COMMISSION OF THE EUROPEAN COMMUNITIES

TOWARDS ADVANCED TELECOMMUNICATIONS FOR EUROPE

DEVELOPING THE TELECOMMUNICATIONS HIGH SPEED LINKS

(" ELECTRONIC HIGHWAYS") FOR THE COMMUNITY'S 1992 MARKET

(Communication from the Commission.)

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SUMMARY

According to the objectives of the Community's telecommunications policy, approved by Council on 17 December 1984, the promotion of the development of advanced telecommunications services and networks has been one of the main action lines since this date (refer to COM (88) 240 for details on progress to date).

In the Green Paper on the development of the common market for telecommunications services and equipment and the subsequent proposals for implementation (COM (87) 290 and COM (88) 48), the Commission re-emphasized "long-term convergence and integrity of the network infrastructure in the Community" and a "pro-active concept for the promotion of Europe-wide services" as vital conditions for an open competitive Community-wide market and for securing the full benefits of advanced telecommunications for the European user and the European economy.

Towards this end, the Commission announced, inter alia, a communication on the Community-wide introduction of broadband communications, according to the evolving state of technology, for leading-edge users, in particular in the business sector. This Communication is herewith submitted.

The major milestones of network and services development in the Community are : digitisation ; the Integrated Services Digital Network, the ISDN ; and Integrated Broadband Communications, the IBC - the objective of the RACE programme. In the course of network development, all Telecommunications Administrations in the Community are already starting to establish high-speed digital links, based on optical fibre and satellites - powerful "electronic highways", which will be as important to the Community's future information-based market, as are the high speed trains and motorways for the Community's transport infrastructure already today.

If truly Community-wide digital connectivity is to be ensured rapidly for the evolving ISDN and the future Integrated Broadband Communications Networks, it will be necessary to intensify co-ordination, in order to promote and facilitate the emergence of the Community-wide "electronic highways" for advanced services which the Community's 1992 market will need.

According to the Council's mandate of 1984 to "open discussions ... on the implementation of infrastructure projects of common interest", the Commission has carried out, together with the European Telecommunications Administrations, extensive network and market studies in this area. Based on these studies and work of the Senior Officials Group on Telecommunications (SOG-T) subgroup GAP and subsequent broad consultation, the Commission now proposes to establish a continuous co-ordination framework, in order to <u>allow the emerging national and bilateral high-speed links to evolve into Europe-wide "electronic highways"</u>.

According to the GAP plead for an active market approach, this evolving Europe-wide infrastructure of high-speed telecommunications links should then provide the basis for the Telecommunications Administrations for an early introduction of new broadband services for leading edge customers, fully benefitting Europe's 1992 market.

<u>Interacting closely with the work in the RACE programme</u>, an active market-ledapproach will allow the European users, European telecommunications industry and European Telecommunications Administrations to match the rapid development in the United States and Japan in this area.

I   **INTRODUCTION**

According to the Action Programme in the field of
telecommunications, proposed by the Commission on 10 May 1984 (COM
(84) 277) based on in depth consultation with the Senior Officials
Group on Telecommunications, Action Line 4 addressed the "common
development of the trans-national part of the future
telecommunications infrastructure in the Community", and, in
particular "the establishment of large trans-Community axes for
broadband integrated services networks".

On the basis of this proposal, the Council concluded on 17 December
1984, as part of its general approval of the Community
telecommunications policy that a major objective should be
"improving the development of advanced telecommunications services
and networks", in particular "by opening discussion, based on
available studies, on ... the implementation of infrastructure
projects of common interest".

II **PRESENT SITUATION**

Based on a broad study of the overall development of
telecommunications in the Community, carried out as early as 1984
in close collaboration with experts from all Community
Telecommunications Administrations, the Director Generals of the
Telecommunications Administrations concluded, at a meeting in
Brussels in Autumn 1984, that a sufficient basis had been
established to initiate more specific studies on the future
evolution of the major telecommunications traffic requirements and
on planning in this field.

