The President

A. CLARK.

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(86) 205 final

Brussels, 20 May 1986

Proposal for a

COUNCIL RECOMMENDATION

on the Coordinated Introduction of the Integrated Services Digital
Network (ISDN) in the European Community

(submitted to the Council by the Commission)

COM(86) 205 final

CONTENTS**A. SUMMARY****B. EXPLANATORY MEMORANDUM**

I) INTRODUCTION

II) TELEMATICS : ISDN, THE NEW MARKET BASE

III) CURRENT STATE IN THE COMMUNITY

IV) THE AIM OF THE PROPOSED RECOMMENDATION AND THE APPROACH
CHOSEN

V) CONCLUSIONS

Appendix : Glossary of technical terms

**C. DRAFT PROPOSAL FOR A COUNCIL RECOMMENDATION ON THE COORDINATED
INTRODUCTION OF THE INTEGRATED SERVICES DIGITAL NETWORK (ISDN) IN THE
EUROPEAN COMMUNITY**

A. SUMMARY

In accordance with one of the objectives approved by the Council of Ministers on 17 December 1984 (1), the Commission is proposing a Recommendation concerning the coordinated introduction of the Integrated Services Digital Network (*ISDN*). This Recommendation will make a substantial contribution to the establishment of advanced telecommunications services and networks, and represents a major step towards the general Integrated Broadband Communications (*IBC*).

The proposed Recommendation has two objectives :

- promoting the rapid introduction of *ISDN* as a basis for a Community-wide telematics market ;
- providing more certainty for European industry and for the European investors in the telematics field about future network support : interface specifications, services offered and their timing, and geographical coverage.

The proposed Recommendation will, through the rapid Community-wide promotion of advanced telecommunications services and networks, substantially benefit the European user, the European Telecommunications Administrations, and European industry. It will allow in particular also small and medium-sized enterprises to have access to the new telecommunications services, which would otherwise only be possible economically for large enterprises. It will prepare Europe for its integration into the emerging world-wide advanced telecommunications networks.

B. EXPLANATORY MEMORANDUM

I. INTRODUCTION :

On 17th December 1984, on the basis of a Communication from the Commission, the Council approved the main objectives of a Community telecommunications policy (1).

These were :

- (a) the creation of a Community market for telecommunications terminals and equipment ;
- (b) improving the development of advanced telecommunication services and networks ;
- (c) improved access for the less-favoured regions of the Community, through the appropriate use of Community financial instruments, to the benefit of the development of advanced services and networks ;
- (d) coordination of negotiating positions within the international organizations dealing with telecommunications, based on discussions held jointly with the Senior Officials Group for Telecommunications.

This draft Recommendation concerns the second objective. It is a major part of the overall concept of the Commission's short, medium, and long-term actions based on the six line Action Programme in the field of Telecommunications (1), aimed at ensuring that the Community, in its transition to the information age, will be equipped with efficient Community-wide telecommunications networks, services, and markets.

The technological efforts in telecommunications are covered by *RACE* (R&D in Advanced Communications technology for Europe). *RACE* has the specific long-term objective of accelerating the evolution towards economic integrated broadband services, aimed at ensuring that by 1995 the Community has truly Integrated Broadband Communications (*IBC*). The definition phase of *RACE* was decided by the Council on July 25th 1985 and will be completed by the end of 1986 (2).

The medium-term activities are focused, with a time horizon of 1990, on creating a network of broadband communications along the major communications arteries of Europe, using both optical fibres and satellites. This concept, commonly called the Transnational Broadband Backbone (*TBB*), will enable the business community, at least, to take advantage of the new services before the *IBC* is available Community-wide.

The short-term actions are directed towards areas where Europe has got itself, or is likely to get itself, into difficulties - for example mobile radio telephone, where currently a number of non-compatible systems co-exist in the Community ; TV broadcasting standards, where there is the need for a single standard ; and in particular the Integrated Services Digital Network, the *ISDN*, the subject of this draft Recommendation. The *ISDN* will play, in the years to come, the central role in telecommunications infrastructure evolution. Based on the on-going digitization of the telephone network, it offers the possibility of extending digital services using current technology through the existing telecommunications infrastructure, including the less favoured regions of the Community.

The Council has confirmed the central role of the *ISDN* in its Recommendation of 12.11.1984 on the introduction of services from 1985 "on the basis of a common harmonized approach" (3)

The European Parliament has emphasized the importance of the rapid development of advanced telecommunications infrastructure for the Community (4).

This draft Recommendation translates the determination expressed by both Council and Parliament into practice, for the field of the Integrated Services Digital Network.

11. TELEMATICS : ISDN, THE NEW MARKET BASE.

The Integrated Services Digital Network and its evolution into an Integrated Broadband Network will play a major role in shaping the new telematics market in the Community. It is therefore one of the major infrastructures needed to complete the establishment of the Internal Market by 1992, according to the general objective agreed by the European Council of Luxembourg of December 1985.

The development of telecommunications in the Community can be seen essentially as the development of three generations. First of all, there are the present telephone services which still account by far for the major part of the network operators' revenues. Secondly, the upgrading of the existing telecommuni

communications networks by integrating the whole range of new data services which have developed as specialised networks - the *ISDN*, with a basic user access of 144 kbit/s, allowing the simultaneous use of two 64 kbit/s (5) voice or data channels, and of an additional 16 kbit/s channel. Thirdly the emerging broadband networks at speeds of 2 Mbit/s and above, including cable TV systems.

ISDN, therefore, will be the main support for the multi-functional terminals for both voice and data, which will ensure both business and private communications. On a world-level, it is estimated that the integrated business information system market alone will account for more than US\$ 200 billion per annum by the early 1990s, with a market of at least 20% of this in the Community.

The central role of *ISDN* will therefore be to provide the necessary support of these new terminal systems and the services based on them. This role is essential for

supporting the private terminal markets which are developing in this area ;

the overall productivity of the Community's industrial and service sectors, by offering advanced telecommunications services to the European user

ISDN will be the most economical means for offering wide support to the new telematics market, because specialised data networks will not be able to develop the economies of scale and scope, necessary under European conditions. *ISDN* will be able, in the longer term, to evolve towards the wider Integrated Broadband Communications (*IBC*), the convergence point of general network evolution for the nineties.

Main requirements for the *ISDN* to provide the basis for the Community's future telematics markets are the following :

It should rapidly provide the basis for widespread development for the European telematics market. If the Community is not able to build up the basis for these new markets rapidly, European industry will not regain its position in this area with regard to the United States and Japan ,

- it must provide certainty for European industry and for the European private investor in the telematics field about future network support. This means certainty about the interface specifications, the services offered and the timing, and the degree of geographical coverage and therefore market size.

III. CURRENT STATE IN THE COMMUNITY

Given the central role of *ISDN*, and in agreement with the Action Programme in Telecommunications, confirmed by the Council on 17th December, 1984, the Senior Officials Group on Telecommunications (*SOG-T*) requested the Group for Analysis and Forecasting (*GAP*) (which it established for analysis of infrastructure evolution) to analyse *ISDN* as its first priority objective and to establish appropriate recommendations.

As regards the current state of affairs in the Community, the main findings of *GAP*, according to the presentation by each Member State of its plans for the introduction of *ISDN*, were the following (6) :

It is evident from the comparison of these plans that only the general concept of *ISDN* is common. In terms of dates for the introduction of new services, the specifications of the services, and specifications related to the network, there are significant differences from one country to another.

The general concept, the only point of overall commonality of these plans is that :

- the *ISDN* is considered to be a natural evolution of the existing telephone network, i.e. it should not be independent of the current telephone network but should support its progressive replacement. Throughout this phase, therefore, it should interwork with the current telephone network and with certain specialized networks ;

although the initial subscribers will be professionals - large and small - the *ISDN* should also be aimed at the residential population. Thus it should not be a network dedicated to a closed subscriber population ;

- the dates of introduction, however, are very different from one country to another. Certain countries are already launching experiments today ; others do not foresee the introduction of *ISDN* before the 1990s and others again not before the mid-1990s.

ISDN will offer a wide range of new services such as high quality telephony, high speed facsimilé, high speed teletex, combined use of voice and data, and a large number of sophisticated supplementary services such as indicating to an engaged subscriber that a new calling subscriber is trying to reach him ; indicating to a called user information from the calling user ; indicating to the user the call charged ; and so on. These new services will establish a new degree of quality of service for the subscriber. They will allow in particular also small and medium-sized enterprises to have access to new telecommunications services, which would otherwise only be possible economically for large enterprises.

However, the definition of new services made possible by *ISDN* is both complex and difficult. This definition should enable a certain degree of uniformity for Europeans in the usage of communications facilities. Today not one of the new services - so-called bearer and teleservices - which exploit the potential of *ISDN* is sufficiently well defined - not even the simplest of teleservices, the telephone.

The set of teleservices is not completely defined, and the associated specifications for these teleservices are by no means complete.

Even for the services offered over existing networks, compatibility is not always achieved. Under these conditions, the terminal markets would remain to a large extent national markets, since, without a sufficiently precise definition of teleservices and their specifications, each country or each manufacturer would complete the specifications in its own way.

ISDN depends on the introduction of certain technical features which must be established rapidly, in particular the "signalling system N° 7" which makes the setting up of calls and communication over the *ISDN* network possible.

The CCITT signalling system number 7 is the key operational aspect of *ISDN*. Here again the specification of the ISUP (*ISDN* User Part) protocols is not very advanced and indeed there are outstanding questions on its current structure. The present definition of the TUP (Telephone User Part) does not support *ISDN* applications (see Glossary for explanation of the technical terms).

For an intra-European terminal market, precise interfaces are indispensable, both between PABXs and terminals and between terminals and the public exchanges.

The lack of compatibility of terminals and networks presents specific problems to multi-national corporations who are expected to be among the first major users of national *ISDN* services.

Europe thus divided is faced by two other countries, the USA and Japan, whose interior markets are considerably larger than any national market in Europe. Under these conditions, Japan and the USA are able to reach a rapid consensus on definitions and on precise specifications with a relatively short delay. Europe could therefore find itself dominated through competitive market pressures by one of these countries with the inevitable import of products. A delayed reaction by Europe to such a scenario would do little to redress the commercial balance of this sector.

IV. THE AIM OF THE PROPOSED RECOMMENDATION AND THE APPROACH CHOSEN

This proposed Council Recommendation aims at changing this state of affairs.

The Recommendation is the result of in-depth discussion by the experts of the Telecommunications Administrations within the framework of *GAP*, and of thorough consultation with *SOG-T*. *GAP* has developed the detailed recommendations which form the substance of this Recommendation. The recommendations have been submitted to the Telecommunications Administrations, the CEPT and industry, and have achieved wide consensus.

The Recommendation aims at a common pro-active policy across the Community, by means of :

- precise interfaces, in particular between public networks and private local networks. This would entail total compatibility of terminals at a European level and enable, by cooperation between manufacturers, consolidation of terminal production, leading to much stronger economies of scale across a market comparable with, or indeed superior to, those of the United States and Japan ;
- a coordinated approach towards introduction, in particular as regards the timing of *ISDN*, using the opportunity to transform the current uncoordinated development of national *ISDNs* into a Community-wide approach. Moreover, if the tight development timescales are adhered to and the standards defined, then the associated European equipment could be successful in export markets.
- European-wide coverage and sufficient penetration of the new services, as a basis for a Community-wide market. Within this coordinated approach, it is necessary to reach a critical mass of subscribers before a totally demand-driven policy can be followed. This critical mass is proposed to be about 5% of the 1983 telephone subscriber population in each country. The earliest practical starting date for this implementation is 1988 and the minimum period to achieve the critical mass in all countries is estimated to be five years; Thus it is essential that a full and complete specification by CEPT of the first standards and the first services to be introduced is achieved at the latest by the end of 1986.

These choices at a European level are very important to the establishment of significant European cohesion. Consideration must be given, on the one hand, to the development of service networks and terminals, which meet the expectations and demands of users and, on the other, to the possibility of providing implementations at reasonable costs and prices across the whole of the European networks.

It should be noted that the level of investment required for this approach is compatible with, and in some cases below that which is in any case announced by certain Member States for *ISDN* introduction. Nevertheless, given the total necessary amount of investment by the Telecommunications Administrations

for implementation of *ISDN*, estimated overall at 6 to 7 billion ECUs in the Community up to 1993 (additional to the investment for digitising the telephone networks), it will be important that the Community's financial instruments will play their full role for the establishment of this major Community infrastructure.

As regards certain less favoured regions of the Community, a special contribution to this effort will be made by the Programme *STAR*, proposed by the Commission to Council (7), in accordance with the agreed objective of improved access for the less favoured regions of the Community to advanced services and networks (1).

As an accompanying measure, the Commission intends to raise Community-wide awareness for the new potential, in particular in the business and private sector, by sponsoring continuing programmes of information dissemination relating to the development of *ISDN* services and standards. Given the very tight time schedule for the full specification of services and standards, the Commission proposes to provide for support of the work of the Telecommunications Administrations within the CEPT, within the framework of its agreement on the carrying out of work by this organisation signed in July 1984. As regards the timely development of *ISDN* compatible terminals, the Commission will study the situation and propose measures as appropriate.

The Telecommunications Administrations and the telecommunications industry have positively responded to the analysis and recommendations. The way seems now open for a smooth European-wide introduction of *ISDN* offering rapidly advanced telecommunications services and networks to the European user. For its part, the Commission will, besides the application of the Community measures relevant to the sector, take all useful steps, in order that the present Recommendation be applied in all respects and will be followed, as required, by additional appropriate proposals.

V. CONCLUSIONS

The attached Proposal aims at the Coordinated Introduction of the Integrated Services Digital Network (*ISDN*) in the Community. It aims at substantially improving the development of advanced telecommunications services and networks, as recommended by the Council in its Decision of 17th December, 1984. The Commission has carried out a detailed analysis and work on the subject of the European Telecommunications (*SOG-T*), and has prepared GAT, the Council has therefore requested to adopt the attached Proposal for a Recommendation.

FOOTNOTES

-
- (1) See conclusions of the Council of 17th December 1984 (ref/ 11477/84) and Communication by the Commission to the Council on telecommunications of 18.5.1984 [COM(84)277].
- (2) See COM(85)145, 25.3.1985 and COM(85)113, 25.3.1985.
For a review of the status of Community action on telecommunications, see COM(85)276, 30.5.1985.
- (3) O.J. N° L 298/49, 16.11.1984
- (4) Report of the European Parliament on Telecommunications in the Community (Leonardi Report), Doc 1-1477/3, 3.3.1984.
- (5) 64 kbit/s is the transmission speed of a digitized voice channel, the digital equivalent of the current telephone line.
- (6) Proposals by the Analysis and Forecasting Group (GAP) for the Coordinated Introduction of Integrated Services Digital Network in the Community, 5.6.1985
- (7) Proposal for a Council Regulation (EEC) instituting a Community programme for the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services (STAR programme), COM(85)836, 20.1.1986.

APPENDIXGlossary of technical terms

The following list of technical terms is included for better understanding of the Recommendation.

Addressing	The process by which a calling user indicates the identity of the called user on a particular call. It includes a network addressing (numbering) component to identify the called user-network interface, and may include further information (sub-address) to identify a particular terminal beyond the public network
Advice of charge	Indicates to the user the call charge
Bearer Service	A type of telecommunications service that provides the capability for the transmission of signals between user network interfaces
Call-Waiting	Indicates to an engaged subscriber that a new calling subscriber tries to reach him
Called User Identification	Indicates the identification of the selected called user.
Calling line Identification	Indicates the identification of the calling user line
Closed User Group	Part of the users of a network who form a special group for taxation, numbering, facilities, etc...
Completion of call Meeting busy	When the called subscriber is busy, the call is re-established as soon as this subscriber becomes free
Conference call	Call involving more than two subscribers
Direct dialling in	Possibility to integrate the numbering plan of a PABX in the national plan, allowing to reach from the public network directly a terminal connected to this PABX

Diversion	Possibility for a subscriber to be called on another line than his own line
Freephone	Subscribers for which, when called, the calling subscriber is not charged
ISUP	<i>ISDN</i> User Part = part of the N° 7 signalling systems allowing <i>ISDN</i> facilities
Malicious Call Identification	Possibility to register the calling line of a call
Numbering	see "Addressing"
PSTN	Public Switched Telephone Network
SCCP	Signalling Connection Control Part (Part of the N° 7 signalling system allowing transmission of signalling or other information independently of the establishment of a telephone call)
Signalling system N°7	The new CCITT system allowing two switching centers to exchange information, e.g. information needed for establishing a telephone call
S/T reference point	Possible location of access for Bearer Services supported by an <i>ISDN</i> . If physical, the corresponding interface may have mainly the following structures : <ul style="list-style-type: none"> - basic interface structure at 144 kbit/s (basic access, available at S or T reference point) : 2x 64 kbit/s "B" channels and 1 x 16 kbit/s "D" channel. In some configurations, S and T reference points are joined. - primary interface structure at 2048 kbit/s (primary access, only available at T reference point) : 30 x 64 kbit/s "B" channels and 1 x 64 kbit/s "D" channel
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 Telecommunications Administrations
TCAP	Transaction capability = Part of the N° 7 signalling system allowing the remote control of a network node from an appropriate control center
Three party call	State of a call involving 3 lines
TUP	Telephone User Part = Part of the N° 7 signalling system allowing the current telephone services

PROPOSAL FOR A COUNCIL RECOMMENDATION

on the coordinated introduction of the

Integrated Services Digital Network (ISDN)

in the European Community

Proposal for a
COUNCIL RECOMMENDATION

on the Coordinated Introduction of the Integrated Services Digital
Network (ISDN) in the European Community

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,

Having regard to the proposal from the Commission,

Having regard to the Opinion of the European Parliament¹,

Having regard to the Opinion of the Economic and Social Committee²,

Whereas the Council Recommendation 84/549/EEC⁽³⁾ calls for the
introduction of services on the basis of a common harmonized approach in the
field of telecommunications³,

1/

2/

3/ OJ N° L 298, 16.11.1984, p. 49

Whereas the resources offered by the telecommunications networks should be utilized to the full for the economic development of the Community ;

Whereas the technical resources afforded by the Integrated Services Digital Network (ISDN) make it possible to provide a range of harmonized and compatible services for all Community users and to create new means of communication using sound, the written word and images ;

Whereas current investment in digital switching and digital transmission equipment in the Member States makes it possible to envisage the development of the Integrated Services Digital Network ;

Whereas a coordinated policy for the introduction of the ISDN will make possible the establishment of a European market in telephone and data-processing terminals capable of creating, by virtue of its size, the indispensable development conditions which will enable the European telecommunications industries to maintain and increase their share of world markets ;

Whereas it is appropriate to implement Council Directive 83/189/EEC⁽⁴⁾ laying down a procedure for the provision of information in the field of technical standards and regulations ;

Whereas consideration should be given to the proposals for directives made by the Commission on standardization in the field of information technology and telecommunications and on the first phase of the establishment of mutual recognition of type approval for telecommunications terminal equipment, and to any later proposal for directives that it may take ;

Whereas it is appropriate to make full use of the potential of the Community's financial instruments in order to promote the development of the Member States' infrastructure ;

⁴OJ No L 109, 26.4.1983, p. 8

Whereas the implementation of such a policy will lead to closer cooperation, at Community level, between the telecommunications industry and the Administrations and the Recognized Private Operating Agencies offering telecommunications services, hereinafter referred to as "Telecommunications Administrations";

Whereas a favourable opinion has been delivered by the Senior Officials Group on Telecommunications (SOGT) according to which the detailed recommendations drawn up by the Analysis and Forecasting Group (GAP) provide a strategic basis for the development of an ISDN that will truly enable European users to communicate efficiently and economically ;

Whereas favourable opinions on these recommendations have been delivered by the Telecommunications Administrations, by the European Conference of Postal and Telecommunications Administrations (CEPT) and by the telecommunications equipment manufacturers in the Member States ;

HEREBY RECOMMENDS

1. That the Telecommunications Administrations implement the detailed recommendations concerning the coordinated introduction of the Integrated Services Digital Network (ISDN) in the Community, as described in the Annex.
2. That implementation of these recommendations focuses particularly on :
 - a) standardization and implementation of the S/T interface,
 - b) the time table set out,
 - c) the network penetration objectives, as compatible with commercial strategies,

3. That the Telecommunications Administrations continue the harmonization work within the European Conference of Postal and Telecommunications Administrations (CEPT), particularly concerning the objectives and time table drawn up in the Annex for those specifications on ISDN which have still to be completed.
4. That the Telecommunications Administrations undertake all those measures which will facilitate the coordinated introduction of the ISDN, particularly those relating to implementation of CEPT specifications in equipments concerned by ISDN.
5. That the Community financial instruments take this Recommendation into account within the framework of their interventions, particularly as regards the investment required for ISDN implementation .
6. That Member State Governments encourage Telecommunications Administrations to implement this Recommendation.
7. That Member State Governments inform the Commission at the end of each year, from the end of 1986, of the measures taken and problems which may be encountered in the course of implementing this Recommendation. The progress of work will be examined by the Commission and the Senior Officials Group on Telecommunications set up by the Council on 4 November 1983.

Done at Brussels,

for the Council,

The President

ANNEX TO THE RECOMMENDATION

DETAILED RECOMMENDATIONS CONCERNING THE COORDINATED INTRODUCTION
OF THE INTEGRATED SERVICES DIGITAL NETWORK (ISDN) IN THE COMMUNITY

TABLE OF CONTENTS

1. Recommendations established for the rapid convergence of European activity on the introduction of ISDN.
2. Services to be defined and specified in detail by the end of 1986 in order to be provided in all Member States starting from 1988.
3. Services to be specified by the end of 1987 and which might be implemented during the period 1988-1993.
4. Services to be specified by the end of 1990.
5. Numbering, addressing and signalling.
6. Tariff considerations.
7. Interworking between national ISDN trials.
8. Level of penetration.

**1. RECOMMENDATIONS ESTABLISHED FOR THE RAPID CONVERGENCE OF EUROPEAN
ACTIVITY ON THE INTRODUCTION OF ISDN.**

All the following recommendations are related and should not be dissociated.

1.1. General Philosophy -

All Member States are in agreement that ISDN (subscriber access at 144Kbit/s and 2 Mbit/s) should be considered as a natural evolution of the telephone network, i.e. it should be used by both professional and residential subscribers, and the existing structure of the current telephone network should not be fundamentally changed by this evolution. The first decisions must take this into account.

Nevertheless, the speed of market penetration will depend on numerous economic, social and cultural factors and of course, on the impact of the network itself, i.e. the dissemination or actual penetration of the new services at any point in time.

It is clear that in all Member States, the professional sector has significantly greater expectations and requirements for the services than the residential sector.

The professional sector will be penetrated through the supply of multiservice PABXs and of ISDN accesses. In this sector, a major submission is that the terminals connected to ISDN basic access and behind the PABXs should also be compatible, which necessitates the use of a common standard for both public and private networks.

A significant demand from the residential sector will only develop following a sustained policy of anticipated supply launched over such a period as to attain a critical mass of new service penetration and thus creating in effect a "snowball" reaction.

This policy should be supported by marketing and tariffing activities to help stimulate demand.

1.2. Definition of the interface between the public and private network

A standard physical interface between ISDN terminals and the public network is recommended.

This should be at the CCITT S or T reference point and should be in accordance with CCITT and CEPT recommendations.

In the case of basic access (i.e. 144Kbit/s) the physical interfaces at the S and T reference points must be identical.

This terminal interface should also be offered by PABX manufacturers so that common design of terminals can be achieved.

The above statements imply that for basic access at least the NT1 function is provided by the public network operator.

Agreement is urgently needed between Telecommunications Administrations, within the framework of CEPT, on a standard physical interface at the T reference point for primary rate access (i.e. 2048Kbit/s).

Clearly, during a transitional phase of several years PABX multiservices will use different standards but as soon as possible these PABXs ought to be able to offer, in addition to these standards, the S Interface. The manufacturers's representatives consulted were in agreement on this point.

2. SERVICES TO BE DEFINED AND SPECIFIED IN DETAIL BY THE END OF 1986 IN ORDER TO BE PROVIDED IN ALL MEMBER STATES STARTING FROM 1988.

The following items will have to be specified in detail at the latest by the end of 1986.

a) Bearer services -

Circuit switched transparent at 64kbit/s ;

b) Teleservices

- Telephony 3.1. KHz at 64Kbit/s ;
- Facsimile at 64Kbit/s (Group IV) ;
- Teletex at 64Kbit/s ;
- Mixed-mode teletex/facsimile at 64Kbit/s.

c) Supplementary services -

In order to enhance the services, a common set of supplementary services among the Member States should be implemented.

These supplementary services are intended to be added to those already available in the telephone network and to those inherent in the definition of ISDN protocols. (Procedures for sub-addressing, terminal portability, user to user signalling in call control messages have to be specified, although their implementation is foreseen at a later stage).

The Telecommunications Administrations are invited to establish within the framework of CEPT the following set :

- call-waiting
- calling-line identification
- closed-user-group (this service might be implemented later by some countries)
- direct-dialling-in

- d) Adaptors (for connection of existing terminals to the ISDN via the S interface)
- adaptor X21
 - adaptor X25 on the B channel (for access to packet switched services)
 - A/D adaptor specified according to national needs

Note 1 - Special attention should be given to the definition of personal computer use on the bearer service at 64Kbit/s.

Note 2 - Special attention should be given to compatibility between circuit switched and packet switched services, where compatibility may be realised in the terminal or in the network.

5. SERVICES TO BE SPECIFIED BY THE END OF 1987 AND WHICH MIGHT BE IMPLEMENTED DURING THE PERIOD 1988-1993.

(THE PRECISE DATE OF INTRODUCTION OF SUCH SERVICES WILL BE DECIDED AS SOON AS POSSIBLE).

a) Bearer Service -

Packet bearer service on D channel

The Telecommunications Administrations are invited to study within the framework of CEPT the usefulness of teleservices in particular videotex, teletex, message handling and teleaction on packet bearer service.

b) Teleservices at 64Kbit/s -

In order to augment demand, the following list of teleservices should be considered with priority :

- Telephony (7KHz) at 64Kbit/s
- Audioconference at 64Kbit/s
- Videotex alpheometric at 64Kit/s
- Image transmission and computer communication at 64Kbit/s. For these two teleservices, the Telecommunications Administrations are asked to identify within the framework of CEPT possible services and produce detailed specifications of first services.

c) Adaptors

- X21 bis
- for asynchronous terminals (V24)

d) Supplementary services

The Telecommunications Administrations are invited to study within the framework of CEPT, by the end of 1987, the following list of supplementary services based on CEPT's own list.

Advice of charge

Completion of call meeting busy

Conference call

Diversion

Freephone

Malicious call identification

Three party call

Called user identification

Note The provision of these supplementary services assumes the availability of an ISUP. Should the ISUP not be available, their provision via the TUP+ may be restricted.

4. SERVICES TO BE SPECIFIED BY THE END OF 1990

- a) Teleservices based on packet service
(If the Telecommunications Administrations agree on the need to specify such packet-services, ref. to par. 3.a)
- Teletex
 - Videotex
 - Message handling (see CCITT rec. X400)
 - Teleaction, set of services providing to the users a reliable transfer of small volumes of packet-sized information.
This service may be adapted to several teleservices : telealarm, telesupervision, telealert, telecommand, telemetry, desktopping, ...
- b) Teleservices based on 64Kbit/s
- Audiography at 64Kbit/s
 - Alphaphotographic videotex at 64Kbit/s
 - If possible, viewphone at 64Kbit/s
- c) Supplementary services -
work to be continued

5. NUMBERING, ADDRESSING AND SIGNALLING -

The achievement of the full CEPT specifications on ISDN user part (ISUP), Signalling Connection Control Part (SCCP) and Transaction Capabilities (TCAP) is recommended to the Telecommunications Administrations in order to reach a common standard within Europe at the earliest opportunity.

As an interim solution, it is recommended to all Telecommunications Administrations that, starting from 1988 and when CCITT n0 7 is introduced, international digital exchanges (linked by digital circuits or possibly also by analogue circuits) should be interconnected by means of the enhanced Telephone User Part (TUP+) for both PSTN and ISDN services.

The Telecommunications Administrations should provide within the framework of CEPT detailed technical specifications on TUP+ by the end of 1986.

It is required that interworking with the existing public telephone network is also achieved, including some means for identifying different teleservices and terminals.

Note - The TUP+ is based on the Red Book TUP of CCITT enhanced to meet ISDN requirements, including the supplementary services hereabove.

6. TARIFF CONSIDERATIONS -

The issue of tariff levels and structures for the ISDN is fundamental for its rapid take-up

In the longer term, following an inevitable period of high investment costs, the level of investment per basic access should be comparable with that of the current telephone network, with an investment structure related to the type of transmission and digital switching which may be different from that of today.

Several studies on ISDN tariffs have still to be completed. The Telecommunications Administrations are invited to study within the framework of CEPT the following proposals.

- In accordance with current trends, tariffs for all services, including telephony, should be less dependant on distance than at present (always bearing in mind the problems of transit costs through other countries)
- In the transitional phase from the analogue network to the ISDN corresponding to the period 1988-1993, the Telecommunications Administrations are requested to study within CEPT the relationship between, on the one hand, the tariff threshold applicable to ISDN services and to ISDN basic access and, on the other, tariffs applicable to telephony.
- Tariffs for teleservices which use the same bearer capabilities should be independent of the teleservice. On the contrary, all value added by the network should be charged independently of the utilisation of the bearer capabilities.
- An agreement should be obtained on the ratio between the monthly rental for the primary rate access (2048Kbit/s) and that for the basic access (144Kbit/s).
A ratio of the order of 10 might be discussed.

7. INTERWORKING BETWEEN NATIONAL ISDN TRIALS -

Those Administrations implementing national trials of ISDN before the full implementation of the present recommendations should endeavour, where provided, to interconnect these services in order to increase early experience of ISDN in Europe.

8. LEVEL OF PENETRATION -

Forecasts of demand in new fields, such as the services supported by ISDN, do not provide a particularly relevant basis for market planning.

Nevertheless, it is realistic to set objectives attainable over the next 8 years, i.e. up to the end of 1993, for a level of penetration of ISDN which permits the market for services and terminals to reach a mature phase.

The objective should be for an adequate geographic coverage and rate of penetration at national level for each country.

The Administrations should plan to provide by 1993 ISDN accesses for a number equivalent to 5 % of 1983 subscriber main lines. This figure depends, among other things, on the capability of the industry to offer cost effective ISDN solutions for the infrastructure and the terminal equipments.

The territorial coverage should be sufficient to permit 80 % of customers to have the option of the ISDN access.

COUNCIL RECOMMENDATION

of 22 December 1986

on the coordinated introduction of the integrated services digital network (ISDN) in the European Community

(86/659/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the European Parliament ⁽²⁾,

Having regard to the opinion of the Economic and Social Committee ⁽³⁾,

Whereas recommendation 84/549/EEC ⁽⁴⁾ calls for the introduction of services on the basis of a common harmonized approach in the field of telecommunications;

Whereas the resources offered by the telecommunications networks should be utilized to the full to maintain the Community's worldwide competitiveness in the light of the rapid pace of development in the telecommunications sector;

Whereas the technical resources afforded by the integrated services digital network (ISDN) make it possible to provide a range of harmonized and compatible services for all Community users and to create new means of communication using sound, the written word and images;

Whereas current investment in digital switching and digital transmission equipment in the Member States makes it possible to envisage the development of the integrated services digital network;

Whereas a coordinated policy for the introduction of the ISDN will make possible the establishment of a European market in telephone and data-processing terminals capable of creating, by virtue of its size, the indispensable development conditions which will enable the European telecommunications industries to maintain and increase their share of world markets;

Whereas it is appropriate to implement Council Directive 84/189/EEC of 28 March 1984 laying down a procedure for the provision of information in the field of technical standards and regulations ⁽⁵⁾;

Whereas consideration should be given to Council Directive 86/361/EEC of 24 July 1986 on the initial stage of the

⁽¹⁾ OJ No C 157, 24. 6. 1986, p. 3.

⁽²⁾ Opinion delivered on 12 December 1986 (not yet published in the Official Journal).

⁽³⁾ Opinion delivered on 17 September 1986 (not yet published in the Official Journal).

⁽⁴⁾ OJ No L 298, 16. 11. 1984, p. 49.

⁽⁵⁾ OJ No L 109, 26. 4. 1983, p. 8.

mutual recognition of type approval for telecommunications terminal equipment ⁽⁶⁾ and to Council Regulation (EEC) No 3300/86 of 27 October 1986 instituting a Community programme for the development of certain less-favoured regions of the Community by improving access to advanced telecommunications (STAR programme) ⁽⁷⁾;

Whereas it is appropriate to make use of the potential of the Community's financial instruments in order to promote the development of the Member States' infrastructure;

Whereas the implementation of such policy should pay proper attention to user privacy protection;

Whereas the implementation of such a policy will lead to closer cooperation, at Community level, between the telecommunications industry and the administrations and the recognized private operating agencies offering telecommunications services, hereinafter referred to as 'telecommunications administrations';

Whereas a favourable opinion has been delivered by the senior officials group on telecommunications (SOGT) according to which the detailed recommendations drawn up by the analysis and forecasting group (GAP) provide a strategic basis for the development of an ISDN that will truly enable European users to communicate efficiently and economically;

Whereas favourable opinions on these recommendations have been delivered by the telecommunications administrations, by the European Conference of Postal and Telecommunications Administrations (CEPT) and by the telecommunications equipment manufacturers in the Member States,

HEREBY RECOMMENDS:

1. that the telecommunications administrations implement the detailed recommendations concerning the coordinated introduction of the integrated services digital network (ISDN) in the Community, as described in the Annex;
2. that implementation of these recommendations focuses particularly on:
 - (a) standardization and implementation of the S/T interface;
 - (b) the timetable set out;
 - (c) the network-penetration objectives, as compatible with commercial strategies;

⁽⁶⁾ OJ No L 217, 5. 8. 1986, p. 21.

⁽⁷⁾ OJ No L 305, 30. 10. 1986, p. 1.

3. that the telecommunications administrations continue the harmonization work within the CEPT, particularly concerning the objectives and timetable drawn up in the Annex for those specifications on ISDN which have still to be completed;
4. that the telecommunications administrations undertake all those measures which will facilitate the coordinated introduction of the ISDN, particularly those relating to implementation of CEPT specifications in equipment concerned by ISDN;
5. that the Community financial instruments take this recommendation into account within the framework of their interventions, particularly as regards the investment required for ISDN implementation;
6. the Member State Governments encourage telecommunications administrations to implement this recommendation;
7. that Member State Governments inform the Commission at the end of each year, from the end of 1987, of the measures taken and problems which may be encountered in the course of implementing this recommendation. The progress of work will be actively examined by the Commission and the SOGT set up by the Council on 4 November 1983 in order to ascertain whether the priorities and the implementation of the programme as a whole is satisfactorily achieved. The progress of work will be the subject of an annual report from the Commission to the European Parliament.

