

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(90) 123 final

Brussels, 29 March 1990

CORRIGENDUM

La cote du document SEC(90)488 final
devient COM(90)123 final

(concerne toutes les versions
linguistiques)

PROGRESS REPORT 1989 CONCERNING THE CO-ORDINATED INTRODUCTION OF THE INTEGRATED SERVICES DIGITAL NETWORK (ISDN) IN THE EUROPEAN COMMUNITY

(presented by the Commission)

COMMISSION OF THE EUROPEAN COMMUNITIES

SEC(90)488 final

Brussels, 23 March 1990

**PROGRESS REPORT 1989
CONCERNING THE
CO-ORDINATED INTRODUCTION OF THE
INTEGRATED SERVICES DIGITAL NETWORK (ISDN)
IN THE EUROPEAN COMMUNITY**

(presented by the Commission)

CONTENTS

SUMMARY.....	3
1. Introduction.....	7
2. Progress on ISDN implementation in the Member States	9
3. Council Resolution of 18.07.89 on the further strengthening of co-operation.....	11
4. Memorandum of Understanding on the implementation of European ISDN service by 1992.....	13
5. European Standardisation	15
5.1 Progress with the organisation of ISDN Standardisation.....	15
5.2 Progress in ISDN standards work.....	17
6. The application of the ONP concept to ISDN	19
7. New initiatives and proposals.....	20
7.1 Raising the awareness of users.....	20
7.1.1 European ISDN at Telecom 1991 in Geneva	20
7.1.2 European ISDN user forum	20
7.1.3 A European ISDN atlas.....	21
7.2 ISDN terminals.....	22
7.2.1 Research and development for the implementation of ISDN Terminals ...	23
7.2.2 Specifications for procurement of ISDN terminals by major users.....	23
7.3 Regional aspects	24
8. Conclusions.....	27

Annex

A. Glossary of technical terms

SUMMARY

This second annual report presents the progress with the implementation of the Integrated Services Digital Network (ISDN)¹ in the Member States since the publication of the first annual report, particularly focussing on the measures considered necessary by the Council for the further strengthening of co-ordination as set out within its Resolution of 18 July 1989².

Significant progress has been achieved concerning the implementation of narrow-band ISDN and related services in a number of individual Member States. This is important for European users and industry in order to prepare themselves for the future implementation and use of advanced ISDN services and to take the lead in a very advanced technological domain.

Considerable progress can also be reported concerning the co-ordination of these efforts, which is the main subject of Recommendation 86/659/EEC³.

The Resolution adopted by Council on 18th July 1989 on the further strengthening of the co-ordination now constitutes the clear guidance for the measures required for a successful implementation of ISDN in Europe by 1992.

¹ The ISDN can be considered as a natural evolution of the telephone network. It will allow via a single access, using the existing subscriber line, the transmission of voice (telephony), text, data, and images in the form of a multitude of more efficient or new services. ISDN will greatly prepare the introduction of Integrated Broadband Communications (IBC), the objective of the RACE programme

² Council Resolution of 18th July 1989 on the strengthening of the co-ordination for the introduction of the ISDN in the European Community up to 1992 (89/C196/04)

³ Council Recommendation of 22 December 1986 on the co-ordinated introduction of the Integrated Services Digital Network (ISDN) in the European Community (86/659/EEC). In accordance with the Recommendation, a first Progress Report was submitted on 31st October 1988 (COM(88)589).

According to this resolution a Memorandum of Understanding (MOU) has been established within the framework of CEPT, aiming at the implementation of a European ISDN service by 1992. In the meantime this MOU has been signed by 23 Telecommunications Organisations from 18 European countries, including all Community Member States. The Commission is of the opinion, that this is a very clear signal to all parties involved, in particular to the users and also to terminal and equipment manufacturers.

The successful implementation of the MOU is dependent upon the early availability of common technical specifications. An accelerated work program for this has identified some 200 European Telecommunications Standards (ETTs) that need to be defined. By the end of 1989, 60 to 70% of the technical standardization work was completed. The draft ETTs, after the agreement of the ETSI Technical Committee, will then be subject to a 120 day public Enquiry procedure. There may be some modification to content and form following this procedure. However, the draft 1990 texts should be sufficiently stable for manufacturers and operators to commence detailed implementation work. It is hoped that the remaining 30% to 40% will reach the same stage by the middle of 1990.

The Community contributed to this work by giving financial support (in conjunction with EFTA) in accordance with the Council Resolution.

A field of particular importance is the application of the Open Network Provision (ONP) concept to ISDN. The Commission considers the application of the ONP concept to ISDN as the appropriate means to ensure the availability on a Europe-wide harmonized basis of open access to ISDN capabilities. The Commission has recently initiated a study on the application of the ONP concept to ISDN. The study is expected to be completed early in 1990.

New activities have to be initiated in order to increase the users' awareness of the advantages of ISDN. This report presents a number of proposals for relevant activities on the Community level.

The success of ISDN will be strongly dependent on the availability of terminals which can convert the opportunities of the ISDN into concrete offerings and applications. Although European industry is facing a substantial challenge from Japan and the United States in the production of terminals, it is relatively strong in the development of key components for ISDN terminals.