Accordingly, the Commission started a major study effort :

-   an extensive collection of information on current network
    planning in the Community and evolving national and
    trans-national routes for both current and future
    telecommunications traffic was carried out, again in close
    co-operation with all Community Telecommunications
    Administrations. The Swiss, Swedish and Norwegian
    Telecommunications Administrations also closely collaborated.

    This comprehensive study established a firm factual basis of
    information on the current state of planning and made proposals
    for the extension of current planning to accelerate the
    emergence of international links in the Community for the
    future digital services ;

- on decision by SOG-T, the results of this study were scrutinised by the SOG-T sub-group GAP "Group for Analysis and Forecasting" in the context of its general analysis of the co-ordinated introduction of broadband services in the Community and the optimal use of the RACE Programme.

- in parallel, the Commission authorised a comprehensive study on the market for the new high-speed services at the European scale. The interrogation of more than 4 000 enterprises - potential leading edge users - in all Member States - and including Switzerland, Austria, Sweden, Norway and Finland, confirms a substantial market potential if a pro-active Europe-wide introduction strategy is put in place.

Details are set out in annex.

In the meantime, the substantial progress achieved within the general framework of the Community's telecommunications policy sets a favourable framework for the further development of advanced trans-national telecommunications in the Community (refer to COM (88) 240 for progress to date) ;

- a defined framework for the co-ordinated introduction of the ("narrowband") Integrated Services Digital Network, the ISDN, has been put in place, with the Council Recommendation 86/659/EEC of 22 December 1986 which foresees progressive implementation of ISDN in the Community from 1988 onwards, reaching substantial Community-wide penetration by 1993. In addition, the co-ordinated introduction of pan-European digital mobile communications has been started, with the Council Recommendation 87/371/EEC and Directive 87/372/EEC of 11th June 1987.

- the long-term convergence of network and service development, with a view to the year 2000, has been substantially reinforced with the launching of the RACE Programme in January 1988 (Council Decision 88/28/EEC of 12 December 1987). The RACE Programme covers R&D to facilitate the future introduction of Integrated Broadband Communications (IBC), taking into account the evolving ISDN and national introduction strategies (refer to COM (88) 240 for details on current work) ;

- a major step towards a balanced Community-wide provision of advanced networks and services has been taken with the implementation of the STAR Programme (Council regulation 86/3300/EEC) of 31 October 1986. The STAR Programme, aimed at regional development, makes a substantial contribution from the European Regional Development Fund available for financing of the introduction of advanced telecommunications in the peripheral regions of the Community.

One principal aim of the STAR Programme is "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" (Article 4(a) of the STAR programme).

The studies carried out for the preparation of the STAR Programme and the launching of the national intervention programmes now underway under STAR have further contributed to the understanding of requirements in high-speed links, in particular to integrate the Community's peripheral regions further into the emerging advanced telecommunications routes in the Community ;

- the discussion on the Green Paper on the development of the Common market for Telecommunications Services and Equipment (COM (87) 290), published on 30 June 1987, show a broad agreement on the concept of an open competitive Community-wide telecommunications market, built on a strong Community-wide integrity of the network infrastructure.

The Commission has emphasized in the Green Paper the need for ensuring the long-term convergence and integrity of the network infrastructure. In the course of the current digitisation of the national networks, all Telecommunications Administrations in the Community are already starting to establish high-speed digital links, based on optical fibre and satellite - in fact nothing else than powerful "electronic highways".

As early as March 1984, the European Parliament expressed its strong support for Community-wide telecommunications infrastructure projects, and in particular the "trans-national development of voice and data integrated services facilities at the Community level, development of intra-European terrestrial broadband links for carrying voice, data and video services, based on the most advanced optical fibre techniques and, development of broadband services at a Community-level using satellite communications" (Resolution of 29 March 1984, OJC/117/81).