Done at Brussels, 22 December 1986.

For the Council
The President
G. SHAW

ANNEX

DETAILED RECOMMENDATIONS CONCERNING THE COORDINATED INTRODUCTION OF THE INTEGRATED SERVICES DIGITAL NETWORK (ISDN) IN THE COMMUNITY

1 RECOMMENDATIONS ESTABLISHED FOR THE RAPID CONVERGENCE OF EUROPEAN ACTIVITY ON THE INTRODUCTION OF ISDN

All the following recommendations are related and should not be dissociated.

1.1. General philosophy

All Member States are in agreement that ISDN (subscriber access at 144 Kbit/s and 2 Mbit/s) should be considered as a natural evolution of the telephone network, i.e. it should be used by both professional and residential subscribers and the existing structure of the current telephone network should not be fundamentally changed by this evolution. The first decisions must take this into account.

Nevertheless, the speed of market penetration will depend on numerous economic, social and cultural factors and of course, on the impact of the network itself, i.e. the dissemination or actual penetration of the new services at any point in time.

It is clear that in all Member States, the professional sector has significantly greater expectations and requirements for the services than the residential sector.

The professional sector will be penetrated through the supply of multiservice PABXs and of ISDN accesses. In this sector, a major submission is that the terminals connected to ISDN basic access and behind the PABXs should also be compatible, which necessitates the use of a common standard for both public and private networks.

A significant demand from the residential sector will only develop following a sustained policy of anticipated supply launched over such a period as to attain a critical mass of new service penetration and thus creating in effect a 'snowball' reaction.

This policy should be supported by marketing and tariffing activities to help stimulate demand.

1.2. Definition of the interface between the public and private network

A standard physical interface between ISDN terminals and the public network is recommended.

This should be at the CCITT S or T reference point and should be in accordance with CCITT and CEPT recommendations.

In the case of basic access (i.e. 144 Kbit/s) the physical interfaces at the S and T reference points must be identical. This terminal interface should also be offered by PABX manufacturers so that common design of terminals can be achieved.

The above statements imply that for basic access at least the NT1 function is provided by the public network operator.

Agreement is urgently needed between telecommunications administrations, within the framework of CEPT, on a standard physical interface at the T reference point for primary rate access (i.e. 2048 Kbit/s).

Clearly, during a transitional phase of several years PABX multiservices will use different standards but as soon as possible these PABXs ought to be able to offer, in addition to these standards, the S interface. The manufacturers's representatives consulted were in agreement on this point.

2. SERVICES TO BE DEFINED AND SPECIFIED IN DETAIL BY THE END OF 1986 IN ORDER TO BE PROVIDED IN ALL MEMBER STATES STARTING FROM 1988

The following items will have to be specified in detail at the latest by the end of 1986.

(a) *Bearer services*

Circuit switched transparent at 64 Kbit/s;

(b) *Teleservices*

— Telephony 3,1 kHz at 64 Kbit/s,

— Facsimile at 64 Kbit/s (Group IV),

- Teletex at 64 Kbit/s,
- Mixed-mode teletex/facsimile at 64 Kbit/s.

(c) *Supplementary services*

In order to enhance the services, a common set of supplementary services among the Member States should be implemented. These supplementary services are intended to be added to those already available in the telephone network and to those inherent in the definition of ISDN protocols. (Procedures for subaddressing, terminal portability, user to user signalling in call control messages have to be specified, although their implementation is foreseen at a later stage.)

The telecommunications administrations are invited to establish, within the framework of CEPT, the following supplementary services:

- call-waiting,
- calling-line identification,
- closed-user-group (this service might be implemented later by some countries),
- direct-dialling-in.

(d) *Adaptors (for connection of existing terminals to the ISDN via the S interface)*

- adaptor X 21,
- adaptor X 25 on the B channel (for access to packet switched services),
- A/D adaptor specified according to national needs.

Note 1

Special attention should be given to the definition of personal computer use on the bearer service at 64 Kbit/s.

Note 2

Special attention should be given to compatibility between circuit switched and packet switched services, where compatibility may be realized in the terminal or in the network.

3. SERVICES TO BE SPECIFIED BY THE END OF 1987 AND WHICH MIGHT BE IMPLEMENTED DURING THE PERIOD 1988 to 1993

(The precise date of introduction of such services will be decided as soon as possible.)

(a) *Bearer service*

Packet bearer service on D channel

The telecommunications administrations are invited to study within the framework of CEPT the usefulness of teleservices, in particular videotex, teletex, message handling and teleaction on packet bearer service.

(b) *Teleservices at 64 Kbit/s*

In order to augment demand, the following list of teleservices should be considered with priority:

- Telephony (7 kHz at 64 Kbit/s),
- Audioconference at 64 Kbit/s,
- Videotex alphageometric at 64 Kbit/s,
- Image transmission and computer communication at 64 Kbit/s. For these two teleservices, the telecommunications administrations are asked to identify, within the framework of CEPT, possible services and produce detailed specifications of first services.

(c) *Adaptors*

- X 21 bis,
- for asynchronous terminals (V 24).

(d) *Supplementary services*

The telecommunications administrations are invited to study, within the framework of CEPT, by the end of 1987, the following list of supplementary services based on CEPT's own list.

- Advice of charge,
- Completion of call meeting busy,

- Conference call,
- Diversion,
- Freephone,
- Malicious call identification,
- Three party call,
- Called user identification.

Note

The provision of these supplementary services assumes the availability of an ISDN user part (ISUP). Should the ISUP not be available, their provision via the telephone user part (TUP)+ may be restricted.

4. SERVICES TO BE SPECIFIED BY THE END OF 1990

(a) *Teleservices based on packet service*

(If the telecommunications administrations agree on the need to specify such packet services, referred to in paragraph 3 (a).

- Teletex,
- Videotex,
- Message handling (see CCITT recommendation X 400,
- Teleaction, set of services providing to the users a reliable transfer of small volumens of packed-sized information. This service may be adapted to several teleservices: tele-alarm, telesupervision, tele-alert, telecommand, telemetry, teleshopping, etc.

(b) *Teleservices based on 64 Kbit/s*

- Audiography at 64 Kbit/s,
- Alphaphotographic videotex at 64 Kbit/s,
- If possible, viewphone at 64 Kbit/s.

(c) *Supplementary services*

Work to be continued.

5. NUMBERING, ADDRESSING AND SIGNALLING

The achievement of the full CEPT specifications on ISUP, signalling connection control part (SCCP) and transaction capabilities (TCAP) is recommended to the telecommunications administrations in order to reach a common standard within Europe at the earliest opportunity.

As an interim solution, it is recommended to all telecommunications administrations that, starting from 1988 and when CCITT No 7 is introduced, international digital exchanges (linked by digital circuits or possibly also by analogue circuits) should be interconnected by means of the enhanced telephone user part (TUP+) for both PSTN and ISDN services.

The telecommunication administrations should provide within the framework of CEPT detailed technical specifications on TUP+ by the end of 1986.

It is required that interworking with the existing public telephone network is also achieved, including some means for identifying different teleservices and terminals.

Note

The TUP+ is based on the red book TUP of CCITT enhanced to meet ISDN requirements, including the supplementary services hereabove.

6. TARIFF CONSIDERATIONS

The issue of tariff levels and structures for the ISDN is fundamental for its rapid take-up.

In the longer term, following an inevitable period of high investment costs, the level of investment per basic access should be comparable with that of the current telephone network, with an investment structure related to the type of transmission and digital switching which may be different from that of today.

Several studies on ISDN tariffs have still to be completed. The telecommunications administrations are invited to study within the framework of CEPT the following proposals:

- In accordance with current trends, tariffs for all services, including telephony, should be less dependant on distance than at present (always bearing in mind the problems of transit costs through other countries).
- In the transitional phase from the analogue network to the ISDN corresponding to the period 1988 to 1993, the telecommunications administrations are requested to study within CEPT the relationship between, on the one hand, the tariff threshold applicable to ISDN services and ISDN basic access and, on the other, tariffs applicable to telephony.
- Tariffs for teleservices which use the same bearer capabilities should be independent of the teleservice. On the contrary, all value added by the network should be charged independently of the utilization of the bearer capabilities.
- An agreement should be obtained on the ratio between the monthly rental for the primary rate access (2 048 Kbit/s) and that for the basic access (144 Kbit/s).

A ratio of the order of 10 might be discussed.

7. INTERWORKING BETWEEN NATIONAL ISDN TRIALS

Those administrations implementing national trials of ISDN before the full implementation of the present recommendations should endeavour, where provided, to interconnect these services in order to increase early experience of ISDN in Europe.

8. LEVEL OF PENETRATION

Forecasts of demand in new fields, such as the services supported by ISDN, do not provide a particularly relevant basis for market planning.

Nevertheless, it is realistic to set objectives attainable over the next eight years, i.e. up to the end of 1993, for a level of penetration of ISDN which permits the market for services and terminals to reach a mature phase.

The objective should be for an adequate geographic coverage and rate of penetration at national level for each country.

The administrations should plan to provide by 1993 ISDN accesses for a number equivalent to 5 % of 1983 subscriber main lines. This figure depends, among other things, on the capability of the industry to offer cost effective ISDN solutions for the infrastructure and the terminal equipments.

The territorial coverage should be sufficient to permit 80 % of customers to have the option of the ISDN access.

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(86) 325 final

Brussels, 5 June 1986

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL

ON EUROPEAN TELECOMMUNICATIONS POLICY

PRESENTATION

Substantial progress has been made in implementing the Community telecommunications policy since the first Commission communications to the Council on the subject during the second half of 1983. This communication reviews the status of the projects in the five fields of activity approved by the Council.

The Commission also feels it necessary, however, to encourage a Community discussion of another field in view of the regulatory implications which the changes in organization and regulation brought about by technological development are starting to have on the creation of the Community telecommunications market ; chapter 3 of this Communication (new developments) introduces this problem.

Finally, conclusions aiming at supporting the progress of these activities are proposed to the Council.

CONTENTS

1. Introduction
2. Progress report of the Community's telecommunications action plan
 - (A) Launching of a coordination plan for the networks and telecommunications services development in the Community and common infrastructure projects.
 - B) Creation of a Community-wide market for telecommunications equipment end terminals
 - C) Launching of a development programme for the technologies required in the long term for the establishment of the future broadband networks.
 - D) Improved access for the less-favoured regions of the Community to benefit the development of advanced services and networks.
 - E) Coordination of negotiating positions within international organizations dealing with telecommunications.
3. New developments
4. Conclusions

1. INTRODUCTION

In the conclusions of its meeting on 17 December 1984, the Council approved the main objectives of a Community telecommunications policy designed to produce the necessary conditions for the establishment of a vast common market in telecommunications equipment, industrial structures competitive on a world-wide level, networks and advanced services. The aim was to improve the competitiveness of the European industry on the world market, thereby strengthening the basis for economic and social development and improving the employment situation in the Community.

Five types of activities were adopted to attain these objectives:

- A) The launching of a co-ordination plan for the networks and telecommunications services development in the Community and common infrastructure projects.
- B) The creation of a Community-wide market for telecommunications equipment and terminals.
- C) The launching of a development programme for the technologies required in the long term for the establishment of the future broadband networks.
- D) An improved access for the less-favoured regions of the Community to benefit the development of advanced services and networks.
- E) The coordination of negotiating positions within international organizations dealing with Telecommunications.

A description of the progress report on those actions at 15 May 1986 is contained below.

2. PROGRESS REPORT ON THE COMMUNITY'S TELECOMMUNICATIONS ACTION PLAN

A) LAUNCHING OF A CO-ORDINATION PLAN FOR THE NETWORKS AND TELECOMMUNICATIONS SERVICES DEVELOPMENT IN THE COMMUNITY AND COMMON INFRASTRUCTURE PROJECTS :

The establishment of common objectives for the development of telecommunications networks and services in the Community was the object of work carried out jointly by the representatives of the carriers, the industry and the Commission within the Senior Officials Group on Telecommunications (SOGT) and its sub-group, the Analysis and Forecasting Group (GAP). Those groups have, as part of their brief, prepared reports which set out precise recommendations concerning the implementation of the Integrated Services Digital Network (ISDN) and a second-generation public cellular communications system. Those groups are now studying the conditions for the introduction of broadband communications into the Community, in conjunction with the activities taking place in the RACE definition phase (see section (C) below).

The outcome of these studies and works can be presented as follows:

a) Integrated Services Digital Network (ISDN)

As a result of the work made in SOGT and GAP , a recommendation on the coordinated introduction of ISDN in the Community has been drafted.

b) Second-generation public mobile cellular communications system

One of the findings of a report has been produced on this topic is that the demand of mobile telephones in the Community as a whole greatly exceeds supply, and that by 1991 existing national systems - which are extremely diversified - may be expected to be saturated. It is seen as vital that the system now being studied in the CEPT's GSM (1) should be ready for entry into service by that date. Otherwise the frequencies reserved for the GSM system might be used instead for national systems, thus perpetuating the technical fragmentation that is one of the main impediments to mobile communications in the Community and to industrial development in this sector.

The Commission is therefore keeping a close eye on the pace at which work is progressing in the GSM, which has just formed a permanent team to speed things up.

The GAP report also covers paging systems and telephony for trains, road haulage operators and aircraft. The report has been submitted for comment to the CEPT, the PTT administrations and industry representations and will shortly be the subject of a communication to the Council that will incorporate the comments received.

(1) GSM : Groupe Spécial Mobile

c) Main broadband communications in the Community (TBB project)

The SOGT and the GAP are now studying developments of networks and services leading to broadband communications on the basis of the results of studies carried out since 1984 on the Community's transnational broadband backbone (TBB - a common infrastructure project). The project is designed to create the conditions for broadband cross-frontier communications in Europe and initially to make these links available primarily to business community. These high-capacity cross-frontier links represent one stage towards the general development of integrated broadband communications, which is the purpose of the RACE programme.

A communication to the Council in October 1986 will describe the outcome of the GAP's evaluation of the TBB project.

d) Video-conference and video-phone project

In February 1984 the Council asked the Commission to study the possibility of setting up a Community-wide videocommunications service initially intended to facilitate contacts between political decision-makers. In close cooperation with telecommunications carriers in the Community and representatives of future users, the Commission sent a report (with a resolution) to the Council in June 1985 concluding that the service was feasible.

At the same time, the PTTs were speeding up the establishment of a European network for combined broadband transmission (satellite and land lines) and video-conference facilities. In mid-1986 all the capitals except Athens, Madrid and Lisbon will be interconnected by this network. Madrid and Lisbon should be accessible by videoconference from the end of 1986 but Athens is awaiting a decision concerning the connection of a studio to the other Community countries.

The Community institutions have two videoconference studios, one in Brussels and one in Luxembourg, which are connected by a permanent leased land line. These studios have access to the rest of the Community from Brussels by land line or satellite and increasing use is being made of them.

The Commission departments and network operators are now working jointly on three subjects:

- the establishment of multipoint links
- improvement of users' security
- simultaneous interpretation.

The Council is being asked to adopt on 9 June 1986 a resolution giving political backing to the development of videoconference and videophone services for use by governments and Community institutions.

B) CREATION OF A COMMUNITY MARKET FOR TELECOMMUNICATIONS EQUIPMENT AND TERMINALS

This includes work on standardisation (definition and application of common technical specifications) and also the implementation of procedures for opening up access to calls for tender put out by network operators, in application of the Council resolution of 14 November 1984.

Common technical specifications:

- a) In August 1984 a memorandum of understanding was signed between the Commission and the European Conference of Postal and Telecommunications Administration (CEPT). The CEPT undertook to carry out technical work leading to the drafting of common specifications for the type approval of telecommunications terminals, following priorities established by the Community and working on the basis of internationally agreed specifications.

A list of priorities drawn up by the Commission after consulting the Senior Officials Group on Telecommunications was sent to the CEPT in January 1985, as provided for in the memorandum of understanding, and the list of priorities was again confirmed in January 1986. It includes in particular the preparation of standards for the ISDN (1), OSI (2) and mobile cellular communications.

Discussions with the CCH (3) of the CEPT continued throughout 1985 and early 1986 in order to lay down a precise working timetable for each of the priorities, as stipulated in the memorandum of understanding. Although the CEPT has made a substantial reorganization effort, the requirement for a transparent and efficient organization for

(1) ISDN: Integrated Services Digital Network

(2) OSI: Open Systems Interconnection

(3) CCH : Coordination Committee for Harmonization

carrying out the work stipulated in its agreement with the Commission has not yet been met in a completely satisfactory way. A further reorganization is now being studied in the CEPT and is to be examined at the meeting of the CEPT and the Commission in July 1986. A fundamental improvement in the working of the CEPT is urgently needed in order to produce the criteria for the accreditation of laboratories and the first common conformance testing specifications needed for the implementation of the directive on the mutual recognition of type approval tests which is due to enter into force in June 1987.

- b) The numerous overlaps between information technology and telecommunications have given rise to common standardization areas calling for greater consistency in the planning and performance of the work entrusted to the standards institutions. The CEPT is cooperating in the standardization work commissioned from CEN/CENELEC while a tripartite Committee set up for information technology (ITSTC) provides the coordination made necessary by the convergence of the new technologies. A standardization request has been sent to CENELEC for harmonization of the ISDN plug.

- c) Two proposals for directives (1), one on standardization in information technology and telecommunications and the other on the mutual recognition of the results of conformity tests on terminals, were sent to the Council in June 1985.

(1) The main aims of these two proposals are:

- (1) to set up satisfactory procedures for the preparation by specialized standardisation technical bodies (in information technology) and common technical specifications (in telecommunications) regarded as meriting priority by the main business circles involved in the Community and to facilitate harmonized implementation of international standards within the Community;
- (2) to ensure that plans to issue regulations concerning data interchange and systems interoperability in information technology and telecommunications are subject to procedures supplementing those in Directive 83/189/EEC. This is in order that work done at Community level is not duplicated and/or hampered by work conducted in parallel in the individual countries;
- 3) to ensure that European information technology standards and common telecommunications specifications are used as a reference for public procurement by Community institutions and Member States;
- 4) in telecommunications, to ensure the progressive establishment of a procedure for the mutual recognition of (terminal conformity) tests carried out in approved laboratories in the Member States on the basis of common specifications adopted at Community level, this procedure being a first stage towards the mutual recognition of terminal type approval.

Since these two proposals were sent to the council, the Directive on the mutual recognition of conformity tests on terminals has been discussed as a priority topic in the Council's subsidiary and should be shortly adopted by the Council.

For their part, some CEPT member administrations - including those of the twelve Community Member States - have drafted a protocol, now up for signature, in which they undertake to use for procurement purposes the common conformity test specifications that the CEPT is to draft at the Community's request.

Less progress has been made with the second directive. After initial discussions in the Working Party on Economic Questions from July to October 1985, it had been decided to see whether some of its provisions could be inserted in a revised version of Directive 83/189. This possibility was discussed in the Working Party for Directive 83/189 from November 1985 to March 1986 and proved to be difficult to put into practice. Discussions were resumed in the Working Party on Economic Questions in April 1986 on the basis of the Commission's initial text.

- d) On 10 April 1986 a meeting of the heads of Community testing laboratories was held to prepare for setting up the network of approved laboratories needed for the mutual recognition of terminal tests. This initial meeting was mainly a briefing. A second meeting is scheduled for October 1986 and then it may be possible to agree upon well defined measures to establish the necessary confidence and spirit of cooperation between the laboratories and to discuss criteria for the accreditation of laboratories which the CEPT had been asked to draft.

- e) Mainly on practical lines, projects for the development of conformance testing services were launched at the end of 1985. The programme is primarily aimed at services for the OSI functional standards and in the common area contains a large "telecommunications" component (teletex, MHS, network interfaces) involving the participation of numerous laboratories working together on joint projects.

- f) A draft directive on the adoption of common technical specifications of the MAC/packet family of standards for direct satellite television broadcasting was sent to the Council in January 1986. The aim is to avoid the emergence in the Community of a large number of incompatible transmission standards when direct satellite television broadcasting is introduced. This could give the European industry an opportunity to improve its position on the world television market provided the necessary precautions are taken to avoid splitting up the market as happened with the existing PAL and SECAM standards.

Another important factor is that standards of the MAC/packet family, produced by the European Broadcasting Union and the industry, have the capacity to evolve in line with market developments, thus allowing gradual progress towards high-definition television in such a way that each stage is compatible with the preceding one. That is why the Commission has proposed this directive, discussion of which has started in the Council's subsidiary bodies. It is vital that it be approved as soon as possible since direct television broadcasting is due to commence with the French TDF1 satellite early in 1987.

- Opening up of calls for tender by network operators

On 12 November 1984 the Council approved a recommendation for an experimental period during which network operators will give unrestricted access to their calls for tender for all new terminals and for 10 % by value of their total annual orders for switching and transmission apparatus and conventional terminals.

Implementation of this recommendation continued throughout 1985 and early 1986 in conjunction with the Senior Officials Group on Telecommunications. Procedures for publishing the network operators' procurement plans in the Official Journal and a specimen of the weekly report were finalized.

In 1985 six Member States supplied reports and some items were published in the Official Journal. Now that the administrative procedures are running smoothly 1986 should see full implementation of this recommendation.

C) LAUNCHING OF A DEVELOPMENT PROGRAMME FOR THE TECHNOLOGIES NEEDED TO ESTABLISH THE FUTURE BROADBAND NETWORKS

On 27 July 1985 the Council approved the RACE programme definition phase (R&D in advanced communications technologies for Europe) intended to identify the features of a telecommunications R&D programme that would provide Community industry with the technological facilities needed for the introduction of international broadband communications (IBC) from 1995.

The definition phase started in July 1985 and is now being carried out with the help of the RACE Management Committee set up by the Council Decision. It is running to schedule under satisfactory conditions.

The first part of the programme concerns the development of an IBC reference model and focuses on three areas:

- "Networks", handled by the GSLB (special broadband group) of the CEPT, which has set up a permanent team at Darmstadt for this purpose. Its work, of vital importance for the whole programme, is advancing under good conditions.
- "Terminals", carried out under contracts and involving various participants, manufacturers, laboratories and television broadcasting organizations; the work under way seems very promising.
- "Services", tackled by the GAP, where work is progressing satisfactorily.

The second part - research contracts awarded to industry and laboratories in seven areas - is also making satisfactory progress.

It is vital to the success of the programme that all these activities be coordinated and the Commission's Management Team is applying appropriate coordination procedures.

Studies started in the Commission with the preparation of a preliminary phase of the RACE main programme. An initial proposal will be sent to the Council in time to allow a decision before the end of 1986.

D) IMPROVED ACCESS FOR LESS-FAVOURED REGIONS OF THE COMMUNITY TO THE BENEFIT OF THE DEVELOPMENT OF ADVANCED SERVICES AND NETWORKS

The conclusions of a study, commissioned from consultants working closely with the PTTs and regional development experts, with the aim of identifying activities enabling the less-favoured regions of the Community to benefit from the development of advanced telecommunications, were received at the end of 1985. As a result a proposal for an action programme known as the STAR programme (special telecommunications action for regional development) was sent to the Council early in 1986 and is now being examined by the Council's subsidiary bodies, as well as by Parliament and the Economic and Social Committee.

E) COORDINATION OF NEGOTIATING POSITIONS WITHIN INTERNATIONAL ORGANIZATIONS DEALING WITH TELECOMMUNICATIONS

The Commission has pressed on with this activity in cooperation with the Senior Officials Group on Telecommunications.

The first effort concerned the adoption of a common position by Member State delegates at the Intelsat meeting in October 1985.

A meeting of delegates was organized in Washington on the day before the Intelsat meeting, an action that proved very effective since Europe's interests were consistently upheld by the delegations.

High-definition television (HDTV) is another area in which the Commission has ensured coordination. The CCIR (1) held its plenary meeting in Dubrovnik from 12 to 24 May. At that meeting a joint Japanese-American proposal was put forward on the adoption of a world production standard for HDTV.

The President of the Council and the Commission together made every effort to ensure that the Community Member States presented a common position at Dubrovnik so as to secure a further period of study before a definitive decision to be taken on a recommendation on the world HDTV standard. The CCIR finally approved that decision. At same time the Commission is seeing to it that Community interests in the field of telecommunications are taken into account in the commercial relations with the Community's main trading partners such as the United States and Japan, and in the framework of GATT and the OECD.

(1) CCIR: International Radio Consultative Committee

3. NEW DEVELOPMENTS

At its meeting on 17th December 1984, the Council approved the major objectives of a Community telecommunications policy, based on a number of communications by the Commission. Since then substantial progress has been made in this direction, as noted in the preceding paragraphs. However, the Commission considers that it is now necessary to draw the Community's attention to a number of new questions which are of great importance for the achievement of a Community-wide market in telecommunications. These questions touch on the organisation and regulation of telecommunications.

Telecommunications throughout the world are undergoing a profound and increasingly rapid change. We are seeing the convergence of telecommunications, of data processing, of office and factory automation and of the audio-visual sector. Such convergence has important consequences, and involves particular problems for Europe and the creation of the Community-wide telecommunications market.

Certain of these problems are already being addressed through current Community initiatives (such as the RACE programme, the Recommendation on ISDN, and initiatives in the area of standardisation). Nevertheless there are new problems emerging in the face of which the Community has not yet established a co-ordinated position.

The convergence noted earlier between the telecommunications and computer sectors is necessarily a problematic one, since these two sectors are subject to completely different regulatory regimes. On the one hand the telecommunications sector has always been highly regulated, while the computers sector developed in a competitive environment. Furthermore, this convergence involves a practically infinite number of opportunities for the differentiation of specialised services, giving rise to what are known as value-added network services (VANS), which concentrate on niche sectors, and often depend on a wider market than a simply national one in order to thrive.

New borderlines thus need to be drawn between telecommunications and computers ; between networks and terminals and between those services which are internal to networks and other types of services. These are problems which are common to all countries. The US and Japan have already reacted as have a number of Member States, and all countries have undertaken a profound re-examination of their own telecommunications structure. What is needed now is for each Member State to find its own particular balance between the economies of scale which can be introduced through digitization and the optimal exploitation of the opportunities provided by new telecommunications services. For the Community, however, two conditions need to be fulfilled :

- the introduction, during the current transformation, of the necessary scale ;
- the avoidance of new barriers being erected.

The Commission has begun a profound analysis of these questions which will examine a number of fundamental regulatory aspects, while taking into account individual national conditions which need to be respected, with the aim of achieving a single market on the scale of the Community. The results of this analysis are due to be presented to the Council before the end of 1986.

4. CONCLUSIONS

The Council's wholehearted support for the range of actions undertaken in the framework of Community telecommunications policy, a positive attitude towards the necessity of undertaking a Community reflection in the new domain proposed, as well as its rapid intervention on the specific proposals contained here, would constitute a powerful force to accelerate the creation of the "European Telecommunications Area", which in turn is absolutely necessary for the coherent development of advanced telecommunications services and for the sector's industrial progress.

It is therefore requested that the Council :

- translates in concrete terms its support for putting into action an active Community telecommunications policy, in particular by agreeing to rapidly adopt the propositions currently submitted :
 - a) the directive on standardization in the area of information technology and telecommunications ;
 - b) the directive concerning the first stage towards the mutual recognition of agreements for telecommunications terminal equipment ;
 - c) the resolution on the intergovernmental videoconference and videophone project ;
 - d) the directive on the adoption of common technical specifications for the MAC/package family of standards for direct broadcasting by satellite ;
 - e) the recommendation concerning the co-ordinated introduction of ISDN in the Community ;

f) the regulation instituting a Community programme for the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services (the S T A R programme).

- to note that the Commission will, by the end of 1986, have further evolved its policies on the measures which need to be taken at a Community level to respond to regulatory and organisation modifications which, in the Member States' telecommunications sector, involve the technological evolution as well as the supply of new services on a world-level. This evolving policy will have the aim of avoiding the creation of new barriers between Member States and of promoting the convergence referred to earlier during the current period of re-regulation.



COMMISSION OF THE EUROPEAN COMMUNITIES

COM (86) 547 final

Brussels, 29 October 1986

Proposal for a Council Regulation

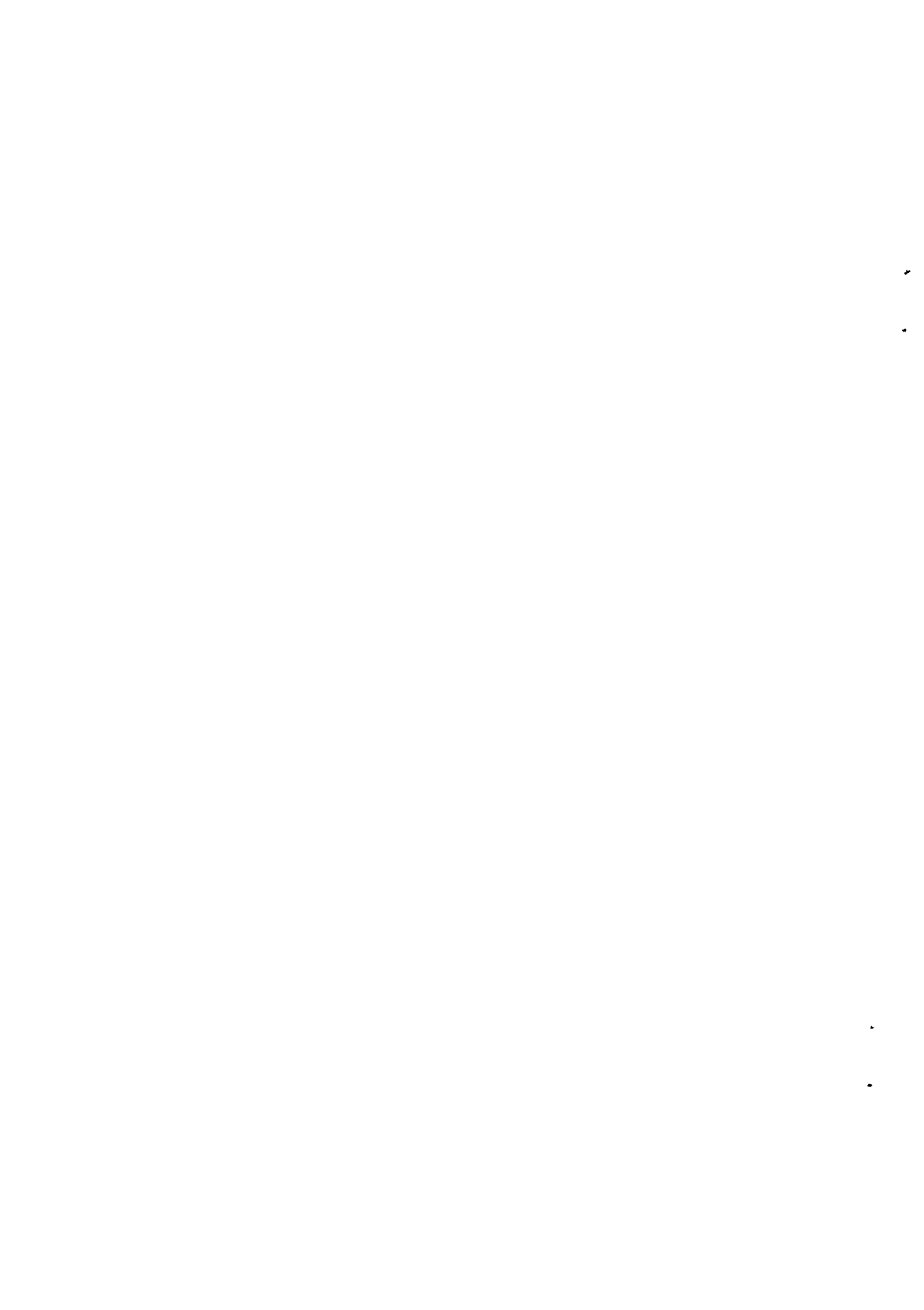
on a

Community action in the field of telecommunications technologies

RACE

(R&D in Advanced Communications-technologies in Europe)

(submitted by the Commission to the Council)



CONTENT

	<i>Page</i>
SUMMARY	3
1. INTRODUCTION	6
1.1 Telecommunications in a changing world economy	6
1.2 Assessment of the situation and prospects	7
2. INDICATIONS FROM THE RACE DEFINITION PHASE (RDP)	9
2.1 Recalling the mandate of the RDP	9
2.2 Initial Assessment of the RDP	9
3. OPPORTUNITIES FOR COOPERATION	22
3.1 Describing the contribution of RACE	22
3.2 Criteria for scope and tasks	26
4. RACE MAIN OUTLINE	28
4.1 IBC Development and Implementation Strategies	28
4.2 IBC Technology	29
4.3 Pre-normative Functional Integration	29
5. ORGANISATION AND MANAGEMENT OF COOPERATION IN TELECOMMUNICATIONS TECHNOLOGY	31
5.1 Organisation and Management of the RDP	31
5.2 Indications for RACE Main	32
5.3 Reducing Development Risks by Supporting Selectively Competing Approaches during the Initial Phase	33
5.4 Participation of SMEs, Research Organisations and Universities	34
5.5 RACE Secondment Scheme	34
5.6 Relationship with International Projects and National Efforts	35
5.7 Participation of private or public organisations established in Non-Community European Countries	35
ANNEXES	
Glossary	36
Draft Regulation of the Council	
Annex 1: RACE Workplan Summary	
Annex 2: Reference to third countries	

SUMMARY

Conscious of the growing importance of the role which telecommunications are now playing in the development of all the Community's economic activities, the Commission has been holding discussions with the Member States, the network operators and the sector's industry since 1983 in an effort to define activities which will gradually be incorporated in an overall Community telecommunications policy (1).

Since mid-1983 activities designed to ensure the attainment of these objectives have been gradually defined and progressively implemented:

- a) Concertation on the objectives of telecommunications development in the Community and on common infrastructure projects⁽²⁾;
- b) creation of a European market for terminals and telecommunications equipment⁽³⁾;
- c) implementation of a development programme covering the technologies required for the establishment of broad-band networks⁽⁴⁾;
- d) better access for EEC less-favoured regions to advanced services and networks⁽⁵⁾;
- e) coordination of national positions in the field of telecommunications during negotiations in international organisations.

In this the RACE Programme is an essential Community instrument of research and development required to advance this action programme into its next logical stage.

This Communication describes the Community programme - RACE - to develop advanced telecommunications. The proposal is the result of intensive collaboration of telecommunication operators and industry in defining future requirements and opportunities for cooperation in developing advanced telecommunication technology at a Community level⁽⁶⁾.