There is a chance for strengthening the position of the European terminal manufacturers in the world market by defining a clear strategy on ISDN terminal development and manufacture.

Therefore, whereas the development of standards is making good progress now within the framework of ETSI, two additional activities seem to be important and possible on the Community level :

- the setting up as soon as possible, of common R & D projects for basic terminals within the existing frameworks ;
- the development of specifications for procurement of terminals by the Community's Institutions and related organisations, telecommunication service providers, and major users.

The Commission proposes to discuss the strategic and procedural aspects of these activities in the appropriate frameworks, taking full account of the contributions from the Member States which were made in the course of the preparation of this report.

With the progress made during 1989 on the coordinated implementation of ISDN in Europe, a pan-European ISDN service by 1992 can be expected to be available in time. For the future it will be critical for the success of these common efforts to develop and implement clearly defined marketing and tariffs strategies and promote a common social perception of the new medium.

Two messages will have to be conveyed convincingly to the user : firstly, that he or she will receive service of a new degree of efficiency and quality for existing applications and secondly that the way is open for developing new applications offering vast new opportunities to both business and private consumers.

Further, discussion on the European level regarding user privacy protection requirements in the context of the features of the new services must now be initiated, in order to take account of the necessity to preserve the protection of privacy and personal data, as requested by the Council at its meeting of 7th November 1989 and by the European Parliament in its Resolutions on telecommunications of 14th December 1988.

1. INTRODUCTION

The strengthening of European telecommunications has become one of the major conditions for promoting a harmonised development of economic activities and a competitive market throughout the Community and for achieving the completion of the Community-wide market for goods and services by 1992¹.

All Member States are in agreement that in the years to come narrow-band ISDN will play a central role in the evolution of telecommunications. Based upon the on-going digitalization of the telephone network and using the existing copper pairs in the local network, it offers the possibility of extending advanced services through the existing telecommunications infrastructure. The integration of a wide range of services and applications on a single universal network infrastructure offers substantial advantages to users and is thus a key factor in the attractiveness of ISDN.

All involved parties also agree that only with a harmonised approach across Europe can many of the benefits of ISDN be obtained. Accordingly the promotion of a co-ordinated introduction of ISDN in the Community became one of the Commission's priority activities in implementing the Community's telecommunications policies as adopted by the Council on 17.12.1984.

As a result the Council on proposal from the Commission adopted on 22 December 1986 the "Recommendation on the co-ordinated introduction of the Integrated Services Digital Network (ISDN) in the European Community"², supported by the STAR Programme for the less favoured regions³, in order to enable harmonized implementation throughout the Community.

In its Resolution of 30 June 1988⁴ the Council noted with satisfaction the substantial progress with the co-ordination of technical plans and strategies for the introduction of new services, in particular for ISDN.

-
- ¹ Green Paper on the development of the Common Market for telecommunications services and equipment (COM(87)290)
 - ² Council Recommendation of 22 December 1986 on the co-ordinated introduction of the Integrated Services Digital Network (ISDN) in the European Community (86/659/EEC)
 - ³ 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) (86/3300/EEC)
 - ⁴ Council resolution of 30 June 1988 on the development of the common market for telecommunications services and equipment up to 1992 (88/C 257/01)

In accordance with Article 7 of Recommendation 86/659/EEC the Commission submitted on 31 October 1988 a first annual report on the implementation of this Recommendation to the European Parliament and to the Council⁵. While it recognized the considerable efforts of the Member States to introduce ISDN in accordance with the Council Recommendation, the delays and deviations which have occurred during the introduction of ISDN were also noted.

This second annual report presents the progress with the co-ordinated implementation of ISDN in the Member States since the publication of the first annual report, particularly focussing on the additional measures considered necessary by the Council in its Resolution of 18th July 1989 on the further strengthening of co-ordination.

The information for this report has been provided during 1989 by the Member States in accordance with article 7 of the Council Recommendation. Additional information has been gathered by the Commission in accordance with the monitoring task assigned to the Commission and SOG-T.

⁵ Communication from the Commission concerning the implementation of Council Recommendation 86/659/EEC on the co-ordinated introduction of the Integrated Services Digital Network (ISDN) in the European Community - First annual progress report from the Commission to the European Parliament (COM(88)589)

2. PROGRESS ON ISDN IMPLEMENTATION IN THE MEMBER STATES

1989 has seen significant progress with the implementation of national ISDNs and related services in a number of Member States. Public network operators from all Community Member States have expressed their commitment to implement a pan-European ISDN according to the Memorandum of Understanding, outlined in detail in chapter 4 of this report.

In Belgium a first phase of ISDN was opened on 28 June 1989 with commercial offerings in 8 cities. By the end of 1989 33 cities will be connected to the network. The second phase of ISDN in accordance with European specifications will be implemented by 1992 ; both phases will be interconnected.

In Denmark an ISDN pilot service was established during 1989. Basic Rate as well as Primary Rate Access are available. A link between the Danish experimental network and the corresponding European ISDN network is planned for the second half of 1990 and is based on TUP+. The introduction into European traffic of the ISUP specified by the ETSI is planned for 1992. Commercial service will be opened by 1992.