The framework is now in place. Based on the recommendations of GAP
and extensive study of network evolution in the Community carried
out together with the Telecommunication Administrations, and
according to the Council's Conclusions of December 1984 and Council
Recommendation 84/549/EEC on the implementation of a common
approach in the field of telecommunications, the Commission
considers that it is now the right moment to intensify
co-ordination and to thus facilitate the emergence of an efficient
infrastructure of Community-wide electronic highways which the
Community's 1992 market will need.

Intensified concertation in this area would help to draw the full
benefits from the framework established in particular by the RACE
and the STAR programmes, and by the continuous interventions of the
Community's financial instruments in favour of telecommunications
projects, in particular of the European Investment Bank.

The intensification of this concertation is the topic which this
Communication addresses.

III **PROPOSED PROCEDURE**

With the launching of the RACE programme in January 1988, a general long-term framework for development towards broadband communications in the Community has been established.

The Commission considers that the way is now open to draw, in close interaction with the RACE programme, maximum common benefit from on-going or planned national projects:

- by intensifying concertation on high-speed links, with the objective of developing those links by 1992 into "electronic highways" for the Community-wide market, taking full account of related work in CEPT and the CCITT regional planning framework ;

- by taking an active approach towards early Europe-wide introduction for the new broadband services building on previous examples of intensified co-operation of Telecommunications Administrations on service introduction in Europe, such as in the framework of CEPT or in the field of mobile communications.

While the preparation of service introduction will be able to draw substantially on the new framework of co-operation established with the RACE programme and on the new impetus forthcoming from the Community's policy for the development of a Community-wide information market,

this Communication concentrates on the establishment of the
Community-wide infrastructure of high-speed links which are needed
as the basis for the development of these services.

The importance of developing the Community's advanced
infrastructure for drawing the full benefit from the Community's
1992 market has been stressed, inter alia, by the joint opinion of
the Union of Industrial and Employers Confederations (UNICE), the
European Trade Union Confederations (ETUC) and the European Centre
of Public Enterprises (CEEP), which states that "a more rapid
execution of large-scale infrastructure projects of European
interest would, at present, be particularly appropriate to boost
demand while strengthening the Community's productive potential.
These projects could contribute notably to the strengthening of
cohesion within the Community by establishing communication
networks able to promote the development of less favoured regions".

The Commission has proposed a comprehensive approach for the
promotion of large-scale infrastructure projects of European
interest, inter alia planned broadband telecommunications networks,
in its Communication and Proposal for a Decision of December 1986
(COM(86) 722), amended by Communication COM(87)724 of January 1988,
subsequent to discussion in the European Parliament.

The role which the Commission proposes for the Community would be,
in particular, to provide the requisite conditions for large-scale
projects to emerge. Towards this purpose, the Commission proposes
in COM (87) 724, depending on the specifics of the projects, a
range of options, in particular :

- a contribution in the *form of* a grant or repayable advance for the preparatory work and studies necessary to demonstrate the technical, financial, and economic viability of projects;

- a "declaration of European interest" which should give a special dimension and prominence to projects. Selected projects would receive political support from the Community, thus also enjoying an improved financial environment.

According to COM(87) 724, amongst others the following means may be considered: specific budgetary resources; resources available under Community policies and measures whose objectives the projects are designed to achieve, such as in the context of the STAR programme financed by the European Regional Development Fund; specific loans from the own resources of the European Investment Bank and, should the need arise, from resources raised by the European Economic Community on capital markets.

With this general framework in mind, and given the need to develop the new telecommunications high-speed links currently emerging in the Community into pan-European routes to ensure both digital connectivity for the transformation of current services - in the context of digitisation and ISDN - and the required additional capacity for the introduction of the new broadband services, two steps should be taken immediately :

- confirmation/continuous updating of the data collected up to now, and intensified exchange of information. A permanent group of experts from the Member States and the Telecommunications Administrations should be established, in order to compare national projects in the Community in a Europe-wide context ;

-   this expert group should also <u>identify routes of pan-European significance</u> and advise on those national and international links in the Community which should receive a formal "declaration of European interest", once the general Decision on financing major Community infrastructure projects, proposed in COM(87) 724, has been adopted by the Council.