-
- (1) COM(83) 573 "Lines of Action", COM(84) 277 "Progress Report", COM (85) 276 "Status of the Community Telecommunications Policy", COM (86) 325 "European Telecommunications Policy"
 - (2) COM (85) 205 "Coordinated Introduction of the Integrated Digital Network (ISDN) in the European Community"
 - (3) OJ L298/51 of 16.11.84, COM(86) 1 "Proposal for Directive on MAC Standardisation", COM(85) 230 "Proposal for Directive on mutual recognition of type approval"
 - (4) COM(85) 113, 113/2 "Proposal for RACE Definitionphase", COM85(145) Report on RACE, Council Decision 85/372/EEC of 25.02.85
 - (5) COM(85) 836 "STAR Proposal"
 - (6) Council Decision 85/372/EEC of July 25 1985
 - a) Planning Exercise of the Telecommunication Operators Research Laboratories and
 - b) RACE Definition Phase involving during 1986 at full-time approximately 400 Experts from Community industry, operators, administrations (SOG-T/GAP) and academia. In addition a special group of CEPT/GSLB representing 26 European countries has worked on the development of IBC network specifications. EBU and ESA were also associated with the work concerning broadcasting and satellite communications.

RACE concerns directly the

- telecommunications manufacturing industry,
- network operators,
- service providers,

but also concerns strongly the interests of

- present and potential users of telecommunication services, and
- providers of new and enhanced information services using telecommunications.

The general objectives of RACE are, in this light,

- (a) to promote the Community's telecommunications industry so as to ensure that it maintains a strong position at European and world levels in a context of rapid technological change;
- (b) to enable the European network operators to confront under the best possible conditions the technological and service challenges with which they will be faced;
- (c) to offer opportunities to service providers to improve cost-performance and introduce new or enhanced information services which will both earn revenue in their own right and give indispensable support to other productive sectors of the Community;
- (d) to make available to the final users, at minimum cost and with minimum delay, the services which will sustain the competitiveness of the European economy over the next decades and contribute to maintaining and creating employment in the Community;
- (e) to accompany the formation of a Community internal market for telecommunications equipment and services as an indispensable basis for sustained strength on the world markets;
- (f) to contribute to regional development within the Community with the support of the development of common functional specifications for equipment and services permitting the less developed regions to benefit fully from the efforts of Member States piloting the telecommunications developments in the Community.

The thrust of RACE is towards establishing on the world market a strong, or even leading position, of the Community telecommunication manufacturing, operating and service industries in integrated and broadband communications on the basis of the accelerated development of a strong and competitive Community market for telecommunications equipment and services.

With these general objectives in view the goal of RACE is to make a major contribution to the objective of the

"Introduction of Integrated Broadband Communication (IBC) taking into account the evolving ISDN and national introduction strategies, progressing to Community-wide services by 1995".

Experts have identified cooperative R&D work for the period 1987-1991 best carried out on the Community level. This proposal foresees contributions to the financing of pre-competitive and pre-normative work up to a maximum of 800 MECU which corresponds, at a cost-sharing of 50%, to approximately 10000 Man years of effort.

1. INTRODUCTION

1.1 Telecommunications in a changing world economy

For the emerging global economy telecommunications represents the single most important infrastructure. If the 1950's and 1960's have seen the emergence of a world market place for manufactured goods, and the 1970's and 1980's an increasingly world-wide manufacturing base, the 1990's will bring in addition a world-wide service economy, for which telecommunications will represent the essential infrastructure and competitive factor.

This is the key element for the appreciation of the significance of telecommunications. In addition to its importance as a major economic sector in its own right (telecommunications represented ECU 40 billion of annual sales world wide in 1985, and service revenues are approximately ECU 200 billion per year) the telecommunications infrastructure is a main determinant for the location of the high-value-added activities of the future. These are communication-intensive; the international competition for these service activities will, therefore, be greatly influenced by the cost-performance of the telecommunication services which one region can offer in comparison with others.

Thus effective competition will play a decisive role for employment prospects. This extends to maintaining employment in the Community, attracting employment from other parts of the world and the chances of employment creation due to the emergence of new economic activities. Approximately 50% of the economically active population in OECD countries work in information occupations and about 2/3 of the GDP of the Community depends on these activities. The international competition for this kind of high value-added employment is strongly dependent on the cost-performance and availability of advanced telecommunication services.

It has been estimated that during the next decade about 500 billion ECU⁷⁾ (corresponding to about 5 million Man Years of work or 500'000 jobs in average) will be invested in the Community in telecommunication infrastructures, services and terminal equipment and in the next 20 years three times as much. A large part of this investment can create employment in the Community if Europe's industry can successfully compete with international competition, otherwise a large part of this investment will create employment elsewhere. More importantly, however, it is estimated that for those leading in offering advanced information services the employment benefit may be 10 times as large. For Europe's employment prospects the creation of favourable conditions for new and enhanced services is the most significant employment aspect of advanced telecommunications services. Based on these estimates the overall employment at stake may be as high as 5 million by 1990.

7) The importance of these investments will require the use of various financial instruments. The Commission is exploring in this context the use of Financial Engineering techniques. The ideas which will be put forward shortly would be particularly relevant for large infrastructure investments of the kind of the IBC.

Underlying these trends is a technological discontinuity associated with digitisation, which in turn represents a turning point in the economics of communications. The advance in digital techniques - which enable voice, data and images to be represented by a universal code - permits a much greater sharing of the resources and infrastructure of communications than has been possible previously. This effect is referred to a "Economies of Integration".

These can be realised in several ways:

- multiple use of the same facilities and equipment for a range of services;
- higher utility to the user by permitting services to be functionally integrated at will;
- better economies in transport by combining digital streams of different origins and functions on a single path-way.

In recognition of all this Europe's competitors are engaging determined efforts to gain a dominating position. To meet this challenge Europe will need to draw on its collective resources. RACE is a mid- to long-term framework for concertation and cooperation towards this objective.

1.2 Assessment of the situation and prospects

The assessment of the situation and prospects which has emerged from the development of the telecommunication policy and RACE can be summarised as follows:-

- 1 The telecommunications infrastructure is becoming all-important as the support for the world service economy of the future - but the design, manufacture and supply of telecommunications equipment and services of all kinds is also a very large and potentially profitable business in its own right.
- 2 Digital technology introduces significant changes into the economics of communications; economies of integration are available from the multiple provision of services in bulk, their functional integration by the user at will, and their combined transport by optical means.
- 3 The initial investment in such digital links is high. Similarly, the computer control of switching complexes, with demanding suites of software programs, implies an unprecedented investment encompassing the whole range of functions and services expected by the user of the year 2000.
- 4 Systems able to handle communications of this scope can be designed, tested, engineered and produced only within a coherent approach, ie as part of a telecommunications strategy conceived and executed on a European scale. This applies over a wide range of manufacturing, network operation and service provision. An unconcerted approach and the attempt to establish interoperability after the product development stage can no longer be considered as a techno-economically viable strategy.

- 5 The telecommunications field is not homogeneously governed by the economies of scale. Terminal equipment and services, for example, so long as they are designed as part of a consistent approach, can be supplied from a number of sources. Thus the development of the IBC offers a wide range of opportunities for medium and small companies in manufacturing and in the provision of specialised services throughout the Community. For this to happen the efforts in establishing interworking, as addressed in RACE on a technical as well as functional levels, will be decisive.
- 6 World competition is strong and growing, not only because of the changes induced by technology (Points 2 and 3 above) but also by reason of the industrial regrouping following the break-up of AT&T and deregulation in several major markets.
- 7 Europe has considerable assets, but these would be dissipated if the Europeans continued in future to address telecommunications at the national level.
- 8 The awareness of the actors of the need to adapt to the new conditions and to future developments is growing. In Europe, the established telecom suppliers are engaged in assessing and redefining their activities. Their position is affected either directly (eg by UK deregulation) or indirectly (removal of service monopolies like Intelsat). Operators as well as governments, realising the risks of high overheads for the economy as a whole, are increasingly looking for internationally competitive prices beyond those based on the economies of national markets.
- 9 RACE is directed at the goal of the integration of IBC services and supply at the European level. The network operators and the industry have worked together on the RACE definition phase. The impetus so generated must be reinforced if there is to be a European scale for the functional specification and realisation at the experimental level of the systems, equipment, subsystems and components of the new advanced networks and services.

2. INDICATIONS FROM THE RACE DEFINITION PHASE (RDP)

2.1 Recalling the mandate of the RDP

The Council of Ministers decided on the 25th of July 1985:

Article 1

1. A definition phase for a Community Action in the field of telecommunication technologies is adopted for a maximum period of 18 months beginning on 1 July 1985.
2. The activity is designed essentially to define precise objectives and to develop the approach to technological co-operation at Community level in concertation with public and private actions in the field of telecommunications technologies undertaken at national and international levels.

This decision was based on the work of industry and operators identifying the approach, scale and scope of the Community contribution towards the objective of "Community-wide introduction of Integrated Broadband Communication (IBC) by 1995 taking into account the evolving Integrated Digital Services Network (ISDN)".

The rationale and the results of the work in 1984/5 are described in the Communications COM(85) 113 and COM(85) 145 and specified in detail in the documents OTR 25 and OTR 26.

The Ministers in their decision gave a mandate of 18 months for the development of clear recommendations and proposals as to the best ways to deploy the assets in telecommunications to provide the Community with advanced cost-effective telecommunication services and move towards the realisation of an internal market for telecommunications equipment and services.

2.2 Initial Assessment of the RDP ⁽⁸⁾

The recommendations and proposals made in this document derive from two main sources

- a) the perception of the Member States of objectives, strategic options and alternative approaches as developed by the RACE Management Committee (RMC) as well as by concertation on the political and economic aspects in the framework of the Senior Officials Group for Telecommunications, and
- b) from the views of operators and industry based on the analytical and technical work done in the RDP.

(8) The overall findings of the Initial Assessment are the subject of the Report of the RACE Management Committee OTR 71F adopted on 12.06.85.

The initial assessment is the result of the RMC agreeing to

- carry out a verification of the objectives and conceptual framework for cooperation in advanced telecommunication technology towards the objective of IBC, and its
- invitation to industry and operators working on the RDP to carry out an Initial Assessment of the technical aspects of the RDP.

The specific questions addressed by the RMC were:⁽⁹⁾

1. Are the statements of the objective, scope, thrust, timing and basic approach described in COM(85) 113 and COM(85) 145 still valid? If not, what modifications in the conceptual framework would seem indicated and would need to be taken into account in the formulation of the RDP recommendations ?
2. What changes in emphasis and priorities in the content of RACE would best reflect the changes in circumstances and the current perception of requirements ?
3. What guidance and criteria should be given to those working on the RDP concerning the development of an approach to cooperation on the Community level in concertation with public and private actions ?

Operators and industry involved in the RDP were invited to give their personal views on:⁽¹⁰⁾

- technical objectives and tasks for cooperation on a Community level.

In addition they were asked to give their views on

- scope and priorities of the work to be addressed in the framework of RACE and
- the appreciation of cooperation at Community level as a means of responding to the challenge (see Fig. 5).

2.2.1. Dominant Themes

Economies of Integration

The economies to be realised by functional and transport integration seem to be largely confirmed as a driving force. At the same time the meaning of the term 'integration' has acquired a more precise interpretation.

(9) The document on which the enquiry was based is OTR 66 and the views are documented in OTR 72.

(10) The document on which the enquiry was based is OTR 67 and the views are documented in OTR 73.

The sense in which service providers and customers want to see integration might be called 'integration for open access', i.e. the freedom to access and offer any sort of service across general purpose terminal facilities complemented by customised features and a flexible carrier system offering a full range of small, medium and broadband transmission. They want to be able not only to have a free choice of access but also the ability to combine different services in an ad hoc manner, i.e. the 'ad-hoc integration of services' to offer new features should be possible.

The physical integration of the transmission into a unique 'IBCN' is now seen as less important: several 'IBC carriers' could exist simultaneously as a part of an interworking carrier system. Furthermore IBC enhancement of ISDN networks may, as a transitory measure offer some IBC features till the penetration of broadband carriers has progressed sufficiently. What is seen as important is that coherent and compatible network operations are established so as to permit the dynamic use of the overall transmission capacity to meet the full range of narrow, medium and broadband transmission requirements when and where needed. This implies an increased emphasis on the issues of real-time dynamic network management, maintenance, reliability and security. It also re-inforces the emphasis on technological efforts towards the realisation of 'open system interconnection' standardisation for integrated services and functions.

Importance of scale

The importance of scale in the use of scarce human resources, finance and production have been one of the driving motives for exploring cooperation in developing IBC cooperation on a Community level.

The work of the RDP has demonstrated the willingness and the fruitfulness of technical cooperation between operators and industry. Furthermore the importance of the technological choices at the R&D stages for the techno-economic performance of future services and the ability of the realisation of the Community internal market has been substantiated.

Significance of broadband for the economics of non-broadband applications

Although broadband transmission and processing capabilities will be needed to cope with a growing demand for services based on moving images, there is a increasing awareness that 'broadband' facilities could also provide improved cost-performance in handling narrow- and medium band services.

For example, the use of optical fibres for trunk transmission is well established, but now there are indications that the use of optical fibres in the subscriber loop is becoming an increasingly attractive techno-economic option.

Potential of enhancing traditional carriers

One key technical subject which is receiving considerable attention in the RDP, is that of the trade-off between bandwidth provided by the transmission media and the techniques of bandwidth compression (redundancy reduction) that are feasible. It seems that an important potential exists in using advanced techniques to enhance the transmission characteristics of existing carriers. Particularly during the transition period which for full penetration of broadband carriers may take several decades such techniques may offer economically attractive intermediate stages offering at least some of the IBC services via enhanced traditional carriers.

Importance of an evolutionary approach

While the need to evolve from today's telecommunication environment towards IBC has always been recognised, the character and paths of this evolution are now beginning to emerge.

RACE has been conceived as part of an evolutionary approach towards the implementation of IBC allowing both for the rapid evolution of technology, the different starting points in the Member States and the uncertainties of the developments of cost-performance, and related with this, of user acceptance.

Since the objective and time-table for RACE was defined the attitude towards IBC has in some countries significantly changed. Also in the framework of CCITT the work on broadband standardisation has accelerated showing growing awareness of the potential and timeliness of IBC on an international level. However, the work in the RDP shows that for the realisation of economically acceptable services for the general public major progress remains to be realised.

Figure 5 gives a synthesis of the views on some of these issues. In addition it shows the views expressed on the approach to RACE and on cooperation on a Community level.

2.2.2 Initial IBC Reference Model for Europe

The Reference Model is by its very nature partly based on established facts, plans, and perception of technological progress and future demand. As such the work within the RDP has made a considerable progress in the sense of clarifying issues but one needs to be careful not to underestimate the uncertainties. This is also the reason why the work on the IBC Reference Model needs to be an ongoing process permitting the assessment of new situations as they arise and the dynamic adjustment to change.

A series of scenarios based on the Reference Model is being developed within the RDP. These scenarios are based on a long-term view when the majority of services will be supported by the IBC, and on intermediate evolutionary stages from the ISDN. The overall Reference Model is being developed by operators organised in CEPT, telecommunications industry organised in ECTEL and user/service provider interest analysed by the national administrations in the framework of SOG-T. Their work is the subject of detailed documents which will be consolidated into a consistent view over the coming months.

Figure 1 gives a view of the "Expansion of Services" which is taking place and Figure 2 gives a schematic representation of the concurrent progressive "Integration of Services". The future telecommunications system required to support these developments is shown in its "Functional Elements in Figure 3 and its relationship to bandwidth in Figure 4.

Within such scenarios the IBC is assumed to

- support and provide distributive and communicative narrowband and broadband audio, data and video services;
- support integrated customer access via a limited set of standard interfaces according to the principles of the evolving ISDN;
- provide digital connectivity for both customer-customer and customer-Network Specialised Centres communications;
- be capable, in principle, of providing access to all users, taking into account the broad range of geographic, performance and demographic features which may be encountered;
- make extensive use of optical fibre (and where appropriate of satellites) for transmission of information throughout the network;
- support circuit switching of end-to-end connections. In addition to these types of connection, others eg ATD, packet switching, etc will form part of such scenarios;
- support the presence of both IBC and non-IBC network terminations at the customer premises;
- support the retention (where possible and adequate) of existing terminal facilities and equipment and the addition of new (IBC compatible) equipment at the customer premises;
- support co-existence of broadcast services (eg TV, Satellite and radio) for some time to come.

INTEGRATION OF SERVICES

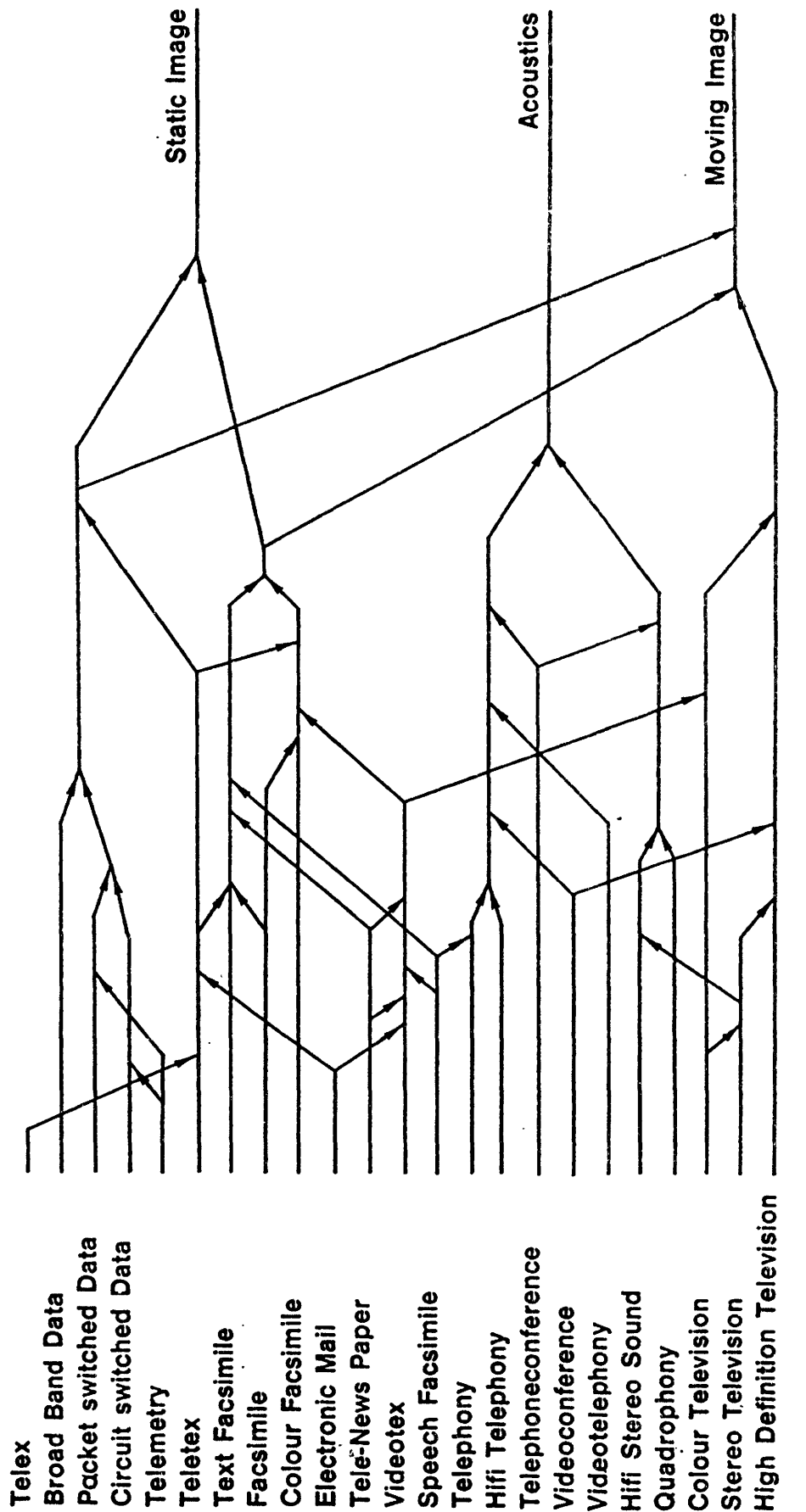


Figure 2: INTEGRATION OF SERVICES

Overview of IBCN Functional Elements

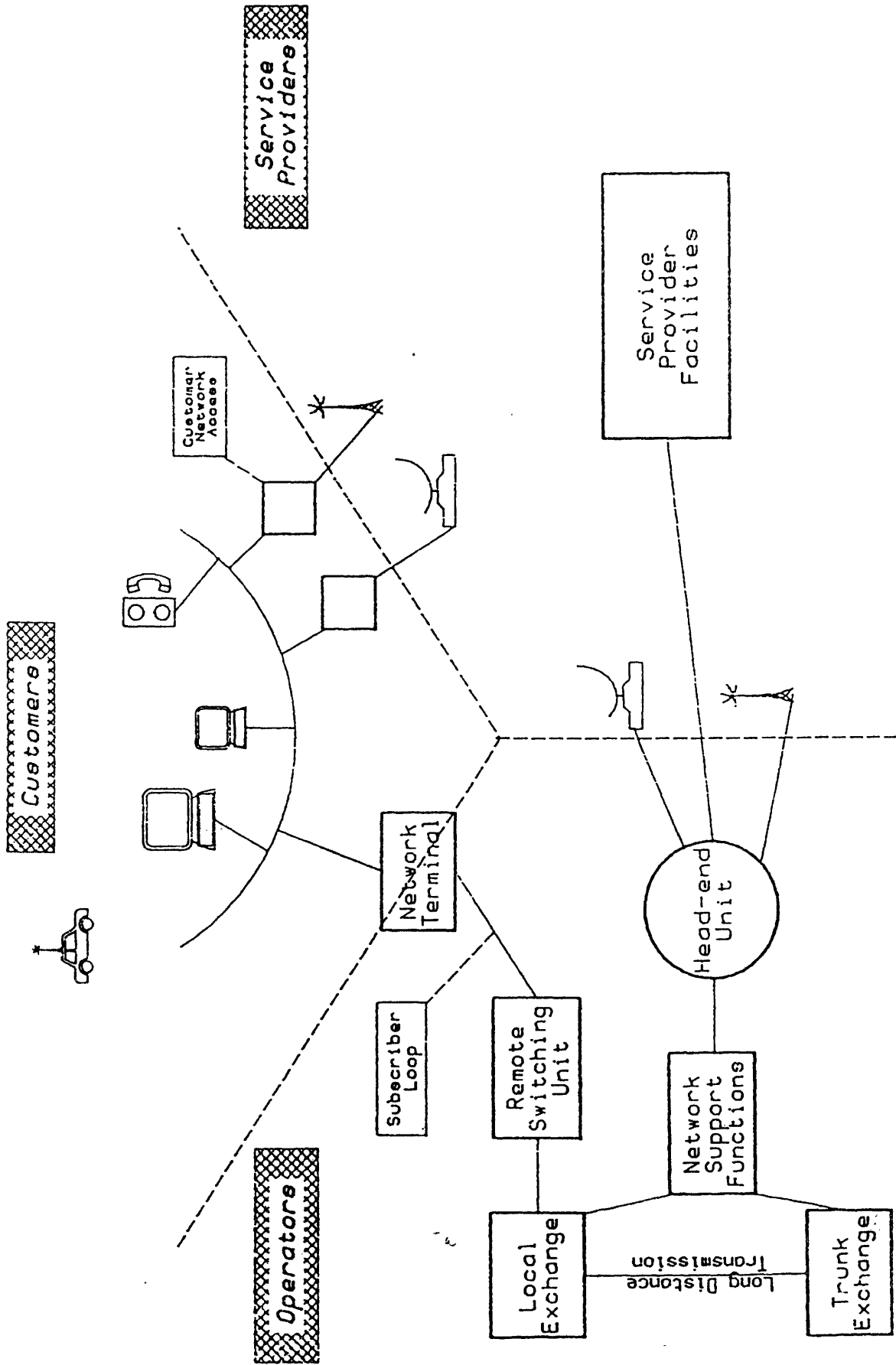


Fig. 3: IBCN FUNCTIONAL ELEMENTS

Service-integrated and Integrated Broadband Services ACS226

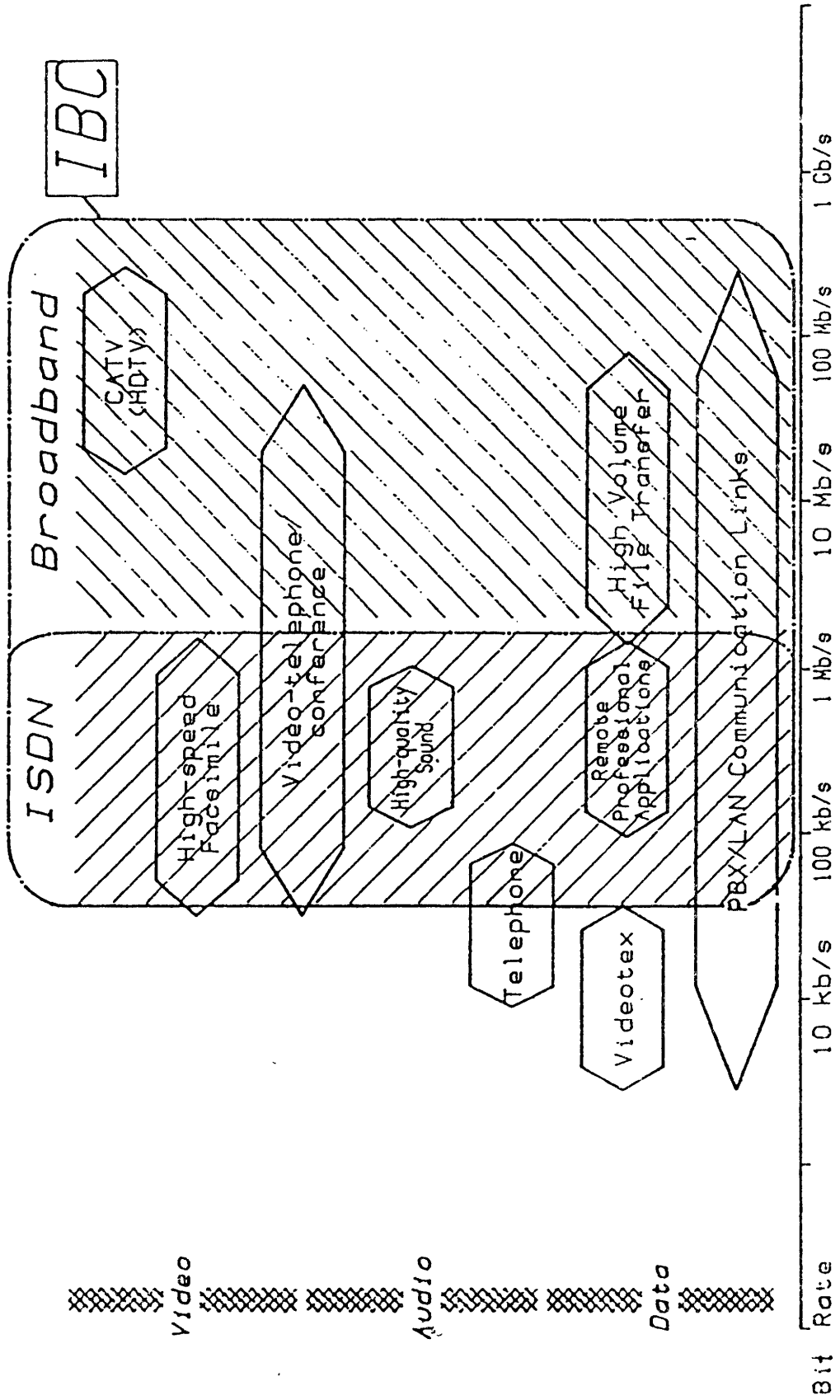


Figure 4: SERVICE INTEGRATED AND INTEGRATED BROADBAND SERVICES

2.2.3 Summary of the Initial Assessment of the RDP

The main findings of the Initial Assessment are confirmation of the

- importance for the economic future of the Community of offering advanced telecommunications equipments and services at internationally competitive costs
- opportunities for realising 'economies of integration' of equipment and services
- importance of a major effort in developing Open Systems Concepts and their technical realisation for the future integrated telecommunication services
- importance to make optimal use of human, technological and financial resources by reinforcing on-going efforts and commitment of additional resources to collaborative activities
- need to consider the increasingly diversified usages of the telecommunication system and its integration with consumer and professional applications
- importance of introducing cost-engineering, reliability and security considerations at the early stage of conception and design and in concertation with all the main actors
- importance of accelerating technological developments specific to the needs of advanced telecommunications services
- importance of allowing for different national conditions which express themselves in specific implementation strategies towards the common IBC objective
- suitability of the basic approach to developing functional specifications (Network Operators for the network, ECTEL for the User Premises and SOG-T for a concertation between administrations on future applications)
- previous assessments of requirements in telecommunications technologies carried out by Operators and Industry
- readiness and ability of the European Operators, telematics industry, research organisations and universities to work together in developing IBC for Europe.

The conclusions which are emerging from this assessment and the initial result of the RDP can be summarised as follows:

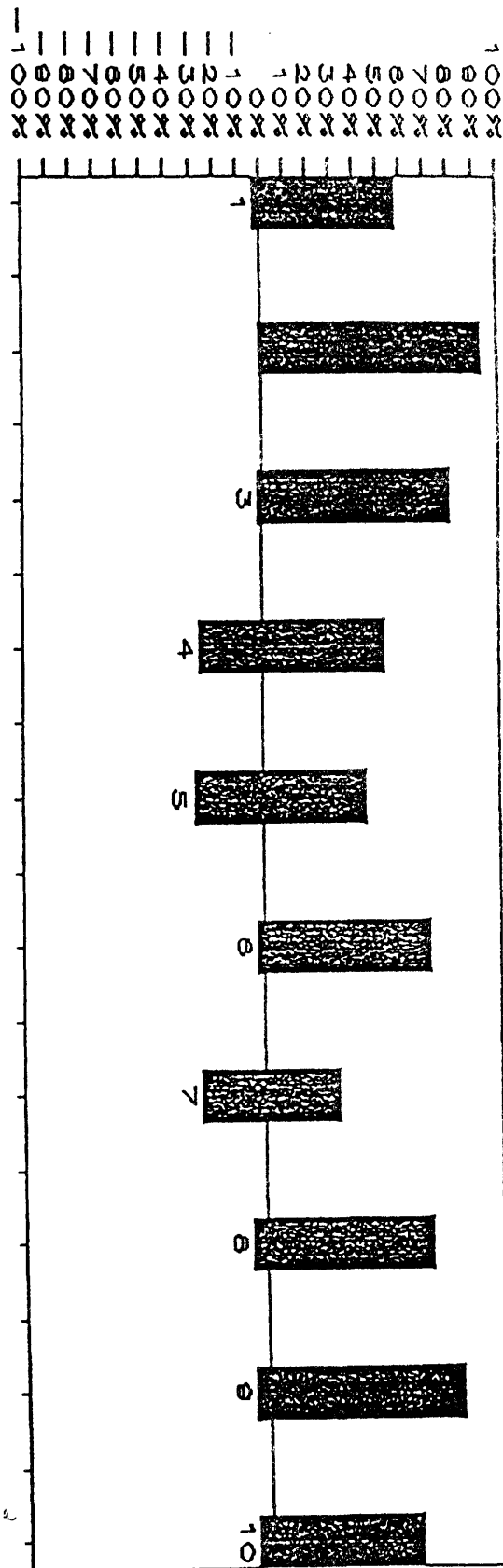
- 1) **The concept of cooperation in advanced telecommunication technology at a Community-level is supported by the experience of the RACE Definition Phase.**
- 2) **The approach to implementing this cooperation building on existing organisations is working well in the framework of the RDP but may need to be consolidated and strengthened for RACE Main.**
- 3) **The necessary decisions and provisions should be made in time to assure the follow-up of the work.**

Figure 5: Issues and views

Dominant Themes

- 1 Do you consider that transport and functional integration in the customer premises network is techno-economically an attractive concept and feasible ?
- 2 Do you consider that the realisation of a Community Internal Market for IBC equipment and services is of crucial importance for international competitiveness of Europe's equipment industry, operators, service providers and customers ?
- 3 Do you consider that IBC technology offers significant opportunities for the improvement of the characteristics and economics of narrow- and medium-band services ?
- 4 Do you expect IBC to build on existing telecommunication infrastructures (Narrow-band Public Networks, Broadcasting Networks, Private Networks)?
- 5 How do you assess the potential of 'Technology and Operational Enhancement of traditional infrastructures' to realise some advanced services and do you consider that this should be included in the work on IBC ?
- 6 Do you consider the realisation of IBC OSI-concepts, and the development of the corresponding standardisation proposals for IBC services, to require significant R&D and prototyping ?
- 7 Do you consider that high-resolution multifunction terminal facilities beyond HDTV needs to be considered ?
- 8 Do you consider that Advanced Mobile Communication concepts need to be considered in the context of IBC ?
- 9 Do you consider laboratory prototyping for the exploration of 'functional' and 'operational' integration and for the development of standardisation proposals to be a suitable approach ?
- 10 Do you consider that the network management, and here in particular, the real-time management of mixed media and systems to be a central issue to be addressed in the context of IBC ?

Answers "NO" / Answers "YES"



Answers "NO" / Answers "YES"

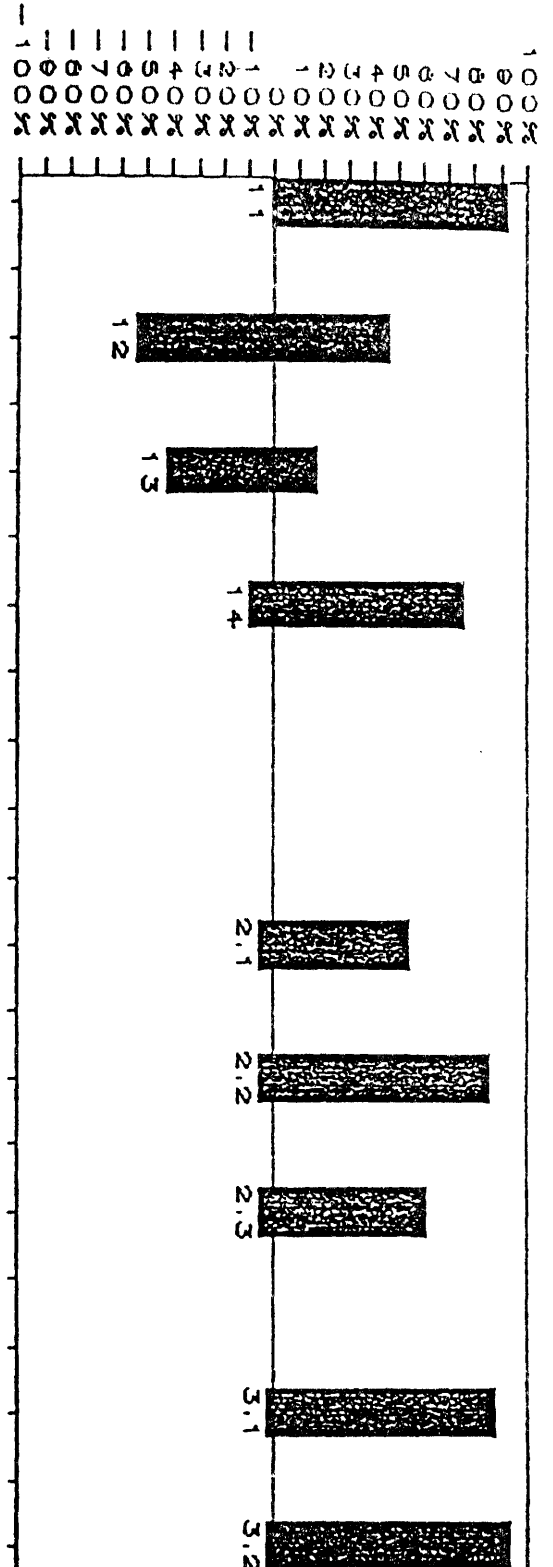
- 11 Do you consider that the establishment of an overall IBC Reference Model for Europe is important for common understanding, development and implementation of IBC ?
- 12 Are there other major themes you see emerging which you would like to be included in the concertation ?
- 13 Do you consider that existing methods and tools are capable of mastering the complexity inherent to an IBC development, testing, manufacture and operation ?
- 14 Do you consider that major improvements in R&D-productivity in the development of telecommunication equipment and integrated services are needed to make IBC techno-economically acceptable ?