In France a commercial ISDN (NUMERIS) was opened on 21 December 1987, which will be accessible country wide by 1990 using Basic Rate and Primary Rate Access. At the end of 1989, Numéris was available in 7 regions of France, including Paris. From 1993 onwards FRANCE TELECOM will provide the services in accordance with the MOU.

In the Federal Republic of Germany a commercial ISDN with Basic Rate Accesses and Primary Rate Accesses had been launched by the end of 1988 in 8 major cities. By the end of 1989, 39 cities and until the end of 1990 more than 100 cities will have access to ISDN. The target data for country-wide penetration is 1993. The introduction of the European D-channel protocol is planned for 1992/1993 in accordance with the MoU. From this date no further extension of the national version is envisaged. Interworking between the European D-channel protocol and the existing national version will be ensured. International ISDN connections have been possible since October 1989 with the Netherlands (Rotterdam area) and are envisaged with France for the middle of 1990 and with the United Kingdom by the end of 1990.

In Greece an ISDN pilot network operation is scheduled for 1992. Commercial availability of the services is planned to start in 1993.

In Ireland it was planned to commence ISDN field trials in late 1989/early 1990. Telecom Eireann hope to be in a position to provide a full commercial service before 1993. Services to be offered post field trial will, as a minimum, comply with the minimum service offering as detailed in the MOU.

In Italy an ISDN pilot service, including interconnection with national PSPDN and other ISDN networks, is now scheduled to start in 1991, covering nine metropolitan areas and progressively reaching a capacity of about 2000 Basic Accesses and 100 Primary Rate Accesses. The introduction of the large scale service, in line with the MoU, is planned for 1993.

In Luxembourg, because of its size and its geographical situation, the implementation strategy will strongly depend on the results of experiment and introduction planning in the other Member States, in particular in the neighbouring countries.

In the Netherlands a pre ISDN phase started in 1988, offering 64 kbit/s services at a Primary Rate Access. A pilot service, offering Basic Rate Access and international connections to the ISDN in Germany started in the Rotterdam area in October 1989. The introduction of the regular ISDN service is planned for 1991.

In Portugal an ISDN field trial with 4 exchanges in the areas of TLP (Lisbon and Oporto) and CTT is now planned for the beginning of 1991. Commercial service will be provided one year later.

In Spain, a pilot experiment was foreseen for 1989 to provide 512 basic rate and 4 primary rate accesses. Commercial service will follow by 1990 ; international connections to all major countries are foreseen from 1991 onwards, using signalling system CCITT n° 7 - ISUP.

In the United Kingdom BRITISH TELECOM has been operating a pilot ISDN Basic Access Service (IDA) since 1985. IN October 1988 a Primary Access Service (Multi-Line IDA) was introduced which now has wide-spread and growing availability in the UK. A review of plans for future implementation of services in accordance with the MOU is currently being undertaken and will be completed in the spring of 1990. MERCURY COMMUNICATIONS Ltd. launched a commercial ISDN in November 1988. The initial national service (DASS 2) is offered in 9 principal cities with Primary Rate Access at the U reference point (G703). The provision of international services according to the MOU is planned for 1992.

The detailed reports by the Member States on the current state of implementation of ISDN in their countries will be made available by the Commission on request.

3. COUNCIL RESOLUTION OF 18.07.89 ON THE FURTHER STRENGTHENING OF CO-OPERATION

The reported progress with the implementation of ISDN in the individual Member States is important for European users and industry in order to prepare themselves for the future implementation and use of advanced ISDN services and to take the lead in a very advanced technological domain.

Considerable progress can also be reported concerning the co-ordination of these efforts, which is the main subject of recommendation 86/659/EEC.

On 5 November 1988 the Telecommunications Ministers at their informal meeting in Athens welcomed the first annual report and endorsed the findings and proposed policy orientations. The Ministers emphasized the high priority which should be given to the continuation and strengthening of the co-ordination and to a common effort on the Community level aiming at the Community-wide provision of a set of pan-European commercial ISDN services by 1992.

The Commission was invited to prepare a formal position according to the proposed policy orientations. The Commission's proposal was submitted to the Council on 6 December 1988⁶. On the basis of this proposal the Council on 18 July finally adopted a Resolution on the further strengthening of the co-ordination⁷.

With its new Resolution the Council of the European Communities has given clear guidance for the additional measures required for a successful implementation of ISDN in Europe by 1992. The Council invited the Member States, the Commission, and the Telecommunications Administrations to initiate a number of related activities, which must now be considered as the actual concrete action plan for the Implementation of Recommendation 86/659/EEC.

Within this Resolution the Council recognized the existence of a unique opportunity to create the conditions for :

- 1 the availability of a sufficient set of truly European-wide compatible ISDN services by 1992, building on the initial phase of introduction of ISDN ;
- 2 the end-to-end compatibility of those services and the availability of low cost terminals, which can be connected to, and operated with, the ISDN implementation in any Member State without any modification (terminal portability) ;
- 3 the optimization of the competitiveness of the European terminal equipment industry, including PABXs, and the full integration of the less-favoured regions of the Community in the emerging ISDN, by appropriate measures, in accordance with the STAR programme.