At the same time, the Commission would also consider in this context to investigate, together with the other Community Institutions and the Telecommunications Administrations concerned, the long-term needs regarding high-capacity electronic routes between the locations of the Community's Institutions - in particular the need for a Brussels - Luxembourg - Strasbourg electronic "highway" -, building on the experiences gained in the INSIS programme and the video communications projects currently underway.

IV CONCLUSIONS

To sum up, Europe is now in a critical decision phase regarding the preparation of its infrastructure for the future introduction of broadband services in an efficient, Community-wide, and co-ordinated manner.

Currently, all Member States are already establishing high-speed digital links, based on optical fibre and satellites, and a number of Member States are initiating national broadband projects. There is now a unique opportunity - and an indispensable pre-condition for future development - to ensure that these links evolve into true Community-wide "electronic highways" to form the efficient infrastructure for the introduction of the future advanced broadband services which the Community's vast 1992 market will need, while at the same time facilitation of the transition between the present situation and IBC environment.

According to the report by the Group for Analysis and Forecasting (GAP) on the co-ordinated introduction of broadband services within the Community, approved by SOG-T and endorsed broad subsequent consultation with the Telecommunications Administrations and industry, the Member States and the Telecommunications Administrations should now undertake an active market-led approach towards accelerated introduction of broadband communications in the Community, with special regard to the needs of leading edge users.

The substantial progress on the concertation on advanced networks
and services in the Community, achieved through the progressive
implementation of the Community's telecommunications policy -
and in particular through the <u>launching of the RACE and the STAR</u>
<u>programmes -, has now created a favourable environment for such a</u>
<u>development.</u>

<u>Towards this end, the Commission proposes to the Member States and</u>
<u>the Telecommunications Administrations</u> :

-   to make a firm commitment towards developing the emerging
    national and bi-lateral high-speed links into Europe-wide
    "electronic highways", necessary as the basis for advanced
    Europe-wide broadband service introduction, implemented within
    the Community in an open manner, in conformity with the
    principles expressed in the Green Paper. To this end, the
    Commission proposes to form, in consultation with the Senior
    Officials Group on Telecommunications (SOG-T), a working group
    of experts from the Member States and the Telecommunications
    Administrations, in order to intensify concertation, making the
    best use of work in the CEPT and CCITT planning frameworks in
    this area ;

-   this expert working group should act as a forum to compare
    national projects and plans and identify routes of pan-European
    significance, in order to advise on those national and
    international links in the Community which should receive a
    formal "declaration of European interest", once the respective
    Council Decision proposed in COM(87) 724, has been taken. On
    this basis, such a declaration could be allocated to projects,
    in the framework of the Community's general commitment to
    promote large scale infrastructure projects;

- in parallel, the Telecommunications Administrations should intensify their co-operations on the preparation of Community-wide market introduction of broadband services. Intensified co-operation within the framework of CEPT or the new forms of cooperation which have been developed with the memorandum signed by Telecommunication Administrations for the joint implementation of digital mobile communications in Europe may serve as examples, as far as compatible with Community competition rules and taking full account of the objective of the creation of an open Community-wide market for telecommunications services for all market participants, particularly for value-added services. Information on agreements envisaged should be communicated to the Commission.

Under the forthcoming Call for Proposals concerning the Usage Reference Model Development Section of the RACE *programme*, which concerns application analysis, a broad range of possibilities will emerge for such type of co-operation in preparing new broadband service introduction concepts.

The Commission is convinced that this approach will make an important contribution to the Community's general strategy for the coordinated introduction of advanced telecommunications and the achievement of the Common Market by 1992.