Management Approach

- 2.1 In RDP/Part I the technical management lead is assumed by operators (CEPT) and industry (ECTEL). Is this approach an appropriate model for future work ?
- 2.2 The RDP examines in parallel the technology and functional specifications (IBC Reference Model). Do you consider this approach as appropriate for the objective and the European conditions ?
- 2.3 Do you consider the 'Concertation Meetings' as an informal means of 'fine-tuning' the work and assuring cohesion overall ?

Cooperation

- 3.1 Do you consider that your participation in the RDP has contributed significantly to a clarification of the issues and helped you in your own work?
- 3.2 Has working directly together with your colleagues from other countries been of benefit and do you consider this to be important to the strengthening of Europe's posture ?



3. OPPORTUNITIES FOR COOPERATION

In the light of developments over the last 19 months, as well as the experiences and interim results of the RACE Definition Phase, the goal of RACE has been re-defined as a Community action making major contributions to the objective of the

"Introduction of Integrated Broadband Communication (IBC) taking into account the evolving ISDN and national introduction strategies, progressing to Community-wide services by 1995".

This formulation reflects the view that IBC will develop progressively and in accordance with differentiated customer requirements.

RACE is conceived as an evolutionary strategy distinguishing

- **Definition Phase (1985-1986)**, to execute initial work as required to focus the R&D work of the main programme accurately towards future functional requirements of the network, terminal area and future applications. It also includes the assessment of the technology options of key items; and a
- **Main Programme (1987-1992)** having the objectives
 - . of developing the technology base for IBC
 - . of carrying out the precompetitive development necessary for the provision of trial equipments and services for IBC demonstration
 - . of supporting the work of CEPT and CCITT in the formulation of common proposals for specifications and standards.

Depending on the outcome of this Programme further work may be required. For this the conceptual framework has identified the possibility of a Phase II to cover the period 1992-1997. However, a second phase is not implied in the present proposal.

The main feature of RACE is its contribution to low-cost and general availability of a wide variety of advanced telecommunications services which depends on both sufficient technological progress as well as the realisation of a large service market by 1995.

3.1 Describing the contribution of RACE

Before entering in the description of the technological effort to be undertaken the following section describes how the key issues will be addressed in RACE and what results one can expect.

In order to secure sufficient improvement in cost-performance to permit the general use of IBC services in the early 1990s major advances are required in several closely related domains. RACE would engage in specific systems R&D of a pre- or non-competitive kind⁽¹¹⁾ which will lead the way to full scale competitive development in the future. This R&D would be expected to make major contributions towards the following key issues:

I. Exploitation of the economies of integration in all parts of the telecommunication chain from service provision to final use by

Functional integration and technology enhancement of transmission networks

New telecommunication technology will penetrate the existing telecommunication system in a progressive and evolutionary manner. New technology will partly impact the cost-performance via substitution and partly by overlaying existing facilities. However, new technology can also be used to 'enhance' existing facilities and make new and more effective use of them by integrating them to new high performance services. Throughout Europe there are telecommunication networks which operate below their service capacity. Operational concepts made possible by the advances in telecommunication and information technology enable existing networks to provide additional service.

The scope of 'technology enhancement' of transmission networks needs to address all existing and planned carriers, ie telecommunication networks, broadcasting networks, satellites and private networks to the degree that they can serve the same customer base.

II. Systematic development of interoperability and flexible integration by

IBC Research Prototypes conforming to the Open Systems Concept

Telecommunications, by their very nature, depend on end-to-end compatibility ie standardisation. Traditional telecommunication services have achieved in world-wide interoperability. However, for new services this has already proved more difficult and for integrated services this will be even more difficult to achieve. The reasons lie in the very much larger complexity of transmitting and switching a multitude of services in a reliable and protected manner. Furthermore, the future customer will want to access and interact with a free choice of services according to requirements which may change at short notice. The service provider and the carrier will for their economics want to make little use of parallel infrastructures and services, ie he will want to offer as many services via the same infrastructure and make multiple use of switching and routing facilities: in other words he will want to integrate. This represents a major challenge in complexity and even the preparation of standardisation proposals will require a extensive systems R&D and the concerted effort of several actors.

(11) The work towards common functional specifications, the development of Open Systems Concepts and their prototype realisation for IBC and such work which serves the establishment of interoperation is a pre-condition for competition and will result in proposals for internationally standardised products and services. In this sense the work included in RACE with these objectives is of a non-competitive kind essential for creating conditions where competition can take place, ie it is referred to as 'pre-normative'.

III. A concerted effort towards the realisation of economies of scope by

Feasibility investigations and research tests of Modular IBC Concepts

In order to achieve the lowering of costs deriving from economies of scale while at the same time maintaining a high degree of flexibility to meet special customer requirements (subject to confirmation by the findings of the Terminal Equipment Investigations of RDP I.2), it may be important to develop modularisation and 'family concepts' for IBC components, subsystems, operating systems, protocols and basic services. While potentially very rewarding this approach requires a substantial effort both in development and validation as well as in cooperation between manufacturers, operators, service providers and sometimes also users.

IV. Realisation of major improvements in the R&D productivity in the development of telecommunications equipment and introduction of integrated services by

Development of common support tools for telecommunications R&D

The telecommunication system is not only the biggest man-made machine but is also one of the most complex systems. The complexity of the R&D for the development even of the first generation digital telecommunication systems has already presented a major problem and was an important cost and time-factor in developing equipment and services for ISDN. Moving towards IBC will prove even more difficult in all parts of the system from public switching to the conception of the local and customer loop and the terminal facilities. Without developing more powerful tools to support the conception, development and testing of integrated communication techniques, devices and services, R&D-productivity will be low and unnecessary redundancy will be difficult to avoid.

The realisation of IBC will rely on the concerted efforts of a large number of actors, each responsible for part of the system. Therefore, there is a strong case for developing the common part of such design, development and testing tools jointly, or according to joint specifications, for common use.

V. Realisation of good operational economics, assured reliability and privacy of IBC by

New concepts for operation, management and maintenance for IBC

Considering IBC in its entirety the operation, management and maintenance will present major problems of common concern for users, operators and service providers. This includes not only the protection of privacy of the communication but also of accounting, authorisation of access and use of services and related issues. These problems have already proved in the past to be very difficult to resolve. For the introduction of IBC as a Europe-wide, if not international, service these problems will also arise. Some of these issues have implications and demand solutions on a technical level. It is, therefore, an area to include from the very beginning in the development of IBC concepts.

Other aspects of operation, management and maintenance are of economic nature. The cost of "assured reliability" can be very high and decisive for the design choice. This is another reason for introducing these questions at a very early stage.

VI. Realisation of major advances in the cost-performance of cost-critical items of IBC implementations by

Specific technological work on cost-critical items of the IBC system

The early realisation of IBC is inhibited by some cost-critical items not having as yet made sufficient advance in cost-performance. In these areas a specific effort to accelerate advance is of importance. The R&D effort which is proposed in these areas relates to the realisation of the application-specific cost-performance characteristics.

The outline of a RACE Main programme which achieves these implicit objectives is described in the Section 4.

3.2 Criteria for scope and tasks

The minimum investment for establishing IBC is estimated to be of the order of 100-150 billion ECU. Of this required initial investment about 10%, ie about 10-15 billion will be dedicated to developing the technology to be able to offer advanced services at acceptable costs. Of this amount by far the largest part will be invested by industry in R&D towards commercial products and by operators and service providers to develop attractive services. Within this, RACE addresses selectively, but within a coherent overall concept, those activities which offer a significant advantage when addressed on a Community scale.

In identifying the scope of cooperative work the following criteria were applied:

- a) RACE should re-inforce and accelerate the development of IBC technology in Europe by pre-competitive R&D-cooperation or, where it relates to the preparation of standards, to non-competitive development and research prototyping;
- b) RACE should embed the technological mid- to long-term investments in the strategic and political objectives of the realisation of the internal market for telecommunication equipment and services;
- c) RACE should lay the technological basis for European IBC, while enhancing the capability of the indigenous industry to compete effectively on world markets;
- d) RACE should take into account equally improvements in performance, cost-reduction and in user friendliness. The IBC objectives imply a particular orientation of technological effort in RACE towards solutions which make new broadband services economically feasible early on and traditional services more economical to provide;
- e) while RACE should tackle advanced R&D areas of common interest for IBC and its future enhancements, the programme must also address those shorter-term R&D issues which are necessary to underpin the evolution of IBC from existing networks and services;
- f) while the formulation and promotion of formal technical standards is not the purpose of RACE, and these issues will be left to the appropriate existing bodies, nevertheless exploration and validation of advanced standardisation concepts and options need to be addressed at an early stage to come to techno-economically optimal proposals;
- g) the work engaged under RACE must be complementary to other measures relating to the same objective and draw on the relevant results from other actions. This applies in particular to the synergy with work engaged in the framework of International Projects and ESPRIT II, but also to actions at a national level;

- h) RACE should address those technological issues related to IBC which offer significant advantages when carried out on a Community scale, by offering important economies in the use of scarce resources either in terms of human resources, funding, or in time to explore the numerous technology options.

4. RACE MAIN OUTLINE⁽¹²⁾

In order to achieve the underlying objectives described in the previous section, RACE Main would be structured into three main parts

Part I: IBC DEVELOPMENT AND IMPLEMENTATION STRATEGIES,

relating to the development of functional specifications, the systems and operations research towards the definition of proposals for IBC standards, concepts and conventions conforming to an open systems approach, and the analytical work serving the objective of establishing interoperability for IBC equipment and services;

Part II: IBC TECHNOLOGIES,

covering the technological cooperation in pre-competitive R&D addressing key requirements of new technology for the low-cost realisation of IBC equipments and services; and a

Part III: PRE-NORMATIVE FUNCTIONAL INTEGRATION,

relating to pre-normative cooperation in the realisation of an "open verification environment" designed to assess functions, operational concepts and experimental equipment with respect to functional specifications and standardisation proposals arising from the work in Part I.

The corresponding work areas, tasks and approaches are specified in detail in the RACE Workplan which is under preparation and will be submitted separately. In contrast to the generic work carried out in the framework of ESPRIT, RACE efforts concentrate at the pre-competitive and pre-normative level on the specific objective of IBC.

This work is to be carried out by industry, academics and telecommunication operators. The latter are expected to finance independently the work falling within their domain.

The following sections provide a description of the scope and nature of the work to be undertaken.

4.1 Part I: IBC Development and Implementation Strategies

Objective

The main objectives of the work under Part I are to achieve, throughout the introduction and further enhancement of IBC:

- a common understanding of the evolution towards introduction of IBC and its implications including market research and promotion of the IBC concept and services in Europe and internationally;
- a common definition and understanding of the IBC system and subsystems, between all main actors concerned;

(12) The full RACE Workplan is a detailed technical document which evolves with technological progress and improved perception of the demand characteristics. Each year it is to be submitted for approval by the Management Committee.

- guidelines for the functional specification of IBC systems and sub-systems and the development of integrated services;
- a framework in which to identify the technology requirements, assess the implications of technological advances and the evolution of service demands in order to define priorities in RD&E;
- a tool for the evaluation of cost-effectiveness of various technological solutions, implementation schemes and evolutionary routes starting from the given situation;
- mechanisms for analysing and assessing, at an early stage, the requirements for standardisation and functional specifications in order to facilitate and accelerate the emergence of international standards.

Scope

To meet these objectives, Part I would comprise two major Areas of activity:

- Maintenance and further development of the European Reference Model for Integrated Broadband Communication, defined in its initial form during the RACE Definition Phase.
- Systems analysis and engineering work to transform the concepts derived in the Reference Model into systems and subsystems functional specifications.

4.2 Part II: IBC Technologies

Objective

The objective of this Part is to carry out cooperative R&D on the key technologies required for low-cost realisations of IBC equipments and services. As such, it will be system-driven and specifically related to the functional specifications derived by Part I.

Scope

The scope of the work will include precompetitive research, test and experimentation needed to explore the techno-economic characteristics of the new technologies relevant to IBC.

4.3 Part III: Pre-normative Functional Integration

Objective

The work is aimed at exploring the feasibility and performance parameters of IBC systems or subsystems by means of simulation or research experimentation with particular reference to the needs of technological work in preparation of standardisation proposals. The investigation of functional integration and prototyping at the research and stage will serve a number of important functions. It will

- permit the verification of concepts, standardisation options, reliability, security, as well as other key functional characteristics by simulation and testing at the research stage;
- contribute to the reduction of risks for development and implementation by permitting the evaluation of the functional features by operators, industry and where applicable service providers and users;
- provide a mechanisms for demonstrating interoperability features and compliance to standards and specifications in an open verification environment.

Scope

The scope of the work is to

- test new technology, or devices from one or more of the projects in Part II as an integral part of an IBC system for its functionality and techno-economic performance characteristics,
- explore relevant performance parameters and confirm the feasibility of meeting the relevant requirements of the functional entity as defined within the Reference Model activities.

The research experiments envisaged within this part of the RACE Programme are not expected to have the nature of demonstration projects or field trials. Such trials or prototype installations will be required before operational implementation of a harmonised set of IBC services can be undertaken but are beyond the scope and scale of effort under consideration for the RACE Programme.

Specifically the Functional Integration work concentrates on IBC related functional entities.

5. ORGANISATION AND MANAGEMENT OF COOPERATION IN TELECOMMUNICATIONS TECHNOLOGY

Cooperation in telecommunication technology, even at the level of exploratory work and tracking of future developments, is much more demanding in terms of management and organisation than are programmes directed in strengthening the technology base in general. There are several important factors which need to be respected in the approach

- IBC is an objective clearly defined in terms of functional characteristics and cost-performance which is the ultimate measure of the technology investments. It is not the technical feasibility as such which counts but the techno-economic feasibility;
- the telecommunications system and its convergence with all kind of applications creates an unprecedented degree of complexity;
- there are numerous actors with their own respective responsibilities which need to work together in a purposeful manner (users, service providers, operators, industry and in regulatory and political questions also the respective administrative and political bodies).

5.1 Organisation and Management of the RDP

The specific nature of the telecommunication sector has already led to a new approach to Community cooperation for the preparation of RACE and the Definition Phase:

1. The joint Planning Exercise in 1984 of the Research Laboratories of the Operators and the Telecommunications Equipment Manufacturing Industry of the Community for the definition of objectives, scope and scale of cooperation in telecommunication technology, resulting in their proposal of RACE and the adoption by the Council of the RDP.
2. The structuring of the work of the RDP in two parts, one addressing the investigation of 'functional specifications' and the other assessing the technology options.
3. The division of the work on 'functional specifications' into three work areas relating to the specific responsibility and contributions of the respective actors.
 - a) Network, which was addressed in the framework of CEPT and its GSLB by the creation of a Permanent Nucleus supported on technological issues by the ECTEL Broadband Group,
 - b) User Premises, which was addressed by industry by forming a joint team in the framework of ECTEL composed of systems engineers seconded for the work from the leading companies, and
 - c) Future Applications, which was addressed by the national administrations in the framework of SOG-T in GAP.

- 4) The exploration of technology options also had special organisational and management features
 - a) all work areas have been chosen and addressed in a system context according to the potential contribution to the techno-economic objective of IBC;
 - b) technology options for reaching the same or equivalent advances were addressed within the same project or by parallel investigations.
- 5) To assure that all the projects had sufficient knowledge of the results of the other projects was achieved by the introduction of an special informal mechanism the so-called "Concertation Meetings" which involved the Project Leaders of all projects and others as required. Although informal, it has proved very effective as a means to adjust work in a dynamic manner.

The technical management of these activities taking place within independent organisational frameworks has rested largely with the respective organisations or bodies, with the RMC and the Commission assuring the overall cohesion of the action and compliance with the Decision of the Council.

5.2 Conclusions for RACE Main

The Commission of the Communities has the responsibility of ensuring that the work planned will for the Definition Phase and can be used as a basis on which to build the approach for the follow-up. The following recommendations can be made based on the experience of the RDP:

- 1) for the "network-related" work the CEPT/GSLB Permanent Nucleus working together with the ECTEL Broadband Group may be the kind of approach to develop further;
- 2) for the "user premises" industrial work the approach within ECTEL is proving to work very well and could be considered as a model to be developed;
- 3) for the "future applications assessment" the work of the administrations in the framework of SOG-T represents a key mechanism for concertation. This element would need to be developed further and eventually complemented to involve directly some of the major industry and user groups;
- 4) for R&D the approach of "management by objective" paired with a suitable "Concertation Mechanism" seems to be adequate with the addition of yearly "independent reviews";
- 5) the Workplan of RACE will need to be evolved and revised on a yearly basis to allow for the evolution of the perception of objectives, progress made in the framework of RACE and other actions, and general evolution of technology and demand;

- 6) the support of "competing approaches" for equivalent objectives needs to be extended and applied to the initial phases of projects relating to key objectives. It will be of decisive importance for reducing 'technology uncertainty' and risks at an early stage. Every effort will be made to arrive at a single approach at later stages of development;
- 7) the system-integration at a research stage for the development of open systems approaches for IBC standardisation proposals should as a rule be carried out by initiating parallel projects and a "design competition";
- 8) the management approach to the RDP, with the central role of the RACE Management Committee for integrating the work carried out at international, Community and national levels, has proved effective and can serve as the model for the follow-up. Its ability to have a unified view of all aspects of the question (users, operators, industry and policy) extending beyond RACE will be of great importance for an optimal management of the action;
- 9) the contract conditions in general and the industrial property rights question have posed no significant problems in the RDP and with some adjustments they will be sufficiently flexible to meet the needs of RACE Main;
- 10) project selection, evaluation and project management procedures can follow largely the practice of the RDP though some adaptation to the specific conditions in this domain and further improvements in efficiency have been identified for the follow-up;
- 11) in view of the creation of a new framework for industrial cooperation in commercial developments which may address product developments relating to IBC, the RMC responsibility should extend to include the coordination with International Projects in the domain of telecommunications technology.

5.3 Reducing development risks by supporting selectively competing approaches during the initial phase

In the course of the preparation of RACE a consensus has formed that a 'unique project' approach is in some cases not the best strategy to adopt. The definitive assessment of technology options may require a certain amount of work before a reliable judgment on the best option, or options, becomes reliable. This implies that for a part of the RACE work alternative options need to be examined at least for the first phase of the work (Feasibility Phase). This will apply particularly for the kind of work foreseen for Part III of the programme.

This would be realised by accepting two, and in some cases even more, proposals relating to the same objective specified in the Workplan. After an agreed period of work, as a rule one year, a review would decide which of the projects receives further funding. The evaluation would be carried out on the evidence generated by the projects on the merits of a given option compared with others. Using the independent review technique applied in the RDP to support the RMC, the RMC would be able to decide on the continuation of one, or maybe in exceptional cases, two projects to completion.

This scheme has the advantage of 'minimising risks' of engaging into the wrong technological option. Since the 'feasibility phase' of the work tends to involve only comparatively limited resources, supporting parallel projects for this phase would lead only to a limited increase in resource requirements. While it is not possible to present a cost/benefit calculation past experience leads to the expectation that these extra resources would be more than justified by the reduction of uncertainty for the later investments which are on a much larger scale.

The extent of such competing work may normally be expected to be limited to the 'Feasibility Phase' of about 1 year and to include not more than 1/3 of such work.

5.4 Participation of SMEs, Research Organisations and Universities

Importance of SMEs, Research Organisations and Universities as a strong inventive and innovative element is well recognised and therefore their appropriate participation will be an important consideration in the implementation of RACE.

High technology SME's, Research Organisations and Universities will in general stand to gain from RACE in that it creates a framework in which the specific strength of SME's can express themselves and create market opportunities by fostering a symbiotik relationship with large telecommunication companies and service providers.

50% or more of the employees in the Community telecommunications industry are in firms with 20-99 employees. This is an index for the variety of activities comprised within this industry, the different effects of scale as between activities, and the extend of sub-contracting. There is little doubt that this high degree of involvement of SME's, Research Organisations and Universities will also characterise the future work in telecommunications and RACE.

5.5 RACE Secondment Scheme

In order to mobilise the human resources and make optimal use of research facilities it would be of great advantage if experts from one organisation could be associated with a RACE project carried out by another organisation where this is wished by both parties.

This mechanism would aid the organisations responsible for the respective RACE project by providing additional skilled manpower and it would assist the seconding organisation in participating in the form of one of its experts in leading-edge work.

The various parties would contribute to the scheme as follows:

- Parent Organisations, release from current duties and 50% of the salary;
- Host Organisations, costs of providing the workplace and operational expenses; and
- RACE, 50% of the salary and additional costs associated with the secondment according to the allowable costs for officials on secondment from the country of origin.

The secondment is to be proposed jointly by parent and host organisation. The number of such secondments could be expected to vary depending on the nature of the work. However, it would be expected to stay below 5% of the number of experts working on RACE projects at any given time. The duration of such secondment would be limited to the duration of the RACE project concerned.

5.6 Relationship with International Projects and National Efforts

With an estimated overall investment of at least 10 billion ECU in R&D for establishing advanced telecommunication services over the next ten years. The work included in RACE addresses only the initial stage of very much larger efforts required for product development. Where international or national projects are engaged with related objectives it will be beneficial to assure good communication between the efforts. In addition to general arrangements to assure coordination between Community actions and such projects, the organisation and management concept developed during the RACE Definition Phase will be sufficient to assure good coordination with international and national efforts.

5.7 Participation of private or public organisations established in Non-Community European countries

During the RACE Definition Phase the work related to the Network Reference Model was entrusted to CEPT representing 26 European countries. In this way European countries not members of the Community were associated with an important part of the RDP.

The Community has a strategic as well as economic interest to come to a European solution for IBC including also non-Member States. Therefore, the Commission, intends to allow for the strong interest expressed by industry, operators and service providers in the COST countries by extending the criteria for participation in RACE Main.

It is suggested to admit private or public organisations established in COST countries to submit proposals and to be signatories to RACE projects where a Framework Agreement on R&D Cooperation has been concluded with the corresponding country. For this Implementation Agreements will be concluded,

The select organisations would, however, have to cover their own costs (plus, as appropriate, a participation in the operational expenses).

Projects with participants from these countries would have to comply with the same selection criteria, contract conditions and management procedures.

RACE Glossary

AT&T	American Telephone and Telegraph
ATD	Asynchronous Time Division switching, a multiplexing technique
Ad-hoc integration	The possibility of combining services at will when needed
Applications	Use of the telecommunications networks and value-added services
BB-ISDN	Broad-band ISDN, an evolutionary stage between ISDN and IBC
Bandwidth	The frequency spectrum occupied by a signal
Bandwidth Compression	Techniques to reduce the requirements for transmission capacity
Bit-rate	Number of bits (units of message) transmitted per second
Broad-band	More than 2 Mbit per second transmission speed
Broadcasting	Emission of messages to any receiver
CCITT	International Telephone and Telegraph Consultative Committee
CEPT	European Conference of Post and Telecommunications
COM(83) 573	Lines of Action of the Community Telecommunication Policy
COM(84) 277	Progress Report of the implementation of the Telecommunications Policy
COM(85) 113	Proposal for the RACE Definition Phase
COM(85) 145	Communication giving the background and rationale for RACE
COM(85) 276	Status of the Community Telecommunications Policy
COM(86) 325	European Telecommunications Policy
CPN	Customer Premises Network other term for SPN
Concentration Meetings	Management technique introduced in the RACE Definition Phase
Cryptography	Coding to assure privacy
Customers	Describes corporate or private users
DBS	Direct Broadcasting by Satellite
Dialogue	Two-way communication
Distribution	Forwarding messages to a defined set of receivers
EBU	European Broadcasting Union
ECTEL	European Conference of Telecommunications and Electronics Industries
EEFTA	European Free Trade Association
ESA	European Space Agency
ESPRIT	Community R&D Programme in Information Technology
EUREKA	Industrial cooperation scheme in high technology
Economies of Integration	Economic advantages arising from multiple use and higher utility
Economies of scale	Advantages arising out of scale of production or service
Economies of scope	Advantages arising out of commonality and synergy between different products or services
Exchange	System which routes the communications between the correspondents
functional Integration	Combining different telecommunication functions
functional Specification	Definition of what a device/system is designed to do but not how it is done
GAP	Groupe Analyses et Previsions (Sub-group of SOG-T)
GDP	Gross Domestic Product
GSLB	Groupe Special Large Bande (CEPT Group on broadband communications)
Gateway	Device to permit the translation of protocols eg for interworking of networks
HDTV	High Definition Television
IBC	Integrated Broadband Communications
ISDN	Integrated Services Digital Network
ISO	International Standards Organisation
Intelsat	Organisation of operators to provide satellite links
Interface	Point of communication between two systems or subsystems
LAN	Local Area Network
Life-cycle support	Maintenance of software products.
Lines of Action	Formulation of the Community Telecommunications Policy COM(83) 573
Local Network	Local telecommunication links
MAC Standards	Family of standards for TV transmission via satellite
Man-Machine Interface	Interaction of the user with the communication system

RACE Glossary

Messaging	One-way communication using some storing or recording device
Modularisation	Design of the system in modules which permits their multiple use
Multiplexing	Technique of combining signals in order to economise on transmission capacity
NSC	Network Service Centres
Narrow-band	Below 2 Mbit per second transmission speed
Network Operators	Term used to describe PTTs or other organisations in running public networks
OECD	Organisation for Economic Cooperation and Development
OSI	Open System Interconnect, standards for the connection of equipment
OTR 71	Initial Assessment of the RACE Definition Phase
OTR25/26	Proposal of the PTT Research Org. and telematics industry for RACE
Open Access	A term describing the ability to access services without technical constraints
Operational Integration	Integration of several telecommunication media to operate as a single system
Optical Fibres	High performance transmission medium made of glass or plastic fibres
PET	Planning Exercise in Telecommunications Technologies, original work on RACE
PN	Permanent Nucleus created by CEPT for the RACE Definition Phase Part I.f
Privacy	Protection of operators, service providers and customers
Processing	Data or signal processing
Protocol	Short message to get two correspondents in full communications
RD&E	Research, Development and Engineering
RDP	RACE Definition Phase Council Decision 85/372/EEC of July 25 1985
RMC	RACE Management Committee created by the Council Decision
Redundancy Reduction	Technique to reduce the requirements for transmission capacity
Retrieval	Searching and extracting information from an information service
SME	Small and Medium Entreprises
SOG-T	Senior Officials Group for Telecommunications
SPN	Subscriber Premises Network, other term for CPN
STAR Proposal	Regional action to sponsor advanced telecom investments COM(85) 836
Service Providers	Term used for providers of value-added services
Signalling	Means of initiating and controlling communications
Standard	Officially agreed convention
Subscribers	Alternative term for customers
Switch	Exchange, device permitting the routing of communications
TDM	Time Division Multiplexing, combing several transmissions on one bearer
Technology Enhancement	Term describing the possibility to enhance utility by selective introduction of new technology
Transport	Process of transmissin in telecommunications
Trunk Network	Main arteries of telecommunications
Type Approval	Recognition of type approving between different authorities COM(85) 230
Video	Moving images

PROPOSAL FOR A COUNCIL REGULATION
of
on a Community action in the field of Telecommunications Technologies

**R&D in Advanced Communications-technologies in
Europe (Programme RACE)**

THE COUNCIL OF THE EUROPEAN COMMUNITIES

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament ⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee ⁽²⁾,

Whereas the Community has as its task, by establishing a common market and progressively approximating the economic policies of Member States, to promote throughout the Community a harmonious development of economic activity and closer relations between the States belonging to it;

Whereas the Heads of State and Government, meeting in Stuttgart, Athens, Fontainebleau and Brussels, emphasised the importance of telecommunications as a major source for economic growth and social development;

Whereas the European Parliament, in its assessment of the situation and development of telecommunications, stressed the key role of telecommunications for the future political, social and economic development of the Community;

Whereas on 17 December 1984 the Council agreed on the main elements of a Community telecommunication policy in the field of advanced telecommunication services and networks involving actions at the Community level;

Whereas with the emergence of new services and the progressive convergence of telecommunications, data processing and wider public services the trend is towards a Europe-wide integrated broadband network (Integrated Broadband Communication, IBC) capable of supporting a wide range of customers and service providers;

Whereas developments in telecommunications will benefit the international competitiveness of the European economies in general and of the telecommunications industries in particular;

Whereas advanced telecommunications will contribute to regional development within the Community and specifically support for the development of common functional specifications for equipment and services will permit the less developed regions to benefit fully from the efforts of Member States piloting the telecommunications developments in the Community;

Whereas the development of the IBC offers a wide range of opportunities for small and medium sized companies in the manufacture of equipment and in the provision of specialised services within the Community;

(1) OJ ...

(2) OJ ...

Whereas in response to the requirement of using fully the economic and market potential of telecommunications, the Commission has submitted a programme of action which has been recognised as a base for further work by the Council;

Whereas cooperation in R&D and the development of standards can make a major contribution, notably by facilitating the evolution towards future IBC in terms of transnational connections and also at regional and local levels;

Whereas the 'Single European Act' provides a new political and legal base for the development of a scientific and technological strategy with particular importance being given to the goal of promoting industrial competitiveness;

Whereas the Research Council on 4 June 1985 recognised the importance of the rapid establishment of a Definition Phase for the RACE programme, in order to prepare a general European framework for the development of advanced systems of communications for the future and to promote technological and industrial cooperation;

Whereas the Council adopted by Decision 85/372/EEC⁽³⁾ the RACE Definition Phase of 18 months on which to base the decision for the main programme by the end of 1986;

Whereas the constitution or consolidation of a specifically European industrial potential in the technologies concerned is an urgent necessity; whereas its beneficiaries must be network operators, research establishments, undertakings, including small and medium-sized enterprises and other bodies established in the Community which are best suited to attain these objectives;

Whereas the RACE Definition Phase has produced the requisite conclusions;

Whereas the RACE Management Committee has carried out an initial assessment and called for the necessary decisions to be taken in time to ensure the follow-up of the work;

Whereas it is in the Community's interest to consolidate the scientific and financial basis of European research by means of the involvement to a greater extent of participants from European third countries in certain Community programmes and particularly in programmes involving cooperation in research and development of telecommunications technology;

Whereas RACE will benefit from the results of ESPRIT;

Whereas the implementation of concerted actions in the COST framework is an essential element to complement industrially-oriented R&D projects;

Whereas the Treaty does not provide for the necessary powers;

Whereas the Scientific and Technical Research Committee (CREST) has expressed its opinion,

(3) OJ No L210, 7.8.1985, p24

HAS ADOPTED THIS REGULATION:

Article 1

1. A Community Action in the field of telecommunication technologies, called RACE, is adopted for an initial period of 5 years commencing 1 January 1987.
2. The action is designed, in concertation with public and private actions in the field of telecommunications technologies undertaken at national and international level, to promote the competitiveness of the Community's telecommunications industry, operators and service providers in order to make available to the final users, at minimum cost and with minimum delay, the services which will sustain the competitiveness of the European economy over the coming decades and contribute to maintaining and creating employment in the Community.

Article 2

1. The Action Programme, as set out in more detail in Annex 1, shall consist of three parts:

Part I: IBC DEVELOPMENT AND IMPLEMENTATION STRATEGIES, shall comprise work required for the development of functional specifications, systems and operations research towards the definition of proposals for Open Systems-conforming⁽⁴⁾ standards, concepts and conventions and analytical work serving the objective of establishing interoperability for IBC⁽⁵⁾ equipment and services. This work is to be carried out by appropriate organisations, groups and other bodies including, where required, contract work;

Part II: IBC TECHNOLOGIES shall comprise R&D cooperation in IBC Technologies at the pre-competitive stage;

Part III: PRE-NORMATIVE FUNCTIONAL INTEGRATION shall comprise pre-normative and pre-competitive R&D relating to cooperation in the realisation of an "open verification environment" designed to assess functions, operational concepts and experimental equipment with respect to functional specifications and standardisation proposals arising from the work in Part I.

Article 3

1. Projects relating to the Programme shall be executed, where required, by means of shared cost contracts. Contractors shall be expected to bear a substantial proportion of the costs, which should normally be at least 50% of the total expenditure.

(4) Open Systems-conformity stands for an international standardisation effort to make equipment and services from different suppliers, operators and service providers interoperable.

(5) IBC= Integrated Broadband Communication, which stands for advanced telecommunication services relying on high performance infrastructures.

2. The contracts shall, generally, be awarded by open tendering procedure and involve the participation of at least two independent industrial partners not all established in the same Member State. The invitation to tender shall be published in the Official Journal of the European Communities.
3. In exceptional cases different conditions from those laid down in paragraphs 1 and 2 may be adopted in accordance with the procedure in Article 8(1).
4. The contracts shall be concluded with network operators, research establishments, undertakings, including small and medium sized enterprises, and other bodies established in the Community or, under appropriate conditions fixed in implementation agreements to be concluded, established in one of the non-member States referred to in Annex 2, hereinafter referred to as "partners".
5. Annex 2 may be changed by the Council acting by qualified majority on the basis of a proposal submitted by the Commission.

Article 4

The Commission is hereby authorised to conclude in accordance with the conclusions approved by the Council on 18 July 1978, agreements with non-member States participating in European cooperation in the field of scientific and technological research (COST) with a view to ensuring concerted action between the Community activities relating to the collaboration in research and development referred to in Annex 1 and the relevant programmes of such States.