⁶ Proposal for a Council resolution on the strengthening of the further co-ordination of the introduction of the ISDN in the Community up to 1992 (COM (88) 695).

⁷ Council resolution of 18 July 1989 on the strengthening of the co-ordination for the introduction of the ISDN in the European Community up to 1992 (89/C196/04).

In view of this situation the Council considered the following measures necessary :

- acceleration of the establishment of common specifications for equipment and interfaces within the framework of the European standardisation system and, in particular, of the European Telecommunications Standards Institute (ETSI).
- seeking of a commitment from manufacturers to contribute, in the framework of European standardization, to the development of European standards and common specifications for terminals and PABXs : such standards and specifications should make it possible to ensure end-to-end compatibility and terminal portability ;
- subject to the procedures of the framework directive once adopted, examination of the applicability of the relevant aspects of Open Network Provision (ONP) to ISDN ;
- further discussion at European level regarding user privacy protection requirements and requirements concerning the security of communications in the context of features of new services, in accordance with the Resolution of the European Parliament of 12 December 1986 on the Recommendation 86/659/EEC,

The following chapters of this report outline the progress with this action plan and its implications for the achievement of the major objectives of Recommendation 86/659/EEC.

4. MEMORANDUM OF UNDERSTANDING ON THE IMPLEMENTATION OF EUROPEAN ISDN SERVICE BY 1992

During the discussions with SOG-T and the Member States on the first annual report a Commission suggestion was adopted to implement a "Memorandum of Understanding" between the Telecommunications Administrations on the provision of at least a minimum set of pan-European ISDN services and features and on the introduction of a Common ISDN Signalling System.

This proposal was taken up immediately by the Telecommunications Administrations. Prepared by the Quadripartite Group and developed in the framework of CEPT, a Memorandum of Understanding⁸ has been established, aiming at the implementation of a European ISDN service by 1992.

This MOU has been signed in the meantime by 23 Telecommunications Administrations from 18 European countries, including all EEC Member States.

The purpose of this agreement is to provide a framework for all the necessary measures to be taken by the parties in concertation to ensure the opening of commercial European public ISDN services in their respective countries by 1992. These include, amongst other things, the definition of standard access interfaces, by which users are provided with pan-European services, supplementary services, and common access arrangements.

The agreed target for the commencement of the European ISDN service in accordance with this MOU is 1992. All signatories to this MOU commit themselves to the necessary co-operation activities. In order to provide some limited flexibility to complete the necessary development, procurement, installation and interconnection of equipment, it is agreed that this work will be completed and services opened by all parties at December 1993, at the latest.

The parties shall support an evolutionary process taking into account the phases indicated in the Annex to the Council Recommendation on ISDN (86/659/EEC). Starting from the basis of the CCITT Recommendations for ISDN the parties shall support the timely development of the necessary standards within the open forum provided by ETSI.

The parties at least shall offer a minimum set of services, in particular the circuit mode 64 kbit/s unrestricted bearer service, the audio bearer service and a number of supplementary services. A large number of additional services and supplementary services nearly identical to those identified in the Annex of Recommendation 86/659/EEC are recognized as commercially valid for ISDN and shall therefore be based on uniform standards. The parties agree that all services identified, when offered, will comply with the agreed relevant ETSI standards.

⁸ Memorandum of Understanding on the implementation of European ISDN service by 1992, London, 6 April 1989.

Furthermore, the parties agree to co-operate in the study of proposals for future services with a view to their inclusion in later phases of ISDN in Europe. The offering of the additional services is dependent upon the development of the market and will be based on commercial considerations.

The parties have as a common goal the objective of enabling the interchangeability of terminals. Interchangeability in this context implies that any terminal implemented to the required standards can be connected to and operate with the ISDN provided by each party.

This approach of setting up a Memorandum of Understanding for the implementation of a pan-European ISDN service by 1992 was expressly supported by the Council in its resolution of 18 July 1989 and constitutes an important step in the consolidation of the Community-wide or even Europe-wide introduction of ISDN.

The Commission is of the opinion, that this is a very clear signal to all parties involved, in particular to the users and also to terminal and equipment manufacturers.

It is now of particular importance to ensure that the implementations in all Member States will meet the time target set in the MOU. With regard to the less favoured regions, the possibilities of assistance from STAR or related measures should be considered.

Furthermore the Commission is of the opinion that an active policy towards the co-ordinated implementation of a more comprehensive set of "mandatory" services should be conducted, at least with respect to the Member States. Such an extension of the actual "minimum list of services" as it is defined in the MoU is appropriate, since this list falls considerably short with respect to the range of services which has been recommended in 1986. Furthermore, in the opinion of the Commission the MoU should be clearer concerning telematic services. The MoU actually refers only to the support of telematic services by the network.

However, bearing in mind the objective of a common services market and the importance of the availability of truly European end-to-end compatible services, a clear commitment of telecommunications operators on a number of telematic services for introduction by 1992 is required.

The Commission will discuss this issue with the Member States and will follow closely the implementations.

With regard to the standards to which conformance is required, it is worth noting, that in the context of the *Mutual Recognition of Type Approval* for terminal equipment a new (second phase) Directive has been proposed by the Commission. Since this new Directive will cover the *placing on the market*, the essential requirements will be defined through harmonized standards. Enriched by test specifications and without options, ETSI standards will form the basis of these harmonized standards and they will be converted into common technical regulations for the purpose of the Directive.