ANNEX

Detailed Analysis

1. **PRESENT EVOLUTION OF BROADBAND LINKS FOR ADVANCED**
    TELECOMMUNICATIONS IN THE COMMUNITY

In order to create a detailed overview of the present situation
in the Community, a comprehensive analysis was carried out to
collect extensive data on current national projects in the
Community and evolving trans-national links, normally planned on
a bilateral basis (1).

All Community Telecommunications Administrations, and
additionally the Telecommunications Administrations of
Switzerland, Sweden and Norway collaborated in the effort. SOG-T
established a special liasion group to guide the project.
Further, full use was made of the data assembled by the European
Conference of Postal and Telecommunications Administrations
(CEPT) and regional network planning in the CCITT context.

On the basis of this broad expertise and the extensive data
collected, major findings were :

-   it is feasible to provide in the near future a
    Community-wide digital transmission infrastructure to carry
    the traffic of the digital and digitised narrowband services
    (including the emerging ISDN) and the first 2Mbit/s
    applications originating from the national networks ;

-   this infrastructure is mainly covered by the already planned
    bilateral broadband connections between the Member States of
    the Community together with neighbouring countries, and by
    the developing national trunk connections. It could be
    completed by a few connections, some of which are already
    under negotiation. It is complemented by the use of the
    European satellite system (EUTELSAT and national satellites
    launched or in planning), especially for the initial linking
    of peripheral areas and for special applications ;

-   it will be possible on this basis to support the activities
    according to Council Recommendation 86/659/EEC for the
    co-ordinated introduction of ISDN and to carry the level of
    digitised telephone traffic including ISDN expected until
    1990 by connecting this emerging trans-national
    infrastructure to the digital international gateways of the
    national networks ;

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(1)   The working title of the study was "Trans-national
        Broadband Backbone (TBB) study".

- the currently evolving infrastructure will only provide for
  a small amount of broadband services in the Community.
  However, it would be feasible with a limited amount of
  additional resources to enhance current plans to such an
  extent as to facilitate the Community-wide introduction of
  advanced broadband services and the transition to Integrated
  Broadband Communications, envisaged, according to the RACE
  Programme, for the nineties.

Such a full-scale system of broadband links could be set up
throughout Europe by 1990, with a view to rapid broadband
connection of leading edge users, such as business users,
"Teleport" installations and local "optical fibre islands",
Using both optical fibre systems for the high-speed links
and the satellite links, available or to be provided by the
Eutelsat and national systems.

The study findings stress that Europe is at present in a
critical decision phase with regard to future broadband
connections. All Member States are establishing or planning a
number of concrete projects for the implementation of broadband
networks for the supply and evaluation of new services and
applications. In the course of international network
development, more and more high capacity optical fibre cables
are currently being implemented or planned by the
Telecommunication Administration - however, mainly in a
bilateral context (FIG. 1). Additionally, all Member States are
studying how best to integrate satellite communications into the
evolving network structure.

At a time where in the United States and Japan broadband
"highways" are rapidly being introduced on a continental scale,
Europe will need the optimisation of current national projects
and bilateral links in a European context in order to satisfy
the requirements of the future large Community-wide market of
1992.

FIG I

Current Implementation/Planning of terrestrial
international digital links in Europe

Source: Commission studies / Member States information (SOG-T)

OF = optical fibre
RL = radio link (micro-wave)
K = coaxial cable
SM = submarine

COUNTRIES	CONNECTION POINTS	TYPE	BY DATE
Irl-UK	Dublin - Belfast	RL	1987
		OF	1990
Irl-UK	Dublin - Holyhead	OF(SM)	1988
Irl-UK	Cork - Brean (PTAT)	OF(SM)	1989
Irl-F	Cork - Penmarch	OF(SM)	1995
UK-NL	Aldeburgh - Domburg	OF(SM)	1989
UK-B	Broadstairs-Oostende	OF(SM)	1987
UK-F	Tolsford - Fiennes	RL	1988
UK-F	Dover - Boulogne	RL	1988
UK-F	Brighton - Dieppe	OF(SM)	1989
UK-F	Bournemouth - Penmarch	OF(SM)	1991-93
UK-D	Winterton-NordseeK.	OF(SM)	1991
UK-DK	Scarborough - Esbjerg	OF(SM)	1988
UK-E	U.K. - Conil (TAT9)	OF(SM)	1991