Article 5

1. The Community shall contribute to the performance of the programme within the limits of the appropriations entered to this end in the budget of the European Communities.
2. The amount of the appropriations estimated necessary for the Community's contribution to the performance of the programme amounts to 800 MECU over 5 years, including expenditure on staff, whose cost shall not exceed 4.5% of the Community contribution.

Article 6

1. The Commission shall ensure that the programme is properly performed and establish the appropriate implementation measures.
2. In accordance with the procedure laid down in Article 8(1) the Commission shall establish for each year and update as required a draft workplan defining the detailed objectives, the type of projects and actions to be undertaken and the corresponding financial plans.

3. In accordance with the procedure laid down in Article 8(2) the Commission shall consult the Committee on the selection of individual projects. It may consult the Committee on any other matter falling within the scope of this Regulation.

Article 7

The Commission shall be assisted in the performance of its tasks by a Management Committee, hereinafter referred to as the "Committee". The Committee, consisting of two representatives of each Member State, shall be set up by the Commission on the basis of nominations by the Member States.

Members of the Committee may be assisted by experts or advisors depending on the nature of the issues under consideration.

The Committee shall be chaired by a Commission representative.

The proceedings of the Committee shall be confidential. The Committee shall adopt its own rules of procedure. The secretarial services shall be provided by the Commission.

Article 8

1. Where the procedure laid down in this paragraph is to be followed, the chairman shall submit to the Committee a draft of the measures to be adopted.

The Committee shall deliver its opinion on the draft measures within a time limit set by the chairman in accordance with the urgency of the matter. An opinion shall be delivered by the majority laid down in Article 148(2) of the Treaty in the case of decisions which the Council is required to adopt on a proposal from the Commission. The votes of the representatives of the Member States within the Committee shall be weighted in the manner set out in that Article. The Chairman shall not vote.

The Commission shall adopt measures which shall apply immediately. However, if these measures are not in accordance with the opinion of the Committee, they shall be communicated by the Commission to the Council forthwith. In that event the Commission may defer application of the measures which it has adopted for not more than one month from the date of such communication.

The Council, acting by a qualified majority, may take a different decision within one month.

2. Where the procedure laid down in this paragraph is invoked the Committee shall deliberate on requests for an opinion formulated by the Commission. The Commission, in inviting the opinion of the Committee, may fix a period within which the opinion should be given. The deliberations of the Committee shall not be followed by a vote. Nevertheless, any member of the Committee may request that his opinion be entered in the minutes.

Article 9

1. The programme shall be reviewed after 30 months. The Commission shall inform the Council and European Parliament of the results of this review.
2. The programme may be extended for a second period of five years, following a proposal from the Commission.
3. After the completion of the first five-year period of the programme the Commission, after consulting the Committee, shall send to the Member States and the European Parliament a report on the performance and results of the programme.

Article 10

With regard to the coordination activities provided for in Article 1(2), the Member States and the Commission shall exchange all appropriate information to which they have access and which they are free to disclose concerning activities in the areas covered by this Regulation, whether or not planned or carried out under their authority.

Information shall be exchanged according to a procedure to be defined by the Commission after consulting the Committee, and shall be treated as confidential at the suppliers' request.

Article 11

This Regulation shall enter into force on 1 January 1987.

It shall apply until 31 December 1991.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 1986

For the Council

The President

ANNEX 1

RACE ¹⁾

Summary of Areas

PART I: IBC Development and Implementation Strategies

- I.1 IBC Reference Model (continuation of RDP work)
- I.2 System Analyses and Functional Specification
- I.3 Implementation and Planning Support

PART II: IBC Technologies

- II.1 Enabling and supporting IBC Technologies
- II.2 Communication Software Technologies
- II.3 Basic Technologies for IBC Users
- II.4 Subsystems and Techniques

PART III: Pre-normative Functional Integration

- III.1 Customer Facilities
- III.2 User Access
- III.3 Network Functions

1) The scope of the work referred to here is described in the following pages.

RACE WORKPLAN SUMMARY⁽²⁾

In order to achieve the underlying objectives described in the previous section, RACE Main would be structured into three main parts

Part I: IBC DEVELOPMENT AND IMPLEMENTATION STRATEGIES,

relating to the development of functional specifications, the systems and operations research towards the definition of proposals for IBC standards, concepts and conventions conforming to an open systems approach, and the analytical work serving the objective of establishing interoperability for IBC equipment and services;

Part II: IBC TECHNOLOGIES,

covering the technological cooperation in pre-competitive R&D addressing key requirements of new technology for the low-cost realisation of IBC equipments and services; and a

Part III: PRE-NORMATIVE FUNCTIONAL INTEGRATION,

relating to pre-normative cooperation in the realisation of an "open verification environment" designed to assess functions, operational concepts and experimental equipment with respect to functional specifications and standardisation proposals arising from the work in Part I.

The corresponding work areas, tasks and approaches are specified in detail in the RACE Workplan which is under preparation and will be submitted separately.

This work is to be carried out by industry, academics and telecommunication operators. The latter are expected to finance independently the work falling within their domain.

The following sections provide a description of the scope and nature of the work to be undertaken.

Part I: IBC Development and Implementation Strategies

Objective

The main objectives of the work under Part I are to achieve, throughout the introduction and further enhancement of IBC:

- a common understanding of the evolution towards introduction of IBC and its implications including market research and promotion of the IBC concept and services in Europe and internationally;
- a common definition and understanding of the IBC system and subsystems, between all main actors concerned;
- guidelines for the functional specification of IBC systems and sub-systems and the development of integrated services;

(2) The full RACE Workplan is a detailed technical document which evolves with technological progress and improved perception of the demand characteristics. Each year it is to be submitted for approval by the Management Committee.

- a framework in which to identify the technology requirements and to assess the implications of technological advances and the evolution of service demands for the priorities in RD&E;
- a tool for the evaluation of cost-effectiveness of various technological solutions, implementation schemes and evolutionary routes starting from the given situation;
- mechanisms for analysing and assessing, at an early stage, the requirements for standardisation proposals and functional specifications in order to facilitate and accelerate the emergence of international standards.

Scope

To meet these objectives, Part I would comprise two major Areas of activity:

- Maintenance and further development of the European Reference Model for Integrated Broadband Communication, defined in its initial form during the RACE Definition Phase.
- Systems analysis and engineering work to transform the concepts derived in the Reference Model into systems and subsystems functional specifications.

I.1 FURTHER DEVELOPMENT OF THE IBC REFERENCE MODEL

Objective

IBC is a broad field of activities which requires the purposeful work of many independent actors. They all need to be able to situate their respective work in the context of evolving objectives, conditions and rapid technological change and demand. In functional terms it covers:

- Transport, relating to the infrastructural functions needed to interconnect users to users and users to service providers.
- Processing, which relates to the equipment functions (hardware and software) required for users and service providers.
- Applications, corresponding to the needs of a wide range of end users and/or service providers.

Scope

The work in this part will, therefore, consist of three Areas of strongly interrelated Reference Model activities:

Network Reference Model

Based on definitions of IBC services, requirements of Network Functions, and of Network Operation and Maintenance Services, Interfaces (with Customer Premises, non IBC Networks, Service Providers), etc., will be defined to form the Main Network Reference Model. This base of information will then be used to generate Standards and System specifications. Taking into account Technology resources, Geo-demographic environments, Evolution of techniques, etc., Scenarios of an implementation of the IBC Main Network will be built to assess best Techno-Economic Strategies for IBC introduction and the progressive integration of other telecommunication services.

Customer Premises Reference Model

From specific requirements of domestic and business applications a functional Reference Model is to be set up to provide guidelines with respect to functional specifications and standards of future customer products like Terminals, Home Network, etc. To complement this Reference Model, Scenarios of implementation, taking into account the various environment constraints, will be built to assess the various techno-economic solutions for the introduction of IBC Customer Premises Networks and the progressive integration of services into common equipment.

Applications and Services Reference Model

Potential application domains of IBC (i.e. Entertainment, Education, Press distribution, Bank, Office computing), have to be surveyed to identify their specific requirements, in terms of information type, information access, information security, etc. from which services will be derived. A Reference Model of service characteristics and performances will be developed and constantly refined according to information collected from specific surveys, eg results of exploitation of new experimental National Networks, so that IBC services comply as nearly as possible with user needs and evolution trends.

Mobile Communications Integration

Broadband communication networks will be accessed from Mobile Terminals as integration of services takes place. Alternative solutions to realise the integration such as total overlay networks and Gateways between Mobile and IBC Networks, or partial integration of Mobile and IBC Networks will be assessed on a Techno-economic base. Specific functional, performance, and standardisation requirements will be defined to allow development of the equipment. Particular attention will be paid to identification of Radio Frequencies able to support transmission of wide band services, and on the use of micro-cellular techniques vis-a-vis other possibilities. Needs for further R&D on Mobile technologies will be identified and will complement the work to be carried out in Part II (IBC Technology).

Note:

Support in the form of an analytical assessment service will be provided, as a tool to help adjust dynamically the emphasis and thrust of the work, as well as keeping its information base up-to-date.

The detailed rationale, objectives and scope of the Reference Model activities will largely evolve from those of the Definition Phase Part I activity.

I.2 SYSTEMS ANALYSIS AND FUNCTIONAL SPECIFICATION

Objective

The Reference Model work of I.1 represents a major concertation exercise to produce consensus views on the evolution towards IBC and its broad functional specifications. To formulate more specific functional specifications for IBC systems, subsystems and services, and to provide a two-way link between the Reference Model and the other RACE activities, Area I.2 will carry out the required systems analysis.

Scope

The scope includes the consideration of:

- Network architectures
- High layer functions in an integrated network
- Terminals and gateways
- Customer premises networks
- Channel definitions, code conversion and redundancy reduction
- Switching subsystem
- Signalling subsystem
- Customer access subsystem
- Network management and operation
- Man-machine interfaces (human factors)
- Security and privacy
- Needs of mobile communications
- Standards, conventions and codes of practice for hardware, software, simulation and testing.

Specifically the work in the following areas is envisaged:

Network Architecture

The two major aspects of this work concern the definition of a long-range target network architecture and the definition of evolutionary strategies to meet that target. These studies will particularly address the problem of moving from the present fragmental technical and marketing situation to convergence upon a single cost-effective IBC network.

High Layer Functions in an Integrated Network

Advanced telecommunications networks such as the IBC network transport all information as digital bitstreams and implement layers 1-3 of the OSI model. The IBC network, however, will also carry out the processing and other functions needed to manage and maintain the network.. This means implementing the higher layers (4-7) of the OSI model in certain cases.

IBC Termination

The IBC will provide terminations for customers and service providers and will also require gateways to other networks. Work in this area will cover the definition and implementation of the many interfaces involved in these terminations, including user/network interfaces for HDTV, video-telephony etc., the human factor aspects of terminal interface design and the interworking interfaces that will be required during the emergence of the IBC network.

Channel Definition, Code Conversion and Redundancy Reduction

The transmission of high-definition TV, video and audio information will require high-bit-rate, high-quality communication channels and one set of tasks in this area will be to define the channels to be provided by the IBC network. Signal-processing and coding techniques such as redundancy reduction will be exploited to reduce the bitrates required and hence to enable the IBC to offer new wideband services at an early date and at an acceptable cost.

Switching Requirements

The IBC will demand new generations of switching equipment operating at 20 times or more the speed required for the ISDN, whilst offering considerably enhanced functionality. Work in this area will focus on the design implications of these requirements and will examine a number of switching configurations, including new kinds of circuit- and packet-switch and new technological options such as optical switching.

Signalling Techniques

The IBC will offer a wide range of sophisticated services in an integrated manner and will therefore need enhanced signalling protocols both for user-network signalling and for signalling within the network, eg CCITT Signalling System No.7.

Customer Access System

Users will gain access to the IBC network via a terminal, a Customer Premises Network (CPN) and the Customer Access System (CAS) which connects the Customer Premises Network to user-dedicated termination equipment within the IBCN. The Customer Access System thus makes available the IBC services demanded by the user, and in particular manages the mixing and separation of communication and distribution traffic-streams.

Functional Network Reference Model

The large bandwidth offer of IBC will result in a high degree of function distribution in the network. Functions such as network-management, -maintenance, -measurement, and -statistics, charging and subscriber administration will be supplied by separate hardware units with the corresponding software. This has to be realised for a heterogeneous network situation characterised by different types and generations of installations.

The work in this area covers the definition and specification of a functional network reference model for the IBCN including the consideration of these requirements.

I.3 IMPLEMENTATION AND PLANNING SUPPORT

Objective

The convergence and transition to IBC represents a major problem in managing the complexity of the technical issues. This does require a specific effort which is the objective of the work defined here.

Scope

Specifically the work is to concentrate on

Common Tool Environment for Telecommunications Design, Development, Testing and Maintenance

Moving towards IBC implies a complex R&D process relying on the concerted efforts of a large number of actors. Powerful tools will be needed to support the R&D process and this area is aimed at the development of the common parts of such a tool environment jointly, or according to joint specification, for common use. The aim is to minimise waste of effort and to maximise the commonality between R&D projects by agreeing, developing and promulgating common facilities for testing, simulation and software development.

Joint Definition of Common Test Facilities

The task is to analyse and recommend common test facilities and the formats for data interchange. This will allow the use of common test facilities for system development, installation and acceptance. Test reports will follow an identical format so that test results can be interchanged.

Development of IBC Simulations for Functional Integration

In order to ensure the unification of the Functional Integration, a set of IBC environmental simulators is required. These simulators must evolve in sophistication in step with the advancing knowledge of the IBC characteristics, in some cases being gradually replaced by actual hardware or software implementations of the environment.

Joint Definition of Software Development Environments

It is necessary for the software developed during the RACE programme to be compatible and, at least to some extent, portable. This will require in turn that a common software infrastructure be adopted for the generation of those software parts that need to be compatible and/or portable (see II.2 for software infrastructure development). This part of the programme involves investigations and negotiations in order to agree on a policy to be followed and to specify the software infrastructure to be employed.

Standards and Conventions for Portability and Re-usability

RACE cannot be conceived without an active two-way relationship with international standards organisations. A specific mechanism will need to be embedded in RACE so as to generate the execution of this essential task. In addition, resulting from the work on the Reference Model and the System analysis and specification of Part I, there will be a very considerable volume of results relating to common conventions, standards and codes of practice which will need to be collated, tested for consistency and promulgated in a coherent manner to the RACE participants.

Programme Management Support

These activities concern specific and substantial tasks necessary to ensure an adequate degree of programme management and coordination. Dominant issues are the Analysis and Promulgation of scenarios underlying the IBC Reference Model and the IBC Configuration Management and Documentation Control.

Part II: IBC Technologies

Objective

The objective of this Part is to carry out cooperative R&D on the key technologies required for low-cost realisations of IBC equipments and services. As such, it will be system-driven and specifically related to the functional specifications derived by Part I.

Scope

The scope of the work will include the research, test and experimentation needed to explore the techno-economic characteristics of the new technologies relevant to IBC.

The content covers IBC-specific hardware and software topics including:

II.1 ENABLING AND SUPPORTING IBC TECHNOLOGIES

Specific IC's for IBCN

Specific components are required for low-cost implementation of customer access circuits (TDM multiplexer/demultiplexers, line coder/decoders etc...) making use of the maturity of silicon technology as well as the progress in GaAs material technology in order to obtain better cost-performance trade-offs.

Integrated Optoelectronic Devices required for Broadband Communications Systems

The potential advantages of opto-electronic circuits (OEIC's) associating monolithically on a single semiconductor chip several electronic, optical and opto-electronic functions are to be exploited on compound semiconductors, in particular, on InP-based materials. Improvement in performance (speed and noise), reliability and reduction of cost is aimed at.

Broadband Switching Techniques

Competing techniques have to be explored in parallel until the potential of a specific approach can conclusively be judged with respect to time of availability and area of application. Low power dissipation space switching and time division switching place stringent requirements on semiconductor components as well as system design. Optical switching may offer an alternative solution, but requires further intensive research focusing on developing the required features and performance characteristics.

Design Tools for Complex Systems

Expansion of existing techniques for systems and subsystems specifically oriented towards the implementation of equipment for broadband communications, as well as simulation on optical transmission media including the electrical terminations.

Low-cost Optical Components

In any large scale introduction of IBC some components will be needed in very large volumes and have a significant impact on the systems-costs both due to their price as well as performance characteristics such as mean time before failure. To produce key components such as reliable sources and detectors the device and process technologies need to be advanced very considerably.

High Bit-rate Links

High bit-rate transmission in the customer loop would precipitate an enormous increase in long-haul traffic, which leads to requirements additional to those met by direct detection techniques. The development of coherent links (homodyne or heterodyne detection) implies an intensification of the work on specific devices such as DFB Lasers, Optical Amplifiers etc. In addition to long-haul applications coherent systems might revolutionise network architectures in the customer loop.

II.2 COMMUNICATIONS SOFTWARE TECHNOLOGIES

Software Infrastructure

The IBC Network will require software whose requirements, are at least as complex as those of present day telecommunications systems. Significant increases in programming productivity can be achieved by the provision of a unified software infrastructure, covering specification, implementation, on-line environment, testing, re-usability and the corresponding tool set.

Requirements Definition Tools

The process of requirements capture and their subsequent mapping onto a system architecture precedes the life-cycle for both hardware and software development. Requirements in the telecommunication field are characterised by a large number of necessary options. These requirements cover the functional system behaviour, interfaces (ISO-OSI) and performance. Considerable effort is needed to establish a framework for the requirements work, which will allow for checking of consistency and completeness.

II.3 BASIC TECHNOLOGIES FOR IBC USERS

Audio/video Processing - Redundancy Reduction

Present quality TV transmission and 'enhanced'/HDTV, to a much higher degree, impose severe transmission and switching requirements. Optimum trade-offs between transmission bit-rate and bandwidth compression have to ensure a minimum acceptable cost for the user. Extensive work is required in video signal processing, coding techniques, system design etc., coupled with advances in semiconductor technology in order to develop cost-effective coding/decoding devices.

Broadband in the Customer Premises Network

RACE is addressing the provision of advanced telecommunications services to the general public. The need to make advanced integrated services available to the general user at an acceptable cost implies the functional integration with television (and HDTV), telephony (and video-telephony) as well as new services such as home shopping, electronic mail etc. To achieve this at a cost level acceptable to the general public represents a major cost-performance challenge. The purpose here is to develop the systems- concepts and -technology with advanced cordless links or optical bus for office and home applications fully coherent with public networks specification basis and applications functional requirements. Main lines of work will include switching and transmission.

Image Sensors

The dominant characteristic of IBC networks is their ability to support moving image applications up to HDTV standards and to support high quality professional documents transfer. Therefore work will concentrate on the technology work required to generate cost effective image processing capabilities for the widespread provision of IBC applications, with particular emphasis on television and videotelephony.

Communications Display Technology

Large and small size high quality displays will be key elements in encouraging the widespread use of IBC services. In this area work will address the development of items needed to support HDTV. In addition resources will be devoted to guarantee that optimal economy of scope is achieved in the design of components of the various advanced cost-effective display systems required by IBC.

Digital Image Recording Techniques

Image based applications of IBC will require recording systems designed to meet requirements specific to IBC networks operations. These requirements call for the development of both sequential and continuous video access methods (both for recording and reading) that need to be realised with low-cost techniques before IBC applications can be made available on a sufficiently low cost basis, including image store-and-forward functions.

HDTV Components

This work relates to critical components for the realisation of advanced HDTV concepts.

II.4 SUBSYSTEMS AND TECHNIQUES

In this area work will aim at developing laboratory models for IBC-subsystems based, wherever possible, on technologies developed in areas II 1,-2 and -3

Customer Access Realisation

The Customer Access System comprises the physical bearer that carries the customer's information together with the opto-electronic equipment providing the multiplexing, signal processing, routing, signalling and other functions at the interfaces to the Users Terminal and to the IBC Network.

Broadband Switching Modules

Optical and electronic crosspoint matrices will need to be developed and qualified for use in the various switching applications within the IBCN, and these will require interfacing to the control/signalling infrastructure and to the management/maintenance infrastructure. Loss, power dissipation, reliability, crosstalk and other parameters will need to be optimised.

Broadband Links

Trunk links able to support high bit-rate transmission (exceeding 565 Mbit/s) over long distances are the objective of the work. This work will concentrate on key-components, like couplers, repeaters, transmitters, receivers and optical fibres with respect to meeting IBCN requirements in terms of transmission quality, -reliability, and -maintenance.

Satellite broadband links are especially attractive for distributive traffic over a wide area but impose severe demands upon frequency spectrum and on-board power. In the IBC, satellites will probably operate as intelligent switching machines rather than as passive relay-stations and the design of on-board equipment and earth terminals will form the major subject of these studies.

Human Factor and Terminal Engineering

Most IBC users will be laymen and the IBC terminals will need to buffer much of the IBC complexity from the user and provide a simple, userfriendly interface orientated towards user needs, including special groups such as naive and disabled users. The study of human factors and the associated terminal design features is an essential part of the IBC workplan.

IBC Systems Organisation, -Management and -Maintenance

The introduction of IBCN implies the ability to deal effectively and economically with all operational aspects. The work will include

- traffic- and network control
- subscriber service management (metering, charging, monitoring, ..)
- network maintenance and configuration management
- network fault diagnostics and recovery procedures
- provider services management
- etc.

Part III: Pre-normative Functional Integration

Objective

The work is aimed at the validation of standardisation concepts and pre-normative work as deriving from work done in other parts of RACE. The parts of the IBC systems or subsystems will be tested by means of simulation or research-experimentation with particular reference to the needs of technological work in preparation of standardisation proposals.

Pre-normative functional integration serves several important functions, it will

- permit the verification of concepts, standardisation options, reliability, security, as well as other key functional characteristics by simulation and testing at the research stage;
- contribute to the reduction of risks for development and implementation by permitting the evaluation of the functional features by operators, industry and where applicable service providers and users;
- provide a mechanisms for demonstrating interoperability features and compliance to standards and specifications.

Scope³⁾

The scope of the work is to

- test new technology, and devices from projects in Part II RACE, ESPRIT, relevant national programmes, international projects as an integral part of an IBC system to evaluate its functionalities and techno-economic performance characteristics,
- explore relevant performance parameters and confirm the feasibility of meeting the relevant requirements of the functional entity as defined within the Reference Model activities.
- where necessary assemble functional blocks into skeleton network configurations in order to test their interaction, with the objective of establishing that the IBC system operates as defined, and to verify that operation and maintenance procedures are meeting the overall network requirements.

Within the overall IBCN there are numerous functions for which this type of work will need to be carried out. Though there are different classifications possible the issues can be grouped according to the dominant functions.

III.1 CUSTOMER FACILITIESFixed Terminal Functions

Prototypes of IBC terminals utilising new technologies. An example is a multifunction IBC workstation capable of accessing a range of new services with special emphasis on video applications (eg HDTV, video telephone, ..). The subject is the realisation of aspects such as new display technologies (eg flat panels), the realisation of functional and modular standardisation concepts, the operation of internal bus structures, etc in the context of advanced telecommunications termination of the IBC network.

Customer Premises Network Functions

To allow interworking of terminals with the network interface (NTI) within the customer premises, specific interfaces and telecommunications functions need to be realised to serve the variety of network structures and implementations to be expected. The telecommunication functions to be developed for IBC range from simple Customer Premises Networks (eg simple interconnection of domestic equipment to external lines) up to complex Customer Premises Networks (eg interworking of a variety of terminal equipment and a switching capability to the external lines),. The functionalities to be realised need to permit the interoperation with a variety of external networks (public, private, DBS, ...).

(3) The work envisaged within this part of the RACE Programme are not expected to have the nature of demonstration projects or field trials. Such trials or prototype installations will be required before operational implementation of a harmonised set of IBC services can be undertaken but are beyond the scope and scale of effort under consideration for the RACE Programme.

Mobile Termination

Mobile terminals will need to be compatible with future IBC networks and services. The work in this domain will include the examination of the technical feasibility of overlaying or integrating various mobile radio infrastructures in IBC, and the level at which gateways between them and the IBC Network should exist. This work will also include some work on mobile IBC terminations.

III.2 USER ACCESS

Customer Access Function

To connect the customer premises to the first switching node in the main (broadband) network, a transmission link is required to carry several channels/circuits and provide a standardised method of connection between the two. Work in this area will range from basic access experiments (a few entertainment channels with a few telecommunication channels) for typical domestic and small business customers, up to broadband integrated-service PBX access systems for large, sophisticated customer systems.

Local Switching Functions

In the local switching area typical functions to be addressed relate to the separation of entertainment from telecommunication services, methods of providing selection between entertainment programmes, the mechanisms of choice of the services themselves, etc.

Head-end Functions

This work will address the functions required for the collection of entertainment services from a variety of sources (nationally distributed cable, local production facilities, DBS, off air,...) and distributing them to dependent Local Switching Units.

Local Exchange Functions

To provide an interface between the customers and the main broadband telecommunications network a switching, concentrating and multiplexing function is required. This represents the traditional telecommunication exchange, although it may additionally be used to handle nationally distributed entertainment services. Integration projects in this domain would test new technologies and concepts particularly associated with enhanced bandwidths for IBC (the broadband switching function in particular), and alternative methods of performing the switching function.

III.3 NETWORK FUNCTIONS

Trunk Exchange Functions

These are to provide interconnection including switching and multiplexing functions, between trunk transmission circuits in the long-distance part of the overall IBC network. Work in this area is similar in kind to that in realising enhanced Local Exchange Functions, but relates to the specific conditions of higher traffic densities corresponding to the higher relative position in the network architecture.

Transmission Functions

The work in this domain relates to the realisation of high data-rate functions between exchanges. It includes the necessary transmitters, couplers, receivers, etc. as well as the transmission medium itself. It is expected that these links will need to work at transmission speeds in excess of 565 Mbit/s using, for example, wavelength division multiplex (WDM) techniques to increase the overall transmission capacity.

Operating and Maintenance Functions

These are to provide a monitoring and control capability for the integrated broadband communication network functions. Integration Projects in this area would include experiments on network management, fault detection and diagnosis, maintenance (on main network and customer links), etc., and would aim to test the new technologies, software and system concepts developed elsewhere within RACE, for suitability and techno-economic performance in this field.

ANNEX 2

The non-member states referred to in Article 2(1) are:

- Republic of Austria
- Republic of Finland
- Kingdom of Norway
- Kingdom of Sweden
- Swiss Confederation

FINANCIAL STATEMENT

1. Budget Heading

7342 R&D in Advanced Communication-technologies in Europe
(RACE)

2. Legal Base

- Article 235

3. Description of project

The thrust of RACE is towards establishing on the world market a strong, or even leading position, of the Community telecommunication manufacturing, operating and service industries in integrated and broadband communications on the basis of the accelerated development of a strong and competitive Community market for telecommunications equipment and services.

The goal of RACE is to make a major contribution to the objective of the "Introduction of Integrated Broadband Communication (IBC) taking into account the evolving ISDN and national introduction strategies, progressing to Community-wide services by 1995".

The present proposal is the result of the RACE Definition Phase decided on July 25 1985 (85/372/EEC) by the Council of Ministers ¹⁾.

The RACE Programme consists of 3 parts:

In order to achieve the underlying objectives described in the previous section, RACE Main would be structured into three main parts

Part I: IBC DEVELOPMENT AND IMPLEMENTATION STRATEGIES,

relating to the development of functional specifications for IBC, the systems and operations research towards the definition of proposals for IBC Open Systems-conforming standards, concepts and conventions, and the analytical work serving the objective of establishing interoperability for IBC equipment and services;

Part II: IBC TECHNOLOGIES,

covering the technological cooperation in pre-competitive R&D addressing key requirements with new technology for the low-cost realisations of IBC equipments and services; and a

1) The RACE Definition Phase has been implemented according to the Decision in scope and timing. The resources allocated to it 14 MECU under Budget Item 7336 for the Part II and 6 MECU under Item 7700 for the Part I were completely engaged according to the Workplan by June 1986.

Part III: PRE-NORMATIVE FUNCTIONAL INTEGRATION,

relating to pre-normative cooperation in the realisation of an "open verification environment" designed to assess functions, operational concepts and experimental equipment with respect to functional specifications and standardisation proposals arising from the work in Part I.

4. Justification of the project

For the emerging global economy telecommunications represents the single most important infrastructure. If the 1950's and 1960's have seen the emergence of a world market place for manufactured goods, and the 1970's and 1980's an increasingly world-wide manufacturing base, the 1990's will bring in addition a world-wide service economy, for which telecommunications will represent the essential infrastructure and competitive factor.

This is the key element for the appreciation of the significance of telecommunications. In addition to its importance as a major economic sector in its own right (telecommunications represented ECU 40 billion of annual sales world wide in 1985, and service revenues are approximately ECU 200 billion per year) the telecommunications infrastructure is a main determinant for the location of the high-value-added activities of the future. These are communication-intensive; the international competition for these service activities will, therefore, be greatly influenced by the cost-performance of the telecommunication services which one region can offer in comparison with others.

Thus effective competition will play a decisive role for employment prospects. This extends to maintaining employment in the Community, attracting employment from other parts of the world and the chances of employment creation due to the emergence of new economic activities. Approximately 50% of the economically active population in OECD countries work in information occupations and about 2/3 of the GDP of the Community depends on these activities. The international competition for this kind of high value-added employment is strongly dependent on the cost-performance and availability of advanced telecommunication services.

The proposed action responds to an urgent need to facilitate and accelerate the emergence of advanced communication equipments and services. The action will benefit from synergy with on-going action in the field of information technologies (ESPRIT).

5. Financial implications for the intervention appropriations ²⁾

5.0 Implications for expenditure (Million ECU)

5.0.0 Total cost over the whole of the expected duration of 5 years:

From the Budget of the Communities:	800
From other sectors at the national level:	757
	1557
TOTAL:	1557

2) The Proposal for a Council Regulation concerning the Framework Programme of Community Activities in the Field of Research and Technological Development (1978-1991) COM(86) 430 final includes for the Action Line Telecommunications the amount of 800 MECU.

5.0.1 Multiannual schedule

Commitment Appropriations	1987	1988	1989	1990	1991 and later	Total
Contracts	61.69	210.67	348.32	92.85	38.96	752.49
Personnel Costs	4.81	5.13	5.48	5.85	6.24	27.51
Administrative Costs	3.5	4.2	6.2	3.8	2.3	20.
Total	70.	220.	360.	102.5	47.5	800

Payment Appropriations	1987	1988	1989	1990	1991 and later	Total
Contracts	15.09	140.67	208.32	281.35	47.06	752.49
Personnel Costs	4.81	5.13	5.48	5.85	6.24	27.51
Administrative Costs	3.5	4.2	6.2	3.8	2.3	20.
Total	23.4	150.	280.	291.	55.6	800

5.0.2 Method of calculation

a) Expenditure by contract

This expenditure covers the Community's financial contribution to analytical work, systems R&D, and laboratory prototyping of Open Systems-conforming standardisation options carried out normally under shared-cost contracts (research and development for a total of about 10000 Man Years) to be concluded with industry, operators, service providers, universities, research establishments, undertakings, including small and medium sized enterprises and other bodies established in the Community, active in the field (average Community financial contribution - about 50% of total costs).

b) Operational expenditure

Administrative costs (management committee and working party meetings, consultation of experts, missions, document distribution or dissemination of techniques, use of data processing, telecommunication and broadcasting equipment).

c) Management staff expenses

The requirements of this project have been estimated on the basis of a staff complement, in addition to the officials engaged under the RACE Definition Phase (12 temporary officials 7A+1B+4C), of :

- [31] temporary officials - category A
- [5] temporary officials - category B

[19] temporary officials - category C.

6. Financial implications for staff and current administrative appropriations

(See sub-point 5 above - included in the general budget of the Commission)

7. Financing of expenditure

The appropriations required to cover the Community's contribution to this project are to be entered in the Community's future budgets.

8. Implications for revenue

- Community tax on salaries of officials
- Officials' pension contributions.

9. Type of Control

- administrative control by the Director General for Financial Control as regards budget implementation;
- Scientific Control:
 - . Management Committee
 - . scientific control by officials of the Commission
 - . audit by the Court of Auditors in accordance with provisions of the Treaty.

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(86) 662 final

Brussels, 1 December 1986

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL

on Trade Electronic Data Interchange Systems
(TEDIS)

Proposal for a
COUNCIL REGULATION

introducing the preparatory phase of a Community programme on
trade electronic data interchange systems
(TEDIS)

(submitted to the Council by the Commission)

COM(86) 662 final

PREFACE

The various steps taken by the Commission and the Member States in relation to telecommunications, IT standards and the INSIS, CADDIA, and CD projects have led to the definition of work programmes that are now under way. Their aim is to develop the technical infrastructure needed for the introduction and use of a standardized approach to electronic data interchange.

The first step planned by the Commission and the Member States towards the standardized approach to electronic data interchange was to facilitate the trade administrative procedures needed for the transmission to the administrative departments of the Commission and the Member States of information on import/export data, financial control and agricultural market management (CADDIA).

The purpose of the new venture proposed here is to extend the concept of the standardized approach to electronic data interchange to ALL users in business, industry or government.

SUMMARY

The modern economy relies increasingly on the exchange of trade data or information between business partners. A large volume of data is exchanged in this way. The speed, reliability and relevance of the flows of information exchanged are increasingly affecting the competitiveness of firms both large and small.

In response to the current requirements of the business world, electronic data interchange (EDI) offers substantial advantages and opportunities. These include abolition of the work of re-encoding data, improvements to customer service, better stock management and the speeding-up of the sale/invoicing/payment cycle.

In recent years several private efforts to introduce EDI have been made in Europe. Although the value of these spontaneous approaches should not be underestimated, it has to be admitted that there are numerous and costly duplications of effort and harmful differences of approach, especially as regards standardization.

The repercussions are harmful to the general economy as well as to the telecommunications and IT industry and services in Europe. Whereas EDI is developing very rapidly in the United States, Europe's efforts have in most cases not gone beyond the design or at best prototype stage.

As is pointed out on many occasions in the White Paper on completing the internal market, the ease of circulation of information between trade and industry and the Member States is essential to the free movement of goods and services and to the development of intercompany cooperation throughout Europe.

With regard to EDI, it is necessary:

- to avoid the emergence of a number of incompatible national approaches,
- to restrict the implementation of watertight systems that cannot communicate with each other,
- to abolish or limit the danger of the IT market in Europe becoming fragmented,
- to help to promote market unity and the achievement of the necessary economies of scale.

Measures taken so far by the Community have helped to establish the necessary basis for the setting-up of EDI systems. These have included general measures applicable to a number of economic sectors and the commissioning of feasibility studies or pilot projects relevant to specific activities.

¹ COM(85)310 final, 14.06.1985.