5. EUROPEAN STANDARDISATION

The signing of the Memorandum of Understanding demonstrated the voluntary intentions of the Network Operators to implement compatible ISDNs in accordance with a European plan. The urgent need for comprehensive European standards, derived from CCITT Recommendations and only differing from them where absolutely necessary, became evident.

Accordingly the Council resolution of 18 July 1989 asked for an "acceleration of the establishment of common specifications, based on European standards taking due account of world-wide standardisation, for equipment and interfaces at the European level, by concentration and good use of available resources within the framework of the European standardisation system and, in particular, of the European Telecommunications Standards Institute (ETSI)."

The Council invited the Member States to promote the provision of the experts necessary for drawing up European standards as the basis for the common specifications for the ISDN, in particular in the framework of the ETSI and to promote the creation of the necessary conditions, in particular with regard to training.

The Council invited the Commission to issue mandates as necessary and appropriate to ETSI in addition to the adopted work programme for the acceleration of the production of European standards as the basis for common ISDN specifications, in accordance with existing Community procedures.

5.1 PROGRESS WITH THE ORGANISATION OF ISDN STANDARDISATION

With the creation of ETSI not only the efficiency of the European telecommunications standardisation process has been increased but there is now also a proper representation of industry and users.

During the 1988/89 period the European Telecommunications Standards Institute (ETSI) has taken over the responsibilities in this field from CEPT. Initially this was done on the basis of the straight transfer of the CEPT Committees to ETSI, but subsequent re-organisation has established the new Strategic Review Committee (SRC), the Intellectual Property Rights Committee (IPRC), and the following Technical Committees :

- * NA Network Aspects
- * BT Business Telecommunications
- * SPS Signalling, Protocol and Switching
- TM Transmission and Multiplexing

* TE Terminal Equipment

RES Radio Equipment and Systems

GSM Special Mobile Group

PS Paging Systems

SES Satellites Earth Stations

* EE Equipment Engineering

* ATM Advanced Testing Methods

HF Human Factors

Those marked with an asterisk have a special involvement in ISDN standards-making. The Business Telecommunications, Equipment Engineering, and Advanced Testing Methods Technical Committees cover mainly new work areas where there is an interest from industry and users, and the requirements from the Private Network domain are much in evidence. Technical Sub-Committees and Project Teams have been added as required to cover the broad range and detail of the work.

The first task given to the Strategic Review Committee was to examine the progress already made in respect of the development of ISDN standards, and determine what needed to be done and with what urgency, in order to meet the implementation objectives of the Council Recommendation 86/659 EEC ; now largely carried forward into the CEPT Memorandum of Understanding. This Committee concluded that the 1992/93 objectives could only have a prospect of being achieved if an enhanced and effectively managed work programme for ISDN standards was organised for 1989 and if the interface and interworking conditions and the services required were set down in accordance with three sequential Priority Lists (I to III). Only this way could Network Operators and Manufacturers have a chance of designing, manufacturing and installing equipment in the field for 1992/93.

The main organisational elements of the SRC conclusions were :

- an increase in the number of Technical and Technical Sub-Committee meetings during 1989 ;
- the formation of new Project Teams to do concentrated work on specific tasks ;
- the formation of an ISDN overall Standards Management function (ISM) within ETSI supported by a Core Team able to identify needs, tasks, and capable of rapid and effective liaison and co-ordination between all the many different interests and organisational units to cover the standards required.

These proposals had to be backed up by the right spirit and commitment on the part of Network Operators and Manufacturers ; in particular to supply the manpower for the work, and to adopt the standards when they are available.

The Commission participated in the SRC deliberations and fully supported the conclusions. This has been taken further in accordance with the Council Resolution by giving financial support (in conjunction with EFTA) in terms of standardisation mandates issued to ETSI. Thereby the ISM could start work and the Core Team be launched with minimum delays thus respecting the great urgency of the standardisation work.

5.2 PROGRESS IN ISDN STANDARDS WORK

The CCITT Plenary Session of 1988 produced a further stage in the set of CCITT Recommendations (Blue Book) in the ISDN field. It is necessary to refine, adapt, and complete these for European purposes and to add other requirements which they do not attempt to cover. Notable among these requirements are the testing for conformance to a standard, or the verification of a protocol ; and the specific coding of information elements included in Call Control Messages to invoke particular services.

Some time ago the CCITT adopted a three stage approach to network Recommendations which may briefly (but perhaps inadequately) be summarized as :

Stage 1

- the overall service description from the user's perspective ;

Stage 2

- the overall description of the organization of the network functions to map service requirements into network capabilities ;

Stage 3

- the definition of signalling and switching capabilities needed to support services both at the network access points and within the network.

This three stage approach is found to be applicable to most of the services defined, and the work in ETSI has been organised on this basis for the SRC Priority Lists I and II . During the course of 1989 the interests in the Private Network domain became clearer. These can of course be significantly different from those in the public domain, but there are a number of significant areas of overlapping interest which must be taken into account. These are principally :

- Terminology ;
- Numbering and Addressing ;
- Interworking with Public Networks ;

- Interchangeability of terminals (between networks, including public and private networks) ;
- Common implementation of bearer services, teleservices, and supplementary services wherever appropriate ;
- Charging principles and information.