DK-D	Abenraa - Freienwill	K	1987
DK-D	Nakskov - Hamburg	RL	1987
DK-D	Esbjerg - NordseeK.	OF(SM)	1991/92
DK-NL	Esbjerg - Leeuwarden	OF(SM)	1991
DK-N	Hjörring - Arendaal	OF(SM)	1992
DK-S	Kobenhavn - Malmoe	OF(SM)	1990
		RL	1985
NL-D	Enschede - Ahaus	OF	1988
NL-D	Heerlen - Aachen	OF	1988/90
NL-D	Smilde - Leer	RL	1987
NL-B	Breda - Herenthals	OF	1985
NL-B	Roosendaal - Anvers	RL	1985
B-F	Kortrijk - Lille	RL	1986/90
B-F	Mons - Manbeuge	K	1986
B-F	à préciser	OF	1993
B-D	Liège - Aachen	RL	1985/87
			1990
B-D	Verviers - Simmerath	OF	1989/91
B-LUX	Bastogne - Neidhausen	RL	1985
B-LUX	Arlon - Luxembourg	OF	1989
LUX-D	Luxembourg -Trier	OF	1987
LUX-D	Luxembourg - Frankf.	RL	1989
LUX-F	Luxembourg-Thionville	RL	1987/89 /91
		OF	1990
D-F	Saarbrücken - Forbach	K	1986
		OF	1991
D-F	Willstätt - Strasbourg	RL	1986
D-F	Karlsruhe - Strasbourg	OF	1988
D-I	Dießen - Bozen	OF	1991/92 (*)
D-CH	Donaueschingen - Basel	RL	1984
D-CH	Donaueschingen - Schaffhausen	OF	1991/92
D-CH	Lörrach - Basel	OF	1986/87
D-CH	Ravensburg - Schweiz	RL	1990/91

D-A	Weilheim - Innsbruck	K	1987	
D-A	Dießen - Innsbruck	OF	1991/92	
D-A	München - Salzburg	K	1987/88	
D-A	Traunstein - Salzburg	OF	1989/90	
F-CH	Annemasse - Genève	K	1984	
		OF	1991	
F-CH	Mulhouse - Basel	RL	1984	
		OF	1990	
F-CH	Besançon - Bern	RL	1987/92	
F-I	(Marseille) Corse - Palermo (Roma)	OF(SM)	1992	(*)
F-I	Nice - Savona	K	1984	
F-I	Chamonix - Torino	K	1986	
F-P	Penmarch - Lisboa	OF(SM)	1990	(*)
F-E	Perpignan - Gerona	OF	1990	
F-E	Martigues - Barcelona	OF(SM)	1992	
F-E	(Bayonne) Hendaye - San Sebastian	K	1988	
		OF	1993	
F-AND	Foix - Andorra	RL	1990	
E-I	Palma - Palermo	OF(SM)	1991	(*)
E-AND	Barcelona - Andorra	RL	1990	
E-P	Caceres - Leiria	RL	1990	
E-P	Salamance - Lisboa	OF	1994	
I-A	Bolzano - Innsbruck	RL	1987	
		OF	1991/92	(*)
I-CH	Torino - Martigny	K	1987	
I-CH	Milano - Lugano	OF	1988	(*)
I-GR	Palermo - Lechaina	OF(SM)	1990	(*)
		RL	1991	(*)
Gr- Cyprus	Greece - Cyprus	OF(SM)	1992	

(*)   subject to confirmation

In addition to intensive study of present network planning in the Community, a large-scale market study was undertaken, to investigate the future requirements of the Community market for advanced high-bandwidth telecommunications services.