These measures have made it clear that the main barriers to the setting-up of operational trade EDI systems are of a transverse nature, such as:

- the inadequacy of standardization,
- protocol incompatibilities,
- incompatibilities between hardware and software,
- the need for multilingualism in cross-frontier information exchange,
- the unsuitability of the conventional telephone system, mainly on grounds of cost and disparities in charges.

It has also been found that:

- activities of general interest to solve the abovementioned horizontal problems and specific pilot projects must be closely linked and conducted in parallel;
- the Commission has so far supported projects involving solely or mainly public departments;
- greater support should henceforth be given to the preparation, development and distribution of trade EDI systems intended for business users, and especially small and medium-sized firms, by backing the efforts of private operators without usurping their role.

Consequently it is necessary:

- to put a stop to the proliferation of watertight trade EDI networks and the widespread incompatibility that would result;
- to promote the design and installation of trade electronic data interchange systems meeting user requirements, especially those of small businesses;
- to stimulate the European telecommunications and information technology equipment and services industry so that it can meet user demand.

The proposed programme includes horizontal and vertical activities with continuous interaction between them. The horizontal activities are projects of common interest needed for the development of EDI; the vertical activities consist of sectoral projects. The intersection of horizontal questions with vertical applications gives rise to specific problems that have to be tackled within both the general framework of the horizontal problem and the specific context of the vertical application. That is why coordination in the development of vertical applications is absolutely essential.

The horizontal activities needed for the development of trade EDI are:

- (a) coordination at Community level of the work going on in the Member States on the development of trade EDI systems;
- (b) alerting potential users by giving them comprehensive information on the potential of EDI and providing the technical documentation they need to set up trade EDI systems;
- (c) alerting European hardware and software manufacturers to the opportunities offered by the development of EDI systems and the problems that have to be overcome before they can be implemented;

- (d) logistic support for European sectoral groups so as to help them prepare and launch trade electronic data interchange systems;
- (e) consideration of the specific requirements of trade electronic data interchange in the telecommunications and standardization policies; carrying out of preparatory work for that purpose;
- (f) initially, study of the security requirements for trade electronic data interchange systems so as to guarantee the confidentiality of the messages transmitted; if appropriate at a later stage implementation of the activities deemed necessary;
- (g) study of the specific problems caused by the many different languages in the Community and examination of the possibility of using, as regards the multilingual aspects, the results obtained or expected under the Systran and Eurotra machine translation programmes;
- (h) initially, study of the advisability of promoting the development of the specialized software needed for trade electronic data interchange; possibly at a later stage financial support for the development of specialized EDI software;
- (i) assistance in the setting up of conformance testing centres for software and hardware used in trade electronic data interchange systems (and claiming to comply with an international or European standard);
- (j) solving of legal problems that might hamper the development of trade electronic data interchange and ensuring that restrictive telecommunications regulations cannot inhibit the development of trade EDI systems.

As far as the vertical activities (sectoral projects) are concerned, it would be advisable in the early stages:

- (a) to draw up a list of existing or potential sectoral projects on trade electronic data interchange and make a comparative analysis of them, in particular to see how they can help to solve horizontal problems;
- (b) to identify specific requirements emerging during the implementation of trade EDI systems that could be solved more easily with Community assistance;
- (c) to study in particular assistance that could be given to small and medium-sized firms to enable them to take part in trade electronic data interchange;
- (d) to examine the possibility of supporting pilot projects, the gradual implementation of which would help to find solutions that could be extended to problems of common interest encountered by most trade EDI systems.

At a later stage, should the preliminary studies have shown the need for such action, it may be necessary:

- (e) to grant special support for small businesses to help them take part in trade EDI;
- (f) to support the development of certain trade EDI pilot projects by means of a form of assistance and type of financing yet to be defined;
- (g) to take action to meet certain specific requirements identified.

The programme would be implemented in two phases:

- the preparatory phase,
- the pilot project phase.

In the preparatory phase (6 million ECU lasting two years), the horizontal activities necessary for the development of trade EDI will be implemented and the preliminary studies on the vertical activities (sectoral projects) will be carried out.

After the preparatory phase a progress report will be presented to the Council before the pilot project phase is started; this report will also suggest guidelines for the continuation of the programme.

CONTENTS

	<u>Page</u>
1. The modern economy relies increasingly on the exchange of data between business partners	6
2. Electronic data interchange (EDI) offers substantial advantages and opportunities	7
3. The current situation in Europe is not satisfactory	8
4. The consequences are harmful to the economy in general and to the telecommunications and IT industry and services in Europe	9
5. Justification for Community action	10
6. Measures already taken by the Community have established the necessary basis for the setting-up of EDI systems between business users	11
6.1 General initiatives and measures	
6.2 Specific pilot projects for electronic data interchange between certain categories of users	12
6.2.1 Community programmes and projects concerning public users	
6.2.2 Projects supported by the Commission concerning various private users	13
6.3 Review of past activities	14
7. Past activities have to be expanded and adapted to the needs of the business world for electronic data interchange	15
7.1 Objectives	
7.2 Principles	
7.3 Content and general lines of the proposed activities	
7.4 Horizontal activities needed for the development of trade electronic data interchange	16
7.5 Vertical activities - sectoral projects	17
8. Budget	19
8.1 Preparatory phase	
8.2 Pilot project phase	
8.3 Estimated appropriations required for the preparatory phase	20

1. The modern economy relies increasingly on the exchange of data between business partners

Commercial operations today, whether national or international, involve numerous exchanges of trade data or information between business partners. The volume of data exchanged in this way is vast, first because the data are transferred to separate documents at each stage and for each operation in a commercial transaction from the request for a quotation up to invoicing and payment, and secondly because there are so many different business partners: manufacturers, suppliers, customers, insurers, bankers, carriers, forwarding agents, etc.

The operations involved in the processing and transmission of trade information are often far more time consuming than the manufacture or delivery of the goods (or provision of services). This applies in particular whenever a business transaction involves operators or partners in different countries, even if those countries are members of the EEC.

The flow of information is also tending to increase with the growing internationalization of economic activity, the greater number of after sales services offered to customers and, further up the production line, market services purchased by companies.

In addition, firms are obliged to provide several national departments, in particular the customs services, with information on their international transactions.

For example, it is quite common for the accounts department of a large firm to handle monthly 10 000 to 20 000 invoices and 1 000 to 2 000 payment advices amounting to some 10 000 different documents.

The processing is generally done in two successive operations: first the information is processed on paper (the form in which the data are most frequently transmitted) and then the data are encoded for computer processing.

The speed, reliability and relevance of the information flows exchanged are increasingly affecting the competitiveness of companies both small and large.

The ability to process and exchange trade data as quickly as possible allows stocks to be reduced, helps to cut financial costs and gives companies an additional competitive edge by improving the service offered to their customers: flexibility, speed and a greater ability to respond to their changing needs and desires.

In the view of European motor manufacturers, it is by reorganizing trade data exchanges with their suppliers along these lines that they will best be able to withstand Japanese competition.

2. Electronic data interchange offers substantial advantages and opportunities

Definition of EDI: electronic data interchange (EDI) relates to the exchange of information and messages (instead of conventional documents) transmitted between business partners by electronic means of communication.

The advantages of trade electronic data interchange include:

- (a) Abolition of data re-encoding, thereby cutting down on paper work and reducing administrative tasks. The first effect of trade electronic data interchange is to reduce data preparation costs since data are transmitted automatically without human intervention; it also reduces transcription errors, thereby improving data reliability.
- (b) Improvement of customer service, mainly through:
 - . faster processing of orders since fewer manual operations are required;
 - . more accurate order chasing since there is no data redundancy;
 - . better and faster information for customers through the centralization of data and immediate access.
- (c) Better stock management because trade electronic data interchange allows:
 - more accurate sales prediction;
 - shorter delivery periods;
 - reduction of buffer stocks.

The aim is "just in time" deliveries so as to reduce management costs and the capital tied up in stocks to a minimum.

- (d) Acceleration of the sale/invoicing/payment cycle since trade electronic data interchange cuts out postal delays in the sending of orders, invoices and payments; the faster payment that results helps to improve the companies' cash position.

The opportunities offered by EDI are considerable. For example:

- (a) It has been estimated that the costs resulting from paperwork, errors, data redundancy, excessive stockholding, waiting time in offices, factories and customs posts could account for up to 10% of the cost of the exported finished product.
- (b) Taking transport alone, it seems that the costs of conventional documents and transport delays caused by the production and inspection of these documents make up 10 to 15% of the final transport cost.

These overall estimates are confirmed by more precise evaluations in specific branches.

Motor manufacturers have announced a possible saving of at least 200 ECU per vehicle through the intensive use of trade electronic data interchange, which allows storage periods to be reduced by two to three weeks. Postage costs could also be cut by 75%.

To take another field, trade electronic data interchange between a few large supermarkets and some of their major suppliers in the USA has given savings of USD 300 million in one year.

EDI is of at least as much benefit to small firms as large ones, even if the figures available all relate to the latter. Because they are often subcontractors and have a low credit worth, small firms suffer more than larger ones from the burden of financing charges, cash flow problems and the tying-up of capital in stocks as a result of the time required to transmit trade data and pay for supplies.

3. The current situation in Europe is not satisfactory

In recent years a few private efforts to establish EDI have been made in Europe. Although the usefulness of these spontaneous ventures should not be underestimated, it is clear that duplication is frequent and costly, the approaches and solutions found for similar problems differ widely and sometimes lead to conflicting national or international positions on the general approach and on the solving of transverse problems, i.e. those common to all EDI systems.

There are still standardization inadequacies in some fields relevant to EDI, leaving scope for several possible interpretations, and allowing different types of products incompatible with each other to be developed. What is more, the X25 communications protocol, standardized internationally, has not yet been put into effect in a harmonized fashion in all member countries, and this hampers the fast, reliable and economic communication of trade data from one country to another.

- (c) The cost of calls on the conventional telephone line, especially international ones, is still too high to encourage intensive use of the telephone for trade electronic data interchange. Users are also faced with charges that differ from one country to another.
- (d) Data security and confidentiality is not always guaranteed to the extent that business partners would like because of the inadequate resources allocated to this question and the piecemeal efforts being made in different countries.
- (e) From the legal viewpoint, too, there are serious difficulties, for example with regard to the authentication of documents exchanged by electronic means, in particular the proof acceptable in the event of disputes, or with regard to restrictive regulations on the interconnection of private networks to public networks.

4. The consequences of this situation are harmful to the economy in general and to the telecommunications and IT industry and services in Europe

In the United States electronic data interchange in a homogenous environment (identical hardware and software) and in a very limited framework has been operational for ten years. Only recently have the Americans started working actively on trade electronic data interchange in a heterogeneous environment (different hardware and/or software) and accessible to companies having different industrial activities. Ventures of this kind have been operational only for about two years.

The gap between Europe and the United States is likely to open up very rapidly: ventures in Europe are still for the most part at the project or at best prototype stage whereas electronic data interchange is expanding fast in the United States where it is already operational.

Another factor is that the European industry offering telecommunications and IT services is showing little awareness of the scope of the market opened up by trade electronic data interchange in Europe and elsewhere.

In contrast, there are already many ventures in Europe launched from across the Atlantic¹ in order to seize the opportunities available on this fast growing market.

The faster development, better coordinated on a European scale, of electronic data interchange systems would stimulate the European supply of hardware, software and telecommunications and IT services.

5. Justification for Community aid

Ease of circulation of information between the business world and the Member States is an essential condition for the free movement of goods and services and for the development of cooperation between companies throughout Europe. The White Paper on completing the internal market² drawn up by the Commission for the European Council (Milan, 28-29 June 1985) points this out many times:

"The development of new technologies has led to the creation and development of new cross-border services which are playing an increasing important role in the economy. However, these services can develop their full potential only when they serve a large, unobstructed market. This applies equally to audiovisual services, information and data-processing services and to computerized marketing and distribution services" (page 30, section 113). "In addition, the Commission would stress that a market free of obstacles at Community level necessitates the installation of appropriate telecommunication networks with common standards" (page 31, section 114).

This circulation of information between business partners calls for the adoption of common standards and protocols (equipment, communications network, software) and the harmonization of charging policies.

¹For example, McDonnell Douglas Electronic Data Systems, using the world communications network Tymnet, is offering in Europe its electronic data interchange (EDI) system. Geisco, a service company belonging to the American General Electric Group, set up in the United Kingdom in July 1985 a network called Geisco's Motornet for trade data interchange between suppliers and manufacturers in the British motor industry. Geisco is also planning to introduce in the United Kingdom its accelerated trade payments (ATP) system developed in the US with the First National Bank of Chicago. The City Bank and McGraw Hill have just got together in the Global Electronics Markets Company (GEMCO) to capture a large part of the fast-growing market for trade electronic data interchange.

²COM(85) 310 final of 14 June 1985.

The Community is the right place to tackle the joint legal and technical problems because of the consistency, synergy and economies of scale it can offer. This is particularly true in the context of the increase in cross-frontier commercial transactions and the completion of the large market.

It is essential to establish a harmonized or common legal environment within which EDI systems can be developed and used without hindrance.

Technically, too, the need for compatibility and for different hardware and software to be able to communicate calls for either the common application throughout the EEC of international standards, or the international use of uniform European standards. In addition, since problems such as the overall reliability of communications networks and the confidentiality and security of trade data extend across frontiers and are of interest to all, it is essential to pool the R&D and experimental work needed in this field and to adopt solutions harmonized at European level.

The Community coordination urgently desired by current or potential users of trade electronic data interchange is necessary in order to:

- avoid the emergence of a number of incompatible national approaches;
- restrict the implementation of hermetic systems that cannot communicate with each other,
- prevent or limit the danger of the European IT market becoming fragmented as a result of the diversity of the systems and approaches adopted, - help to promote market unity and the achievement of the necessary economies of scale.

6. Measures already taken by the Community have established the necessary basis for the setting-up of EDI systems between business users

These include both measures of a general nature applicable to a number of economic sectors and feasibility studies or pilot projects relevant to specific activities.

6.1 General initiatives and measures

(a) The progress made since 1984 under the Community standardization policy for information technology (IT) and telecommunications can offer the following facilities for the development of EDI:

- a suitable framework and machinery for the definition of standardization priorities, the production of standards meeting the needs of carriers and the uniform application of these standards throughout the Community,

- the gradual provision of a set of functional standards¹ that can be directly used in EDI type applications.

In addition standardization work is now in progress in CADDIA (cf. 6.2.1(b) below), in order to adapt and implement guidelines for trade data interchange. It is being carried out in perfect harmony with similar work being done by the United Nations Economic Commission for Europe in Geneva.

- (b) The design of EDI systems will benefit from the telecommunications activities which have in particular established:

- effective arrangements for consultation and study between network operators and Member States,
- a common framework for the development of strategies, infrastructures, services and terminals,
- the interconnection of national packet-switched networks in Euronet-Diane,
- financial instruments to facilitate the establishment of advanced infrastructure and services where they do not yet exist (in particular in the outlying regions of the Community).

- (c) The work done on data security and confidentiality under the multiannual data-processing programme could also be useful in developing the procedures and tools needed for electronic data interchange systems so as to guarantee the security of systems and networks and the integrity of the software used in these applications.

- (d) The development of the specialized information market is helping to set up advanced information services for research and industry under the five-year programme.

6.2 Specific pilot projects for electronic data interchange between certain categories of users

6.2.1 Community programmes and projects concerning public users

- (a) A programme to set up an integrated services² interinstitutional information system (INSIS) was launched in 1982.

¹ Functional standards: standards capable of supplying complex functions based on the chaining of several reference standards as in the case of file transfer via a public network.

² Decision 82/869/EEC of 13.12.1982, OJ No L 368, 28.12.1982.

At the current stage of INSIS, a number of pilot projects are under development or already operational. They include:

- INSEM: Interinstitutional Electronic Mail System,
 - OVIDE (Organization of Videotex for European Members of Parliament) which will be the first Community-wide videotex application,
- (b) The Commission has also undertaken coordination work for the specification and implementation of computerized CADDIA systems for use by the Member States and itself.

The CADDIA projects, relevant to customs, agriculture and statistics, have so far resulted in the establishment or strengthening of electronic data interchange systems so that:

1. the Commission departments have available the modern tools they need to manage the Customs Union, the common agricultural policy and the relevant statistics;
2. these information systems can be prepared for access by Member State administrations (interactive data banks, user-friendly interfaces, integration of data bases, etc.)

A data base called CANDY (CADDIA Data Interchange Directory) has been set up to centralize and harmonize data message definitions for CADDIA applications. This harmonization makes use of the United Nations Trade Data Elements Directory (UN/TDED) and is being coordinated with the work on electronic data interchange in the business world (see ODETTE).

Under the CADDIA programme, specific work is in progress on the coordinated development of computerized administrative procedures (CD project).

The Community requirements expressed under the CD project include, especially for future computerized customs systems, the need to establish common interfaces between public departments and private users (importers and exporters, forwarding agents, port or airport authorities).

6.2.2 Activities relevant to various private users and supported by the Commission

Three limited activities concerning projects between private users were conducted under the multiannual data-processing programme (1979-83).

The aim was to analyse problems specific to each project and to identify possible solutions by means of feasibility studies or pilot projects.

¹ Council Decision of 26.3.1985, OJ No L 96, 3.4.1985.

The Mercator project was designed to test the United Nations guidelines for trade data interchange (UN/GTDI) in a European operational environment. Although it substantiated the validity of the guidelines for trade data interchange, the project highlighted two major problems:

- (a) the difficulty of transmitting computerized data on conventional telecommunications networks;
- (b) the incompatibility of several communication software packages claimed to be compatible.

The European ODETTE group (Organization of Data Exchange by Teletransmission in Europe), formed in 1984, brings together representatives of the motor manufacturers and associated industries. One of its major objectives is remote transmission of trade data including all the transactions involved in the procurement cycle.

ODETTE has identified several problems concerning standardization, telecommunications infrastructure, current incompatibility of protocols, legal loopholes, etc. and has outlined common approaches.

The COST 306 project concerned automatic transfer of transport data. Its main objective was to research and analyse a data interchange concept allowing accelerated goods movements through faster and simpler data transmission between business partners. A demonstration project is shortly to be launched.

Recently (June 1986) the ECCMF (European Council of Chemical Manufacturers' Federations), in cooperation with the Commission, organized in Brussels a workshop on trade procedures facilitation and electronic data exchange. A working party whose members included Commission officials was set up to define conditions for the participation of the European chemical industry in trade electronic data interchange.

6.3 Review of past activities

These activities have demonstrated that the main obstacles to the setting up of operational trade electronic data interchange systems lie in problems of a transverse nature, in particular:

- the inadequacy of standardization,
- protocol incompatibilities,
- incompatibilities between hardware and software,
- the need for multilingualism in cross-frontier data interchange,
- the unsuitability of the conventional telephone system, mainly on grounds of cost and disparities in charges.

It has also been found that:

- activities of common interest designed to solve the abovementioned transverse problems and specific pilot projects must be closely linked and conducted in parallel;
- the Commission has so far supported projects involving solely or essentially public departments as users;
- more active support should henceforth be given to the preparation, development and distribution of trade electronic data interchange systems intended for business users, and especially small and medium-sized firms, by backing the efforts of private operators without usurping their role.

7. Past activities have to be expanded and adapted to the needs of the business world for electronic data interchange

7.1 Objectives

The objectives are:

- to put a stop to the proliferation of hermetic trade EDI systems and the widespread incompatibility that would result;
- to promote the design and installation of trade electronic data interchange systems meeting requirements of users, especially small businesses;
- to stimulate the European telecommunications and IT equipment and services industry so that it can meet user demand;
- to support the common use of International and European standards where they exist, and in particular the recommendations of the UN/ECE in the field of International Trade Procedures.

7.2 Principles

To attain these objectives it is necessary:

- (a) To make use of the results obtained in earlier or current activities.
This applies in particular to the existing telecommunications and standardization policies which will have to take into account the specific requirements of trade electronic data interchange.
- (b) To establish close consultations with the capital goods industry and the user industries or services.
This will be done in particular through specific sectoral projects which the Commission can support, in particular to promote aspects of common or general interest.
- (c) To ensure constant interaction between horizontal and vertical activities.
The horizontal activities are activities of common interest necessary for the development of TDI (standardization, charging policy, multilingualism, confidentiality, security, etc). The vertical activities are the sectoral projects.

7.3 Content and lines of the proposed activities

The horizontal activities are necessary for the development of trade electronic data interchange. The vertical activities, the sectoral projects, will in the course of development encounter horizontal problems which generally have aspects common to several vertical activities (sectoral projects).

The intersection of horizontal problems with vertical applications will give rise to specific problems that will have to be tackled in the general framework of the horizontal problem and the specific context of the vertical application. Consequently coordination in the development of vertical applications is absolutely essential.

Some of these potential vertical applications may offer solutions suitable for widespread use and have sufficient spin-off to be selected as demonstration projects.

It will be important to help the vertical applications to develop consistently and benefit from the experience gained in other projects in solving horizontal problems that are relevant to them all, so as to ensure that well-harmonized solutions are promoted and implemented.

7.4 Horizontal activities needed for the development of trade electronic data interchange

- (a) coordination at Community level of the work going on in the Member States on the development of trade EDI systems;
- (b) alerting potential users, in particular by:
 - preparation and widespread dissemination of general information in the Community languages;
 - organization of seminars in all the Member States, particularly to provide information for small and medium-sized businesses,
 - preparation and dissemination in all the Community languages of the technical documentation needed for the setting up of trade EDI systems;
- (c) alerting European hardware and software manufacturers to the opportunities offered by the development of EDI systems and the problems that have to be overcome before they can be implemented;
- (d) logistic support (meeting rooms, interpretation, etc) for European sectoral groups to facilitate the preparation and launching of trade electronic data interchange systems;
- (e) consideration of the specific requirements of trade EDI in telecommunications and standardization policies; carrying out of preparatory work for that purpose;

- (f) initially, study of the security requirements for trade electronic data interchange systems so as to guarantee the confidentiality of the messages transmitted; if appropriate at a later stage implementation of the activities deemed necessary;
- (g) study of the specific problems caused by the many different languages in the Community and examination of the possibility of using, as regards the multilingual aspects, the results obtained or expected under the Systran and Eurotra machine translation programmes;
- (h) initially, study of the advisability of promoting the development of the specialized software needed for trade electronic data interchange; this software must support both information transfer and the structuring, formatting and coding of data in accordance with the selected standard; possibly at a later stage financial support for the development of specialized software needed for EDI;
- (i) assistance in the setting up of conformance testing centres for software and hardware used in trade electronic data interchange systems (and claiming to comply with an international or European standard);
- (j) solving of legal problems that might hamper the development of trade electronic data interchange and ensuring that restrictive telecommunications regulations cannot inhibit the development of trade EDI systems.

7.5 Vertical activities - sectoral projects

Initially it will be necessary:

- (a) to draw up a list of existing or potential sectoral projects on trade electronic data interchange and make a comparative analysis of them, in particular to see how they can help to solve horizontal problems;
- (b) to identify specific requirements emerging during the implementation of trade EDI systems that could be solved more easily with Community assistance;
- (c) to study in particular assistance that could be given to small and medium-sized firms to enable them to take part in trade electronic data interchange;
- (d) to examine the possibility of supporting pilot projects, the gradual implementation of which would help to find solutions that could be extended to problems of common interest encountered by most trade EDI systems.

At a later stage, should the preliminary studies have shown the need for such action, it may be necessary:

- (e) to grant special support for small businesses to help them take part in trade EDI;
- (f) to support the development of certain trade EDI pilot projects by means of a form of assistance and type of financing yet to be defined;
- (g) to take action to meet certain specific requirements identified.

8. Budget

The programme could be implemented in two phases:

- the preparatory phase,
- the pilot project phase.

8.1 Preparatory phase

In the preparatory phase (6 million ECU lasting two years) the activities and studies listed in 7.4 and 7.5 above will be carried out, i.e.:

Activities

- coordination at Community level of existing work on EDI (7.4.a);
- alerting of users (7.4.b);
- alerting of European manufacturers (7.4.c);
- logistic support (7.4.d);
- preparatory work on standardization and telecommunications (7.4.e);
- assistance in setting up conformance testing centres (7.4.i);
- consideration of legal aspects (7.4.j);

Studies

- study of security requirements to guarantee message confidentiality (7.4.f);
- examination of the possible use of the results obtained under existing machine translation programmes (7.4.g);
- study of the advisability of promoting the development of specialized software (7.4.h);
- list of sectoral projects on trade EDI (7.5.a);
- identification of specific requirements of trade EDI systems (7.5.b);
- study of possible assistance for small businesses (7.5.c);
- consideration of possible support for pilot projects (7.5.d).

After the preparatory phase a progress report will be presented to the Council before the pilot project phase is started; this report will also suggest guidelines for the continuation of the programme.

8.2 Pilot project phase

The purpose of this second phase, the amount and duration of which still has to be determined, is to monitor as far as possible the recommendations made after the studies carried out during the preparatory phase and also to continue where necessary some of the activities already started during the preparatory phase.

8.3 Estimated appropriations required for the preparatory phase

'000 ECU

	1987	1988	Total
- Coordination at Community level of existing work	500	500	1 000
- Alerting of users	500	500	1 000
- Alerting of manufacturers	200	200	400
- Logistic support	50	50	100
- Preparatory work on standardization and telecommunications	250	250	500
- Conformance testing centres	250	500	750
- Legal aspects	150	150	300
- Study of security/confidentiality requirements	200	250	450
- Multilingual aspects	50	50	100
- Study on promoting the development of specialized software	100	100	200
- List of sectoral projects	150	150	300
- Identification of special requirements of EDI systems	100	100	200
- Study on aid to small businesses	100	100	200
- Study on support for pilot projects	250	250	250
Total ('000 ECU)	2 850	3 150	6 000



DRAFT

Proposal for a Council Regulation
introducing the preparatory phase of a Community programme
on trade electronic data interchange systems (TEDIS)

EXPLANATORY MEMORANDUM

Ease of circulation of information between business partners and the Member States is an essential condition for the free movement of goods and services and the development of Europe-wide cooperation between companies.

The purpose of this communication from the Commission to the Council is to demonstrate the importance of trade electronic data interchange and the outstanding opportunities and advantages it offers.

In this field it is essential to prevent the emergence of a number of incompatible national approaches, to limit the implementation of systems that cannot communicate with each other, to prevent or restrict the danger of the IT market in Europe becoming fragmented, and to help to promote market unity and the achievement of the necessary economies of scale.

Those are the reasons underlying this proposal for a Community programme on trade electronic data interchange systems (TEDIS) which is designed both to seek general solutions to problems of mutual interest and to support the development of sectoral projects, the gradual implementation of which would help to find solutions suitable for general application to the common problems encountered by trade EDI systems.

PROPOSAL FOR A COUNCIL REGULATION

introducing the preparatory phase of a Community programme on trade electronic data interchange systems (TEDIS)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament,¹

Having regard to the opinion of the Economic and Social Committee,²

Whereas the Community has as its task, by establishing a common market and progressively approximating the economic policies of Member States, to promote throughout the Community a harmonious development of economic activities and closer relations between the States belonging to it;

Whereas the Heads of State or of Government, meeting in Stuttgart, Athens and Fontainebleau, have emphasized the importance of telecommunications as a vital driving force for economic growth and social development;

Whereas the European Parliament, in evaluating the situation and development of telecommunications, emphasized the key role of the latter in the future political, social and economic development of the Community (debates of the European Parliament on telecommunications 1983, Leonardi report, Albert and Ball report of 1982);

1
2

Whereas on 17 December 1984 the Council approved the main features of a Community policy on telecommunications, including the aim of developing advanced telecommunication services and networks through Community projects;

Whereas the telecommunications sector is of great economic importance as regards both its own industrial activities and its contribution to efficient information interchange throughout the Community;

Whereas there are specific aspects to information technology standards and the work needed to produce them, and in particular:

- the complexity of the technical specifications and the precision needed for data interchange and systems interoperability;
- the urgent need for standards in order to prevent totally incompatible (trade) electronic data interchange systems being developed;
- the need to ensure that international standards are implemented on a basis that makes them credible for practical use;

Whereas a general programme of information technology and telecommunications standardization is being implemented;

Whereas the proposal for a Council Directive on standardization in the field of information technology and telecommunications¹ is intended to establish in those sectors a general framework for drawing up standards or common technical specifications so as to facilitate information exchange throughout the Community by breaking down the barriers created by the incompatibilities that stem from the absence of standards or their lack of precision;

Whereas under the C.D.project² action is to be taken to ensure close cooperation with commercial and industrial interests so as to provide appropriate communications and information exchange interfaces between commercial and industrial systems and those of customs administration;

¹OJ No L

²OJ No C 167, 6.7.1985, P.3

Whereas the abovementioned objective can be achieved only through the establishment of close cooperation between commercial and industrial interests in different industries so as to ensure the necessary compatibility of trade electronic data interchange systems;

Whereas the C.D.project requires that consideration be given to the aspects concerning the security, protection and privacy of data in respect of imports, exports and intra-Community trade supplied to, held by, or in course of transmission between the Commission, customs administrations and commercial CIRCLES.

Whereas the above questions form part of a much wider issue, the protection of information in the context of trade electronic data interchange between information systems; whereas it is essential to ensure consistency between the measures taken under the C.D.project and those implemented in the industrial context;

Whereas the Commission's White Paper on completing the internal market underlines the importance of the development of new cross-border services and the part that telecommunications networks based on common standards can play in creating a market free of obstacles at Community level;

Whereas trade electronic data interchange can increasingly help to strengthen the competitiveness of European companies in manufacturing and services;

Whereas there is at present a rapid increase in public and private efforts at both national and international level to bring into service within companies, groups and industries trade electronic data interchange systems that are not compatible with each other;

Whereas the diverse and piecemeal approaches to trade electronic data interchange adopted within a country or more generally a firm, group of firms or industry are likely to lead to the establishment of incompatible systems unable to communicate with each other and to prevent both users and suppliers of equipment and services from benefiting to the full from the advantages offered by the development of trade electronic data interchange;

Whereas to ensure that these trade electronic data interchange systems be able to communicate it is necessary to adopt a programme containing an initial set of activities of common interest needed for the coordinated development of trade electronic data interchange and a further set of activities more closely linked to sectoral projects so as to help solve in a coordinated fashion the common problems encountered during their development;

Whereas in a preparatory phase it is necessary to carry out activities and studies so as to establish and develop conditions conducive to the coordinated development of trade electronic data interchange;

Whereas in the light of results obtained in the preparatory phase it will be necessary to define the aims and details of a second phase offering support for pilot projects and continuing some of the activities started in the preparatory phase;

Whereas the Treaty has not provided the necessary specific powers,

HAS ADOPTED THIS REGULATION:

Article 1

A Community programme on trade electronic data interchange systems (TEDIS) is hereby set up.

Article 2

The preparatory phase shall be implemented in accordance with the provisions of this Regulation. It shall cover a period of two years starting on 1 January 1987.

Article 3

The aims of the preparatory phase are:

1. coordination at Community level of work going on in the Member States on the development of trade electronic data interchange systems;
2. alerting of potential users;
3. alerting of European hardware and software manufacturers to the opportunities offered by electronic data interchange;
4. logistic support for European sectoral groups;
5. consideration of the specific requirements of trade electronic data interchange in telecommunications and standardization policies; carrying out of preparatory work for that purpose;
6. help in the setting up of conformance testing centres for software and hardware used in trade electronic data interchange systems;
7. solving of legal problems that might inhibit the development of trade electronic data interchange and ensuring that restrictive telecommunications regulations cannot hamper the development of trade electronic data interchange;
8. study of security requirements for trade electronic data interchange systems so as to guarantee confidentiality of messages transmitted;

9. study of specific problems caused by the many different languages in the Community and examination of the possibility of using of the results obtained or expected under the machine translation programmes Systran and Eurotra;
10. study of the advisability of promoting the development of the specialized software needed for trade electronic data interchange;
11. list of existing or potential sectoral projects on trade electronic data interchange and a comparative analysis of them;
12. identification of special requirements emerging during the implementation of trade electronic data interchange systems that could be solved more easily with Community assistance;
13. particular study of the assistance that could be given small businesses to help them to take part in trade electronic data interchange;
14. possible support for pilot projects whose gradual implementation would help to find solutions that could be extended to problems of common interest encountered by most trade electronic data interchange systems.

Article 4

Activities in the preparatory phase shall be carried on in coordination with the existing or planned policies and activities in the Community on telecommunications, the information market, value-added networks and services, standardization and multilingualism, and in particular with the CADDIA and CD projects, so as to ensure the necessary interaction with the specific requirements of trade electronic data interchange.

Article 5

Contracts for the preparatory phase shall be concluded with companies, including small and medium-sized firms, research establishments and other bodies established in the Community.

Article 6

1. The Community shall contribute to the preparatory phase of the programme within the limits of the appropriations entered for that purpose in the general budget of the Communities.
2. The amount estimated necessary to cover the Community's contribution to the work in the preparatory phase of the programme is 6 million ECU for the duration of the preparatory phase.

Article 7

The Commission shall ensure that the preparatory phase of the TEDIS programme is carried out satisfactorily and shall take the appropriate implementing measures.

Article 8

The Commission shall submit to the Council by 1 January 1989 at the latest a report on the execution of the work defined in this Regulation and on guidelines for the continuation of the TEDIS programme.

Article 9

This Regulation shall enter into force on 1 January 1987.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

For the Council

The President

FINANCIAL RECORD

1. Relevant budget heading

7705: Trade electronic data interchange (TEDIS)

2. Legal basis

Article 235

Communication from the Commission to the Council on trade electronic data interchange systems (TEDIS) COM(86)... and proposal for a Council Regulation introducing the preparatory phase of a Community programme on trade electronic data interchange systems.

3. Proposed classification

Non-compulsory expenditure (Article 235).

4. Description of and justification for the project

The objectives of the TEDIS programme are to avoid the proliferation of watertight trade electronic data interchange systems with the inevitable widespread incompatibility, to encourage the design and setting up of trade electronic data interchange systems meeting users' requirements and to simulate the capability of the European IT equipment and services industry to meet users' demands. The TEDIS programme is in two phases: the preparatory phase and the pilot project phase. Only the preparatory phase is covered by this Regulation. The aim of the preparatory phase is to carry out activities and studies so as to establish and develop the favourable conditions needed for the development of trade electronic data interchange.

5. Type of expenditure and method of calculation

The appropriations are entered under item B 7705 of the general budget. They will be needed to cover the contracts in the preparatory phase, expenditure in support of publicity and dissemination activities and the cost of finding coordinated solutions to the various problems of mutual interest raised by the implementation of trade electronic data interchange systems.