Because of the late identification of the detailed BT requirements, there have been problems in taking the private requirements into account. However it is now confidently expected that it will be largely achieved.

The detailed work has identified some 200 European Telecommunications Standards (ETSS) that need to be defined within this programme. These include the full range of requirements to support the Basic Access and Primary Rate Access, and the provision of the Bearer Services, Teleservices, and Supplementary Services for SRC Lists I and II, together with the appropriate parts of the Common Channel Signalling System N°7, necessary for International Interworking between ISDNs. Interworking between national ISDNs and PSTNs, and PDNs has been left as a national matter.

In the areas of safety, network protection and electronic compatibility there is an overlap of interest between ETSI, CEN, and CENELEC. In this respect it is essential that agreements on the draft standards be reached in a pragmatic way irrespective of which body has been assigned responsibility for the formal approval of the standards in this area.

By the end of 1989 60 to 70% of the technical standardization will be finished. The draft ETS, after the agreement of the ETSI-Technical Committee, then will be subject to a 120 day Public Enquiry procedure. This is laid down as a pre-requisite for a European Standard, but it is also a requirement of the GATT. There may be some modification to content and form following this procedure. However, the draft texts should be sufficiently stable for manufacturers and operators to commence detailed implementation work. It is hoped that the remaining 30 to 40% will reach the same stage by the middle of 1990.

The programme is very ambitious, and it must be undertaken at a fast pace, but at the same time with painstaking care, if a usable range of harmonized standards are to emerge in a mutually consistent form. The experts have been provided by the Member States, and the Community has provided financial support for the management. There will be some delay as indicated in the production of standards, but this need not delay the implementation plans more than six months.

6. THE APPLICATION OF THE ONP CONCEPT TO ISDN

A field of particular importance is the application of the Open Network Provision (ONP) concept to ISDN.

The establishment of harmonized conditions for open and efficient access to, and use of, the public telecommunications networks and, where applicable, public telecommunications services (Open Network Provision - ONP) in the Community has been identified as essential for the achievement of a common market for telecommunications services.

This is particularly significant for ISDN, which is destined to become a major part of the future network infrastructure. The related ISDN bearer services and a number of supplementary and teleservices will become the means by which this part of the telecommunications infrastructure will be made accessible to services providers.

Accordingly the Council invited the Commission in its Resolution of 18 July 1989 "to consider, subject to the procedures of the framework directive once adopted, the applicability of the relevant aspects of the ONP to ISDN".

The Commission considers the application of the ONP concept to ISDN as the appropriate means to ensure the availability on a Community-wide basis of access to ISDN capabilities. In addition ONP will safeguard network integrity Community-wide through the adherence to the relevant essential requirements. This approach will generally constitute a reinforcement of the network development strategies of network providers, most of which have already signed the MOU on a voluntary basis.

The Commission has recently initiated a study to be implemented jointly by a team of European consultants on the application of the ONP concept to ISDN. The study is expected to be completed in 1990, which will permit the results to be used in preparation of proposals for the application of ONP to ISDN, following the procedure given in the Framework Directive and programme of work resulting from the Council of 7th December 1989.

7. NEW INITIATIVES AND PROPOSALS

7.1 RAISING THE AWARENESS OF USERS

Raising the awareness of users on ISDN is an important element of the marketing measures for the promotion of ISDN.

This chapter presents a number of new proposals whose scope goes beyond the actual implementation of ISDN in the Community as defined in the MOU.

7.1.1 PRESENTATION OF EUROPEAN ISDN AT TELECOM GENEVA 1991

Telecommunications fairs and exhibitions are appropriate occasions for the demonstration of ISDN services and facilities. Many such events take place, but the most outstanding in telecommunications is TELECOM Geneva, which takes place every four years.

The next TELECOM Geneva will take place in October 1991, just a few months before the implementation of the pan-European ISDN service as planned by the CEPT MOU on ISDN.

The Commission is of the firm opinion, that this unique chance to demonstrate the leading position of European ISDN technology before a world-wide audience should not be missed.

The focal point of the European ISDN show piece should be a demonstration of the pan-European ISDN service enabling advanced communications between compatible terminals, such as EDI (Electronic Data interchange), facsimile Group 4, and EFT/POS (Electronic Fund Transfer/at Points Of Sale), which are of particular importance for the Common Market.

The USA is also planning for 1991 (probably a few months before TELECOM Geneva) a major exhibition of ISDN in the USA. In the light of this, it would be most regrettable to miss the opportunity described above.

The Commission will invite the Member States to consider a unified approach for the presentation of ISDN beside other exhibition topics.

7.1.2 EUROPEAN ISDN USER FORUM

A comparison between the development of the ISDN in Europe and in the United States shows a lot of similarities with respect to the development of the physical infrastructure, but on the other hand major differences in the marketing of ISDN.

In Europe the policy for ISDN was up until recently a supply oriented approach, focussing on the provision of basic services, namely bearer services and some basic teleservices. This corresponds to the specific European situation where in the first place a development of compatible services on a European-wide basis was required.