The investigation was based on interviews with 4200 business establishments distributed in 12 Community Member States and 5 EFTA countries (Austria, Switzerland, Sweden, Norway and Finland) - potential leading edge users. The project was again fully supported by the Telecommunications Administrations in the Community and in the other countries concerned.

The analysis focussed on the study of the broadband telecommunications service needs of professionals in the Community forecast up to 1996, concerning the following services: video conferencing, videophony, high-speed data transmission, high-speed facsimile, high-quality sound transportation, TV transportation (high-quality video transmission). The survey concerned user needs, equipment requirements and also short-term plans regarding telephony, standard facsimile, mail, meetings, electronic data processing, videotex and documentation.

The project included the analysis of the long-term evolution of these needs. The study showed that professionals will have a growing need for a number of broadband telecommunications services. The early demand will be concentrated in areas with a high density of business user population, with a high international orientation.

The latent demand will however only be realised if an active approach to service introduction is adopted (FIG. 2). In line with the international orientation of the leading edge users, the services must be offered from the start both nationally and internationally. These results confirm the need for the early availability of transnational high-bandwidth links in the Community supporting the development of local links to leading-edge users. They also suggest the requirement for market tests for service introduction co-ordinated at the European level, in order to secure success.

Figure 2

Leading-edge Users for Selected
Advanced Broadband Services in Europe

Projected number of business establishments of more than 50 employees applying for connection in 1996.

	Active Market Approach (1)	No-action
Videoconference	48 700 (16%)	6 700 (2%)
High-speed data	51 200 (17%)	21 600 (7%)
High-speed colour facsimile	9 800 (3%)	– (2)
Videophony	63 100 (21%)	– (2)

(1) Percentage of total number of enterprises in this category.

(2) Unlikely to take off without active market approach by the Telecommunications Administrations.

Source :   Study undertaken under contract with the EEC, 1986-87

Successful market introduction with leading edge users will pave the way for use of these services by small and medium sized businesses and the private sector thus making the benefit of the new broadband communications services available to the whole of Europe's economy. The <u>rapid development of Community-wide high-speed links - electronic highways - will thus be an essential factor in quickly translating the progressively forthcoming results of the RACE programme into full user benefit and drawing the full advantages from the Community's policy for developing a Community-wide information market in order to put Europe's enterprises on the same footing as their competitors in the United States and Japan.</u>

3   EVALUATION BY THE ANALYSIS AND FORECASTING GROUP (GAP)

On request by SOG-T, GAP has evaluated in the general context of
the introduction of broadband services in the Community
("Proposals by the Analysis and Forecasting Group (GAP) for the
co-ordinated introduction of broadband services in the
Community", approved by SOG-T on September 8th, 1986).

The GAP report sets out general proposals for the co-oordinated
introduction of broadband services in the Community, including
teledistribution (TV) services for private households. In line
with the results of the market survey above, the other two
important groups of broadband services considered as driving
forces for future development are videoconference
/videotelephony and high bit rate data transmission between
computer centers and high performance work stations including
colour facsimile.

Within its general context, the report confirms the need for a
pro-active approach. It proposes inter alia :

-    general availability, on a Europe-wide basis, of digital
     transmission paths at 2 Mbit/s. (reserved or on demand) from
     the beginning of 1989 onwards ;

-    implementation of an international infrastructure with high
     transmission rate from 1988 onwards, with a view to the
     promotion of an active Europe-wide market approach. The
     development of such an approach will largely benefit from
     the RACE programme.

During the broad consultations carried out in 1987 on the GAP
report, it has become clear that both industry and
Telecommunications Operators agree to taking an active
market-led approach, emphasizing the synergy to be developed
with the RACE programme