6. Financial implications for operating appropriations

6.1 Timetable of commitment and payment appropriations (million ECU)

Year	Commitment	Payment
1987	2.85	1.425
1988	3.15	2.25
1989	-	2.325

6.2 Share of Community financing in the total cost of the project

The Community's financial contribution will vary from 50 to 100% depending on the activities carried out in the preparatory phase.

6.2 Financing of the programme during the current year

In 1986 no financing will be needed to launch the TEDIS programme.

7. Financing implications for staff and current administrative appropriations

7.1 Staff working exclusively on the project

3.5 officials - Category A
1.5 officials - Category C

7.2 Since this staff will be included under the Commission's "operation" establishment plan, the budgeted posts in the "operation" section will have to be increased accordingly.

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(87) 35 final

Brussels, 9 February 1987

Proposal for a
COUNCIL RECOMMENDATION
on the coordinated introduction of public pan-European digital mobile
communications in the Community

Proposal for a
COUNCIL DIRECTIVE
on the frequency bands to be made available for the coordinated
introduction of public pan-European digital mobile
communications in the Community

(submitted to the Council by the Commission).

CONTENTS

A. SUMMARY

B. EXPLANATORY MEMORANDUM

I) INTRODUCTION

II) TRANSITION FROM THE CURRENT INCOMPATIBLE SYSTEMS IN THE
COMMUNITY TO PAN-EUROPEAN CELLULAR DIGITAL MOBILE COMMUNICATIONS

III) THE AIM OF THE PROPOSED RECOMMENDATION

IV) THE AIM OF THE PROPOSED DIRECTIVE

V) ADDITIONAL PREPARATORY SPECIAL ACTIONS FOR THE RAPID DEVELOPMENT
OF PAN-EUROPEAN SYSTEMS FOR SPECIAL USER REQUIREMENTS

VI) CONCLUSIONS

Appendix : Glossary of technical terms

**C. DRAFT PROPOSAL FOR A COUNCIL RECOMMENDATION ON THE COORDINATED
INTRODUCTION OF PUBLIC PAN-EUROPEAN DIGITAL MOBILE COMMUNICATIONS IN
THE EUROPEAN COMMUNITY**

**D. DRAFT DIRECTIVE ON FREQUENCY BANDS TO BE MADE AVAILABLE FOR THE
COORDINATED INTRODUCTION OF PUBLIC PAN-EUROPEAN DIGITAL MOBILE
COMMUNICATIONS IN THE EUROPEAN COMMUNITY**

A. SUMMARY

In accordance with the objectives set forth by the Council of Ministers on 17th December 1984 ^[1] and with the conclusions of the European Council of London of 5-6 December 1986 which called for a special effort for the development and marketing of digital cellular radio in the 1990s, the Commission is proposing an integrated concept for the speedy development of public pan-European mobile communications, namely :

- a Recommendation on the coordinated introduction of pan-European cellular digital mobile communications in the European Community, in order to substantially accelerate the development of a general pan-European mobile communications system ;
- a Directive on frequency bands to be made available for the coordinated introduction of pan-European cellular digital mobile communications in the European Community, in order to secure the necessary frequency spectrum resources, without which a pan-European system will not come into existence ;
- additional preparatory actions, in order to promote the rapid development of pan-European systems for users with particularly urgent needs for such systems, notably the communication requirements of users in commercial vehicles on major trans-European routes and in trains, and the need for telephony in aircraft and for truly European-wide paging systems.

The proposed steps will:

- a) initiate the transition from the present incompatible systems in the Community to a future second-generation pan-European cellular digital mobile communications system providing efficient mobile telephony in the Community ;
- b) allow full use of the benefits of the future mobile communications which will form an important component of the development of advanced telecommunications services and networks in the Community ;
- c) improve the integration of mobile communications with the evolving Integrated Services Digital Network (ISDN) and, at a later stage, with the general Integrated Broadband Communications (IBC) ;
- d) substantially benefit the European user, European industry, and European network and mobile communications operators.

The development of advanced European-wide public mobile communications will, in particular, offer small and medium-sized enterprises a new degree of mobility in their daily transactions, which is essential to many of them. Finally, the proposed steps will eliminate the breakdown of mobile communications when crossing national frontiers within the Community, as experienced at present due to the incompatibility of systems. They will thus be of major benefit to Europe's citizens as a whole.

B. EXPLANATORY MEMORANDUM**I) INTRODUCTION**

On 17th December 1984, the Council approved the main objectives of a Community telecommunications policy [1]. One of the major objectives of this policy is speeding the development of advanced telecommunications services and networks in the Community.

In accordance with these objectives, the Group for Analysis and Forecasting GAP (sub-group of the Senior Officials Group for Telecommunications SOG-T) has investigated the current problems and future potential of pan-european mobile communications in the Community. This Communication and the enclosed Recommendation and Directive is based on the conclusions of the work listed in the GAP report [2] to SOG-T. The Senior Officials Group has endorsed the conclusions of the GAP report.

In its communication of June 5, 1986 [3] the Commission set out details of progress towards the coordinated introduction of pan-european mobile communications. Consultations with the Telecommunications Administrations, the European Conference of Postal and Telecommunications Administrations (CEPT), telecommunications industry and users have now achieved a broad consensus.

Public mobile communications will develop over the next ten years from a service which is currently available to a relatively small number of users, to a service essential to a broad range of business activities and users in the private sector. The telephone in the car will become a common sight on the Community's roads. The services will extend to include portable and hand-held terminals providing more sophisticated functions and data communications.

According to conservative market forecasts, mobile telephones in the Community will increase from 13 per 1,000 vehicles in 1984 to 31 per 1,000 vehicles in 1994. For international long-haul trucks alone, not taking account other mobiles and hand-held terminals, there will be a demand for at least 250,000 mobile stations with international roaming facilities by the year 2000. GAP has estimated the expected number of public subscribers in the Community at 2.4 million in 1995. Demand could be substantially larger if favourable conditions are created (see Fig. I, low cost scenario, number of mobile stations per 1,000 inhabitants, per Member State).

These favourable conditions currently do not exist in the Community. Five different incompatible systems have been implemented in the Member States. Mobile communications break down when frontiers within the Community are crossed. A car driver crossing the Community would currently need five different mobile telephone systems to be able to communicate in all areas where mobile services are currently provided.

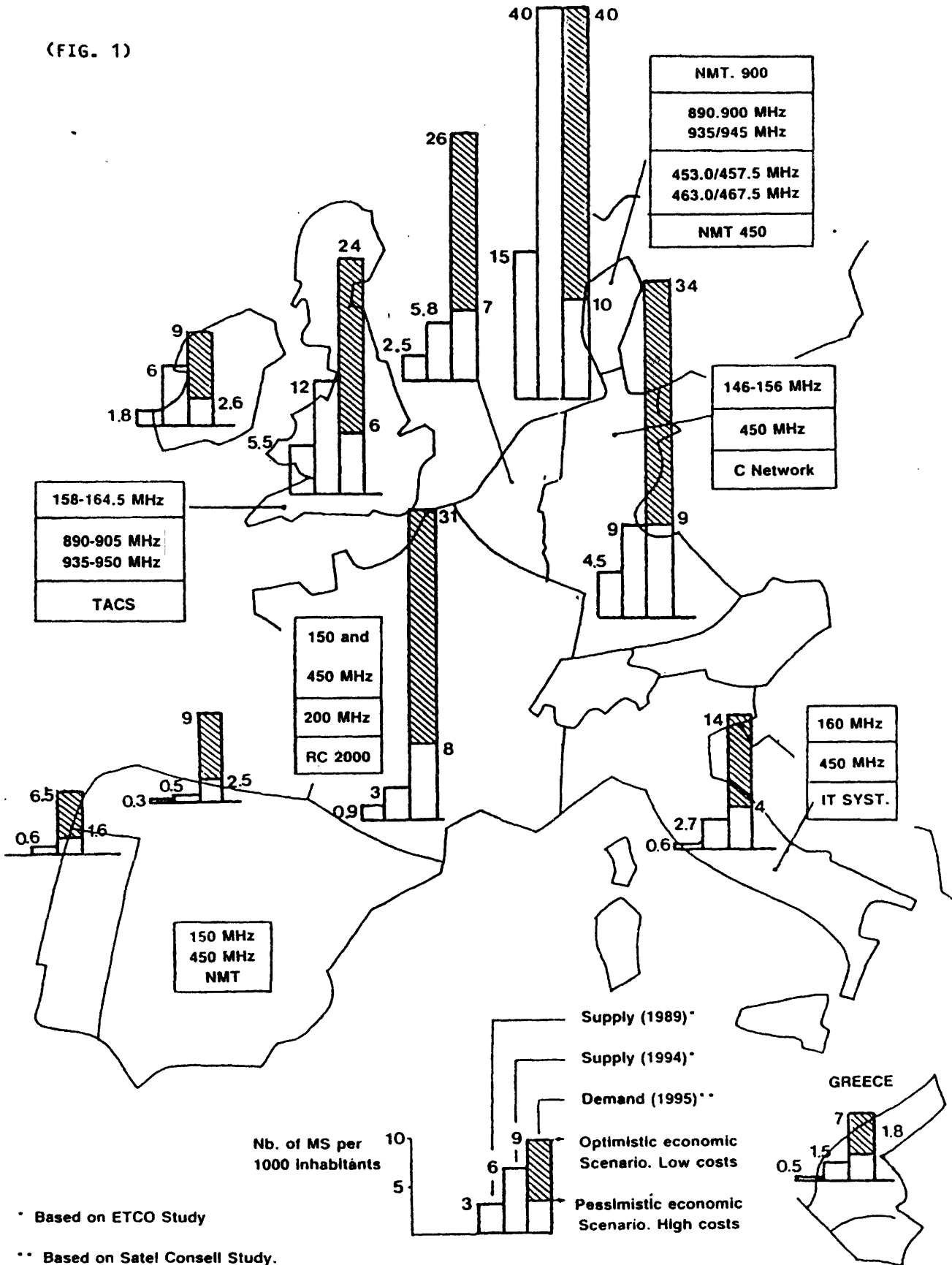
As a consequence, markets for mobile terminals are fragmented. Three different frequency bands are used in the Community for two-way land mobile radio services and three different frequency bands are used for one-way paging services. Economic low-cost solutions cannot be obtained under these circumstances.

The imminent change from current systems to the second generation communications system presents a unique chance for Europe to overcome the current market fragmentation. The new system will be based on digital rather than the analogue technology of the present systems, permitting low-cost solutions and easy compatibility with the future Integrated Services Digital Network (ISDN) [4]. In addition, national industrial interests are not as yet well developed to complicate the standardisation of a pan-european digital mobile communications system in the Community.

The European Conference of Postal and Telecommunications Administrations (CEPT) has chosen this change of technology, expected for the end of this decade, in order to work vigorously towards a common European cellular digital mobile solution. It has created towards this end, a special working group "Groupe Spécial Mobile", referred to as GSM.

For its part, the European Parliament has requested that the current incompatibility of systems be resolved and that work towards Community-wide mobile communications be carried out [5].

(FIG. 1)



RADIOMOBILES: SUPPLY IN 1989 AND 1994. DEMAND IN 1995

Number of mobile stations per 1.000 inhabitants

With its Recommendation of November 16, 1984 [6], the Council has confirmed the need for the introduction of services from 1985 onwards "on the basis of a common harmonized approach".

Finally, the European Council of London of 5-6 December 1986 has asked the Commission and the Council "to make a special effort to secure agreement on standards and the commitment of operators necessary to enable Europe to compete in the development and marketing of digital cellular radio in the 1990s".

II) TRANSITION FROM THE CURRENT INCOMPATIBLE SYSTEMS IN THE COMMUNITY TO PAN-EUROPEAN CELLULAR DIGITAL MOBILE COMMUNICATIONS

With this objective in mind, the proposals submitted hereunder aim at the full use of the technological opportunity provided by the definition of the second generation common mobile system in Europe, to create a European-wide mobile communications system and end the intolerable incompatibility of systems, thus eliminating the breakdown of mobile communications at frontiers. They aim, therefore, at promoting a vital future infrastructure for the Community's economy through an orderly and rapid transition from the current incompatible systems in the Community to pan-European cellular digital mobile communications.

The main points of the analysis carried out by GAP are the following :

Automatic mobile radio telephone is still a relatively new public service :

- it is an expanding market ;
- prices will greatly decrease with market growth, particularly if the market is on a European rather than on a national basis ;
- demand for portable and hand-held terminals is important ; some of these also require international roaming facilities ;
- demand is responsive to tariff levels and terminal cost ;
- there is already a demand for European coverage, particularly in the case of international truck transport ;
- the principal investment cost concerns terminals rather than Base Stations (BS) and Mobile Service Switching Centers (MSC). (see Glossary for technical terms).

The existing and immediately foreseen situation in the Member States varies greatly concerning :

- frequencies in use ;
- types of systems presently used, or to be used ;
- tariff regimes to be applied ;
- level of market penetration.

The first two items above, namely the current incompatibility in frequencies used and the different types of systems to be used, do not permit pan-European mobile communications services to be offered at present.

The Telecommunications Administrations have agreed within CEPT to reserve the frequencies 905-915 MHz / 950-960 MHz for the initial introduction of the future pan-European mobile communications services [2]. However, in the short and medium term, the Federal Republic of Germany, Denmark, Italy, Belgium and the Netherlands Administrations will use the upper 1 MHz of each to the two bands for cordless telephone. The task of developing the specification of this future pan-European system has been entrusted to GSM.

In the long term the full 2 x 25 MHz (890-915 and 935-960 MHz) should be available for the future pan-European mobile communications system.

Outside these reserved frequency bands, saturation of available frequencies for current systems will be reached in a number of Member States by 1990/1991. In certain countries, local saturation problems, especially in large cities, may appear even before 1991.

Pressure will therefore increase in the Member States to release the bandwidth reserved for the future pan-European mobile communications system for use by current systems. This would jeopardize any real prospect for the introduction of pan-European mobile communications. At the same time, the saturation problems expected from 1990/1991 onwards make 1991 the latest date for the availability of the pan-European second generation cellular digital mobile communications system.

As a consequence, the proposed pan-European system can only be easily implemented within Europe if industry is technically ready to equip such a system by 1991. Therefore :

- a stringent time-table for studies and experiments must be respected and close cooperation between Telecommunications Administrations and manufacturers is needed in the design and implementation of such a system ;

- as manufacturers will need approximately three years to develop the equipment after the provision of the detailed specifications , it is necessary to provide full specifications by the end of 1987 in order to provide services by 1991.

In order to make the future pan-European cellular digital mobile communications system possible, a number of questions must be answered with high priority, namely :

- choice of transmission systems, especially for the radio path ;
- ways to ensure bandwidth availability ;
- definition of the network architecture and interfaces required to establish a European terminal market, including preparation of relevant NETS [8] ;
- services to be offered in relation with ISDN and a corresponding time-table ;
- signalling process to be used at the user access and within the network ;
- tariffs to be applied, taking into account mobility of terminals ;
- legal problems ;
- cooperation between operators and industry ;
- cooperation between telecommunications operators for the design and the implementation of a Community-wide system.

III. THE AIM OF THE PROPOSED RECOMMENDATION

A Council Recommendation is seen as the most appropriate means to accelerate the process of finding common answers to the open questions listed in the previous section. The proposed Recommendation on the Coordinated Introduction of pan-European Cellular Digital Mobile Communications in the European Community thus aims to direct and accelerate the efforts by the Member States, Telecommunications Administrations and industry to find a common solution, within an acceptable time-schedule, in order to initiate the transition from the current incompatible systems to true pan-European public mobile communications.

The Recommendation is the result of in-depth discussion by the experts of the Telecommunications Administrations within the framework of GAP and of thorough consultation with SOG-T. GAP has developed the detailed recommendations which form the substance of this Recommendation. The recommendations have been submitted to the Telecommunications Administrations, the CEPT and industry and have achieved wide consensus.

The Recommendation addresses in particular the definition of an active approach regarding the :

- choice of the particular technical option within the digital mode of the transmission system for the future pan-European cellular digital mobile communications system. If the overall objectives are to be reached, such a choice must be made on the basis of the work of the GSM Group of CEPT (and its Permanent Nucleus) and the results of the experiments currently under way in the Member States, by early 1977 at the latest ;
- defined interfaces both for the user and within the network architecture. Commonly defined interfaces between Mobile Stations (MS), Base Stations (BS) and Mobile Switching Centers (MSC) are the pre-condition for a Community-wide market for this equipment. Taking into account that the base stations represent a significant percentage of the total mobile radio network cost, it will be of particular interest to encourage and support the creation of a European market not only for mobile stations, but also for base stations ;
- start-up of provision of service from 1991 onwards at the latest. Firm political commitment to European-wide provision is essential for the credibility of a pan-European system. Only such credibility will allow the market participants - users, network operators, mobile system operators, industry - to properly plan and develop the transition to the new system.

It is recognized that the starting date 1991 for the pan-European cellular digital mobile communication system calls for adherence to the tough time schedule, as set out in detail in the Recommendation. Bearing this in mind, GAP has estimated that manufacturers should effectively contribute to and participate in CEPT. The constitution of the CEPT's GSM permanent nucleus should provide, within the framework of CEPT decisions, a good opportunity to solve technical problems with the collaboration of manufacturers.

GAP has also identified VLSI technology, particularly in respect of cost complexity / power consumption performance, as a risk area for the timely introduction of hand-portable sets within the pan-European cellular digital mobile communications system which is to support not only mobiles but also hand-portable stations.

GAP has recommended that the results from that part of the RACE Definition Phase which has a bearing on the VLSI implications of various digital radio technology options should be made available to the CEPT/GSM in order to assist in its decisions on standards. The programme priorities should contribute to a technology base permitting the timely and unrestricted availability of the necessary VLSI chips from at least several European sources. This recommendation will be considered during the execution of the RACE programme.

While the necessary investments for the implementation of the pan-European cellular mobile communications system will largely fall to the network and system operators and the private users - in exchange for the major commercial benefits which they will derive - however, it is important that the Community's financial instruments play their full role in the establishment of this major Community infrastructure. For certain less-favoured regions of the Community, a special contribution to this effort will be made by the programme STAR, in accordance with the agreed objective of improved access for the less favoured regions of the Community to advanced services and networks.

As an accompanying measure, the Commission intends to raise Community-wide awareness in both the business and the private sectors, by sponsoring information dissemination relating to the development of services and standards. Given the tight time-schedule for the full specification of services and standards, the Commission proposes to support the work of the Telecommunications Administrations within the CEPT, in the framework of its agreement with this organisation.

As regards the specifications for terminals - mobile, portable, or hand-held - the Commission will give high priority to this issue within the framework of the implementation of the Directive on the first phase of the establishment of mutual recognition of type approval for telecommunications terminal equipment [7] and the related elaboration of NETS [8] for this type of equipment, in order to permit international roaming and to promote the European market for terminals.

The Commission will further see to the strict application in this area of Council Directive 83/189/EEC, laying down a procedure for the provision of information in the field of technical standards and regulations and of the proposed Council Directive on standardization in the field of information technology and telecommunications as soon as it will be approved by Council.

In addition, the Commission will investigate together with the Administrations and the Custom Authorities any other measure necessary for ensuring the free circulation and unrestricted usage of mobile stations within the Community. The Commission will propose appropriate measures as required.

IV. THE AIM OF THE PROPOSED DIRECTIVE

The availability of sufficient frequencies is the indispensable resource requirement for any mobile communication system.

GAP has identified the availability of sufficient frequency bands for the future pan-European cellular digital mobile communications system as a pre-condition for the implementation of a pan-European system. As stated previously, certain Member States have started - or are planning to - to allow operation of national systems in parts of the frequency bands recommended by CEPT for reservation for the pan-European mobile communications system. At the same time, there is indication of growing pressure to release further parts of these frequency bands for national applications.

To summarize, the findings and recommendations of GAP regarding availability of frequency bands for the pan-European mobile communications system are the following :

- in order to offer pan-European cellular mobile communications services, GAP recommends that the full availability should be ensured of both the 905 - 915 (914) MHz and the 950 - 960 (959) MHz band for the initial introduction of the future system ;
- a further objective is to progressively allocate the full 890 - 915 MHz and 935 - 960 MHz to the system. This should be done on a market-led basis noting that old obsolete first generation equipment will eventually fall into disuse ;
- GAP identifies further a need for additional spectrum for future mobile services possibly including non-public telephone services. Administrations should therefore consider whether the 1987 World Administrative Radio Conference (WARC) on mobile services should be used to obtain additional allocation in the UHF band (300 - 3000 MHz) for land mobile services.

The provision of frequencies in the Member States is laid down by law, regulation, or administrative action. Considering the above situation and the role of frequencies as the most critical factor for the future availability of the pan-European mobile communications in the Community, a Council Directive is absolutely necessary.

The proposed Council Directive on the Frequency Bands to be made available for the Coordinated Introduction of Pan-European Cellular Digital Mobile Communications in the Community, has the primary objective to ensure the timely availability of sufficient frequency resources for the future pan-European mobile communications service, which is indispensable for an orderly and rapid transition from the current incompatible national systems to the future Community-wide compatible system. The Directive is proposed on the basis of Article 100. This legal basis may be replaced by Article 100a, as soon as the Single Act enters into force.

V. ADDITIONAL PREPARATORY SPECIAL ACTIONS FOR THE RAPID DEVELOPMENT OF PAN-EUROPEAN SYSTEMS FOR SPECIAL USER REQUIREMENTS

In addition to the overriding requirement for the speedy development of the pan-European cellular digital mobile communications system, as the future broad base of pan-European mobile communications for the nineties, GAP has identified urgent requirements of certain users for special pan-European mobile systems. The Commission therefore intends to undertake, in close cooperation with the Telecommunications Administrations, special preparatory actions, in order to respond to these needs.

1. Mobile radio communications services for vehicles on major pan-European transit routes

GAP recommends that the Telecommunications Administrations set up a working group at an appropriate time to study mutual priorities for coverage in order to stimulate the maximum pan-European traffic as early as possible. This should take into account particularly the needs of vehicles on major European routes and the needs of air travellers located between city centers and international airports.

The Commission fully supports this goal. The objective of early coverage of pan-European transit routes by public mobile communications has been set out in the proposed Council Recommendation. For its part the Commission will, in the context of its concern for facilitating European-wide transport, investigate together with the Telecommunications Administrations and the CEPT, the best ways to reach this objective as soon as possible.

2. Public radio telephone in trains

Several European national railway networks are already offering a telephone service. However, no pan-European telephone service exists.

GAP recommends that the technical solution for providing pan-European service should be based on the future pan-European cellular digital mobile communications system.

The Commission agrees with this recommendation. It will consult, in the context of its concern with promoting European-wide transport, with the Telecommunications Administrations, CEPT and the railway operators concerned, to achieve rapid coverage of major trans-European railway routes.

3. Public radio telephone in aircraft

Market studies have revealed a two-tiered demand : a demand for calls on intra-European flights ; and a demand for calls on inter-continental flights.

The technical solutions currently considered vary substantially according to the different requirements.

Two technical solutions are considered in Europe : one based on satellite, supported by INMARSAT ; and another solution based on a terrestrial system, or a combination of satellite / terrestrial communications.

In the US air routes are covered by an experimental commercial terrestrial system. There is strong demand for telephone service, even during short flights of less than one hour.

According to the findings of GAP, satellite systems will continue for some time at least to be about 3 to 6 times more expensive than a terrestrial system. However, they can provide world-wide coverage while a terrestrial system will only provide continental and coastal coverage within a range of about 300 km. As stated, there are two markets : a market for intercontinental flights, and another market for continental flights. There may, therefore, be a need for a combined terrestrial and satellite system.

Developing such a system will require : firm commitment by the airline carriers concerned ; a common position by the Telecommunications Administrations ; and availability of frequency bands.

It is therefore necessary to associate airline carriers and Telecommunications Administrations at a European level, in order to develop the establishment of a Community-wide system.

GAP recommends that the Telecommunications Administrations should endeavour not to introduce aeronautical public telephone services in frequency bands below 960 MHz. It further recommends that the Administrations should urgently consider the need for spectrum for a terrestrial and/or satellite aeronautical public telephone system in appropriate frequency bands, and reach a common position in time for the 1987 ITU WARC for mobile services.

If a common position is not reached within this time scale, no other possibility will occur before the ITU/WARC meeting at the end of the century, and such a telephone service will not then be offered in the Community before the beginning of the next century.

For its part, the Commission intends to investigate, together with the Telecommunications Administrations, CEPT, and the airline carriers, the best means of promoting the establishment of a common system.

4. Public paging

Several Member States are already operating or are interested in offering a public radio paging service.

As stated previously, existing services do not use the same code, nor even the same frequencies. A certain number of countries intend to offer future radio paging services using POCSAG code or a faster version thereof. A few countries are considering an international service in the very short term.

In the longer term, demand will be oriented towards the requirement to transmit alphanumeric messages. CEPT has initiated studies regarding the characteristics to be recommended for a future harmonised European public personal radio-paging system capable of entering into service towards 1990, with particular reference to the following aspects : services offered ; frequencies utilised ; and coding and modulation procedures.

Regarding the implementation of a European-wide service, the Commission will investigate, together with the Telecommunications Administrations and CEPT, the best ways :

- to reach an agreement to use the same radio frequencies.
- to reach an agreement related to a more advanced code and a common radio interface by 1990, with a view to a European service being introduced as soon as possible afterwards.
- to promote a common position regarding tariff problems, numbering schemes, mutual accounting and free circulation of terminals.

5. Road information for motorists

The possibility of receiving road information is considered to be highly desirable. Such information is of two main types : information valid for a certain period of time (e.g. meteorological conditions) ; and information only valid for short time periods (e.g. information on accidents).

Both types of information are required in local areas, within a range of about 30 km, and should be provided with a multi-European language facility for the various users.

For economic and technical reasons, the future pan-European cellular digital mobile communications system will not be suited to provide broadcasting information. Nevertheless, the system could be utilised to gain access to relevant databanks, either by using the telephone service or a data service to obtain information on road conditions.

The European Broadcasting Union (EBU) has already established specifications for radio-data systems to be used in conjunction with the existing VHF/FM broadcasting networks. Such systems need special car radio receivers. Where possible, these receivers should have common features with the data receivers designed for the future pan-European cellular communications system in order to reduce costs.

For this reason, GAP recommends close cooperation between CEPT and EBU in this area.

The Commission intends to study, together with the Telecommunications Administrations, CEPT, EBU, and industry, the best ways to reach European harmonization of the associated information transmission system.

6. Other user requirements

The Commission will continue to monitor and analyse further special user requirements for pan-European mobile communications, such as communications for boats and small ships in certain coastal areas of the Community. It will also investigate additional measure for facilitating the international use of mobile systems, such as general availability and applicability of electronic payment devices. It will consult with the Senior Officials Group on Telecommunications on specific actions as needs arise.

VI CONCLUSIONS

The attached Recommendation and Directive aim at the coordinated introduction of public pan-European cellular digital mobile communications in the Community and the availability of frequency bands as a pre-condition for their introduction. They aim at using the unique opportunity offered by the introduction of the second generation digital mobile communications system, to establish a general broad base for a truly future pan-European mobile communications system.

The proposals have been based on the careful analysis and work of the Senior Officials Group on Telecommunications (SOG-T) and its sub-group GAP. The Telecommunications Administrations and the telecommunications industry have positively responded to the analysis and recommendations. The Commission, besides the application of Community measures relevant to the sector, will take all useful steps in order to assist in the application of the present Recommendation and Directive and to follow it by additional appropriate proposals.

The proposals will ensure an important step forward towards a Community-wide pan-European mobile communications system. The proposals thus aim to substantially improve the development of advanced telecommunications services and networks as requested by the Council of Ministers on 17th December 1984.

The Council is therefore requested :

- to adopt the attached proposal for a Recommendation ;
- to adopt the attached proposal for a Directive ;
- to take note of the additional preparatory actions which the Commission will undertake, in close cooperation with the Telecommunications Administrations and the European Conference of Postal and Telecommunications Administrations, in order to satisfy the specific urgent requirements of certain users for pan-European mobile communications.

FOOTNOTES

- [1] See conclusions of the Council of 17th December 1984 (ref/11477/84) and Communication by the Commission to the Council on telecommunications of 18.5.1984 [Com(84)277].
- [2] Proposals by the Analysis and Forecasting Group (GAP) for the Coordinated Introduction of Public Mobile Communications in the Community, 5.12.1985.
- [3] Communication from the Commission to the Council on European Telecommunications Policy, 5.6.1986 [Com(86)325].
- [4] Proposal for a Council Recommendation on the Co-ordinated Introduction of the Integrated Services Digital Network (ISDN) in the European Community, 20.5.1986 [Com(86)205].
- [5] Report of the European Parliament on Telecommunications in the Community (Leonardi Report), doc 1-1477/3, 3.3.1984.
- [6] Council Recommendation of 12th November 1984 concerning the implementation of harmonization in the field of telecommunications, 16.11.1984 (O.J. L298/49).
- [7] Council Directive of 24th July 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment, 5.8.1986 (O.J. L217/21).
- [8] NET (Norme européenne de télécommunications) is an approved technical specification recommendation of the CEPT or part or parts thereof which the signatories of the Memorandum of Understanding, established at the meeting of Directors-General of CEPT Administrations, in Copenhagen on 15th November 1985, adopted in accordance with the procedure set down in that Memorandum.

APPENDIXGlossary of technical terms

The following list of technical terms is included for better understanding of the Recommendation.

B + D structure	two channels structure, B for voice, D for signalling.
Base Station (BS)	Fixed equipment for the area radio coverage.
Bearer service	A type of telecommunication service that provides the capability for the transmission of signals between user network interfaces. (ref. (1)).
Calling line identification	Supplementary service. Indicates the identification of the calling user line. (ref. (1)).
Cellular Mobile Communications System	Radiomobile system characterized by : <ul style="list-style-type: none"> . Accomodation of more than one base-station in a service area and thus the expansion of the service area of the system beyond the coverage that a single site provides ; . hand-over ; . re-use of the same radiofrequency assignment simultaneously by more than one base-station and for more than one message ; this is the cornerstone of the spectral utilization efficiency of cellular systems ; . the system must be able to start with a few large cells and gradually grow until many small cells are created at the points of highest traffic density ; . roaming.

Digital Cellular Mobile Communications System	Cellular mobile communications system working on the basis of digital techniques
Hand-over	Transfer of the conversation and responsibility for radio coverage of a mobile or hand-held unit from one site to another, i.e. from one radiofrequency to another.
ISDN	Integrated Services Digital Network - Network, providing end-to-end digital connectivity to support a wide range of services, including voice and non-voice services, to which users have access by a limited set of standard multipurpose user-network interfaces. (ref. (1))
Mobile Station (MS)	Subscriber equipment (mobile or portable or hand held unit).
Mobile Switching Center (MSC)	Switching Center for mobile communications.
Paging	A non speech, one way, personal selective calling system with alert, without message or with defined message such as numeric or alphanumeric.
PSTN	Public Switched Telephone Network
Roaming	Automatic locating of mobile subscriber.
S reference point	Possible location of access for Bearer Services. (ref. (1)).
SS (Signalling System) N° 7	The new CCITT system allowing two switching centers to exchange information, e.g. information needed for establishing a telephone call. (ref. (1)).

- Subscriber call charge meter** Supplementary service which gives the possibility to send to the user the accumulated tariff charge.
- Supplementary service** A type of service which supplements basic telecommunication services.
- 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 Telecommunications Administrations.
(ref. (1)).
-

(1) Council Recommendation on the Coordinated Introduction of the Integrated Services Digital Network (ISDN) in the European Community
OJ N° C157, 246.86, p.3

C. PROPOSAL FOR A COUNCIL RECOMMENDATION ON THE COORDINATED INTRODUCTION
OF PUBLIC PAN-EUROPEAN DIGITAL MOBILE COMMUNICATIONS IN THE COMMUNITY

PROPOSAL FOR A COUNCIL RECOMMENDATION

on the coordinated introduction of
public pan-European digital mobile communications
in the Community

THE COUNCIL OF THE EUROPEAN COMMUNITIES

Having regard to the Treaty establishing the European Economic Community,
in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the Opinion of the European Parliament ^[1],

Having regard to the Opinion of the Economic and Social Committee ^[2],

Whereas Council Recommendation 84/549/EEC ⁽³⁾ calls for the introduction of
services on the basis of a common harmonized approach in the field of
telecommunications ;

[1]

[2]

[3] OJ No L298,16.11.1984, p. 49

Whereas the resources offered by modern telecommunications should be utilized to the full for the economic development of the Community ;

Whereas mobile radio services are the only means of contacting users on the move and the most efficient means for those users to be connected to the public telecommunications networks ;

Whereas the mobile communications systems currently in use in the Community are largely incompatible and do not allow users on the move in vehicles, boats, trains or on foot throughout the Community to reap the benefits of European-wide services and European-wide markets ;

Whereas the change-over to the second generation cellular mobile communications system will provide a unique opportunity to establish truly pan-European mobile communications ;

Whereas the European Conference of Postal and Telecommunications Administrations (CEPT) has set up a special Working Group, referred to as GSM ("Groupe Spécial Mobile"), for planning all system aspects of a second generation cellular mobile radio infrastructure ;

Whereas such a future system, offering both voice and data services, is to be based on digital techniques, thereby facilitating compatibility with the general digital environment as will evolve with the co-ordinated introduction of the Integrated Services Digital Network (ISDN) in the Community in accordance with Council Recommendation 86/659/EEC⁽⁴⁾;

[4] OJ No L 382, 31.12.1986, p. 36.