In the USA the marketing strategy for ISDN emphasizes the development of applications which could be carried over the ISDN.

An ISDN user forum (NIU) was created to identify applications and proposals. So far it has defined more than 50 and also has the target of establishing implementation agreements.

More recently, in France and in Germany, a shift in the marketing policies can also be recognized.

Both countries have adopted an approach involving a partnership arrangement with interested users for the development of ISDN applications ; including a financial participation by the network providers in the cost incurred for the applications development.

Since such a forum specific to ISDN does not exist in Europe, DG XIII of the Commission, being responsible for IT and for telecommunications has picked up this idea and intends to support the creation of an European ISDN User Forum (EIUF).

As a next step it is planned to address the issue to existing user organizations operating in the telecommunications area as well as in other industry and services sectors concerned. Close cooperation with ETSI, where users are also represented will be essential for success.

The Commission is seeking support for such a forum at the political level. An endorsement of the proposal from the European Parliament would be of considerable value.

7.1.3 THE EUROPEAN ISDN ATLAS

The first part of the study for the application of ONP to ISDN has indicated that users still do not believe that they can plan with enough confidence for the use of ISDN as part of their own communications strategy.

Despite Telecommunications Operators' announcements on ISDN and their commitment to the Memorandum of Understanding, users remain uncertain about the timetable for the introduction of ISDN. Much more information is required, in particular with view to the Europe-wide availability of ISDN. This includes :

- timetable for national availability of ISDN, by geographical area ;
- timetable for the availability of European-wide ISDN services ;
- timetable for ISDN connections to North America and Japan ;
- tariffs for ISDN.

The Commission will investigate how the Member States reports for the preparation of the Annual Reports on ISDN implementation can be structured and used to overcome this lack of information. A periodical publication of a type of ISDN-Atlas is envisaged, covering the geographical penetration and availability of ISDN in Europe.

7.2 ISDN TERMINALS

In the course of the discussions on the first annual progress report (COM(88) 689) and the MOU, it emerged that the success of ISDN will be strongly dependent on the availability of terminals which can convert the opportunities of the ISDN into concrete offerings and applications and thus make the "value-added" aspects of ISDN capabilities apparent and attractive to the users.

In addition it is expected that ISDN implementation by 1992-93 will have a major impact on the growth rate of the entire terminal equipment market. A strong position for European manufacturers in the provision of European-wide portable and compatible terminals would guarantee effective competitiveness in the most promising market, namely basic terminals, for which large quantity markets will develop.

In this context, Japanese and US domination raises concerns for European industry. Outside of Europe initiatives are under way in order to be prepared for the very promising future ISDN market.

At the same time some major European suppliers are exercising restraint in the development of ISDN terminals since they still have doubts about the further network development. The small number of types of ISDN terminals from different manufacturers which are presently under development will not be capable of connection to all ISDNs. The compatibility cannot be guaranteed, and they are very expensive.

Although European industry is at the moment still weak in the production of ISDN terminals, it is relatively strong in the development of key components for ISDN terminals and there is a chance of strengthening the position of the European terminal manufacturers in the world market by defining a clear strategy on ISDN terminal development and manufacture.

Some European operators have already established on a bilateral basis a work programme for some specific terminals for the next steps of ISDN implementation with the objective of developing common technical specifications.

The Commission has been invited to examine *inter alia* the following measures to remedy the current deficiencies :

- the seeking of a commitment from manufacturers to contribute as rapidly as possible, within the framework of European standardisation to the development of European standards and common specifications for terminals and PABXs. These standards and specifications should make it possible to ensure end-to-end compatibility and terminal interchangeability ;

- the evaluation of the feasibility of joint research and development for the implementation of common prototype terminals for a single or for several ISDN services in the appropriate frameworks.

The Commission has analysed the situation. Whereas the development of standards is now making good progress in ETSI, two additional activities seem to be important and possible on the Community level :

- the setting up of common R & D projects for basic terminals within the existing frameworks as soon as possible ;
- the development of specifications for procurement of terminals by the telecommunication service providers and major users.

7.2.1 RESEARCH AND DEVELOPMENT FOR THE IMPLEMENTATION OF ISDN TERMINALS

The development, by European industrialists with the necessary back-up, of a multimedia terminal for ISDN was discussed at the informal meeting of Telecommunications Ministers on 12th September in Antibes and has been recognized as an important response to industrial necessity and commercial concern.

The Commission fully supports this recognition and will discuss the strategic and procedural aspects in the framework of SOG-T, taking into account the contributions from the Member States which were made in the course of the preparation of this report.

7.2.2 SPECIFICATIONS FOR PROCUREMENT OF ISDN TERMINALS BY MAJOR USERS

The development of the ISDN terminal market will obviously happen only if some major users decide to satisfy their communication needs by using ISDN equipment. This would pave the way for a mass production of ISDN terminals.

In this context it would be a major signal if the Community's Institutions and related institutions in the Member States would commit themselves at an early stage to the use of ISDN for their internal communication needs.

This implies that the institutions mentioned above should start procuring telecommunications equipment implementing full ISDN functionality from the date of entering into force of the EC Directive on Excluded Sectors¹⁰ and in accordance with this Directive.

¹⁰ COM 89/380

One implication of such a step would be that all types of terminal equipment from a simple telephone set to sophisticated work stations, which include also all kinds of office-automation functionalities such as word-processing, should be connectable to ISDN.

The Commission will consider in the very near future its requirements for future terminals in order to define the technical specifications for a procurement measure of several thousand ISDN terminals.

Taking into account the similar requirements for future terminals it should be possible for other institutions and major corporate enterprises to join this action in order to define a set of common technical specifications for the procurement measure of a large quantity of terminals.

The European Parliament and the other institutions are invited to support this approach and to participate in the related venture.

7.3 REGIONAL ASPECTS.

The STAR programme financed from the European Regional Development Fund with the objective of fostering advanced telecommunications in less developed regions of the Community is significantly contributing to the accelerated digitalization of the networks in these regions, which presents an important preparatory step towards the introduction of ISDN.

With the reform of the structural funds, which came into force at the beginning of 1989, the less favoured regions, particularly, have additional potential to strengthen their investments in the ISDN system. It is expected that Member States use this opportunity for assistance for communication technology in their Community Support Frameworks.

The Council Resolution on ISDN has invited the Commission to investigate the possibilities of stepping up the support for ISDN in this context.

The current programme will end by 1991. In the light of the results of the evaluation of STAR, the Commission will examine the possibility of a proposal for a continuation of such a measure beyond 1991, which is likely to have a clear focus on ISDN. This will not only concern the infrastructural aspects of ISDN, but a clear emphasis on ISDN applications should be included.

8. CONCLUSIONS

1989 has seen substantial progress on the co-ordinated introduction of the Integrated Services Digital Network (ISDN) in the European Community, in accordance with Council Recommendation 86/659/EEC and Council Resolution 89/C196/04. A full pan-European ISDN service by 1992 can be expected to be available in time. For the future it will now be critical for the success of these common efforts to develop and implement clearly defined marketing and tariff strategies and promote a common social perception of the new medium.

Two messages will have to be conveyed convincingly to the users : firstly, that they will receive service of a new degree of efficiency and quality for existing applications and secondly that the way is open for developing new applications offering vast new opportunities to both business and private consumers.

Further, discussion on the European level regarding user privacy protection requirements in the context of the features of the new services must now be initiated, in order to take account of the necessity to preserve the protection of privacy and personal data, as requested by the Council at its meeting of 7th November 1989 and by the European Parliament in its Resolutions on telecommunications of 14th December 1988.

GLOSSARY OF TECHNICAL TERMS

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.
"B"-channel	For user-to-user information transport.
Basic access	Physical interface structure available at S or T reference point : 2x64 kbit/s "B" channels and 1x16 kbit/s "D" channel. In some configurations S and T reference points are joined.
Bearer Service	A type of telecommunications service that provides the capability for the transmission of signals between user network interfaces.
Bit rate	Number of bits (units of messages) transmitted per second.
Calling Line Identification	Indicates the identification of the calling user line.
CCITT	International Telephone and Telegraph Consultative Committee (ITU)
CCITT Blue Book	Series of CCITT publications due to be adopted by the CCITT Plenary Assembly by the end of 1988, in

CEPT	European Conference of Postal and Telecommunications Administrations
"D"-channel	For user-to-user and user-network signalling information transport
ETS	European Telecommunications Standard
ETSI	European Telecommunications Standards Institute, established in March 1988 and located in Sophia-Antipolis near Nice
GAP	Analysis and Forecasting Group (subgroup of SOG-T). Issued a report on ISDN in 1985 as a basis for the Council Recommendation.
Green Paper	Green Paper on the Development of the Common Market for Telecommunications Services and Equipment [COM(87)290], published in June 1987. Outlines the Commission's position on the development of the Community's telecommunications policy and the proposals to reach the 1992 target in this sector, including required regulatory change at EC level
ISDN	Integrated Services Digital Network
ISPABX	private Automatic Branch Exchange for Integrated Services
ISUP or ISDN-UP	ISDN User Part = part of the N° 7 signalling systems allowing ISDN facilities.

NET	("Normes Européennes des Télécommunications") an approved technical specification recommendation
Numbering	see "Addressing"
ONP	Open Network Provision, concept for the definition of general requirements for the use of the Telecommunications Administrations' network infrastructure and/or services including technical interfaces, tariff principles and conditions of use
Primary access	Physical interface at T reference point
PSPDN	Packet Switched Public Data Network
Quadrupartite Collaboration	Close collaboration for the co-ordinated introduction of ISDN between the Telecommunications Administrations of France, FRG, Italy, and UK
Reference Point	A conceptual point at the conjunction of functional groups of the telecommunications network
Signalling System N° 7	The new CCITT system allowing two switching centres to exchange information, e.g. information needed for establishing a telephone call
SOG-T	Senior Officials Group on Telecommunications (EEC)
S/T reference point	Possible location of access for Bearer Services supported by an ISDN
TUP	Telephone User Part = part of the N° 7 signalling system allowing telephony
TUP+	Extended TUP, allowing in addition to traditional telephony use of a 64 kbit/s bearer service.