Whereas a co-ordinated policy for the introduction of a pan-European digital cellular mobile radio service will make possible the establishment of a European market in mobile, portable and hand-held terminals. Whereas such a market will be capable of creating, by virtue of its size, the necessary development conditions enabling the European telecommunications industries to maintain and increase their share of the world market ;

Whereas it is appropriate to implement Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations⁽⁵⁾ ;

Whereas it is necessary to work out rapidly all agreements necessary to allow unrestricted access to mobile communications and free circulation of mobile terminals everywhere in the Community for the European user ;

Whereas the rapid implementation of Council Directive 86/361/EEC of 24 July 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment⁽⁶⁾ will make an important contribution towards this goal ;

Whereas consideration should be given to the Council Directive relating to standardization in the field of information technology and telecommunications, and to any later proposal for Directives that the Commission may make ;

[5] OJ No L109, 26.4.1983, page 8

[6] OJ No L217, 5.8.1986, page 21

Whereas it is appropriate to make full use of the potential of the Community's financial instruments in order to promote the development of the Member States' infrastructure ;

Whereas special attention should be paid to the urgent requirement of certain users for pan-European mobile communications, regarding in particular the communication needs of users in vehicles on major pan-European routes and in trains, and those users who would benefit from the development of telephony in aircraft and of a truly pan-European paging system ;

Whereas the implementation of such a policy will lead to closer cooperation, at Community level, between the telecommunications industry, on the one hand, and the telecommunications administrations and the recognized private operating agencies offering public mobile telecommunications services, hereinafter referred to as "telecommunications administrations" on the other ;

Whereas a favourable opinion has been delivered by the Senior Officials Group on Telecommunications (SOG-T), according to which the recommendations drawn up by the Analysis and Forecasting Group (GAP) provide a strategic basis for the development of public mobile communications in the Community enabling European users on the move to communicate efficiently and economically ;

Whereas favourable opinions on these recommendations have been delivered by the telecommunications administrations, by the European Conference of Postal and Telecommunications Administrations (CEPT) and by the telecommunications equipment manufacturers in the Member States ;

Whereas these measures will allow the economic benefit and rapidly increasing market potential of public mobile communications to be fully realised in the Community ;

Whereas the Treaty has not provided the necessary powers,

[7]

HEREBY RECOMMENDS :

1. That the telecommunications administrations carry out the detailed recommendations concerning the co-ordinated introduction of public pan-European cellular digital mobile communications in the Community, as described in the Annex ;

2. In so doing, special consideration shall be given to :
 - the choice of the transmission system and network interfaces ;

 - the time schedule set out in the Annex ;

 - the start of service at the latest from 1991 onwards, with geographical coverage and penetration objectives compatible with commercial strategies ;

3. That the telecommunications administrations continue the cooperation within the European Conference of Postal and Telecommunications Administrations (CEPT), particularly concerning the objectives and time schedule drawn up in the Annex for the completion of the specifications of the pan-European cellular digital mobile communications system ;

4. That the telecommunications administrations plan for a gradual evolution from any existing public mobile radio systems to the pan-European cellular digital mobile communications system so as to ensure a transition which meets the needs of users, Telecommunications Administrations and the European manufacturing industry ;

5. That Member State Governments and telecommunications administrations rapidly complete all technical arrangements necessary to allow unrestricted access to mobile communications ;
6. That the Community's financial instruments and the Community's technological research and development programmes take this Recommendation into account within the framework of their interventions, particularly as regards investments required for the implementation of the pan-European cellular digital mobile communications system and the development of the required technological base ;
7. That Member State Governments invite the telecommunications administrations to carry out this Recommendation ;
8. That Member State Governments inform the Commission at the end of each year, from the end of 1987 onwards, of the measures taken and problems encountered in the course of implementing this Recommendation. The progress of work will be examined by the Commission and the Senior Officials Group on Telecommunications which was set up by the Council on 4 November 1983.

Done at Brussels,

For the Council,

The President.

ANNEX TO THE RECOMMENDATION

Detailed recommendations

concerning

the coordinated introduction

of public pan-European cellular digital mobile communications

TABLE OF CONTENTS

1. General requirements
2. Choice of transmission system
3. Network architecture
4. Mobile interfaces to be defined and specified in detail by end 1987
5. Mobile services to be defined and specified in detail by end of 1987 and available for provision in all Member States starting from 1991, with hand-over and national/international roaming
6. Signalling
7. Tariff considerations
8. Geographical coverage

1. GENERAL REQUIREMENTS

The future pan-European cellular digital mobile communications system should fulfill the following general requirements :

- be suitable for operation in the frequency bands 890 - 915 and 935 - 960 MHz to be made available for the pan-European cellular digital mobile communications system ;
- permit a traffic flow (measured in E/KM²/MHz) greater than, or equal to, existing systems, bearing in mind the scarcity of the bandwidth resource allowed for these systems ;
- provide the user with a voice transmission quality at least equal to the best of the existing systems ;
- allow for efficient use of hand-held terminals ;
- be sufficiently flexible to facilitate the introduction of new services related to ISDN.

The cost of the system should be considered in terms of the cost of the fixed infrastructure to be met by the Telecommunications Administrations, taking into account both urban and rural areas ; and the cost of the mobile equipment, usually met by the mobile subscribers. Both costs should be within affordable limits and in any case these costs must not exceed those for the existing earlier public mobile telephone systems working in the 900 MHz band. Since the cost of the mobile communication equipment will constitute the main portion of the total system cost, it is preferable for the mobile equipment cost (for quantities in excess of 100 000) to be lower than that for existing earlier public mobile telephone systems working in the 900 MHz band.

2. CHOICE OF TRANSMISSION SYSTEM

The transmission mode for the pan-European mobile system should be digital. The final choice of the particular technical option (radio subsystem multiple access method) within the digital mode should be made by the Administrations not later than May 1987, on the basis of work carried-out by the CEPT and particularly its special group for mobile communications, referred to as GSM (Groupe Spécial Mobile).

3. NETWORK ARCHITECTURE

The principles of the network structure and the definition and allocation of functions between the various system components - Mobile Stations (MS), Base Stations (BS), and Mobile Switching Centers (MSC) - must be defined by July 1987. In the course of this work, the appropriate interfaces between the various system components (MS-BS-MSC) should be completely specified for all OSI layers applicable to the relevant services, and for all applications using those interfaces (call processing functions, maintenance, etc...). The system must be able to support geographically co-located digital cellular mobile radio operators.

4. MOBILE INTERFACES TO BE DEFINED AND SPECIFIED IN DETAIL BY END 1987

- a) S reference point, with B (N kbits/s) + D (N' kbits/s) structure (N and N' to be defined) ;
- b) Interface between MS and BS ;
- c) Interface between BS and MSC.

A minimum set of man machine interface specifications (control procedures) should be established.

5. MOBILE SERVICES TO BE DEFINED AND SPECIFIED IN DETAIL BY END 1987 AND AVAILABLE FOR PROVISION IN ALL MEMBER STATES STARTING FROM 1991, WITH HAND-OVER AND NATIONAL / INTERNATIONAL ROAMING.

Although, initially, voice telephony capabilities will constitute the most important service required, the mobile system must nevertheless be open to an overall evolution towards ISDN services ^[1]. Therefore, the following mobile services should be defined and specified in detail by end 1987 and available in all Member States starting from 1991 : :

a) Bearer services

- . Non-transparent bearer service for speech ;
- . Transparent bearer service for data transmission at N Kbit/s switched in the network at 64 Kbit/s. (N to be defined).

b) Basic services

- . Hand-over ;
- . National / International roaming.

c) Teleservices

Telephony at 3.1 KHz (corresponding to N Kbit/s on B channel. N is to be defined).

d) Supplementary services

- . Calling line identification ;
- . Subscriber call charge meter ;
- . Speech encryption .

This list may be added to by CEPT.

[1] OJ No C157, 24.6.1986, page 3

6. SIGNALLING

User access signalling (subscriber signalling) should be defined along the principles of the existing CEPT recommendations for ISDN, and should be able to permit supplementary services of ISDN/PSTN.

Network and inter-network signalling processes should be defined in the framework of the SS No 7. in such a way that international roaming and hand over facilities are safeguarded.

7. TARIFF CONSIDERATIONS

The Telecommunications Administrations are invited to consider within the CEPT framework the following tariff proposals :

- Given the scarcity of frequency resources, the service should be charged basically according to the duration of the radio channel use ;
- The tariffs should take into account the current trend towards less distant dependence considering that :
 - the transmission costs for long distance telephone calls represent a relatively small part of total costs, and therefore the tariffs for telephone calls will become more and more independent of distance ;
 - In general there is no practical means at present for the calling subscriber to know the location and the status of the called subscriber in another country, namely whether the called subscriber is a mobile or fixed.

By July 1987, the basic framework of charging principles should be identified, so that the network implications can be identified and resolved in a timely manner.

8. GEOGRAPHICAL COVERAGE

The introduction date of the pan-European cellular digital mobile communications system should be 1991 at the latest. Major urban areas should be covered by 1993 at the latest. The main links between these major urban areas should be covered by 1995 at the latest.

Further, the Administrations should study jointly mutual priorities for coverage in order to stimulate the maximum pan-European traffic as early as possible. This should take into account the needs of users in vehicles on major European routes, and the needs of air travellers located between city centers and international airports.

- D. PROPOSAL FOR A COUNCIL DIRECTIVE ON THE FREQUENCY BANDS TO BE MADE AVAILABLE FOR THE COORDINATED INTRODUCTION OF PUBLIC PAN-EUROPEAN DIGITAL MOBILE COMMUNICATIONS IN THE COMMUNITY

Proposal for a
COUNCIL DIRECTIVE

on the frequency bands

to be made available for the coordinated introduction of

public pan-European digital mobile communications

in the Community

THE COUNCIL OF THE EUROPEAN COMMUNITIES

Having regard to the Treaty establishing the European Economic Community,
and in particular Article 100 thereof ;

Having regard to the proposal from the Commission ;

Having regard to the opinion of the European Parliament^[1] ;

Having regard to the opinion of the Economic and Social Committee^[2] ;

[1]

[2]

Whereas Council Recommendation 84/549/EEC [3] calls for the introduction of services on the basis of a common harmonized approach in the field of telecommunications ;

Whereas resources of modern telecommunications should be utilised to the full for the economic development of the Community ;

Whereas mobile radio services are the only means of contacting users on the move and the most efficient means for those users to have connections to the public telecommunications networks ;

Whereas mobile communications depend on the reservation and availability of frequency bands, in order to transmit and receive between fixed base stations and mobile stations ;

Whereas frequencies and systems currently in use in the Community vary widely and do not allow the benefits of European-wide services and European-wide markets to be reaped for all users on the move throughout the Community, whether in vehicles, boats, trains, or on foot ;

Whereas the change-over to the second generation cellular digital mobile communications system will provide a unique opportunity to establish a truly pan-European mobile communications system ;

[3] OJ No L298, 16.11.1984, p. 49

Whereas the European Conference of Postal and Telecommunications Administrations (CEPT) has recommended that frequencies 890 - 915 and 935 - 960 MHz be set aside for such a system, in accordance with recommendations by the International Telecommunications Union (ITU) allocating such frequencies to mobile radio services use ;

Whereas parts of these frequency bands are being used or are intended for use by certain Member States for interim systems and other purposes ;

Whereas the progressive availability of the full range of the frequency bands set out above will be indispensable for the establishment of truly pan-European mobile communications ;

Whereas the implementation of Council Recommendation of on the coordinated introduction of public pan-European cellular digital mobile communications in the Community⁽⁴⁾, aiming at starting a pan-European system by 1991 at the latest, will allow the speedy specification of the radio transmission path ;

[4]

[5]

Whereas Council Directive 86/361/EEC on the initial stage of the mutual recognition of type approval will allow the rapid establishment of common conformity specifications for the pan-European cellular digital mobile communications system ;

Whereas it is appropriate to review the current radio frequency allocations considering the importance of the future pan-European cellular digital mobile communications system ;

Whereas it is necessary to strengthen the international coordination in this field, in accordance with the radio regulations of the ITU ;

Whereas a common position should be reached regarding availability of frequency resources with regard to the ITU's World Administrative Radio Conferences ;

Whereas the report on public mobile communications drawn up by the Analysis and Forecasting Group (GAP) for the Senior Officials Group on Telecommunications (SOG-T) has drawn attention to the availability of adequate frequency resources as a vital pre-condition for pan-European cellular digital mobile communications ;

Whereas favourable opinions on this report have been delivered by the telecommunications administrations, by the European Conference of Postal and Telecommunications Administrations (CEPT) and by the telecommunications equipment industry in the Member States .

[5] OJ No L217, 5.8.1986, p. 21

HAS ADOPTED THIS DIRECTIVE :

Article 1

1. Member States shall ensure that the frequency bands 905 - 914 MHz and 950 - 959 MHz or equivalent parts of the bands mentioned in paragraph 2 are made available exclusively for a public pan-European cellular digital mobile communications service by 1 January 1991.

2. Member States shall ensure that plans are prepared for the public pan-European cellular digital mobile communications service to be able to occupy progressively the whole of bands 890 - 915 and 935 - 960 MHz according to commercial demand but at the latest within a period of ten years starting from 1 January 1991.

Article 2

For the purposes of this Directive, a public pan-European cellular digital mobile communications service means a mobile communications service which allows mobile terminals to communicate efficiently with mobile and fixed terminals in all parts of the Community using digital techniques according to common specifications.

Article 3

1. Member States shall bring into force the provisions necessary to comply with this Directive on at the latest ^[6]. They shall forthwith inform the Commission thereof.

2. Member States shall communicate to the Commission the text of the provisions of national law which they adopt in the field governed by this Directive.

ARTICLE 4

This Directive is addressed to the Member States

Done at Brussels,

For the Council,

The President.

[6] Not later than one year following adoption thereof.

FINANCIAL OUTLINE

1. BUDGET LINE

7700 : Actions related to advanced telecommunications infrastructure.

2. LEGAL BASIS

- Communications to the Council : COM(84)277, Council Recommendations of 12.11.84, conclusions approved by the Council on the basis of a Communication from Mr Davignon 17.12.84.
- Council Recommendation on the Coordinated Introduction of Public Pan-European Digital Mobile Communications in the European Community (proposed).
- Council Directive on Frequency Bands to be made available for the Coordinated Introduction of Public Pan-European Digital Mobile Communications in the European Community (proposed).

3. CLASSIFICATION

Non-obligatory spending.

4. DESCRIPTION

This action aims at the promotion of the rapid introduction of pan-European public mobile communications in the European Community. It aims at raising Community-wide awareness of the new potential by sponsoring information dissemination related to the development of pan-European public mobile communications services and standards, and supporting the work of bodies such as CEPT for the full specification of services and standards. It further aims at undertaking preparatory special actions for the rapid development of pan-European systems for special user requirements, including investigations regarding feasibility, technological conditions, and market potential. Additionally, necessary technical work and study regarding availability of frequencies is foreseen. Network and operators of mobile systems are directly concerned by this action. Its justification lies in the necessity of giving industry and services a broad base for the markets and of establishing coherent advanced telecommunications networks and services in the Community for the benefit of the business and private sector user population.

5. COSTS AND METHODS OF CALCULATION

The credits involved concern budget line 7700. They will be required to cover information dissemination relating to the development of public mobile communications in the European Community, as well as contribution to the work of bodies such as CEPT in order to provide detailed specifications according to schedule. They will further be required for undertaking preparatory special actions for the rapid development of pan-European systems for special user requirements, including investigations regarding feasibility, technological conditions, and market potential. Additionally, necessary technical work and study regarding availability of frequencies is foreseen. The work foreseen will involve, amongst others : annual reviews of the introduction of mobile public communications, country by country, within the Community and world-wide ; studies and analysis required for the proper monitoring of the implementation of the Recommendation and Directive ; sponsoring of related newsletters, conferences and seminars ; contracts and commissioning of specifications ; investigations, analysis and studies regarding feasibility, technological conditions, market potential and frequencies ; provision of experts' services ; as well as committee and working group meetings and auxiliary and temporary staff.

6. FINANCIAL IMPLICATIONS FOR THE INTERVENTION CREDITS

6.1. Timetable for commitments and payments (millions of ECU)

Year	Commitments	Payments
1987	1.5	0.75
1988	2	1.75
1989	2	2
1990	2	2
1991	1.5	1.75
1992	---	0.75

6.2. Share of Community financing in total cost of action.

The Community's financial contribution will vary between 30 to 100%, according to type of work and type of cooperation with the PTTs and industry.

6.3. Methods of financing during the current year

The initiation of this action in 1987 will be financed from line 7700 of the 1987 budget.

7. FINANCIAL IMPLICATION OF STAFF COSTS AND RUNNING EXPENSES

7.1. Staff required exclusively for this action :

2 officials - category A
1 official - category B
1 official - category C

7.2. The additional staff requirement will be provided for either by internal re-arrangement, or in the framework of the Rolling Plan (posts).

The appropriations required to cover the Community's contribution to this project are to be entered in the Community's future budgets.

STATEMENT ON POSSIBLE EFFECTS
ON SMALL AND MEDIUM SIZED ENTERPRISES
OF THE DRAFT RECOMMENDATION AND DIRECTIVE

In accordance with the objectives set by the Council of Ministers on 17th December 1984 (1), the Commission is proposing an integrated concept for the speedy development of a pan-European cellular digital mobile communications system, namely :

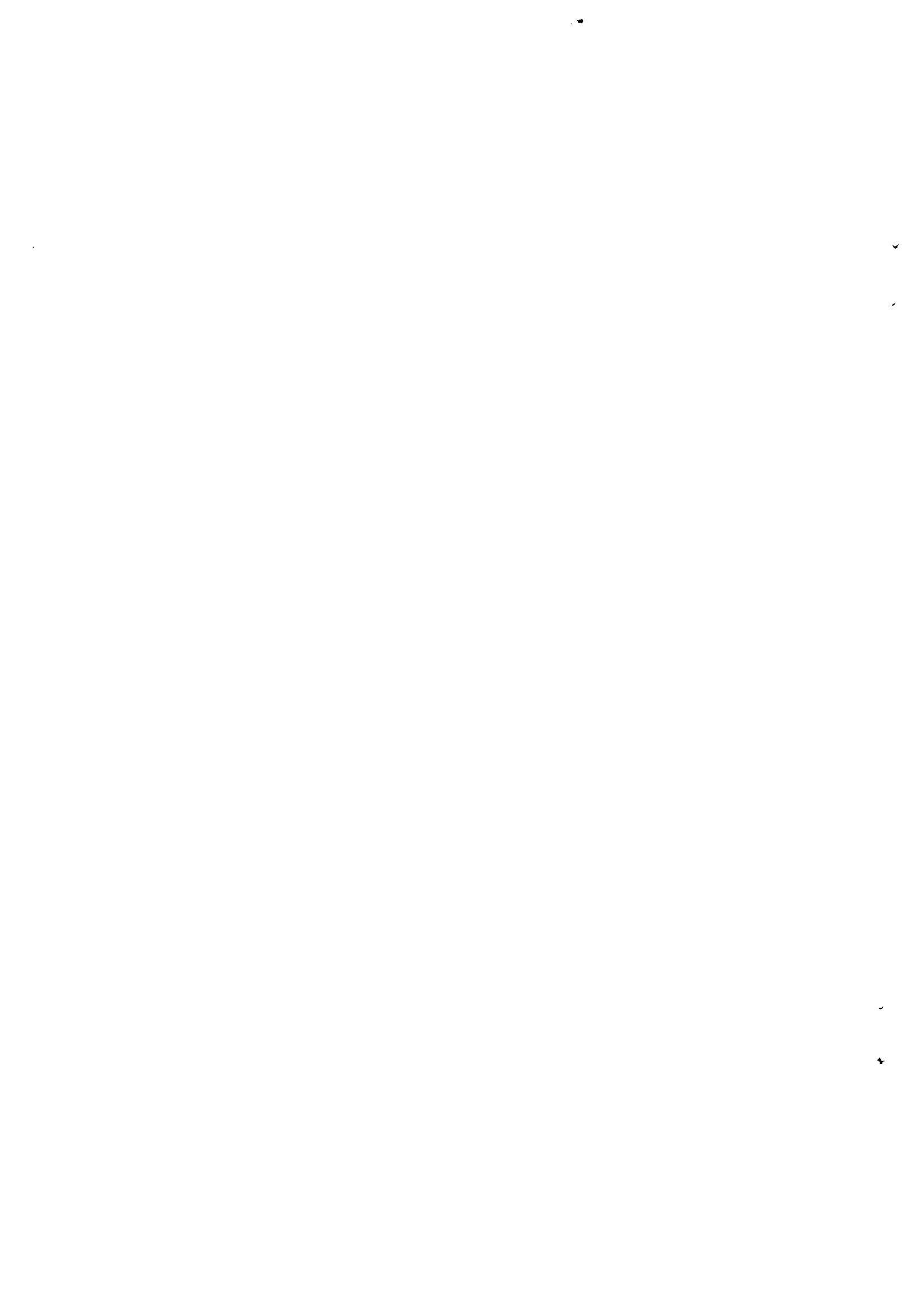
- a Recommendation on the coordinated introduction of pan-European cellular digital mobile communications in the Community, in order to substantially accelerate the development ;
- a Directive on frequency bands to be made available for the coordinated introduction of pan-European cellular digital mobile communications in the European Community, in order to secure the necessary frequency spectrum resources without which a pan-European system will not come into existence ;
- additional specific preparatory actions to promote the rapid development of pan-European communications systems for vehicles on major trans-European routes, telephony in trains and aircraft and a truly European-wide paging system.

The above Recommendation, Directive and preparatory actions will benefit the small and medium sized enterprises in the Community by greatly improving communications between these enterprises and their sales/marketing personnel travelling on business within the Community. These improved communications would otherwise only be available to large enterprises using their branch offices.

The early availability of improved communications between the headquarters of small and medium sized enterprises and their travelling personnel within the Community will encourage such enterprises to increase their activities in the Community.

In conclusion, the Recommendation, Directive and preparatory actions will substantially reduce the gap between the small and medium sized enterprises relative to large enterprises in their ability to compete for markets in the Community.

(1) Conclusions of the Council of 17th December 1984 (ref./11477/84) and Communication by the Commission to the Council on Telecommunication of 18.5.1984 (COM(84)277)



COUNCIL RECOMMENDATION

of 25 June 1987

on the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community

(87/371/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the European Parliament (2),

Whereas Council Regulation 84/549/EEC (3) calls for the introduction of services on the basis of a common harmonized approach in the field of telecommunications;

Whereas the resources offered by modern telecommunications networks should be utilized to the full for the economic development of the Community;

Whereas mobile radio services are the only means of contacting users on the move and the most efficient means for those users to be connected to the public telecommunications networks;

Whereas the land-based mobile communications systems currently in use in the Community are largely incompatible and do not allow users on the move in vehicles, boats, trains or on foot throughout the Community, including inland or coastal waters to reap the benefits of European-wide services and European-wide markets;

Whereas the change-over to the second generation cellular digital mobile communications system will provide a unique opportunity to establish truly pan-European mobile communications;

Whereas the European Conference of Postal and Telecommunications administrations (CEPT) has set up a special Working Group, referred to as GSM (Groupe Spécial Mobile), for planning all system aspects of a second-generation cellular mobile radio infrastructure;

Whereas such a future system, offering both voice and data services, is to be based on digital technique, thereby facilitating compatibility with the general digital environment that will involve with the coordinated introduction of the Integrated Services Digital Network (ISDN) in accordance with recommendation 86/659/EEC (4);

Whereas a coordinated policy for the introduction of a pan-European cellular digital mobile radio service will

make possible the establishment of a European market in mobile and portable terminals which will be capable of creating, by virtue of its size, the necessary development conditions to enable undertakings established in Community countries to maintain and improve their presence on world markets;

Whereas it is necessary to work out rapidly all agreements necessary to allow unrestricted access to mobile communications and free circulation of mobile terminals throughout the Community for the European user;

Whereas the rapid implementation of Council Directive 86/361/EEC of 24 July 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment (5) will make an important contribution towards this goal;

Whereas consideration should be given to Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations (6) and the Council Decision 87/95/EEC of 22 December 1986 on standardization in the field of information technology and telecommunications (7), and to any other proposal that the Commission may make;

Whereas it is appropriate to make use of the potential of the Community's existing financial instruments in order to promote the development of Community's infrastructure;

Whereas special attention should be paid to the urgent requirement of certain users for pan-European land-based communications;

Whereas the Commission will in the future submit other proposals in the field of mobile communications, including radio-paging systems;

Whereas the implementation of such a policy will lead to closer cooperation, at Community level, between the telecommunications industry, on the one hand, and the telecommunications administrations and the recognized private operating agencies offering public mobile telecommunications services, hereinafter referred to as 'telecommunications administrations' on the other;

(1) OJ No C 69, 17. 3. 1987, p. 5.

(2) OJ No C 125, 11. 5. 1987, p. 159.

(3) OJ No L 298, 16. 11. 1984, p. 49.

(4) OJ No L 382, 31. 12. 1986, p. 36.

(5) OJ No L 217, 5. 8. 1986, p. 21.

(6) OJ No L 109, 26. 4. 1983, p. 8.

(7) OJ No L 36, 7. 2. 1987, p. 31.

Whereas a favourable opinion has been delivered by the Senior Officials Group on Telecommunications (SOG-T), according to which the detailed recommendations drawn by the Analysis and Forecasting Group (GAP) provide a strategic basis for the development of public mobile communications in the Community enabling European users on the move to communicate efficiently and economically;

Whereas favourable opinions on these recommendations have been delivered by the telecommunications administrations, by the European Conference of Postal and Telecommunications Administrations (CEPT) and by telecommunications equipment manufacturers in the Member States;

Whereas the envisaged measures will allow the economic benefit and rapidly increasing market potential of public mobile communications to be fully realized in the Community;

Whereas the Treaty has not provided the necessary powers, other than those of Article 235,

HEREBY RECOMMENDS:

1. that the telecommunications administrations implement the detailed recommendations concerning the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community as described in the Annex;
2. that, in so doing, they give special consideration to:
 - (a) the choice of the transmission system and network interfaces;
 - (b) the time schedule set out in the Annex;
 - (c) the start of service at the latest from 1991 onwards, with geographical coverage and penetration objectives compatible with commercial strategies;
3. that the telecommunications administrations continue the cooperation within the European Conference of Postal and Telecommunications Administrations

(CEPT), particularly concerning the objectives and time schedule set out in the Annex for the completion of the specifications of the pan-European cellular digital mobile communications system;

4. that the telecommunications administrations plan for a gradual evolution from any existing public mobile radio systems to the pan-European cellular digital mobile communications system so as to ensure a transition which meets the needs of users, telecommunications administrations and undertakings established within Community countries;
5. that Member State Governments and telecommunications administrations rapidly complete the technical arrangements necessary to allow unrestricted access to cellular digital mobile communications;
6. that the Community's financial instruments take this recommendation into account within the framework of their interventions, particularly as regards investments required for the implementation of the pan-European cellular digital mobile communications system and that the Community's technological research and development programmes do likewise as regards the development of the required technological base;
7. that Member State Governments invite the telecommunications administrations to carry out this recommendation;
8. that Member State Governments inform the Commission at the end of each year, from the end of 1987 onwards, of the measures taken and problems encountered in the course of implementing this Recommendation. The progress of work will be examined by the Commission with the Senior Officials Group on Telecommunications (SOG-T) set up by the Council on 4 November 1983.

Done at Luxembourg, 25 June 1987.

For the Council

The President

H. DE CROO

ANNEX

1. General requirements

The future pan-European cellular digital mobile communications system should fulfil the following general requirements:

- be suitable for use in the 890-915 and 935-960 MHz frequency bands to be made available for the pan-European cellular digital mobile communications system;
- permit a traffic flow (measured in E/KM²/MHz) greater than, or equal to, existing networks, bearing in mind the scarcity of the bandwidth resource allowed for these systems;
- provide the user with a voice transmission quality at least equal to that of the existing systems;
- allow for efficient use of hand-held terminals by encouraging competition amongst manufacturers;
- to be sufficiently flexible to facilitate the introduction of new services related to ISDN.

The cost of the system should be considered in terms of the cost of the fixed infrastructure to be met by the telecommunications administrations, taking into account both urban and rural areas, and the cost of the mobile equipment. All these costs should be within affordable limits and in any case must not exceed the cost of existing public mobile telephone systems working in the 900 MHz band. Since the cost of the mobile communication equipment will constitute the main portion of the total cost, it is preferable for the mobile equipment cost (for quantities in excess of 100 000) to be lower than that for mobile equipment used in existing public mobile telephone systems working in the 900 MHz band.

2. Choice of transmission system

The transmission mode for the pan-European mobile system should be digital. The basis for the final choice of the technical option common to all the Member States (radio subsystem multiple access method) within the digital mode was established by the telecommunications administrations in May 1987, on the basis of work carried out by CEPT (European Conference of Postal and Telecommunications Administrations) and particularly its special group for mobile communications, referred to as GSM (Groupe Spécial Mobile).

3. Network architecture

The principles of the network structure and the definition and allocation of functions between the various system components — Mobile Stations (MS), Base Stations (BS), and Mobile Switching Centres (MSC) — should be defined by the middle of 1987. In the course of this work, the appropriate interfaces between the various system components (MS-BS-MSC) should be completely defined for all Open Systems Interconnections Standards (OSI) layers applicable to the relevant services, and for all applications using those interfaces (call processing functions, maintenance, etc.). The system must be able to support geographically co-located cellular digital mobile radio operators.

4. Mobile interfaces to be specified in detail by the end of 1987

- (a) S reference point, with B (N Kbits/s) + D (N' Kbits/s) structure (N and N' to be defined);
- (b) Interface between MS and BS;
- (c) Interface between BS and MSC.

A minimum set of man/machine interface specifications (control procedures) should be established.

5. Mobile services to be specified in detail by the end of 1987 and available for provision in all Member States starting from 1991, with hand-over and national/international roaming

Although, initially, voice telephony capabilities will constitute the most important service required, the mobile system must nevertheless be open to an overall evolution towards ISDN services⁽¹⁾. Therefore, the following mobile services should be specified in detail by the end of 1987 and available in all Member States starting from 1991:

(a) Bearer services

- Non-transparent bearer service for speech;
- Transparent bearer service for data transmission at N Kbits/s switched in the network at 64 Kbits/s (N to be defined).

(1) OJ No C 157, 24. 6. 1986, p. 3.

(b) *Basic services*

- Hand-over;
- National/international roaming.

(c) *Teleservices*

Telephony at 3,1 kHz (corresponding to N Kbits/s on B channel. N is to be defined).

(d) *Supplementary services*

- Calling line identification;
- Advice of call duration;
- Speech encryption.

This list may be added to by CEPT.

6. Signalling

User access signalling (subscriber signalling) should be defined along the principles of the existing CEPT recommendations for ISDN, and should be able to permit supplementary services of ISDN/PSTN.

Network and inter-network signalling process should be defined in the framework of the SS No 7 in such a way that international roaming and hand-over facilities are safeguarded.

7. Tariff considerations

The telecommunications administrations are invited to consider within the CEPT framework the following tariff principles:

- given the scarcity of frequency resources, the service should be charged basically according to the duration of the radio channel use;
- the tariffs should take into account the current trend towards less distance dependence.

By the end of 1987, the basic framework of charging principles should be identified, so that the network implications can be identified and resolved in an appropriate manner.

8. Geographical coverage

The introduction date of the pan-European cellular digital mobile communications system should be 1991 at the latest. Major urban areas should be covered by 1993 at the latest. The main links between these areas should be covered by 1995 at the latest.

Further, the telecommunications administrations should collaborate in studying these respective priorities for coverage, in order to stimulate the maximum pan-European traffic as early as possible. This should take into account the needs of users in vehicles on major European routes, and the needs of air travellers located between city centres and international airports.

COUNCIL DIRECTIVE

of 25 June 1987

on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community

(87/372/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the European Parliament ⁽²⁾,

Whereas recommendation 84/549/EEC ⁽³⁾ calls for the introduction of services on the basis of a common harmonized approach in the field of telecommunications;

Whereas the resources offered by modern telecommunications networks should be utilized to the full for the economic development of the Community;

Whereas mobile radio services are the only means of contacting users on the move and the most efficient means for those users to be connected to public telecommunications networks;

Whereas mobile communications depend on the allocation and availability of frequency bands in order to transmit and receive between fixed-base stations and mobile stations;

Whereas the frequencies and land-based mobile communications systems currently in use in the Community vary widely and do not allow all users on the move in vehicles, boats, trains, or on foot throughout the Community, including on inland or coastal waters, to reap the benefits of European-wide services and European-wide markets;

Whereas the change-over to the second generation cellular digital mobile communications system will provide a unique opportunity of establishing truly pan-European mobile communications;

Whereas the European Conference of Postal and Telecommunications Administrations (CEPT) has recommended that frequencies 890-915 and 935-690 MHz be allocated to such a system, in accordance with the International Telecommunications Union (ITU) Radio Regula-

tions allocating such frequencies to mobile radio services use as well;

Whereas parts of these frequency bands are being used or are intended for use by certain Member States for interim systems and other radio services;

Whereas the progressive availability of the full range of the frequency bands set out above will be indispensable for the establishment of truly pan-European mobile communications;

Whereas the implementation of Council recommendation 87/371/EEC of 25 June 1987 on the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community ⁽⁴⁾, aiming at starting a pan-European system by 1991 at the latest, will allow the speedy specification of the radio transmission path;

Whereas on the basis of present technological and market trends it would appear to be realistic to envisage the exclusive occupation of the 890-915 and 935-960 MHz frequency bands by the pan-European system within 10 years of 1 January 1991;

Whereas Council Directive 86/361/EEC of 24 July 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment ⁽⁵⁾ will allow the rapid establishment of common conformity specifications for the pan-European cellular digital mobile communications system;

Whereas the report on public mobile communications drawn up by the Analysis and Forecasting Group (GAP) for the Senior Officials Group on Telecommunications (SOG-T) has drawn attention to the necessity for the availability of adequate frequencies as a vital pre-condition for pan-European cellular digital mobile communications;

Whereas favourable opinions on this report have been delivered by the telecommunications administrations, by the European Conference of Postal and Telecommunications Administrations (CEPT) and the telecommunications equipment manufacturers in the Member States,

⁽¹⁾ OJ No C 69, 17. 3. 1987, p. 9.

⁽²⁾ OJ No C 125, 11. 5. 1987, p. 159.

⁽³⁾ OJ No L 298, 16. 11. 1984, p. 49.

⁽⁴⁾ See page 81 of this Official Journal.

⁽⁵⁾ OJ No L 217, 5. 8. 1986, p. 21.

HAS ADOPTED THIS DIRECTIVE:

Article 1

1. Member States shall ensure that the 905-914 and 930-939 MHz frequency bands or equivalent parts of the bands mentioned in paragraph 2 are reserved exclusively (*) for a public pan-European cellular digital mobile communications service by 1 January 1991.

2. Member States shall ensure that the necessary plans are prepared for the public pan-European cellular digital mobile communications service to be able to occupy the whole of the 890-915 and 935-960 Mhz bands according to commercial demand as quickly as possible.

Article 2

The Commission shall report to the Council on the implementation of the Directive not later than the end of 1996.

Article 3

For the purposes of this Directive, a public pan-European cellular digital land-based mobile communications service shall mean a public cellular radio service provided in each

of the Member States to a common specification, which includes the feature that all voice signals are encoded into binary digits prior to radio transmission, and where users provided with a service in one Member State can also gain access to the service in any other Member State.

Article 4

1. Member States shall bring into force the provisions necessary to comply with this Directive within 18 months of its notification (*). They shall forthwith inform the Commission thereof.

2. Member States shall communicate to the Commission the text of the provisions of national law which they adopt in the field governed by this Directive.

Article 5

This Directive is addressed to the Member States.

Done at Luxembourg, 25 June 1987.

For the Council

The President

H. DE CROO

the exception of the use of these frequencies for point-to-point connections existing when the Directive enters into force, provided they do not interfere with the public pan-European cellular digital mobile communications service and do not prevent its establishment or extension.

(*) This Directive was notified to the Member States on 26 June 1987.